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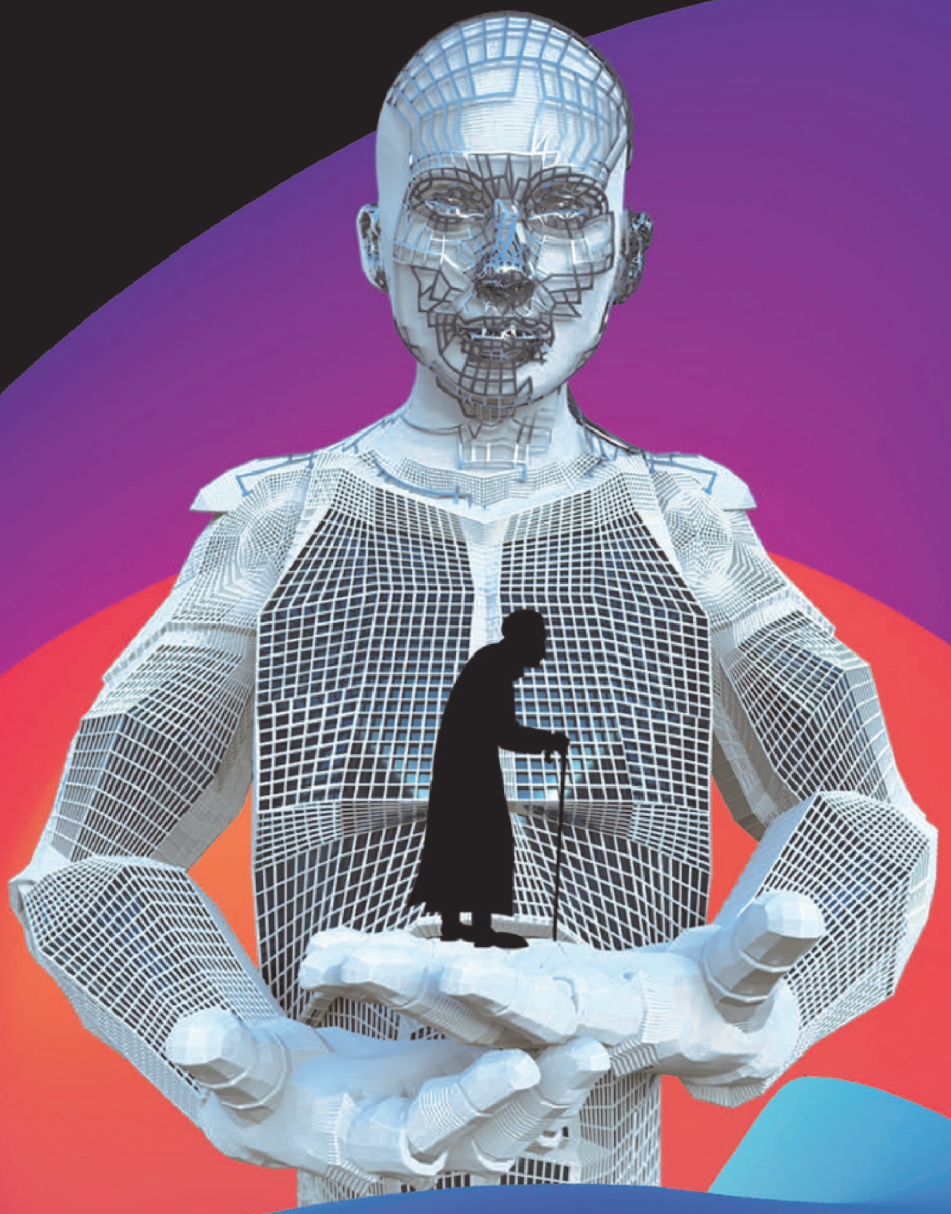
Beyond the Human: Theatre, Robots and Social Realities



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Beyond the Human:
Theatre, Robots and Social Realities

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Technical implementation (ES): Magdalena Cantabella Sabater, Raquel Martínez, Sergio Melero, Juan Antonio Yáñez (engineer). Animation design coordinator: Rocío Martinez Montiel (ES). 3D character design and animation: Juan José Arnau (ES) (Nurse Robot, Storyteller Robot), Alessandra Piras (IT) (Dancing Robot, Friend Robot), Alin Sîrbu (RO) (Reflective Robot, Sports Robot). Sound design: Jorge Hernández (ES). Chatbot training: Paola Cagna (IT), Marina Hanganu (RO), Isnaba Joana Miranda (IT), Ermanno Nardi (IT). Producer: UCAM (ES).

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Contents

Contributors

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Monica Buzoianu studied acting at the National University of Theatre and Film *I.L.Caragiale* in Bucharest, Romania and has a MA in Dramateraphy at the University of Rome *La Sapienza*. She graduated in 2021 from the Drama School of the Piccolo Teatro di Milano. Monica performed in *Kiss* by Antonio Rezza and Flavia Mastrella, *Happiness* by Alessandro Sciarroni, *Specie di Spazi* by Fabio Condemi, *Tre Sorelle* by Carmelo Rifici and in *Soli* by Alessio Maria Romani. She joined the *Dante in Duomo* project led by the director Massimiliano Finnazzer Flory. Monica offers her voice to the projects *Abbecedario per il mondo nuovo* coordinated by Lisa Ferlazzo Natoli for the Piccolo Teatro of Milan and *In viva voce: Leggere Franco Quadri* for Rai Radio3 edited by Fiorenza Menni. She is directed by Andrea Molaioli in the *Circeo-Romanzo Nero* TV series produced by Cattleya.

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Aura Călărașu is a theatre, film, television and publicity actress. She graduated from the Acting course at UNATC Bucharest in 1994. She has acted on important theatre stages in Bucharest, Timișoara, Arad and Sibiu and also in independent projects. Among the characters she interpreted recently: Nora (*I. A Dolls' House*, directed by Carmen Lidia Vidu, a project by Ibsen Scholarship, ARPAS and Odeon Theatre) and Marty (*Circle Mirror Transformation* by Annie Baker, directed by Cristi Juncu, *Ioan Slavici* Theatre in Arad). In the cinema, she has acted in over 30 feature films and short films. For her role in *Ryna*, directed by Ruxandra Zenide, she received a Gopo Awards nomination for "Best Supporting Actress". In television, the role of the blind mother in the popular series *Vlad* (produced by ProTV, 2019-2021) has brought her public acclaim. For a few years, she also practised her pedagogical skills as a university assistant in the Acting course at UNATC Bucharest.

Francesca Fatichenti was born in Trento, Italy, in 1996. In 2018, she graduated from the acting course at the theatre academy Civica Scuola di Teatro Paolo Grassi in Milan. She was directed by Fiammetta Perugi, Massimo Navone and Maurizio Schmidt and co-created a play with the Dedalus Teatro company. In 2021, Francesca performed in *The tragedy is over, Platonov* directed by Liv Ferracchiati and she gained a special mention at the Biennale of Venice for her role. She acted in numerous productions by Carlo Boso, both in Italian and French. Francesca acted in and produced short movies, read texts at different events, organised and conducted workshops and assisted theatre directors. She masters leather mask making and wood carving at a professional level.

Smaranda Găbudeanu. Based on her formal education in puppet theatre at UNATC *I.L. Caragiale* in Bucharest, Smaranda Găbudeanu's work is transdisciplinary, integrating different practices. Movement and the body/bodies stand at the core of all her projects. As a dancer and performer, she has taken part in numerous productions staged at the National Dance Centre in Bucharest, as well as in international projects. As an actor, she has acted both in public theatres and in independent companies. She has performed in contemporary art museums. Smaranda also creates choreographies for theatre and film. Her increasing interest in the visual arts led her to an MA in the Theory and Practice of Image at CESI. Smaranda is the founder of PETEC - an interdisciplinary platform for production, research and education in contemporary dance.

Marina Hanganu explores the integration of technology into the arts from a practical and theoretical perspective. She holds a PhD in Theatre and Performing Arts from UNATC *I.L. Caragiale* Bucharest for the thesis *Telematic Theatre – From Concept to Performance* (2022), an MA in Advanced Theatre Practice from the Royal Central School of Speech and Drama (London, 2015) and a BA in Theatre Directing from UNATC (2014). She is the project initiator and coordinator of *Tele-Encounters* and *Tele-Encounters: Beyond the Human*, co-funded by the Creative Europe programme of the European Union. Her directing and playwrighting credits include a variety of telematic performances: *2032 SMART-FAMILY*, *Generation 200*, *The Planet of Lost Dreams*, *Tele-City* (The *George Ciprian* Theatre), *Before Sunset/After Sunrise* (London, Bloomsbury Festival and We Are Now Festival) and *No. 30 Popa Rusu Street* (Theatre *7*, Bucharest). Author of the monograph (in RO) *Telematic Theatre* (Ed. Universitaria, Craiova, 2022) and editor of *Tele-Encounters: Telepresence and Migration* (UNATC Press, Bucharest, 2019).

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Mircea Kivu has a degree in Sociology from the University of Bucharest (1978) and an MA in Demography and Social Sciences from École des Hautes Études en Sciences Sociales in Paris (1991). He is known as the author of several books and papers in sociology, with expertise in demography, public opinion polling, electoral sociology, and ethnic relations. His main activity as a sociologist is in the field of empirical research. Since 1992, he has held top positions in several market and public opinion research institutions (Research Director and CEO at IMAS Marketing and Surveys, Vice-President for Research on Research at Ipsos Interactive Services, Operations Director at Mercury Research). He also held courses as a visiting lecturer at the University of Bucharest, Faculties of Sociology and of Journalism and Communication Science. He is also a columnist for several general magazines and newspapers.

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Armine Vosganian graduated from both Theatre Acting and Film Directing at the National University of Theatre and Film *I.L. Caragiale* in Bucharest, Romania (2014) and the MA in Film Making at the London Film School, UK. She holds a PhD in Cinema and Media studies. She directed short fiction and feature documentaries about the Armenian Diaspora, being nominated at important film festivals such as Astra Film Festival and SimFest. Armine is one of the first actors in Romanian telematic theatre under the guidance of Marina Hanganu. Alongside Mihaela Vosganian and Liliana Iorgulescu, she has participated in creating cross-media operas that have been showcased at important festivals such as International Week of New Music, Meridian International Festival and Jazz Festival. Inter-Art's *Dynamic Meditation*, *Into myGong Self* and *Into myPlanet* shows were performed in venues in Belgrade, Prague and Sevilla. She made her directorial debut with the *Ascending Lotus* opera.

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Devised Theatre Meets Telematic Theatre

Introduction: Theatre, Robots and Social Realities

Marina Hanganu

This volume contains the research outcomes of the *Tele-Encounters: Beyond the Human* cultural project, co-funded by the Creative Europe programme of the European Union (2020-2023). The main artistic results are *2032 SMART-FAMILY*, a transnational telematic theatre performance with a robot, and *Imaginary Robots*, an interactive website with virtual characters powered by conversational Artificial Intelligence.

The project was implemented by a consortium of three partners with complementary profiles. I initiated *Tele-Encounters* on behalf of The *George Ciprian* Theatre in Buzău, Romania, a public theatre venue and producer subsidised by the Buzău County Council. We were joined by Industria Scenica, a cultural private enterprise based in Vimodrone (Milan, Italy) specialising in community engagement. Together, we coproduced the telematic performance and collected data for three of the project studies. The *George Ciprian* Theatre had already collaborated with UCAM Catholic University of Murcia on the first edition of *Tele-Encounters*[1]. As a private higher education institution in Spain, UCAM was mainly responsible for the creation of the *Imaginary Robots* platform and for conducting two academic studies.

Spanning several fields of knowledge, the project is an artistic response to the combined social challenges posed by digitisation, ageing and migration. The project set out to explore the meaningful integration of digital technologies (telematics, robots and AI) into art, thus fostering the cooperation of artists, social scientists, and technologists in order to

[1] The current project is a continuation of *Tele-Encounters*, also co-funded by Creative Europe in the period 2017-2019. Through telematic theatre, cinematic virtual reality and sociological research, *Tele-Encounters* explored the relationship between left-behind children and emigrant parents (Tele-Encounters website, 2019).

consolidate their professional skills. Secondly, it was an attempt to reach wider audiences offline and online and to strengthen our relationship with existing audiences by bringing together intergenerational groups. To achieve this, we facilitated the elderly's participation in digital cultural events alongside young people and provided free online access to most project content (e.g., through livestreaming). Our transversal objective was to investigate caregiving in transnational families from a roboethical perspective while imagining potential roles for social robots and opening debate about the ethics of their involvement in family life.

The title, *Beyond the Human*, links to the philosophical discourse of *posthumanism*, not to be confused with *transhumanism*, which devalues the human body to the point of its techno-enhancement or even replacement with technology. *Posthumanism* in its multiple variants tries to overcome pernicious dualisms, amongst which nature/culture, mind/body, male/female and human/nonhuman (Ferrando, 2018). The critical posthumanism proposed by Rosi Braidotti is particularly relevant to the ethos of this project. On the one hand, posthuman critical theory seeks to dismantle the centrality of the humanist subject, associated with the figure of the white abled Man. Subjectivity is extended towards posthuman figures, understood as marginalised others, human and nonhuman alike. On the other hand, critical posthumanism is postanthropocentric, challenging human supremacy over other species and over the nonhuman world as a whole:

> Posthuman critical theory celebrates the diversity of life – as *zoe* – as non-hierarchical matter, which recognizes the respective degrees of intelligence and creativity of all organisms. This implies that thinking is *not* the prerogative of humans alone, which allows for a form of relational and collaborative ethics. (Braidotti, 2018: 340)

Robots and migrants are posthuman subjects and also the central figures of our project. Braidotti's emphasis on relationality (also with and via technology) and the ethics of human-nonhuman assemblages is highly suited to the exploration of robot caregiving. Moreover, this project was influenced by her idea that critical and creative thinking can be a way towards imagining alternative ways of being (Braidotti, 2013: 12). On the same note, *Tele-Encounters Beyond the Human* can be considered a 'rehearsal for the

robot revolution' (Jochum and Goldberg, 2014) and a method of prospective education to address future societal changes (OECD, 2022: 3–4).

Ageing, migration and robots

The pace of demographic ageing in the EU is the second highest in the world after Japan. Consequently, the old-age dependency ratio is expected to increase dramatically by 2050, with less than two people of working age for every 65+ person (Corselli-Nordblad and Strandell, 2020: 25–27). The old-age dependency ratio is not invoked here as a cynical indicator of the potential 'economic burden' posed by the elderly. In fact, many people stay active after their official retirement age (European Commission, 2022b: 2). Rather, these numbers suggest that, with an already existing shortage of care workers across the EU, the caregiving crisis will only accentuate (European Commission, 2022a: 11–12).

At the EU level, among the elders currently living at home (not institutionalised), an average of 26.6% of those aged 65+ and 39.4% of those aged 75+ require long-term care (European Commission, 2022a: 4). In 2021, the share of elderly people who lived alone was 33.3% in Romania, 28.5% in Italy and 24% in Spain (Eurostat, 2022). Emigration can only add to the crisis of elderly care in countries with predominantly outward migration. Romanian migrants are likely to face difficulties providing informal care for their parents from a distance. The number of elders left alone in the aftermath of their adult children's migration is undocumented in Romania, a country with approximately 4 million emigrants (*World Migration Report 2022*, 2021: 202).

The *European Care Strategy* mentions the support for digital initiatives that could improve caregiving and healthcare provision (European Commission, 2022a: 10). Could technology provide a solution? The Ambient Assisted Living (AAL) paradigm suggests that:

> The implementation of technology-enabled supportive intelligent environments may offer opportunities to promote improved and more personalized care services into older age. Combined with care functionalities such as remote care support, medical reminders, behavioral monitoring and virtual coaching, they have the potential of delivering the right support to the end-users when help is needed. (Anghel et al., 2020: 2)

As a corollary to AAL, current research into social robots envisages them as future caregivers and companions for the increasing number of seniors. Social robots are generally understood as mechanisms with some level of autonomy that can interact with humans in a way interpreted as social behaviour (Henschel et al., 2021: 11). However, not all voices are enthusiastic about the adoption of robots in a sensitive field such as caregiving, with some considering robots a 'techno-fix' that may lead to deskilling of caregiving labour, lower wages, deception, surveillance, data protection concerns and loss of human contact (e.g., Parks, 2010; Wright, 2019). An ethnographic study by Wright (2019) analyses the experience of caregivers in an elderly care home in Japan throughout a trial period of approximately six weeks with three types of robots: Pepper, Paro and Hug, which is a lifting robot. Wright concludes that the use of robots actually put more strain on the human workers in the care home. For example, Pepper had to be cared for and helped with all tasks almost like the human residents. Another episode he recounts concerns one elderly lady's unhealthy emotional attachment to the toy-like Paro, as she would cry while talking to Paro and refused to eat without the robot by her side (2019: 347). In his recent book, *Robots Won't Save Japan* (2023), Wright goes further to highlight the connection between capitalism, the commodification of care, the nationalist utopia of a techno-welfare state and the media hype surrounding the use of robots in Japan (in care homes, not in individual homes). Most care robots were not even developed for care work, so they were adapted retrospectively, without being able to meet real-life necessities (2023: 19). At least for now, Wright contends, care robots call for even more human labour rather than solving the care crisis.

Aware of the fact that the development and use of social robots pose ethical questions, we have sought to familiarise ourselves and also our audiences with current developments and discussions surrounding robots and AI. All project activities were intended to provoke the audience, the artists, the technologists and the researchers involved to think about their preferable future. All the same, perhaps given the artistic nature of our project, there is a romantic vision behind the theatre performance and the virtual robots platform. Beyond the questions raised, there is the hope that one day, a robot like Ogmios Z42 or the *Imaginary Robots* will come true.

The 'futures cone'

The documentation process for both *2032 SMART-FAMILY* and *Imaginary Robots* tapped into the collective imagination about human-robot coexistence. In 2021, six brainstorming sessions were organised in Romania, Spain and Italy using a similar structure. The participants were children (mostly 12-year-olds) and adults (predominantly seniors), guided by an interdisciplinary team of artists, robotics experts and ethicists. To adapt the content to the particularities of each age, the sessions for children and adults were held separately. All workshops started with a presentation about existing robot models and current developments in the field. Children also explored the theme of human-robot interaction through theatre games. In Romania, participants of all ages were stimulated to engage in discussions concerning *roboethics* in different hypothetical cases. Coined by Gianmarco Veruggio in 2001/2002, the word *roboethics* refers to the ethics of robot design, human-robot interaction and robot deployment (Veruggio and Operto, 2008: 1504). The participants were later asked to complete a character file, thus imagining the ideal social robot that could be a caregiver or companion for the elderly. The over 90 character files resulting from the workshops were published online in the form of three brochures (Tele-Encounters: Beyond the Human, 2021). The participants' ideas, including their drawings, inspired the creation of the virtual and physical robot characters in the project.

The 'futures cone' presented in *Speculative Everything: Design, Fiction, and Social Dreaming* influenced the way the workshops were conducted (Dunne and Raby, 2013: 2–6). The famous diagram, which has seen various adaptations since first formulated by Norman Henchey, depicts four types of futures: the probable (what is *likely* to happen based on current conditions), the plausible (the larger cone of what *could* happen), the preferable (what we would *like* to happen) and the possible future (what *might* happen). Outside of the possible lies the realm of fantasy. The workshop participants were encouraged to place their ideal robot (their version of the preferable future) anywhere on the axis from reality (what already is) to fiction (what could be). Indeed, their creations belong to the whole spectrum from the probable to the improbable or, as Joseph Voros calls it, the

'preposterous' (2017). In reality, 'the futures cone' will be different for every person:

> (…) the present is not a singular point on the futures cone universally experienced by everyone, but rather a set of multiple experiences. From each of these experiences and perspectives, what seems like possible, plausible, probable, or preferable futures may differ. (Kozubaev et al., 2020: 6)

2032 SMART-FAMILY

2032 SMART-FAMILY is set in a probable future, hinging on the less likely category of the possible. The play draws on the social realities of migration and technological advancement and is based on 26 in-depth interviews with Romanian migrants (most of them in Italy) and left-behind elderly parents in Romania (Vlădoiu and Kivu, 2021). The choice of doing a performance that connects Romania and Italy was due to Romanians being the largest immigrant group in Italy (over 1 million) and Italy being the primary destination for Romanian emigrants (Ricci, 2022b: 44; *World Migration Report 2022*, 2021). Virginia's story as the migrant character in the play is rooted in the 'brain drain' phenomenon of intellectuals leaving Romania (Ricci, 2022a: 31–32). However, the play is not so much oriented towards Virginia's reasons for emigration. The focal point is the condition of living far away from one's elderly parent in need of assistance, which is certainly not restricted to an international migration context. The theme of migration and distant family relationships was very appropriate for the use of telematics.

Looking at the history of telematic art since the 1960s[2] and also at the present-day landscape, very few telematic performances connecting on-site audiences and actors in distant spaces are produced worldwide. One important reason is likely to be the considerable efforts entailed by such

[2] The history of telematic art is rich, with examples dating back at least to the end of the 1960s. I have covered key points in the history of telematic theatre in a different book based on my doctoral research (Hanganu, 2022). Detailed accounts of the history of telematic performance can be found in the research conducted by other practitioners and scholars (Wilson, 2002; Dixon, 2007; Jamieson, 2008; Chatzichristodoulou, 2010; Sant, 2013; Abrahams and Jamieson, 2014). I consider telematic theatre to be a subset of telematic performance, which is a subset of telematic art alongside telematic installations.

a production, which requires not only substantial funding, but also the synchronisation of all logistic and creative aspects between geographically dispersed teams. In addition, my research (Hanganu, 2022) has revealed that even fewer examples could be designated as *dramatic* theatre, featuring psychologically driven characters and a coherent and rather traditional storyline. Most telematic art is inscribed in the broad categories of performance, dance, installation art and what Lehmann calls 'postdramatic theatre' (2006). The latter sees the dismantling of traditional narrative structures and, to borrow Michael Kirby's terminology (2005 [1987]), the dissolution of strongly matrixed characters that are the epitome of 'complex acting'. Rather unusual in this field, our telematic performance is part of the tradition of psychological realism, notwithstanding its formal departure from the spatial unity of the classical theatre auditorium. While the pandemic has boosted the field of telematic theatre out of necessity – what I have termed elsewhere 'force-majeure theatre' (Hanganu, 2020: 14), telematic theatre is likely to remain a niche, at least until telepresence technologies become more stable and capable of truly simulating full presence. Even so, our project can prepare artists and audiences for the advent of technological presences on stage (telepresent and robotic performers) and the wider integration of technology into performance. By this, I refer to a *meaningful* integration that has the potential to enhance the subject being explored.

The workshop participants' character files and opinions on robots have served as a reference point when writing the play and also when making acting choices concerning the robot. Most workshop participants in the three countries believe that care robots will become common within ten years, hence the setting of the action in the year 2032. Furthermore, the predominant view expressed by children and adults was that robots should be robots, although preferably humanoid, without striving to attain perfect similarity with the human form or voice. This seems to point towards the theory of the *Uncanny Valley* as formulated by Masahiro Mori in 1970, stating that a robot will elicit revulsion and fear the more it resembles the human form without attaining perfect similarity (Mori, 2012 [1970]). Interestingly, some of the seniors expressed their preference for a robot carer that shows no emotion, since emotion could perturb its ability to act efficiently in crises. This view informed how the robot behaves in the fibrillation crisis scene – as an efficient

and unemotional medical device. Despite the influence of the workshops on the resulting performance, there is no systematic link between them. The playwrights did not aim for a statistical rendition of all the participants' views, which are anyway hard to unify.[3]

The potentially deceptive nature of social robots is part of the ethical concerns surrounding them. A social robot simulates human behaviour to facilitate natural interaction with users. In the process, it is argued it might lead one to believe it has feelings, emotions and a human-like understanding. However, Mark Coeckelbergh maintains that we usually like the illusion created by social robots and willingly go along with it (2019: 105–127). After all, we are still 'romantic cyborgs', often under the spell of our technologies or trying to go beyond them (Coeckelbergh, 2017). Seen in this light, robots are inherently theatrical, presenting users with an often-pleasurable tension between fiction and reality. At what point *does* a robot become deceptive, though? The performance plays with the fine and arguably dangerous line between reality and illusion in the relationship between the elderly Laura and Ogmios.

Imaginary Robots

The six virtual characters populating the *Imaginary Robots* platform are also not exact depictions of the characters created by workshop participants. Rather, the 3D artists took inspiration from all of them, trying to cover as broad a range of robot categories as possible. The artists came up with names suggestive of each robot's primary functions: Dancing Robot, Friend Robot, Nurse Robot, Sports Robot, Reflective Robot and Storyteller Robot. The characters had a 3D-modelled body and an associated chatbot[4] powered by the GPT-3 text generation algorithm, the state of the art in conversational Artificial Intelligence for the period 2020-2022. The chatbots could communicate both in writing and in spoken language – initially, in all the languages supported by Google Translate. However, we soon discovered that

[3] For a detailed analysis of the workshop participants' views on social robots, see Vinny Flaviana Hyunanda and José Palacios Ramirez's study in this book, *Aspirations and Expectations: A Social Perception Study About Imaginary Robots*. For a detailed account of the playwrighting process, see Bianca Trifan's essay in this book, *Devised Theatre Meets Telematic Theatre*.

[4] A chatbot is a computer program that can converse with users in real time.

the content filters only worked for English, while the quality of the chatbots' replies was much lower in Romanian and Italian, with a slightly higher quality for Spanish. The text-quality problem for 'remote' languages such as Romanian has also been noted in the case of the more advanced ChatGPT (Rudolph et al., 2023: 8). To avoid inappropriate (mostly lewd) and low-quality content, the multilanguage function was taken out. The 3D models could be rotated by users and would also respond to the conversation with predefined animations rendered in real time via the Unity game engine.

The platform was inspired by *net.art*[5] to the extent that it was conceived as an Internet-bound work that could not exist offline (the software used is indeed Internet-dependent). Bestiaries were another reference. These are medieval collections of stories containing illustrated descriptions of real and fantastic animals, plants and even rocks (The Editors of Encyclopedia Britannica, 2013). The *Imaginary Robots* platform was intended to be a bestiary of robots and while it did not offer Christian allegories with a moralising purpose, as medieval bestiaries did, it was intended to serve the educational purpose of familiarising users with the problematic of AI and social robots. Another inspiration source was *A-Volve*, the famous interactive artwork by Christa Sommerer and Laurent Mignoneau (1994) consisting of a pool of water with virtual creatures born out of 2D drawings made by the visitors. Once scribbled on a tablet, the creatures took on a life of their own in the pool of water following the evolutionary principles embedded in the code written by the artists. The creatures interacted among themselves (for example, by devouring one another or mating) and also responded to the visitors' touch. This 1994 work which was awarded the Prix Ars Electronica (Golden Nica) is part of the lineage of today's complex 'virtual beings'.

The field of 'virtual beings' is rapidly expanding in areas like video games and various forms of interactive storytelling (e.g., Fable Studio), marketing (virtual influencers), virtual artists (e.g., Hatsune Miku), education (virtual tutors), virtual news anchors, customer interaction services,

[5] *Net.art* is a term coined by artist Vuk Ćosić at the beginning of the 1990s. It broadly describes artworks created specifically for the Internet (Corby and Baily, 2013: 21). Initially, *net.art* was an artistic movement that aimed to contest the commercial circuit of artworks. Moreover, the artists had a Utopian vision of the Internet as a democratic space of freedom from institutions and geopolitical borders (Bookchin, 2006: 68–73). Subsequently, several *net.art* artists adopted a critical stance towards the Internet.

AI replicas of deceased humans and virtual companions (the list is not exhaustive). The Virtual Beings Summit offers the following definition:

> Virtual Beings are digital characters with the ability to grow, to build two-way relationships with humans and are, in many cases, powered with AI. Think virtual influencers like lil Miquela all the way to AI assistants like Alexa.' (*What Is A Virtual Being And What Is A Virtual Society?*, n.d.).

By this broad definition, the six *Imaginary Robots* are virtual beings powered by AI but, unlike many examples, are not commercially oriented.[6]

The platform uses GPT-3 by OpenAI and was trained on some of the texts written by the participants, but also specifically written Q&A and open-access articles. Nevertheless, as one of the main testers of the platform, I contend it is unclear in practice to what extent the (insufficient) training influenced each imaginary robot's 'personality'. Moreover, the Storyteller Robot's training rather breaks the flow of the human-robot conversation by creating hypertextual connections to the robot monologues written by workshop participants. I had strived to create a general character file for each imaginary robot, hoping that they would introduce themselves and their functionality to users, who would thus think: 'What if this robot were real?'. I had intended a cultural reference to Luigi Pirandello's play, *Six Characters in Search of an Author*, as I had trained each chatbot to lament its virtual state and wish for actuality as a mechanical robot. However, the virtual robots' degree of randomness and lack of memory (even short-term) made them contradict themselves with every reply. In fact, the only interesting part of the conversation was precisely its degree of unpredictability, not the big chunks of text that had been preset for specific questions. Often, the chatbots would spout unintelligible text, even sequences of code or, before the multilanguage feature was taken out because of content filter issues, they would switch between languages without any apparent reason. The robots' imperfect mimicking of emotional responses via their limited set of animations was humorous. The platform thus made use of an aesthetic of failure (White, 2002), considering that the virtual robots were unable to meet the communication demands of human-to-human conversation. I would argue

[6] That is why the platform will probably be discontinued at the end of the project – the costs of keeping it alive would be too big to maintain the open access.

that chatbots and virtual beings are as theatrical as social robots since they try to 'act human' or at least 'act living'. The user becomes similar to a theatre director, defining a 'situation' through its prompt to the robot, namely the conversation context that the robot will try to identify and enter its assigned 'role'.

Aiming to stir users' imagination about future robots and their potential roles as caregivers and companions, the *Imaginary Robots* platform addressed the challenges and opportunities of human-AI interaction. However, the textual content offered by the virtual robots is highly unlikely to have served its original educational purpose, considering that the robots' output is mostly uncontrollable, while preset-only replies would have made them tedious. In Large Language Models, content generation is notoriously flawed at the level of truth (Rudolph et al., 2023). The imaginary robots may have still attained their reflexive goal, but rather via their specific technological characteristics, made apparent by their various glitches and failures. By creating a playground for users to test what AI can and cannot do, the imaginary robots may have stimulated critical thought beyond temporary fascination. However, there are virtual beings in which the carefully curated content may have attained a more impactful social dimension. For example, *Being* by Rashaad Newsome, which was awarded the Golden Nica at the Ars Electronica Festival in 2022 (Newsome, 2019).

Conversational AI and generative algorithms more broadly are increasingly appealing to artists and have an immense potential to restructure the art world, including theatre production (for the better or worse).

Book structure

The volume is divided into two parts. Part I, *Robots and Social Realities*, includes three of the studies conducted in the project covering the socially relevant themes of migration and human-robot relationships. The first essay, *Romanian Migrants, Their Left-Behind Parents and the Technology Between Them: A Qualitative Study*, is an analysis by sociologist Mircea Kivu of the 26 in-depth interviews with Romanian emigrants and elderly parents taken by journalist Georgiana Vlădoiu through rigorous field research. Apart from the family relationships, the study also presents the lives of migrants and their parents as they emerge from the interviews and investigates whether the

respondents see the opportunity of being helped by robots in the future. Anthropologists Vinny Flaviana Hyunanda and José Palacios Ramirez from UCAM, Spain, consider the workshop participants' perception of social robots in *Aspirations and Expectations: A Social Perception Study About Imaginary Robots*. The authors make use of the character files and the questionnaires completed by the participants before and after the workshops. The ensuing *Imaginary Robots* platform was tested in quasi-experimental sessions with children and seniors, who were then invited to assess their experience of interaction via a questionnaire. Their replies were interpreted by Vinny Flaviana Hyunanda and Práxedes Muñoz Sánchez from UCAM in *They are not human but 'human' – A Study About Experience With Virtual Robot Models and Perception Among the Elderly and Children in Italy, Romania, and Spain*. In the concluding essay of Part I, Paola Cagna, Isnaba Joana Miranda and Ermanno Nardi from Industria Scenica (Italy) describe how the community was involved in different stages of the creation process of *Tele-Encounters: Beyond the Human*. This approach is aligned with the guiding principle of Industria Scenica, namely that culture and community are strongly interconnected and communities are responsible for the culture of the place they live in.

Part II, *Theatre Beyond the Human*, covers the creation and presentation process of the *2032 SMART-FAMILY* telematic theatre performance. In *A Case Study of Audience Engagement in Telematic Theatre: 2032 SMART-FAMILY*, theatre director Marina Hanganu and sociologist Mircea Kivu analyse the audience feedback from Romania and Italy, drawing links between dramaturgical choices and the audience's perception of the performance. The collaborative playwrighting process is presented by Bianca Trifan in *Telematic Theatre Meets Devised Theatre*. Through the lens of her research into devised theatre practices, Trifan offers a comprehensive view of the stages of writing the play and constantly adjusting it in the rehearsal room. In *Video Directing in Telematic Theatre: Means and Meaning*, film director Armine Vosganian looks into the camera work behind the hybrid performance. Referencing other telematic performances by Marina Hanganu in which she was either an audience participant or an actress, Vosganian creates a mosaic of the various roles video image can play in telematic practice. Lastly, the interview section of the book comprises detailed accounts

of the rehearsals and public presentation of *2032 SMART-FAMILY* by theatre director Camilla Brison and the Romanian-Italian cast formed by Monica Buzoianu, Aura Călărașu, Smaranda Găbudeanu, Francesca Fatichenti and Giovanni Longhin. The salient aspect of these interviews is the artists' sharp reflection on their experience, distilling insights that can be useful to any practitioner in further telematic performances.

As already apparent, the essays in this volume belong to different fields of research: the performing arts, sociology, human-AI interaction and the human perception of social robots. The research design related to robots and AI is inscribed within an arts-based research (ABR) paradigm, which 'occurs along an **art-science continuum**' (Leavy, 2017: 196) and thus can inform both the arts and the (social) sciences. Imagining robot-characters and playing with virtual robots were ways of studying the relationship between humans and technology through the artistic engagement of participants in workshops and later in platform testing sessions. At the same time, the workshop results inspired the artistic products themselves.

The essays in the second part of this book belong to the **performance as research** paradigm (Arlander et al., 2018) or, more broadly, **practice as research in the arts** (Nelson, 2013; Bucknall, 2018: 53). Performance is here understood as having an epistemological dimension. *2032 SMART-FAMILY* is not only the outcome of the artists' personal research, but also a tool of inquiry into the mechanisms of telematic theatre and audience engagement. The underlying assumption is that artistic practice can be informed by theory and vice versa, or what Robin Nelson calls 'the imbrications of theory within practice' (Nelson, 2013: 20, 37–38). The artists' personal inquiry during the creation process, although valuable in itself, is not sufficient to count as impactful research. Rather, the artists' practice-based discoveries are communicated further in writing, thus 'effecting a transfer of utility' (Barton, 2018: 6) that can benefit (at least) the arts sector.

Conclusion

With the advent of ChatGPT and GPT-4 at the moment of writing this introduction, the conversational capabilities of our GPT-3-powered *Imaginary Robots* have become outdated in less than a year since public

launch. In spring-summer 2022, our platform testers in all three countries had never heard of generative algorithms. Even as late as November 2022, an audience of theatre students at an academic conference in Romania were also surprised by my presentation of the *Imaginary Robots* platform. As soon as ChatGPT was launched for free use on the 30th of November 2022 (OpenAI, 2022), discussions in the mass media and social media exploded worldwide. Unsurprisingly, a single public gesture by a major technology can increase awareness of AI at a much wider level compared to an artwork.

Perhaps one of the advantages of artworks is that they can create a barrier of fiction before technologies are widely deployed in society. Even so, the fictional playground is never insulated from 'real life', as it is always phenomenologically part of it. The essays in this book, just like the *Tele-Encounters: Beyond the Human* project, are meant to spark the readers' imagination about what may come when humans and robots play together.

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PART I

ROBOTS AND SOCIAL REALITIES

Romanian Migrants, Their Left-Behind Parents and the Technology Between Them: A Qualitative Study

Mircea Kivu

Contents

Romanian Migrants, Their Left-Behind Parents and the Technology Between Them: A Qualitative Study

Mircea Kivu

I. Introduction

Under the *Tele-Encounters* project (2017-2019), a comparative study on the situation of families of Romanian and Portuguese immigrants in Spain was conducted (Kivu, 2019). At that time, we focused on the relationship between the parents who were away and the children left behind in the country of origin. The present study has been developed within the *Tele-Encounters: Beyond the Human* project (2020-2023) as a follow-up to the previous one. It explores the relationship between Romanian immigrants (most of them in Italy) and their families back home, but the emphasis is now on the migrants' relationship with their elderly parents who have remained in their home country. We will also investigate how the internet and artificial intelligence intervene in this relationship.

A major event in the life of the anthroposphere – the COVID-19 pandemic – occurred between the time of designing the sociological research and the interview phase. It was impossible for the two years spent under the mark of the virus not to influence this study. The lockdown and isolation globally imposed on humanity restructured the migration patterns in general and those of Romanian immigrants in Italy in particular. Thus, a new topic of reflection was brought to light for our study: the impact of the pandemic on the relationship between immigrants and their left-behind parents.

II. Historical overview of Romanian migration

Official statistics (Romanian and other) on international migration are of limited relevance. Except for the Romanian censuses (the last available data are from 2011), the declarations of citizens regarding their change of permanent or temporary residence are the only source of information[7]. However, in many cases and for various reasons, immigrants who left for work do not officially declare a change of residence. Complete data (including both permanent and temporary migration) is only published by the National Institute of Statistics starting from 2008. Nevertheless, these statistics cannot reflect more than the formal change of residence.

Even if a measuring instrument is imperfect, using it over a long period could provide information about the changes that occurred in the measured reality. Since, in principle, the errors are the same at all moments, the observed differences should reflect the actual trends. We expect the statistics to underestimate the size of the migration flows; for that reason, we cannot take the reported volumes as valid, but we will attempt to generate pertinent conclusions based on the evolution of the statistical indicators over time.

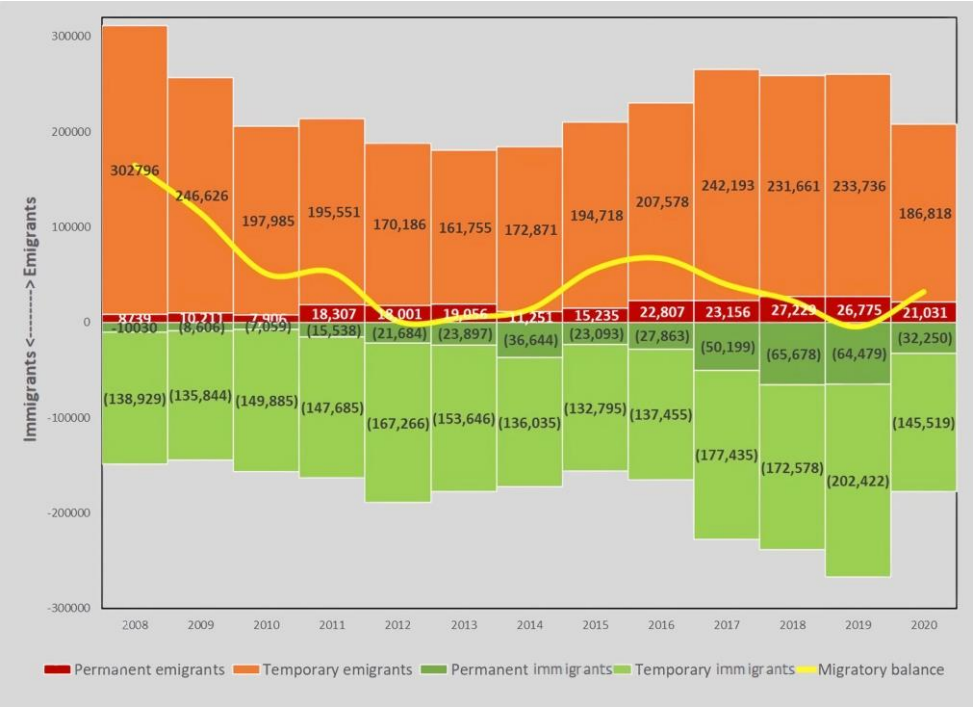
The international migration of Romanians was extremely low before 1989[8] due to the movement restrictions imposed by the communist regime. A significant wave of migration was seen right after 1990, especially based on ethnic criteria – the majority of ethnic Germans, as well as a significant number of Hungarians, have migrated (Sandu(a), 2018, p. 247). The relatively

[7] 'It is worth noting that the definitions of the components of international migration, set forth in the regulations, delineate the number of outgoing and incoming migrants based on the notion of usual residence, and on the time criterion – 12 months and more. One additional remark has to do with the definition of immigrants, which includes the persons who "return home" after they had their usual residence in a different state for a period of 12 months and more. Outgoing migration is extremely difficult to measure, especially within the Community space, where there is free movement of people. However, official statistics in Romania continuously strive to improve the quality of estimations, by using multiple data sources, both statistical and administrative.' (National Institute of Statistics, 2020, p. 20).

[8] Before 1990, Romanian official statistics did not report the international migration. However, based on the difference between the reported natural balance and the gain in total population (Comisia Națională pentru Statistică, 1990, p. 66), we estimate a total negative migratory balance of about 200 thousand persons for ten years (1980-1989), meaning 20 thousand yearly.

low volumes of migrating Romanians in the first decade after the fall of communism were the result of the restrictions imposed by Western states on residence visa granting. With the European Council adopting the roadmap for Romania's joining the European Union (Copenhagen, 2002), the signing of the Joining Treaty (2005), and the acquiring of member state status (2007), restrictions to the free movement of Romanians in the European space were gradually removed. In fact, the period after 2007 was an era of massive migration, especially circular (temporary) migration[9].

Figure 1. Volumes of migration flows into and out of Romania, 2008-2020



Source: National Institute for Statistics, Tempo Online, data extracted on 2.03.2022

[9] Actually, the free movement of Romanians in the European Union states was only complete after 2014. Nine Member States (Austria, Belgium, France, Germany, Luxemburg, Malta, UK, Spain) kept the right to make use of a moratorium, a regime of restricting the free movement of Romanian citizens for a period of up to seven years.

According to the data in **Figure 1**, there was a negative migratory balance of approximately 616 thousand people between 2008-2020. Almost 3 million people left Romania, while 2.4 million came to Romania[10]. Two periods of peak intensity of migration from Romania can be noticed: one is around the time Romania joined the European Union (2008-2009), while the second started in 2014 and peaked in 2017-2019. This second period of increased migration was likely caused by the liberalisation of employment requirements for Romanian workers in nine European Union member states (Austria, Germany, Netherlands, Belgium, Luxembourg, France, Malta, and the United Kingdom)[11]. The sudden drop in the number of people migrating from Romania in 2020 coincides with the onset of the pandemic, as well as with Brexit since the United Kingdom was one of the main EU destination countries. According to the available data, the year 2020 witnessed a decrease in both flows, both out of and into the country. According to certain estimations (Schrank, 2021), 1.3 million Romanians returned to Romania in 2020. As soon as consolidated statistics will be available, it will be possible to tell to what extent the 2020-2021 pandemic caused a reversal in migration flows.

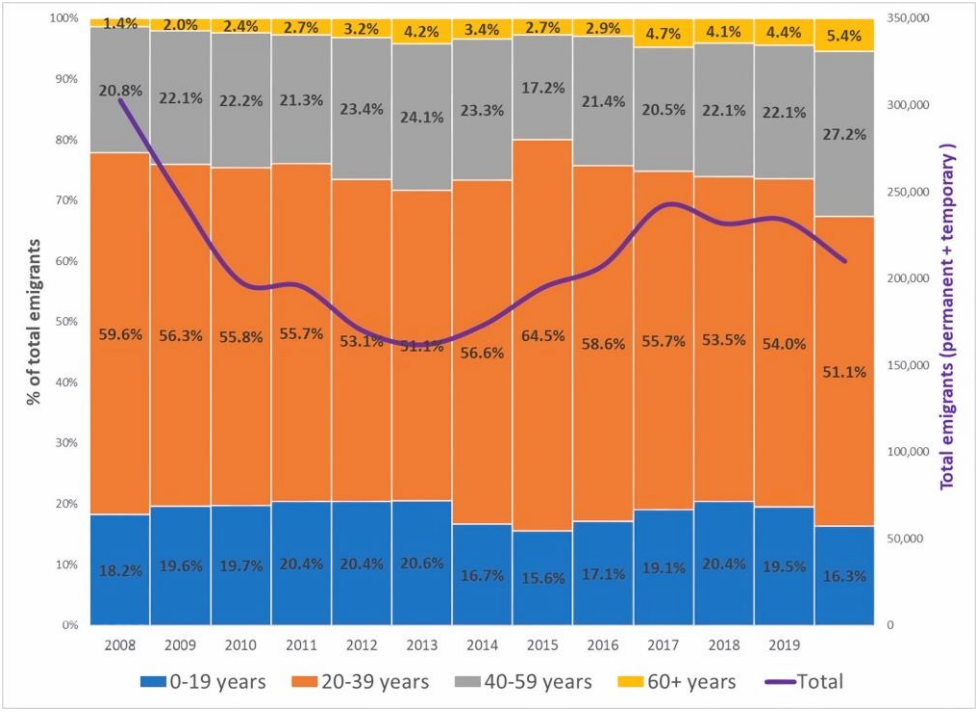
Significant developments are visible in the distribution of outgoing migrants per age group: while 78% of the migrants were under the age of 40 in the periods of peak migration, the share of this age group dropped to 67% in 2020. The share of older age groups (60+) increased constantly in the same period, from 1.4% to 5.4%. In other words, young adults continue to account for the majority of outgoing migrants, but the migration of older age groups tends to no longer be a marginal phenomenon. In my opinion, two explanations can account for this. On the one hand, some people had been seasonal migrants for years, without ever making their residence in the destination country official; in time, the centre of gravity of their life shifted

[10] In almost all years, the number of migrants coming into the country for permanent residence was higher than the number of migrants leaving the country for permanent residence elsewhere. This is a surprising finding, but it is explicable, considering that the majority of the people who take permanent residence in Romania are citizens from the Republic of Moldova who acquire Romanian citizenship.

[11] It should be noted, when interpreting this data, that Romanians arriving in a certain country are not necessarily Romanians who left Romania. A great deal of those who arrived in the United Kingdom after the restrictions were lifted had left Western countries such as Spain or Italy, where they had migrated several years earlier.

towards this destination country, which is why they made their new residence official. Another category of older outgoing migrants are parents of migrants; as soon as the younger migrants 'settled in' and their parents grew older, since their solitary life became more difficult, some parents decided to move closer to their children.

Figure 2. Structure of migrants leaving Romania (permanently and temporarily), by age group



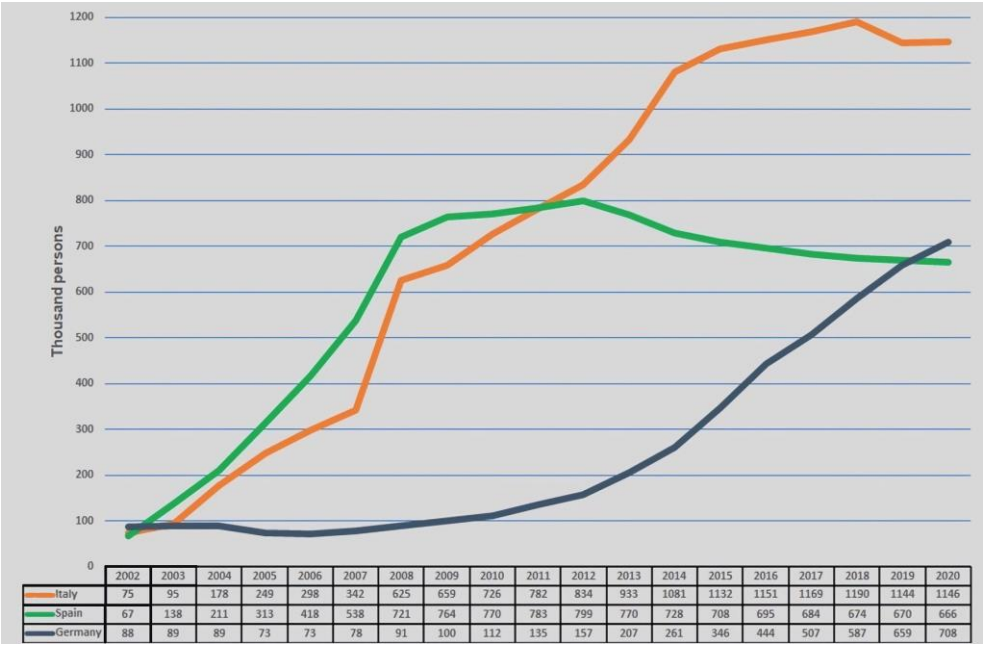
Source: National Institute for Statistics, Tempo Online, data extracted on 2.03.2022

II.1. Characteristics of Romanian migration to Italy

Throughout 30 years of post-communist migration, the flows periodically shifted between destinations of choice. Italy was the main country attracting Romanians, especially between 2007-2009 (Sandu(b), 2018, p. 8). Currently, the mass of over 1.1 million Romanian residents makes Italy the first destination country for Romanian migrants, outranking Germany (708

thousand Romanian residents) and Spain (666 thousand Romanian residents). As of 1 January 2021, Romanians represent the largest immigrant community in Italy, making up 20.8% of all foreign citizens (Ricci, 2022, p. 39).

Figure 3. Trend in the number of Romanian citizens residing in Italy, Spain, and Germany (2002-2020)



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Italy	75	95	178	249	298	342	625	659	726	782	834	933	1081	1132	1151	1169	1190	1144	1146
Spain	67	138	211	313	418	538	721	764	770	783	799	770	728	708	695	684	674	670	666
Germany	88	89	89	73	73	78	91	100	112	135	157	207	261	346	444	507	587	659	708

Source: IDOS Study and Research Centre. Statistics based on Eurostat data

Romanians are concentrated in the Centre and Northern regions (Lazio, Lombardy, and Piemont). Most of them originate from the Moldova region; one possible explanation for this could be the spread of the Roman-Catholic religion in this part of the country.

Women make up the majority of Romanian immigrants in Italy (58%). Antonio Ricci coined the phrase ‘reversed reunions’ to describe this phenomenon: ‘the wives acquire the economic resources needed for supporting the family; they promote the reunification of the family and decide about the date and the methods of achieving it. Furthermore, women are those who lead the integration into the new society, as they have at least a basic

level of command of the language, as well as some familiarity with the social and human context envisaged' (Ricci, 2022, p. 47).[12]

The majority of Romanian immigrants in Italy are employed in the agricultural sector (especially seasonal employment) and the tourism-hospitality sector, as well as household activities and home care services, construction, and metallurgy. The explanation for this is that, after 2007, the Italian government made use of the moratorium regarding the movement of labour, but an exception was made for the sectors listed above. After the end of the moratorium (in 2009), the attraction towards these sectors remained, kept in place by immigration networks: newcomers usually find their first employment through relatives or acquaintances who migrated earlier. The majority of Romanian immigrants (69%) have unskilled or low-skilled professions, while only 6% are managers, entrepreneurs and professionals (the corresponding numbers in the case of Italian workers are 30% and 39%, respectively) (Ricci, 2022, p. 54).

Italy was one of the countries hardest hit by the COVID-19 pandemic, especially in 2020. The impact of the crisis accompanying the pandemic was strong in the community of Romanians living in this country. According to research conducted by the Italy-Romania Intercultural Association 'Cuore Romeno' of Oristano (Iacob, et al., 2022), the main consequences of the pandemic felt by Romanians were increased unemployment rates, smaller amounts of money sent to the families in the home country, and seasonal workers returning to Romania.

III. Analysis of the interviews

To document the following chapters, we used 26 in-depth sociological interviews conducted within the *Tele-Encounters: Beyond the Human* project. 15 respondents are Romanian migrants who have been living abroad for over 10 years (most of them in Italy, but also in Spain and France), while 11 respondents are parents (pensioners) in Romania who have one or several children living abroad permanently[13]. The interviews were conducted by Mrs

[12] The original quote is available in Romanian and Italian in the referenced book.
[13] Hereafter, the quotations coming from migrants will be designated by the letter M, while those from the left behind parents by a P.

Georgiana Vlădoiu based on the interview guides designed by the author of this paper. The full transcripts of these interviews are available on the *Tele-Encounters: Beyond the Human* project website under the rubric *Migration Stories* (Vlădoiu & Kivu, 2021).

The *Annex* includes a full list of the interview respondents. They were selected non-randomly, using the 'snowball' method (Morgan, 2008, pp. 816-817) – we started from a number of known situations, and then the interviewed persons recommended other persons who matched the requirements of our study. We clarify that, since this is not a representative sample, the results cannot be generalised. A significant bias is given by the terms under which the persons we contacted accepted to 'share their story' with our interviewer. In general, the ones who accepted are those who have a comfortable situation, those who 'made it' abroad. Hence, it is our judgement that the image of the situation of Romanian migrants, as provided by our study, mostly reflects the category of those who managed to successfully integrate into the country they migrated to.

Since the topic of the interviews partially overlaps with the topics of our previous study mentioned above (Kivu, 2019), we will focus further on the new elements brought to light by the new series of interviews. Where necessary, we reference the findings from the previous study.

III.1. Emigration

The context and justification for leaving

Based on the interviews, we identify two categories of justifications for migration: those based on rejection (of the situation at home), and those based on attraction (towards the prospects offered by another country).

The majority of our respondents are people who emigrated from a good or acceptable financial standing. As we indicated earlier, the few cases included in this study cannot be extrapolated in any way. They allow us, however, to reject the hypothesis that the sole, or the main justification for Romanians to migrate out of the country is a precarious financial situation.

> *I had a job, I was fine. I was doing well. [...] It was good. Well, I mean I had enough money for my age. I was doing well. [M01]*

It was good. I had a job at the OMI wholesale depots. I worked there, I wasn't in a position to lose my job or be without one. No, no. I was working, and it was pretty good. [M05]

We had some trouble because my father died when we were 15 and, of course, we were used to a certain standard of living, and when my father died, my mother couldn't provide everything we used to have. But I can't say we lacked things such as food or clothing. [M09]

I was doing well. We left home on a whim at 23 years old, because we were young and crazy. [M10]

We had a taxi car, he [my husband] was a taxi driver, I was working at a grocery store. And we thought we would make a fortune abroad. [M11]

I was a college student and I had a job. Financially, I was doing relatively well. I could afford everything I needed at that age. [M13]

Some interviewees, however, reported they migrated because of a precarious material situation (or a situation perceived as unsatisfactory) at home:

I came here because I didn't have a job in Romania. I came for a month and stayed for 10 years. [...] At that time in Romania, you worked a lot and were paid too little, and many chose to go abroad because they were paid much better. [...] Only my father had a job. We were three siblings and only one salary. [M04]

I didn't have a job. I had finished high school a few years before, I think about two years, and I was working. I remember I worked at a bar there for a month or two, I can't remember. A tragic experience, because it was a bad experience and after that, I didn't work anywhere else in Romania. [...] Yes, of course, yes, I needed more money. My mother and father had jobs, but I wasn't staying with them, I was living with my grandmother and the thing is, there wasn't enough money. We were four siblings and there was no money. [M07]

I come from a poor family. I couldn't finish high school because I couldn't afford it. [M14]

I got a job and I realized, after a year of working in Romania, that I didn't have enough money for my personal expenses and I couldn't support a family, children, with a salary like that in the future. [M15]

On the one hand, we have people who lived in *unhappy situations* (or situations perceived as unhappy) in Romania, and the only way out was emigration.

And let's say that, well, it was pretty good, but those quarrels between our parents, we witnessed them sometimes, and it wasn't very pleasant. It was my cue to leave. [M03]
She was simply about to get fired, she had one foot out the door. And since she had a friend in Italy, she told her to go to her in Italy. [P04]

On the other hand, we see people motivated by a desire to become accomplished and *self-fulfilled*. They either want to live better (although they state that they used to have an acceptable life) or want to have different experiences and get acquainted with different realities.

I simply left to change my life. [...] We wanted to have our own house, we didn't have a personal car and we said let's try, let's, I don't know, take a step towards getting a car. Once we had the car money, we wanted something else, and so on. [M02]
I wanted an adventure, more than anything. To experience life abroad. I was working in the field and there was an opportunity. I thought I would stay for a year or two, then come back to finish college. [M13]
I would see girls coming back with money and managing to have another life, and at 18, you want what others have. And I thought if I didn't leave, nothing would change. And I wanted to try. [M15]
She left for a better life. I mean... like any young person, well, she dreamed of a bigger apartment or something, to afford its maintenance and... well, they wanted a car of their own... things like that. [P11]

The experiences of relatives and acquaintances, meaning social networks, play an important, if not a conclusive, part in deciding to emigrate.

I kept hearing about friends, acquaintances or cousins leaving the country. I thought I should try it, too, see what it's like. [M01]
I had to come here to cover a woman's job for a month while she was on holiday in Romania. And when she came back, I decided not to return, to stay here. [M04]
So... they influenced each other. So, my eldest son's classmates, who finished the Electronics college, left in droves, and then they brought each other along. And the second followed their lead. [P09]

In some interviews, we see a pattern that we identified to be characteristic of Portugal in the previous study (Kivu, 2019, p. 43), which is second-generation emigration. Parents migrated temporarily, forced by a precarious economic situation, leaving their children behind, yet later returning to their home country. Children, now adults, also migrated and capitalised on their parents' experience – this time for a much longer period, in a quasi-permanent migration.

In the late 90s, our life was tough in Romania. I remember my father had lost his job. My mother, too. We changed a few houses, they sold the house, we rented a place for a while, then we lived in a late grandmother's house for a bit. We had a few rough years while I was in fifth to eighth grade and my brother was in high school. About seven years later, they both went away for a month. My father left first, and a month later my mother went to Italy, as well. That's when they started working and sending us money for books, the bus, food, things like that, every month. [...] Around 2008-2009, during the labour crisis, I was already living with my boyfriend, and we were both out of a job. Then I started working in a restaurant. But we thought about moving to another country at one point. We had left for a new country before, and it wouldn't have been so hard for me to change the culture again. It was harder for him and in the end, we managed to find work and we stayed here. I also thought about it when my parents returned to the country about 7 years ago. They left Italy seven years ago. And I thought, I don't know, maybe we could move away. [M06]

Some respondents do not take responsibility for the initial decision to leave, which they place under the responsibility of other close persons – usually the partner.

> *Well, it wasn't my decision. Basically, a cousin of the boy I was with came and said he was going to Spain. He left and two weeks or a few months later […] I followed him, but it wasn't exactly my decision, I mean, I didn't make the decision: "I'm going to Spain." [M14]*

The parents' role in the decision to migrate

The parents' reaction to the children's decision to leave the country ranges between net rejection and strong encouragement. However, we have no stories of situations where parents in disagreement with the migration decision did anything to convince their children to give up. One possible hypothesis is that, as a rule, those who emigrate are young people raised in families that are more permissive and less conservative. In other words, in some cases, a prerequisite for migration is the existence of a penchant towards more modern patterns in the origin family. Below, I report some parents' experiences:

> *No, I didn't approve of it. I didn't. But I also respected her decision [daughter's decision] and... I didn't approve because I thought she should stay here, in our country, despite the disadvantages. But they still left. [P11]*
> *I didn't really approve. I told him [son] to look after them and... They knew better what was best for them. [P10]*
> *I was both happy and sad. On the one hand, I thought it was a good thing, because I heard people say it pays well, a thousand something euros a month... I didn't know what it was like there. [P02]*
> *I thought she was young, maybe she would have more luck in life and... I somewhat approved. However... it's painful, because we were used to being together. [P05]*
> *I wasn't upset at all, she had to go find work. What was she to do? […] and what could she do there, in [city X], if she had no job? So, she went to Spain. I was actually glad she was going there. [P01]*

If that's what they thought was good for them as young people, to leave, I fully agreed. [P08]

Here are some of the migrants' perspectives on their families' reactions:

I remember when I first told my mother, she said, "I don't think you're doing the right thing, but try it." [M02]
My dad only realized I was truly leaving when I packed my bags. It was a difficult time for him. A friend came to take me to the bus and that was when I saw my father starting to cry. [...] They supported and helped me, they never put any pressure on me. [M13]
It was painful for them [for the parents and grandparents]. They tried to control their emotions, their tears. Grandma was the one who always helped me have faith and told me to go wherever I felt better. Despite all her suffering, she told me, "Go, it's better for you." No one was happy about it, but they accepted the situation, maybe it was better for me. [M15]
My father was really happy. [...]. He had always seen going abroad as an opportunity. My mother was a little more reluctant since she'd been a teacher for 30 years or so. They mostly approved of my decision. [M08]

There are opposite situations, too, where excessively authoritarian relationships within the extended family drove the 'escape'.

So, my sister had left before. She left all of a sudden. [...] Later she told us that she was going to have a baby and that she had already been pregnant when she left and left because she was afraid father would kick her out of the house. [M03]
I simply wasn't getting along with my father anymore and I decided to leave, because I don't know, I didn't feel… I didn't feel loved by him, you know? And I had a chance to leave, and I didn't think twice. And I left without telling him. He didn't know I had left. Only my mother knew and two or three other people. [M07]

From temporary to permanent migration

In all the interviews we conducted, we were exposed to either the direct experience or the indirect experience (through the parents) of people who have been living abroad for more than 10 years. Therefore, these are people who have settled abroad, rather than temporary migrants. However, all of them reported that initially, their migration project was only temporary, for a short time:

> *I bought a return ticket for a month-long trip. So, unless I accomplished something in that time, I would have returned home to Bucharest. [M12]*
> *So, it all started from a, let's not call it a whim, a short-term departure. We were going to sacrifice three or four years of our lives, five at most and at least we'd manage to do something, to achieve something one way or another... Either that or we would come home empty-handed, it depended. [M05]*

The initial objectives are often not attainable. Such situations result in a change from planned temporary emigration to permanent emigration.

> *We thought we'd stay for a year or two, raise money for an apartment, and go home. After a year or two, we were unable to pay the rent. Times were hard back then. [M11]*

Temporary migration turning into permanent migration is the dominant pattern for people settled in Europe (Italy, Spain, United Kingdom) – meaning in an area that could be considered proximal within the current context. On the contrary, in all cases of people settled on a different continent (US, Canada), leaving was from the very beginning accompanied by the intention to stay there permanently.

> *She used to work on the Măgurele platform[14]. And together with her husband and... they decided to go abroad, because Romania still*

[14] The city of Măgurele (Ilfov county) hosts the most important research platform in Romania. It is made up of 9 national research and development institutes, together with the Faculty of Physics of the University of Bucharest.

couldn't offer all the scientific opportunities, collaborations... they were not paid fairly. [P08 – about the daughter settled in the US]

Multi-ethnic families

Inevitably, an extended stay in the adoptive country leads to establishing relationships that many times end up in marriage. Marriage often contributes to shifting from in-and-out migration to permanent stay.

For Romanians who live in a foreign country, marriage with an 'indigenous' citizen entails, among other things, an effort to integrate into the spouse's family. The husband's parents (at least in the situations presented by respondents in this study) are relatively amenable to having a person of a different ethnicity join the family.

They received me very well. They made me feel at home. They treated me like their daughter. I settled in immediately. [M04]

Sometimes, integration entails pushing through more or less strong reluctance from some members of that family.

At first, his brother didn't approve of me. He said, "What are you doing bringing a foreigner home?" And he said, "We're together so you could be nicer." [M03]
The first thing they [the parents-in-law] said was, "Don't smoke inside the house!" [M08]

The individual experiences of Romanians are different, both in terms of the family left behind in the country, and in terms of the family into which they have integrated abroad. Hence the differences in the perception of family life, compared to Romania. This explains the fact that the atmosphere in an Italian family is perceived by some to be much more restrained than at home, while others describe it as much more tumultuous. Several Romanian immigrants living in Italy pointed to the integrating nature of the daily meals, which bring together all the members of the family. In most cases, they notice (and regret) the absence of the importance given in Romania to traditional holidays.

They have a precise schedule, they eat together at 1 o'clock. It never happens that someone eats at one, someone else at three, they all eat together. They eat pasta every day. As for the holidays, the holidays are more beautiful in Romania than here. [Interviewer: Why? What makes the difference?] The fact that everyone is together at the table. That's how we spent Christmas Eve, with everyone eating together, like every day. Nothing special. You don't feel it's Christmas like you do in Romania. Children don't go carolling, it's not the same. [M04]
...it doesn't matter if it's a holiday or not. Here people wash things any day. They're drying clothes even on Christmas. [M07]
What strikes you with the Italian family is that they are very noisy, there are many people getting together on holidays. My own family was numerous as well, but Italian families are much noisier when they're together. It's like there's 20 of them instead of 5, you know? They argue much more easily. And when they argue, they argue. From what I've seen with my friends' families, that is, they start arguing easily and they don't really care whether they offend each other. [M06]

Children born into mixed-ethnic families learn Romanian as a second language. The partner too, will also sometimes learn some Romanian.

When he [the child] was younger, institutions like the Ministry of Education and the Embassy organized Romanian classes here. Two classes, twice or once a week, I can't remember. Anyway, they would go... I would take him to certain colleges… Not all educational institutions, some of them, with larger Romanian communities, probably, were gathering children of the same age or between 10 and 13 years old. They had a Romanian teacher, and we would go there to talk. [M10]
I've even argued with the teachers at school on this topic, they told us to speak Spanish at home and I told them no, I speak Romanian at home because my parents don't speak Spanish. [M11]
The first or the second time we came home, I don't remember exactly, I felt sick that day and I went to bed. And I left my mother and husband at the gate. And I woke up an hour or two later, I can't remember

exactly, and I found them still there, and I thought it was so strange, I said, "What have you been doing here for two hours?" and they said, "We're talking," and I asked my mother, "What are you talking about?" and my mother said, "Oh, he's telling me about Spain." And I asked my husband, "What were you telling her?" and he said, "Oh, I was telling her about the movie yesterday." So, they were talking about completely different things, but they had time to spare, I mean, they were chatting, they... for two hours, if you can believe it. [M14]

Children born in the adoptive country accompany their parents during visits to their country of origin. Most of the time, their reactions are positive – especially when described by those who had left.

My little girl likes absolutely everything in Romania, her friends, the school, she says it's much easier than here, but I don't think so. [M02]
He likes that he can do whatever he wants at home [in Romania]. He has the table set for him like a prince, breakfast in bed, meals in bed so far. "Grandma, I want this, I don't want that, do that for me." Like any child. Well, the freedom, too. [...] I can't say he has friends, because he doesn't have any friends there, but he has this freedom and the fact that his grandma does whatever he wants for him. [M10]
Yes, she likes it [in Romania] because she sees how her cousins are living. They go to the mountainside every two weeks, they're always at the movies and the mall. Here, they have no one to walk around the park with. [M11]
[They liked] The food... They liked everything [in Romania]. The joy. You should know that there, they're not... in Italy, they are not as cheerful as we are. [P05]

Grandparents sometimes have a more critical view of the relationship with the visiting grandchildren, and they describe both the good and the bad aspects. They complain about difficulties in communicating – the young ones speak little or no Romanian at all.

The little one didn't like it very much. His standards are quite high, and Romania is quite dirty, it is what it is. […] The older one really likes Romanian food. Yes, and he has friends, but we don't really

communicate, he doesn't tell me what he likes, what he doesn't like. [P03]

Obstacles to returning

On the one hand, we find obstacles related to 'how Romania is'. Although the most frequently invoked reasons for leaving the country are financial, reluctance to return to Romania has to do with corruption, poor healthcare services, and deficient public education. In other words, compared to the initial justification for leaving, there is a shift to a higher level in the hierarchy of needs.

My boyfriend went to Spain. I visited on vacation in October 2006 and that's how I left. I regretted it at one point but you get used to it, eventually. And maybe you want to go back to Romania, but when you go back… You want to go back but you see the bureaucracy, the corruption, this stuff. And no... It's not necessarily about money. [M09]

There's bureaucracy everywhere. The only difference between here and Romania is that the people here deserve their positions, and there is no obvious corruption. I mean, by comparison, when I tried to propose projects right and left through the association, no one ever asked me, "What's in it for me?" That doesn't happen here, not even a little. [M08]

I've had the unfortunate opportunity to become familiar with the medical system here and I know what it's like in the hospital. Not even the hospital fence in Romania compares to the one here. [M05]

On the other hand, after a more or less extended stay abroad, the connections with that society become ever more complex: a stable, stimulating job (not necessarily from a material point of view); a property or – most often – the substantial integration of the migrants' children into the country where they were born or lived most of their lives.

It's not about ourselves as adults, it's about the child. At the moment, we don't see a future for her in the country. [M13]

I don't mean to exaggerate, but I'm here… I have a job and I'm not complaining about my partner at all, but I'm actually here because the child is in school. He's barely learned… Well, I'm exaggerating, he's stubborn, he won't be a doctor or maybe, it's never too late, but he doesn't know how to write a grammatically correct sentence in Romanian. [M10]

We thought we'd better wait a little longer and see how things go. I'm also thinking about my eldest girl who is now in 11th grade, she's close to the baccalaureate exam. She used to go to music school here. I changed her school because it was hard for me to go into town, I had to commute with her during the workweek. And I thought, I've already ruined one of her plans, how can I ruin another? [M11]

My husband says we will [return to Romania] when we're older. I tell him I don't know what will happen. You've been away for a lifetime, even if you think, "I'm going home where I have more freedom and a house in the countryside." In my husband's case, he has everything he needs compared to those in the countryside. But then there are the kids. Do I abandon them here and move to another country? [M15]

The idea of alternating between the country of origin and the adoptive country is also considered – and it becomes increasingly realistic, as physical distance tends to become secondary.

Well, the idea is that... around 10 or 15 years from now on, when my girl would already be 18 years old and she could, for example, say she's going to study wherever she wants to, the idea would be for us to retire to Romania. Not to the area where I'm from, because... In a mountainous area and then we would alternate, spend summers here and in the country [M14]

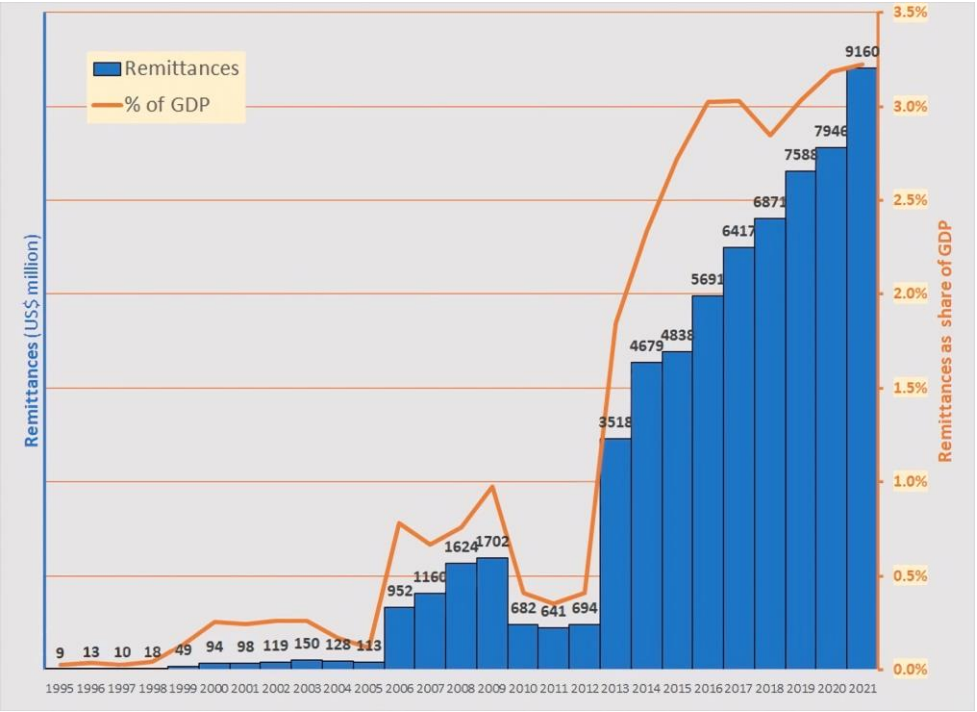
III.2. Impact of the pandemic

At a global level, the year 2020 was the beginning of a difficult period for migrants worldwide. However, the World Bank found that, at least in terms of the remittances (money sent to the country), the worldwide decline (1.6 pp) was lower than predicted and much lower than during the global financial

crisis of 2009 (World Bank Group, 2021, p. x). According to the latest data published by The Global Knowledge Partnership on Migration and Development (KNOMAD), emigrants from low- and medium-income countries sent more money to their countries of origin in 2020 and 2021 than in the previous years: 553 billion UD$ in 2019, 558 billion in 2020, 605 billion in 2021 (KNOMAD, 2022).

Romanians were no exception. They, too, sent more money home (see **Figure 4**). The growth was actually significant: 20% more in 2021 than in 2019. In these difficult conditions, remittances from those living abroad accounted for 3.2% of Romania's gross domestic product in 2021. One possible explanation for this growth would be that, in previous years, Romanians living abroad used to bring significant amounts of money with them when coming home, which would not appear in the statistics on monetary transfers. With the pandemic and the reduced possibilities for travelling, money was, to a greater extent, sent via channels that show up in statistics.

Figure 4. Romania – Remittance flows, 1995-2021



Source: KNOMAD, World Bank

As mentioned earlier, some of the Romanians working abroad lost their jobs during the first part of the pandemic (early 2020 – the period when Italy was heavily hit).

> *...it started on March 9th, at 10:30 one of the bosses called me and said, "don't come tomorrow because they shut us down." [M03]*

For them, this could mean returning to Romania for a longer period. The proximity of the family overlapped with a tense psychological situation caused by material uncertainties.

> *It was alright, it was the longest I've ever spent in Romania, because of COVID-19, because I didn't have much to do in Spain. It was alright from a certain point of view because I got to spend more time with my family, with my friends, but it was also... I argued with someone every day, it felt like I was in a mental asylum and the patients were running the place. [M09]*

The majority, however, had to postpone, to shorten or cancel their usual visits to Romania.

> *...the COVID pandemic messed up our plans a little. We were planning to bring them here as well. We used to go to Romania about 3 times a year. We try to spend the holidays in Romania. The COVID pandemic put more physical distance between us. [M13]*
> *Well, now with the pandemic… We were planning to go last year. This year we are still counting the days because I keep thinking I want to go home, I want to go home, I don't necessarily want a vacation, I just want to spend time at home with my mother. [M10]*
> *The pandemic needs to end first, now is no time for travelling. [M09]*
> *The day I was supposed to leave [towards Romania], I was supposed to leave at 4 in the afternoon I think, at 8 in the morning my mother called me and told me that my father had tested positive for COVID. [...]. And I only spent one week with my family. In fact, less than a week, I spent five days with them because I had to go to Bucharest for the last two days to get tested and I wanted to meet a friend. And so, I only spent five days with them, in fact. Well, I saw them all the time*

because a neighbour went and gave them things through the fence. From a distance, I sent them food every day, everything, medicine, everything they needed. [M14]

…this year, 2020, I haven't been to Romania because of the pandemic, and I miss it. I feel some kind of emptiness because I didn't go home. [M01]

They came, they travelled, I think in the Delta, in Poiana Brașov, on the Transfăgărășan, they came, they came, but now... They didn't come last year, I don't know about this one, because of the pandemic. [P02]

The immigrant status generally comes with a high level of uncertainty. The overall public health situation in the adoptive country amplifies the already existing uncertainty and anxiety.

I'm not sure how much these difficult times will affect me, us. Let's hope things… I don't know… that in 2021, we're out of the woods. Not just us in Italy, the world in general. [...] A different job, yes, I was thinking I could get a degree in one or two years, but I can't now because of COVID. [M01]

For some of the Romanians living abroad, the pandemic was an opportunity to take part in the volunteering activities of the community where they live.

Volunteer work filled that gap during the pandemic, the fact that I used to visit the country once a month… […]

Volunteer work meant there were many people in need of help, picking up people from the train station, taking them to shelters, going shopping for COVID patients. We go to drivers in parking lots because they need medication. We had to take a truck driver to the border. These things are somewhat good for you. [M12]

Last, but not least, Romanians who had emigrated felt affected by the intolerant response of a significant part of the Romanian media and society, which considered them to be a potential threat, spreading the virus in the country:

We didn't go home last year because the country was in lockdown. And there was also this mass media thing that really bothered me: Romanians came back from Italy infected. I didn't want to make things difficult for my parents with their neighbours, there would have been talk of how I supposedly went to Italy and came back with COVID… I wouldn't have been stupid enough to leave Italy while positive anyway, considering you have medical insurance here, a very well-developed medical system, why would I go to Romania? […]
So, to avoid an embarrassing situation, I gave up going home last year. [M05]

Elders at home had a hard time going through this period, and loneliness was even harder on them – either because the visits of the children who were away were less frequent, or because they were themselves in isolation.

[She complains] About being alone. My sister is in quarantine now because she got COVID from my brother-in-law, who got it from a co-worker. That two-week period was very hard for her, she didn't see her nieces or my sister, and that's why she's alone. She would say to me, "I'm locked inside like a dog." [M09]
Her sister comes often and helps her a lot, her cousin visits when she can, but she's there if needed, and the others used to visit, but less so since COVID. [M08]
…we can't visit with COVID, the boy says, "come on, Dad, let me take you away from there" and I say, "take me how, in a wheelchair?". [P04]

III.3. The migrants' relationship with their parents at home

Communication

Connecting with those at home by phone is a daily routine for most of those living abroad. In all the cases analysed through the interviews included in this study, the children who are abroad are in quasi-permanent contact with their parents at home. Approximately one half of them talk on the phone every day

or several times a day; in none of the cases is contact less frequent than once a week. In this way, those abroad remain in touch with everyday life at home.

> *...now I can talk to her more because I'm free and even when I was still working, I called her, said "Mom, how are you, are you well? Dad?" "No, he's home, there on the couch, watching TV. How are you, are you at work?" That was about it when I was at work. Now we talk for about three or four hours sometimes. We look at each other and go "Ah, are you coming home?" "Ah, when are you coming here?" [M03]*
>
> *…all the time, about anything. I know when the cow gives birth, I know when my father goes to Buzău to collect his pension, I know everything. [M05]*

Pauses in the usual communication methods cause concern. When possible, alternative solutions are used:

> *Yes, there was one day I wanted to talk to her, and I couldn't because I'd run out of internet data on my phone, my phone had no internet, I didn't have wi-fi at home and it was an awful day. [M03]*
>
> *It was quite a fright. They went to the hospital and Dad left the phone in the car and I called them for about two hours, then my brother sent them a message. They hadn't left it at home. Even worse. And they didn't pick up until they got home, and we were a little scared. It's scary whenever they don't answer at a time you know they should be home. [M06]*
>
> *Yes, there were times when I called them on the internet and they were offline or their phone was off, but I called a neighbour who lives nearby. [M12]*

For some, talking with those at home has become a cherished routine, but it is also a way of making sure that everything is fine, especially when the elders are in poor health.

> *I talk to my mother every evening when I walk the dog, I tell her what I did that day and I talk to her to feel safe on the street. [M07]*

My mom and dad always called me separately, my mom in one room and my dad in the other. With the new technology, they call me all the time on Messenger, it was quite difficult for them when they wanted nothing to do with modern phones, they didn't have minutes or enough battery, it was harder for them to call me. But since I taught them how to use the new technology, they call me all the time. [M12]
Usually, about once a week. And even more often with the neighbour to make sure they're okay, I write to her every two or three days, "Have you visited them, are they okay?" Because she's able to see them almost every day and let me know if all is well. [M15]

Elders adapting to new communication technologies

For the large mass of Romanians using the phone since the mid-20th century, the landline phone was a means of communication for half a century. In the 1990s, the mobile phone was an item for an exclusive group and had a clear statute-conveying function. With the coming of the 3rd millennium, changes accelerated: the mobile phone reached the masses and became an everyday item. Within no more than 30 years, it has undergone spectacular changes: it has connected to the internet, started sending still images, and then broadcasting video. From a communication tool, it has become a 'smart', almost universal item – something like a 'Swiss army knife' of media devices (Mutchler, et al., 2011, p. 3). As a matter of fact, one would need more imagination to list the fields in which the phone is not used, rather than the ones in which it is present.

The direct effect of this spectacular progress was the sublimation of distances. At the end of the last century, hearing the voice of a person who was in another country or on a different continent used to be a luxury. Nowadays, parents in Romania participate live in the shopping sessions of their son in the US or assist their daughter remotely in cooking a complicated meal, while the far-away son monitors his mother's blood pressure. With this, emigration turned into a less dramatic (and more relative) event than it was 50 years ago, not to mention during the communist times.

The first few years I used to go to the phone booth and use a rechargeable card and they only had the landline at home. And they weren't home, or the line was busy, or I ran out of coins. [M11]

But the technological progress was accompanied by adaptation problems. In fact, devices improve faster than people can learn how to use them. Of course, these difficulties are stronger in the case of elders, who are under increased stress. More often than not, elders using a smartphone required a briefing from someone younger.

> *Little by little. Here, let's call Mona. Come now, tap here, you tap this icon, you swipe your finger like this. It was difficult, very difficult, but she did learn, eventually. [M01]*
> *It was pretty hard. My sister taught her. She always said she didn't want technology, didn't believe in it. It's been 20 years now and she still doesn't want it. My mother gave up being an accountant because she didn't want to work with it. [...] Internet accounting, because she didn't trust it.[M10]*
> *Yes, they taught me, of course, because I didn't know how to use it. […] Them, the children. [P10]*

Out of the multiple features of smartphones, elders only use the basic ones: calls (both audio and video), as well as sending and receiving images. The WhatsApp platform is almost universally used, either for video communication or photo sending or just audio calls. Skype was used, too, but it seems it was abandoned because of its higher complexity in operation. Call applications on social platforms are also used sometimes. 'Classic' (mobile or landline) telephony is used mostly when elders have difficulties with using smartphone technology.

> *[They use] The landline, because I tried buying her a cell phone a few years ago and she couldn't remember how to charge it, how to turn it back on. So, I gave up on the idea. I thought the landline was best. [M15]*
> *...I have a phone that isn't small or large, I have a medium-sized phone. But it's not the kind with a touchscreen, it's not smart. It's not a phone you can use to go on the Internet, as they say, I wouldn't know how to open one like that, no. [P01]*

She has two [phones]: an old one with keys, which she knows how to use, and a smartphone, which she only uses for WhatsApp, just to talk to me. [M08]

When the context doesn't allow a conversation, parents use text messages.

Video, too, I show them what I grow here, and when the fruits are ripe. So, we also use video and I post a lot of pictures from the market, where I sell… and my products. [P06]
Before WhatsApp, we used Skype and, no, Skype wasn't very handy, but WhatsApp is so easy to use that... very often, very often. [P07]
They show me, they tell me what they bought or what they cook or... The boy also goes to the hills and shows me London. The girl also shows me what she's doing and from her balcony, she shows me the landscape of Italy. [P05]

Some families use WhatsApp groups to keep in touch if several children migrated to different countries while parents have stayed in Romania [P03, P05].

And now, with WhatsApp, everyone at the same time, also my younger daughter, from where she lives, the eldest one, too, and... we all see each other. [P05]

Topics discussed

Most often, the conversations of those who are abroad with their parents at home revolve around daily topics: exchanging food recipes, whether the quinces are ripe yet, intended or postponed visits, the weather, the children, the pandemic... Like keeping alive the daily interaction between the members of a family.

I like to know what's going on in the village. Did you visit the neighbour, what did she say, what did the priest say in church? I like to know everything that happens in the village. [M01]
We talk about work, what she's doing tomorrow... How she's been, in general. We also talk about my sister. [M03]

I called her today. I told her how it was at work. I showed her the children. She told me about what she cooked. That it's cold in Romania. [M04]

She told me what she ate, what they ate, what my father did this morning and they asked me about the cats, the same story every day. [M06]

Well, I usually ask how my brother is doing, how my sister is doing, what they ate, how they feel, if they need anything, what things are like at home. Whether she spoke to Grandma. [M14]

Since I was in the hospital, we only talk about health. And, in general, my daughter in Italy, as well as the younger one in Greece, tell me what they're doing that day. Everything, absolutely everything. We talk about what we do. [P03]

Arguing is avoided. On the rare occasions when it does happen, it is immediately followed by regrets.

That's the last thing we need, fighting over the phone! [M05]

We don't argue, but it still bothers me that he talks harshly. That's what he's like. He uses harsh words. [M11]

"Go to the doctor!" She doesn't want to. They're not very serious topics. There are things she should be doing at her age and she doesn't, and I would like for her to do them. [M08]

And she starts telling the same story and sometimes I'm patient because I feel bad arguing over nothing with her so far away, but sometimes I run out of patience and I may say things I shouldn't and when I hear her, I know she's going to cry after. So, I try to listen when she has something longer to say, when she once told me that... Yes, I let her finish, because I know that... [...] If we argue and she cries I'm not there to hold her. [M06]

In the background, we decipher the attempt of those who are away to compensate for their absence from home with a subtle way of supervising their parents. Similarly, parents feel the need to protect their children from afar – even when the latter have become adults.

I called her [my mother], I asked her if she'd taken her pills, if my sister had called her, I asked her what she was doing, if she'd eaten, stuff like that. [M09]

He [my father] usually asks about our situation. He asks how we are, if we're okay. [M11]

She [my grandmother] had a cold and said she was fine, but when I called her two days later, she had severe pneumonia. She was hospitalised. If I hadn't called her in the evening… So, I found out she had a cold and I called her the next day. I could hear she had a pretty bad cough. I called her the next day at about 10 p.m. I knew they went to bed early, at 11, 12 and I called her at 10 in the evening, she couldn't speak on the phone. So, she was already in an awful state. And it was pretty bad because I had to call the neighbours, get an ambulance, take her to the hospital urgently. If I hadn't called her, she would have surely died. [M15]

Well, first of all she [my daughter] asks if I'm okay. I'm okay, dear, there's nothing wrong, I'm healthier, I grew up with a different generation, other foods, unlike the ones now... 90 percent chemicals. [P02]

She [my daughter] asks about my health, how I am doing, why don't I get married, why don't I bring a Christian woman home. (laughs) [P06]

...I get a lot of advice from my sons, who ask me to be more balanced, more conservative, more... that is, not to get involved in activities that, in a way, would surpass my physical strength and my mental strength and... and so on. [P09]

The visits

Below, we try to establish how often the ones abroad visit their parents at home, not taking into account the special situation imposed by the pandemic, which we described above.

In general, the emigrants' visits to Romania are associated with the summer holidays, and rarely, with other holidays (Christmas, Easter). The value of the time spent in their home country comes from spending it with parents and other relatives.

Nice, it was nice because I usually stay with my mother the entire time, I don't travel around the country much. Otherwise, I spend most of my time there. [M01]

...when I got home, she was waiting for me, she was waiting for me at the bus station... and she said to me "you're sleeping with me tonight, right?" And I said, "Yes." When I got home, I said to my father, "Dad, you're sleeping on the couch!" And I slept with my mother. [M03]

They would pick me up from the airport, and we'd go together, with my brother, to eat at a restaurant, and I'd usually stay at home with them for four days, we'd talk and one day out of four I'd spend time with Alex and go out with him, but we all spent a lot of time together. We'd go on walks, they'd show me a church or something, but we didn't necessarily have to go out, we only did that because it made them happy. [M06]

Together? We went to Greece. In fact, we went to Greece two years in a row... In the country... We visited Transylvania, the north... and Bukovina... [P07]

Sometimes, splitting the time between parents, relatives and friends is difficult, and it is a reason for frustration.

It was complete chaos, vacations were busier than workdays. Because you didn't know which way to go, where to go first, let's visit my aunt, my grandmother in the countryside, let's go there, let's visit my mother and mother-in-law, let's go there, too, let's visit our mothers and so on. [...] With my parents? We ate together. [M07]

We would move around. A few days with my parents, a few days with my in-laws, friends, we would have meals together. We got no rest at all during vacations. You'd leave in the morning and come back sweaty in the evening. Everyone would give you something, I would give something back. It wasn't an obligation, I did it gladly. [M13]

When their parents are healthy, visiting home is a time when those who live abroad get back in touch with the pampering of their childhood times.

The first day isn't enough to visit everyone. You don't know who to go to first, who to talk to, to see, who to see... […] The first day is tiring because you have to go greet everyone, then it's relaxing. My mother cooks, my mother cleans, my mother does everything. [M04]

I cook their favourite food. What can I say... I make sure they are in high spirits… we laugh, we talk... to have joy in our home. [P05]

What's there to do? We... we cook the meals they like... of course. We feel like a family. We all get together, all the relatives, we all come here. Of course, it's always a special moment when they come home. [P11]

On the contrary, when parents suffer from various health conditions, children who come home try to compensate for the help they cannot provide while they are away.

I do whatever I can for them. I start with cleaning the house. Then, hygiene. Again, one at a time, I take them to the bathroom, bathe them, cut their nails. Everything hygiene related. Considering their age, I try to massage their feet every night, buy all the products they need, I try to improve their diet a little. [...] But unfortunately, all this only happens once a year. Then God knows what happens the other eleven months. For the one month I'm at home, I try my best to make my presence count. [M15]

She helped me last summer, this summer, actually, but she came around spring. She came with her daughter-in-law, her son, she helped me around the house… [P01]

He helped me a lot here, around the house, with chores, there were some things he had to do. For example, I changed the electrical network at home... he did whatever work he could around the yard for me. [P10]

In some less frequent situations, the children have the feeling that their parents got used to being alone, so their visits are merely a partial joy:

...he's used to being on his own, I don't think he likes to be bothered. I think so, I don't know. […] Everything is fine for a few days and then we realize that our presence is somewhat redundant. [M02]

Parents' visits to their children abroad are less frequent than the children's visits to Romania. Most parents have visited their children abroad at least once. Besides the joy of being together with those who are usually away, they were impressed by the level of civilisation in that country and the quality of human relationships.

> *I was impressed, until I reached them, first of all, by the roads, the streets, the landscape, the cleanliness. [P03]*
> *First of all, the streets and how clean the cities are. The people are also more civilized than we are. [P05]*
> *And I like that they're a lot more civilized than us. Clean city, clean village. [P06]*
> *First of all, the appearance of the buildings is much more pleasant. They're all... I'm talking about the houses, not the skyscrapers or what... The houses... Actually, they live in a house. They are all brick houses, they aren't randomly painted. No. The people are quite civilized, in the sense that on the street... they know you. I think... in my case, at least... I was walking alone and... They greet you with a short smile. And that's it. But, well, since I didn't even know the language, I didn't... But it was significant, being greeted with a brief smile. [P07]*
> *I liked the order, the cleanliness, the way people know how to respect places, the civilization, the education. [P09]*
> *I especially liked the place where she gave birth, the hospital... the hospital staff, their kindness. They treat you with such care and they respect the child, the patient and everyone, yes, I was very [impressed]... I was impressed... Everyone there was very open, and they greeted you as if they knew you, I don't know, just like that... [P11]*

Some tried to go abroad themselves and get a job, but they couldn't manage to put up with the tough conditions at work.

> *The first time I got there, I... I had retired and told my daughter to find me an old woman, as well. How would I know what it's like there? Let me tell you, after all these years, I still can't speak Italian. If two*

Italians are talking, I understand a little something, but I can't speak it. And she got me a job there... also among Romanians. But I don't know what I was thinking. I think I did it out of despair, because I was in a lot of debt. I was going through a very rough time then. And I went to Rome. I went to Rome, someone was waiting for me there, in Rome, someone who was already working for two of these old women... I couldn't stand it... I couldn't stand it. These girls who... I started crying and I left. [P02]

Those who never visited their children were prevented from doing so by their precarious health. This makes them suffer.

I can't get on the plane anymore. I can't anymore. No, I don't have the strength anymore, no. [P01]

III. 4 The situation of the elders at home

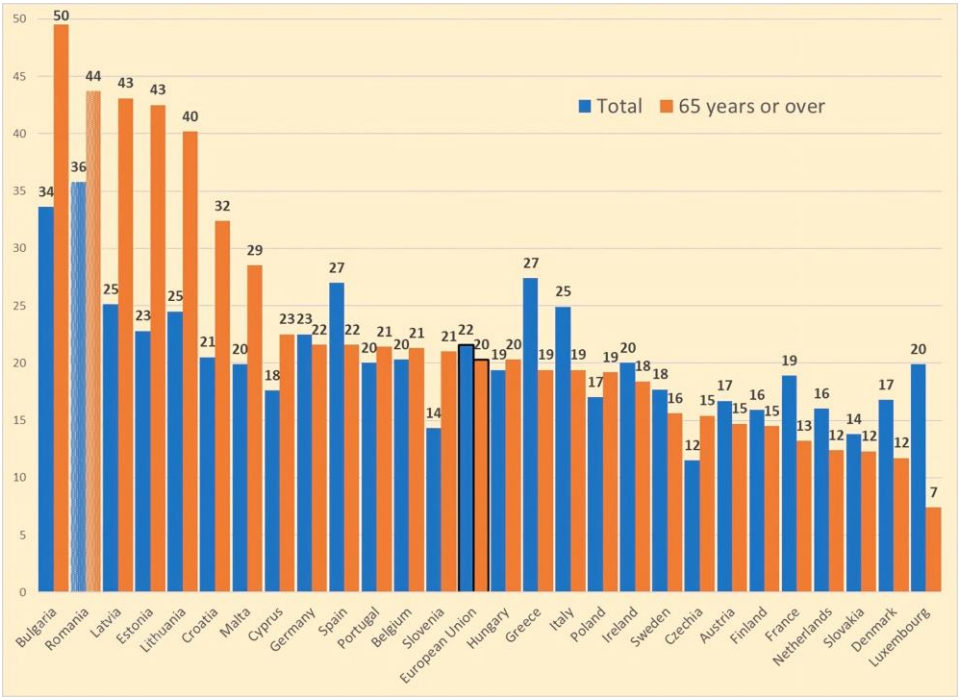
In Western states, elderly people are exposed to the risk of poverty or social exclusion[15] to a smaller extent compared to the rest of the population. On the contrary, in all countries in the former communist space, the proportion of elders in this situation is significantly higher than in the general population (see **Figure 5**). The explanation for this situation is that, in communist regimes, the state was the only one in charge of the material status of pensioners. Once the state protection was withdrawn, elders, especially those in rural areas (previously included in cooperative farms) became extremely vulnerable.

In Romania, 43.7% of people aged 65+ are at risk of poverty. Although on a slightly downward trend in the past 4 years (from 47.3% in 2016), this percentage is twice as high as the European average. This does not necessarily mean that the parents of migrants are living in poverty or social exclusion. Rather, their condition is better than the average elder's, if we

[15] According to Eurostat, this indicator represents the amount of people who are exposed to the risk of poverty after social transfers, suffer from severe material deprivation, or live in households with very low labour intensity.

connect this to a previous observation – namely, that their children, in most cases, did not emigrate because of poverty.

Figure 5. People at risk of poverty or social exclusion (%) – EU, 2020



Source: Eurostat [ilc_peps01n]

What the elders are missing

We asked migrants what they believed their parents in Romania missed most. The majority of the answers point to the absence of their spouse when the spouse is dead, and the absence of the children living abroad. Health problems, too, are mentioned frequently.

> *I think she misses my late father the most, then she misses me, her grandchildren, and her health. [M01]*
> *[They lack] Us, their children, they only have one grandson. They weren't around when he was little and they didn't see him grow up,*

so, they're strangers to him, although he calls them Grandma, Grandpa. That's what they miss the most. [M07]
[She complains about] Her health! The fact that her legs hurt very badly. And before she had women taking care of her, loneliness. [M08]
[Mother misses] Seeing all three of us together. It's been about 5 years since... That's right! I was there about three years ago, my sister, who went two years ago, that's it. The three of us haven't been home together in about 5 years. It's quite hard. [M10]

Therefore, what parents are missing is definitely not something that can be bought. This is what makes it difficult for the children to answer the question regarding a hypothetical object that could improve their parents' lives.

An object… I don't think there is an object that would make her life easy. [M01]
I don't know, I got them all kinds of things, they have all the comfort they need, I don't know what could make their life easier, we've tried, since we're not by their side to be able to help them when they need it. [M05]

Nor do the elders believe that any object (of those they are familiar with) could bring any substantial help.

No, I don't need any equipment! [P01]
For home use, I have about everything I need. They're accessible because I live with them and so... almost everything new on the market... my daughter-in-law is a fan of new things. [P09]

When they imagine equipment that could be useful for them, elders speak about something that could alleviate their disabilities caused by their poor health, especially related to mobility.

It should be able to lift me, carry me up and down the stairs. To help me move around, I have a wheelchair, but it's broken. [P04]

When the migrant respondent is familiar with artificial intelligence applications, the answer regarding equipment that could be useful to the elders describes an intuitive interface with electronics:

> *I would buy them an Alexa, some kind of interactive device... [...] We have something like that here, in Italy, to play music and tell the time, because my mom sometimes calls to ask me what time it is, but it's only a pretext. [M06]*

Mutual help between the migrants and the parents at home

In many cases, regularly or occasionally, migrants help their parents at home by sending economic resources.

> *[I send money] About twice a month. 3 times if necessary. [...] She pays her bills, water, electricity. [M04]*
> *[I send money] Monthly. [...] Dad would rather starve than ask me for as much as two euros. But I know they need it, that their pension after 40 years of work isn't enough for prices in Romania… It's no way to live. You can't get by. It's impossible. [M05]*

Money is usually sent using the classic methods (through money transfer companies), but some are more comfortable using internet banking or paying some invoices (gas, electricity, etc.).

> *When I can afford it, I send some money into each of their accounts, apart from the bills I pay each month. […] I have a phone app where I get all the bills and they aren't delivered home anymore, I get all their bills by email. [M12]*

Another way for migrants to support their families in Romania is by sending them presents. E-commerce is a practical method for those who are away to send presents at home – especially on special occasions.

> *Well, I usually used eMAG[16] until a while ago. I've been using eMAG for years, but I started... Well, I had a problem with the card, and it had to be blocked. They blocked all my cards and then... Last time, for*

[16] Large Romanian e-commerce platform.

example, was on Mother's Day. I know a girl who works in a flower shop. On Mother's Day ... on March 1st, we offered flowers and a mărțișor-style chocolate to all the ladies in our commune.[17] *I... Well, not me, because I'm abroad, but I hired the same flower shop I ordered carnations from, I asked her to make a bouquet for my mother. A special one. And she gave it to my mother. Someone gave it to my mother, I don't know who. She sent it. A bouquet of flowers, with cakes and champagne. [M14]*

We sent her flowers through these online florists without telling her, but only once because she is so skeptical about joy and happiness. [M10]

I really like sending my mother flowers on her birthday, I order them online and I also send my sister in Galaţi flowers, I'm sorry I can't send any to my other sister in Turkey. But yes, technology was useful to me for 4 or 5 years. [M12]

In some cases, the money sent home is not just a form of support for the parents, but also a contribution to a joint investment of the family.

[I send money] To my mother, because our house isn't finished. We have to finish the project. [M03]

I want to help her with the burial monument, stuff like that. [M01]

I can't say I help them financially. I had a problem, my mother did, actually… We live in an area that was flooded twice in two years. And now, thank God, I finished the whole house, well, not just me, all three of us, each doing whatever we could, my mother had insurance… [M10]

Sometimes, before leaving, the migrants were materially supported by their parents. In these situations, the parents' material status improved when their children emigrated. Usually, in these situations, children don't send money home – or they do it occasionally, to cover some exceptional expense.

[17] Mărțișor is a Romanian tradition celebrated at the beginning of spring, on the 1st of March, and the name of the associated object made from two intertwined red and white strings with hanging tassel in Romania and Moldova. In modern times, people offer not only the 'mărțișor', but some more consistent gifts.

…they had a very good financial situation. On the contrary, they were the ones who helped us. Sometimes. [M02]

No, because we're lucky, my father managed to retire and they both take care of themselves. With his pension, he takes care of my mother, who is a little ill, and they don't need any help. [M06]

No. I have before [sent money], but not now. She doesn't need it. If she needs it, I'll send her money. [M08]

Not at the moment. [I don't help my mother financially.] My mother is retired, she has a very good pension. [M09]

No, they help me. They don't help me with money. For example, a sister pays for the antenna in Romania for me. They always send me a package on special occasions. I don't do them favours, it's the other way around. [M11]

[I send money] When needed, when needed because they now have three pensions and never ask for anything at all. They don't need money because they live in the countryside, they can only spend it on food. [M15]

Well... I send... they're both retired now, and I send money when their expenses are a little higher. For example, when they recalculated the water bill, there were... I don't know... 3 hundred, 6, 8, I don't know... anyway, it was a bigger sum. Now, I bought them wood... three tons of wood. [M14]

A less frequent situation (in the interviews we conducted) is when the precarious material situation of the migrants just does not allow them to help their parents.

Well, I sent it to my mother at first to help her with the house expenses and to be able to finish the house, but she used it to finish it without my help, because I couldn't help her, I couldn't. I didn't help her as much as I wanted and should have. [M07]

The aid flow goes the other way, too. Parents send their children parcels with products (usually food) made by themselves or specific to the Romanian market. To a great extent, these parcels are a way to show affection rather than offer material value.

Rarely, yes, yes. Once or twice a year. [...] Pickles. And Pleșcoi sausages.[18] *[M01]*

[packages received from home contain] What we miss, our food. Now, recently, I called my father and kindly asked him to send me cabbage to pickle here. [M02]

She sends me meat roll spices, little bags of meat roll spices. Because at home, they're 2 RON. Here they're about 2 euros. Seeds, sweets, corn puffs and all that. She can't send brandy because liquids are not allowed. [M03]

What don't they send us! He slaughtered a pig for Christmas, I found myself with a bag full of meat, even though they know I have a Romanian shop here that sells Cristim salami[19]*. I mean, I have salami! No, they simply had to buy salami and send it to their granddaughter. [M05]*

But usually, on my birthday they even send us money, they also send me a Christmas package with pyjamas, food... They usually... every year they've sent a Christmas package with all kinds of things, with a little food, gingerbread, candy, usually pyjamas and salami, kabanos sausages... food. [M06]

Both my mother-in-law and my mother send us things, typical Romanian stuff, Babic salami and pickles, all sorts of things, and brandy. [M07]

Pickles, usually. Pickled cucumbers, for example. Things I can't find here. [M09]

All sorts of sweets for the girls, jams, candy, clothes for the girls, toys. [M11]

My mom puts everything in there. She cooks food for me that won't spoil on the way, stuffed cabbage rolls, schnitzels, cozonac (translator's note: a sweetened, flaky bread, traditionally served at Easter or Christmas in Romania), she gets me cheese, brandy, cherry brandy from the countryside, a sensible amount so they don't get confiscated or spoiled on the way, she sends me slippers and Delikat, she says Delikat is not the same as what we have in Italy. [M12]

[18] A specific regional Romanian sausage.
[19] Romanian brand of meat products.

We always have corn puffs, Eugenias[20], zacuscă[21]... […] We try to convince them to stop because it's very difficult. [M13]
Yes, they do, they send me cheese, because I can't find the cheese I want here… they send me cheese for Christmas, meat, pork rinds, sausages and last time, for example, I threw them all away. Because they spoil here. They spoil and I don't have room in the fridge… [M14]

Less frequently, the parents visit the migrants and, for limited periods, help them look after their children.

...I was included in the daily activities of the family, I went to my second son, whose child was starting first grade. And it was absolutely necessary that I take L. [name is mentioned], my grandson, to the bus [school bus], to wait for him. So, I was busy all the time. [P09]
When I gave birth, she [mother] came to me for three months [M14]

What we notice is that inter-generational solidarity patterns that are visible in Romania are maintained – although to a smaller extent – between parents and their migrant children. Same as in Romania, children provide material help for their parents (when they can), grandparents pick up their grandchildren from school, and parents from the countryside send pork and wine to their children who live in the city. These are behaviours that were adapted to the situation of transnational families. In turn, the parents help with looking after their grandchildren or with food that they produce in their own household.

III.5. The image of robots and artificial intelligence

Within the context of the *Tele-Encounters: Beyond the Human* project, we wanted to explore the impact of the internet, robots, and artificial intelligence on human relations, with a focus on elders separated from their migrant children. As we've seen already, loneliness, associated with the absence of close relatives, is truly a trauma for the elders. To what extent could AI fill

[20] Eugenia is a popular brand of Romanian biscuits.
[21] Zacuscă is a traditional Romanian vegetable spread.

this void? How likely would it be for an elder to get used to potential AI applications?

We tried to address these issues in interviews, both with young people living abroad and with the elderly still living in Romania. From the answers we received, five main topics emerge regarding the potential use of a robot:

1) Filling the void created by the absence of loved ones:

> *Well, it would help him in the household, make the deserts mother used to for him, because every time I go home and he asks me to make him an apple pie, he's always unsatisfied because it's not like my mother's. […] Keep him company, other than that, I can manage. [M02]*
> *Listen to them speak, listen to their stories, everything. [M04]*
> *Be human, speak nicely, have some empathy, make her laugh, why not? [M08]*
> *Maybe if there was an object that could make them young again, for example. Make them young, give them more strength. Give them the energy my mother used to have, for example. [M14]*
> *…when you're alone, a robot is... Even the slightest movement it makes... I say it's welcome. [P07]*

2) Shortening distances, facilitating communication with those who are away:

> *…a tele-camera. So that I could, let's say… see her, watch over her, see her, see everything she does and so that she could see us. I mean... a robot to bridge the distance between us. The physical distance. [...] robots shouldn't do the things in our power. [M01]*
> *Yes, if the robot could bring them home sooner [laughs], if it could help them in this sense, I don't know, something like that... of course, yes. It would be best… First of all, it would be best if it could bring them home to me. [P11]*

3) Being a conversation partner and helping in getting information.

> *That robot should bring me... a book with a subject that interests me. […] [Interviewer: Would you like to talk to a robot?] I don't know, if I ignore the mistakes and keep in mind that the robot isn't a living*

being. [laughs] And give it the benefit of the doubt. I mean, I couldn't lash out at it, because it's innocent. [laughs] I mean, turn him into an opponent, someone to pass me a ball and I pass it back and make a game out of it. [P09]

4) Helping with household chores:

It would help them around the house, live with them. It would help them with chores, first and foremost. [...] So you're able to give it orders all day long, go there, go buy bread, come back. [M04]
...something to help him at home. I mean, he manages anyway. Maybe cook for him when he needs it. [M11]
It should help with everything, do the shopping in the market. Someone to go shopping, help my mom iron clothes at home, she's obsessed with ironing clothes, she does it all the time. It should help with household chores, I think. [M12]
A product that functions as a human, so to speak, that can put food on a plate and bring it to them, help them stand, take them to the bathroom. A robot with human capabilities. [M15]
I don't want a robot in my apartment, but in the garden yes, to cut the grass, to plough the ground... […] I planted trees, I planted vines, I planted flowers, I planted everything, but now spring is coming, it's time to work and I need help, I need a robot. (laughs)[P03]
I think that if I can't stand up on my own anymore, it could do some things for me, like... For example, it could go buy me bread, potatoes... [P10]

5) Facilitating mobility:

It should help my husband move from the bed, around the house, go down the stairs, climb them... [P05]
I would order walks outside, in other cities, I would order meetings with friends, I would order small getaways to America, I would order a lot of things. [P08]

In general, elders are reluctant to accept help from a robot. They perceive it as something foreign, an intruder in their personal life. They are afraid that it might disturb the predictability of the life they got used to.

> *I don't want a robot. I don't need anything. It's just me, myself and I! [P01]*
> *I'm the kind of person who... I don't really like people doing things for me, I mean... That's not good. […] And so... I don't think I would need a robot. [P02]*

Concerning the looks of the potential artificial intelligence carrier, most of the answers replicate the image of the humanoid robot promoted en masse by science-fiction productions, toy factories, and even school manuals. Most people (especially elders) insist that the look should be as close to a human as possible.

> *It [the robot] should be as similar as possible to a human body. [M02]*
> *A little man, a dwarf-like little man, let's say, like the seven dwarves. [M01].*
> *It should look like a person, otherwise, it would scare me... Those weird eyes... [P02]*
> *...it could only resemble a human, right? It should have legs, hands, a head... [P07]*
> *In my mind, a robot should be flesh and bone, like me, have a soul, have a heart, cry, smile, argue with me and give me appropriate replies in a dialogue. [P09]*
> *It should look friendly... something... something you can befriend, it shouldn't be cold. [P10]*

A resemblance with the children who are away was mentioned several times.

> *It should look like all four of us [their children]. That way they could see us every day.[M03]*
> *A bit like my brother, about 2 metres tall, 100 kg and it would be okay, because the work requires strength, my 60 kg would be no good. [M05]*

Well, it's one of those robots, about as tall as me, maybe a little smaller. [...] At about 1,50 m, with wheels, of course. I would have liked it to be like WALL-E, I really liked WALL-E, but it should look like a person, with hands, things like that. [M07]

There are particular situations (when a parent is sick) when the migrating child uses technology for real-time monitoring of the health of those at home. In another interview (M01), the respondent mentioned the need for a tele-camera to allow monitoring of the actions of the elder at home.

I installed some video cameras after my father died and at least I know where she [my mother] is. I mean, I know when she's in the house, I know because the camera is recording and I know who, when and how is there. If she's not in the house, I check to see where she might be... New technology is an advantage. If it weren't for it, things would be much more complicated. [M08]

IV. Some conclusions

We can mention two categories of individual justifications which fuelled the Romanian emigration phenomenon: on the one hand, the absence of real chances for decent survival in certain communities; on the other hand – the attraction of the promises of Western Europe. In both cases, the experiences of some inner-circle persons are conclusive in driving the initial decision to migrate.

The decision to go abroad for work is not the same as the decision to emigrate. In almost all the cases included in our research, people initially planned for a limited stay – usually to gather some money useful to either overcome a critical situation or achieve a specific goal. Usually, achieving the initial goals proves to be more difficult than expected, hindered by unexpected obstacles. Thus, the period of the person's stay abroad extends. New elements tend to happen during this extended provisional state (a life partner, children, a business that is set up), which further contribute to making the adoptive country feel more like 'home'. Therefore, unless moving to another country is a highly committed decision, the return to the country of

origin is not excluded but rather delayed for the distant time of one's 'retirement'. This seems to be the dominant pattern of emigration to a European country, namely a relatively proximal area. As for the cases of emigration across the Ocean, the decision to stay there permanently is taken from the very beginning.

The interviews we conducted revealed parents who agreed with their children's decision to leave, as well as parents who disagreed. But we did not come across any situation when the parent strongly opposed emigration.

The first year of the pandemic affected the lives of Romanians living abroad: the economic situation worsened, as the various restrictions resulted in jobs being lost, while the possibility to travel to and from Romania was reduced. However, migrants continued to send money to their home country and the remittance flows increased significantly during the 2020-2021 pandemic.

With the development of widely accessible communication technologies, emigration has become less of a separation from those at home. Most transnational families continue to be in permanent contact. Those abroad have the possibility to be involved in the everyday life of those at home (the opposite situation is less visible). Cases when the migrants participate in the refurbishing or the extension of the family house are not uncommon – which could be a sign of their intention to return. The permanent nature of the contact between migrant children and their parents at home becomes clear when we look at the list of ordinary topics for discussion, which are similar to those in a family living under the same roof.

Efforts are necessary to learn how to use the new technology and thus benefit from it. Many elders are not willing (or not capable) to make this effort.

Like in most former communist countries, the elders at home are exposed to the risk of poverty[22]. This general vulnerability is worsened by loneliness, associated with their children's absence (and their spouse's death, in many cases). As much as possible, migrants try to compensate for their absence by sending in material help. This relationship is partially

[22] This is a general situation, but not necessarily the situation of the persons interviewed in this research.

symmetrical: although not so well-off, the parents, in turn, try to make themselves useful to the children who are away.

Cases of elders complaining of anything missing, besides their children who are abroad (and things that are inherent to old age), are rare.

While exploring how people relate to an imaginary situation where they would use a robot, we find that most elders express reluctance and fear of intrusion in their private life. Despite the reluctance, the main expectation is that this technology would replace the absence of the close ones or, at least, would facilitate communication with those who are away.

For those who live abroad, the relationship with their parents at home is the strongest anchor to their country of origin. Through this relationship, those who left actually maintain a connection to everyday life in Romania.

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VI. Annex. List of respondents

Emigrants

M01 F, 39 years old, 1 child, living in Italy for 14 years

M02 F, 41 years old, 1 child, living in Italy for 15 years

M03 F, 34 years old, no children, living in Italy for 14 years

M04 F, 32 years old, no children, living in Italy for 14 years

M05 F, 43 years old, no children, living in Italy for 18 years

M06 F, 32 years old, no children, living in Italy for 17 years

M07 F, 36 years old, no children, living in Italy for 15 years

M08 M, 36 years old, 1 child, living in France for 10 years

M09 F, 37 years old, 1 child, living in Spain for 15 years

M10 F, 42 years old, 2 children, living in Spain for 18 years

M11 F, 40 years old, 2 children, living in Spain for 17 years

M12 M, 40 years old, 2 children, living in Italy for 11 years

M13 M, 42 years old, 1 child, living in Italy for 18 years

M14 F, 36 years old, 3 children, living in Spain for 17 years

M15 F, 37 years old, 1 child, living in Italy for 17 years

Parents of emigrants

P01 F, 88 years old, 1 child living in Spain, who left 16 years ago

P02 F, 69 years old, 1 child living in Italy, who left 13 years ago

P03 F, 64 years old, 3 children living in Italy (left 19 years ago), Greece (14 years ago), England (2 years ago)

P04 M, 65 years old, 2 children living in Italy and the UK

P05 F, 63 years old, 2 children living in Italy and the UK (wife of P04)

P06 M, 72 years old, 2 children living in Italy (left 16 years ago) and England (left 7 years ago)

P07 F, 75 years old, 1 child living in the US, who left 20 years ago

P08 F, 79 years old, 1 child living in the US, who left 21 years ago

P09 M, 82 years old, 2 children living in Canada for 25 and 18 years

P10 F65 years old, 3 children living in England and Spain, who left 18 years ago

P11 F65 years old, 4 children who live in Spain

Aspirations and Expectations: A Social Perception Study About Imaginary Robots

Vinny Flaviana Hyunanda and José Palacios Ramirez

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I. BACKGROUND

Robots, understood as an assemblage or as hybrid entities based on technological designs and social, material, and knowledge innovations (Latour, 1993; Sadin, 2017), are becoming an inseparable part of daily human life. They deeply penetrate the most intimate spheres of the human social domain, with Paro and Jibo serving as examples of social robots that play numerous functions to support people's social, emotional, and relational well-being (Breazeal, 2004). Due to such importance, the emergence of social robots is inevitable in the context of rapid technological advancement. Social robots are programmed to interact within the human sphere and perform certain functions which are generally done by therapists, entertainers, doctors, communication partners, companions, or helpers. The use of social robots is not only meant to recreate and simulate the social skills of human individuals but also produce emotional sensations, feelings of comfort, and empathic understanding to bring about improved quality of human life through social relationships mediated by technology. Furthermore, the gradual progress of social robot development – especially of those robots that are intended to function as assistive robots – is inseparable from the discussion of an ageing society in many European countries. This phenomenon leads us to look into what Mordoch et al. (2013) argued as being one of the crucial elements of social robots in the area of geriatric care and assistance, namely compassion; elderly users are more likely to interact with a humanoid robot or simulated animal object than with a screen. For that reason, this study views it as important to examine more closely some social aspects of robots that would facilitate relationships with elders.

A recently published study commissioned by the European Union noted that those aged 65 or above make up approximately one-fifth of the total EU-27 population. The same report also indicated that the relative share of elderly people in the total EU population is projected to be nearly 30% by 2050 (Eurostat, 2020). The size of the elderly population not only challenges the EU demographic landscape but also increases the risk of an unsustainable welfare system due to a shrinking labour force. On the other hand, while this phenomenon leads to a rise in the old-age dependency ratio, there is not enough workforce to take care of the older generation. In several European countries – especially in Southern and Eastern Europe – families are considered the main provider of long-term care assistance for elders (Martínez et al., 2018; Naldini and Saraceno, 2008; Ruppaneer and Bostean, 2014); elders rely heavily on informal caregivers like spouses, relatives, and friends, with the greater participation of women as the bearer of familial welfare responsibility (Rogero-García, 2010). However, as women begin to leave their homes to participate more in the labour market, they are gradually distancing themselves from domestic work and care duties (Comas-d'Argemir, 2017; Martínez et al., 2018; Martínez Buján, 2011). Consequently, women hire other women, particularly women migrants, as a way to fill the gap in long-term care provision (Anderson, 2012; Eggers et al., 2019; Gori et al., 2016; Spencer et al., 2010).

In light of increasing mobility in the globalised world, the global migration pattern has been characterised by the phenomenon of "feminization of migration", in which women leave behind their homes, children, and elderly parents to work abroad. In their study, Oso and Parella (2012) argued that the literature on female migration and domestic service has shifted to a specific focus on the concept of care. In some countries like Italy and Spain, the elderly caregiving task is mainly performed by migrants who are mostly women from Latin America and Eastern Europe (Lutz, 2018; Martínez Buján, 2011; Morales-Gázquez et al., 2020; Sahraoui, 2019; Torrens-Bonet, 2012). Furthermore, the majority of these women make up a gender-divided labour supply on a global scale, which is a contemporary phenomenon that has been referred to as the "global care chain" by feminist sociologist Arlie Hochschild (2000). This phenomenon lies in a transnational process by which middle-class working women mainly from Western European countries

employ migrant women from poorer or non-European countries to perform their domestic and care labour. In turn, the migrant women then have to employ or rearrange their domestic responsibility to be taken over by other women at home. A study conducted by Pantea (2012) found that left-behind parents who lived in multigenerational households received care from other members of the family, while at the same time engaging in reversal care work wherein they take over childcare for their migrant daughters. Other studies in Indonesia also indicate a similar phenomenon, where the left-behind elderly parents – especially grandmothers – act as the primary or secondary carers of their grandchildren (Aminuddin et al., 2018; Graham et al., 2015).

The departure of women from migrant-sending countries to work abroad in the care sector is facilitated by the commodification of care that operates globally (Lutz, 2018). Compared to when men migrate abroad for work, when women migrate, families and sending societies are affected by the rearrangement of care and domestic responsibilities left behind by the women. In the context of migration, when child/elder care becomes the responsibility of other women in the sending society (Bauer and Österle, 2013; Pantea, 2012), the feminization of migration reproduces gender role norms in both the origin and destination countries. Thus, it is important to point out that a highly gendered care system that solely relies on women's labour at various levels is undermined by the global movement of women under the framework of labour migration. Moreover, the phenomenon of femininization of migration raises an important question about care work that requires an alternative solution not only in the migrant-sending countries but also in the receiving society.

Such a care deficit due to female emigration might trigger countries to explore the potential of social robots as caregivers and companions not only for elders but also for children (Sabelli et al., 2011). However, this raises some ethical questions that must be addressed beforehand. A number of social science studies in the area of technology in care, such as Fosch-Villaronga (2019) and Pols and Moser (2009), have critically challenged whether technology can be used to replace human contact. Similarly, this topic was also heavily discussed by the European Parliament and the Council of Europe in 2017 to the point of thinking about a new human right to "meaningful human contact" (Søraa et al., 2021).

II. LITERATURE REVIEW

In the context of a naturalised shortage of conventional public care resources, the increased number of the elderly population is considered a major determining factor that underlies the development of social robots (Flandofer, 2012). Such robots perform very important functions, especially in the area of assistive care for the elderly (Sabelli et al., 2011). Emerging literature that has discussed social robots has argued that they might provide an alternative solution to some of the economic and social challenges of the ageing population, especially to reduce functional degradation and social isolation for elders (Beer, 2012; Forlizzi et al., 2004). Östlund et al. (2014) underlined the importance of technology as an innovation policy that enables the role of elderly users in innovation. They emphasised the cruciality of focusing on social change and power relations when analysing technology. In addition and in terms of the robot's function as a social catalyst, Nakrem and Sigurjónsson (2017) pointed out that technology can empower the user to be more social, which includes increased mobility outside the home or bringing the world into their homes through telepresence or communication technology. Dautenhahn and Billard (1999) gave the following definition:

> social robots are embodied agents that are part of a heterogeneous group: a society of robots or humans. They are able to recognize each other and engage in social interactions, they possess histories (perceive and interpret the world in terms of their own experience), and they explicitly communicate with and learn from each other. (1999, p.366)

In addition, Cynthia Breazeal (2004) described that a social robot "is able to communicate and interact with us, understand and even relate to us, in a personal way. It should be able to understand us and itself in social terms" (Hegel et al., 2009). Socially interactive robots operate as partners, peers, or assistants, which means that they need to exhibit a certain degree of adaptability and flexibility to drive interaction with a wide range of humans. Socially interactive robots can have different shapes and functions, ranging from robots whose only task is to engage people in social interactions (for example, Kismet & Cog Robots) to robots that are engineered to adhere to social norms and fulfil a range of tasks in human-inhabited environments (Fong et al., 2003).

One of a social robot's main functions is to engage elders in leisure activities, including physical exercise and cognitive stimulation. Such constant engagement with the robot has a positive effect on the cognitive functioning, well-being, and life quality of elderly people (Everard, 2016; Park et al., 2014). Several studies have also indicated that robots can enhance physical and mental fitness (Sasidharan et al., 2006) and help treat health-related problems like diabetes, dementia, and cardiovascular disease (Lotfi et al., 2018). Moreover, robots can increase pleasure, happiness, and involvement among users with motivational and emotional disorders (Perugia et al., 2017). As an important part of social assistive technology, social robots are often used to supplement human contact, which may increase individual autonomy and independence (Fischinger et al., 2016; Sparrow and Sparrow, 2006). Most importantly, robot technology is also increasingly employed to facilitate elders' connections with other adults, especially their relatives, friends, and health workers (Casiddu et al., 2015), as well as their engagement with the arts and activities that they have started to ignore (Khosla and Chu, 2013; Molestina, 2017).

The urgency of an increasing ageing population has driven the need to elaborate robot technology for elderly companionship. The growing popularity of robots as social assistants and companions for elders has been highlighted by many studies (Bradwell et al., 2019; Broekens et al., 2009; Di Napoli et al., 2022; Fakhrhosseini et al., 2020; Kim et al., 2021; Macis et al., 2022; Zsiga et al., 2013). For that reason, researchers, designers, and engineers have highlighted a number of factors that should be taken into consideration while developing social robots. For instance, it is important to consider the age, gender, and education of users as relevant factors in the design process (Flandofer, 2012; Lee et al., 2016). Furthermore, the real issues of ageing, not simply stereotyped ones, should be thoroughly understood by including elderly users in the process of researching, designing, and determining the usability of the robot from the elderly users' perspective(s) (Ries & Sugihara 2017). A study conducted by Mordoch et al. (2013) found that elders are more likely to interact with a humanoid or simulated animal object than with a screen. Additionally, Prakash et al. (2014) warned that individuals tend to accept the robot as long as it does not seem completely human-like and is not invasive in terms of size and space. Lorenz

et al. (2015) highlighted the importance of robots' behaviour so that they can socialise at a certain level appropriate to the individuals with whom they are interacting.

III. RESEARCH METHODOLOGY

A. Research Objective

This study aims to elaborate on the aspirations and expectations concerning the development of social robots from the perspective of seniors and children in the context of caregiving. In this work, their aspirations and expectations are crucial to understanding the way their perception(s) of an imaginary robot has shaped how this study views distinct social contexts in the three participating countries, namely Spain, Italy, and Romania.

B. Research Questions

In this study, the researchers are guided by the following research questions:

1) What makes a social robot agreeable or disagreeable to humans?
2) What is the participants' general acceptance of robots as companions for the elderly?
3) How do the participants' replies correlate with their imagination? (Is the robot contradictory or not in its appearance or abilities?)
4) Has the workshop influenced the participants' views and knowledge about social robots?

C. Data Collection Process

Data from this study is mainly generated from a series of workshops that were conducted in the three participating countries, namely Spain, Romania, and Italy. Between April and May 2021, each of these countries independently held two types of workshops: one for elderly participants and another one for children. In each country, the workshops were coordinated by a team

composed of theatre directors, 3D modelling and animation artists, roboticists, and robot ethicists. Through these workshops, the team aimed to understand what makes social robots agreeable or disagreeable to humans. In addition, it was expected that the general public would therefore become familiarised with the current developmental state of social robots and reflect critically on their future coexistence with technology.

The COVID-19 pandemic has posed a difficult challenge for the project team to recruit suitable participants for the study. Since the study particularly intended to include the participation of seniors and children in the development of robot characters, the project team encountered several rejections not only from the prospective participants but also from their family members due to serious concerns related to the pandemic situation. For that reason, the study team was under immense pressure to modify the method of recruiting suitable respondents. Rather than fully relying on the conventional technique of sampling, the team opted to employ the snowballing technique which, to some extent, eliminated the uncertainty that the recruitment process could have jeopardised the timeline. Furthermore, the study team decided to individually recruit potential study participants – both elders and children – through personal networks. As a result, the study sample might not be ideal due to unforeseen circumstances that could negatively affect the health situation of the respondents.

In the workshops, both elders and children were invited to imagine an ideal social robot model that could help the elderly in the future. To do this, the participants were engaged in a series of discussions and role-playing exercises (children only) to stimulate their imagination about the form, function, and even desired personality of the social robot that may appeal to them. This could be in the form of an existing robot model or an imaginary one that does not (yet) exist. Furthermore, elderly and child participants were asked to fill out questionnaires before and after their participation, including exercises using a Robo kit for both workshops in Romania and Italy. The questionnaires were designed to capture the participants' aspirations about what the social robot should look like, as well as their perceptions of the technology.

Besides filling out the pre- and post-workshop questionnaires, elderly and child participants also completed the robot character file intended to store

imaginary descriptions of their desired robot model. Results from these workshops were used by the 3D robot artists from Romania, Spain, and Italy to develop six virtual robot models based on the visions projected by the participants. These virtual robot models have been uploaded to a custom-built website where each one of them is enlivened by a chatbot and a limited set of short, animated reactions.[23] Furthermore, due to contextual differences among participating countries, there were several adjustments in terms of how the workshops and data collection were carried out in each country. The project teams in Spain and Romania employed similar – yet not identical – robot character forms for the children to fill out. These two countries also took slightly different approaches concerning the robot character file. Where the Spanish team ensured the children completed the character file on the spot, the Romanian team asked their child participants to fill out the file at home. Unlike in Romania and Spain, the Italian project team employed a more simplified robot character file for the children and no file at all for the elderly participants. For that reason, the discussion part of this report largely covers the results of elderly respondents from Romania and Spain.

The research teams in the three participating countries struggled to conduct face-to-face interactions with the desired respondents, especially the elderly population, due to the COVID-19 pandemic. To address such barriers, each project team from the participating countries took a rather different approach to the data collection process, including questionnaire administration and the robot's character file. Thus, the technical details of the data collection varied by country. In general, the workshop-related questionnaires (pre and post) were distributed through Google Forms to enable the elderly participants to engage without being physically present. As a result, their replies might not be as appropriate as expected since the research teams were less able to physically control the process of filling out the survey. Furthermore, the data collected from the workshops in the three countries are stored in a shared drive accessible to all the team members. Collected raw data were then grouped based on the characteristics of the respondents, namely elders and adults as the first group and children as the second group. Following that, the data were entered manually and the team cleaned the data to identify errors that could have occurred during the data

[23] https://imaginaryrobots.eu/ (accessed 25.06.2022)

collection process. Several themes emerged from the analysis, further categorised into the headings and sub-headings of this report.

IV. CONTEXT OF THE STUDY

This study is commissioned by "Tele-Encounters: Beyond the Human" (2020-2023) as a collaborative project between Teatrul "George Ciprian" (Romania), UCAM Universidad Católica San Antonio de Murcia (Spain), and Industria Scenica (Italy) that explores the impact of the Internet, robots, and Artificial Intelligence (AI) on human relationships, as well as the meaningful integration of these technologies into the arts. One of the key aspects that this project aims to address is the emergence of social robots as companions for elders in relation to migration and loneliness. For that reason, the project employs telematic theatre and interactive digital art to consolidate a wide space of collaboration between artists, professionals in the cultural sector, technologists, and researchers who engage critically with new media. In addition, this project intends to tease out emerging debates about the future and ethics of human-robot interaction and make it accessible to a larger audience.

In this study, child and elderly participants in the three countries engaged in country-based creative workshops led by a team of theatre and digital animation artists, as well as experts in ethics and robotics. Through the workshops, children, adults, and elderly groups participated in creative exercises by imagining models of social robots, including their ethical implications, personality traits, and physical appearances. Results from those workshops were used by digital artists and technical experts to design six interactive and AI-infused 3D models available on an online platform, https://imaginaryrobots.eu/.

V. RESPONDENTS' PROFILE

This section will describe the overview of our study respondents, which includes their demographic profile, educational background, and labour experience.

A. Adult/Elderly Respondents

Table 1. Profile of adults/elderly respondents

	ALL OBS (n=41)	
RESPONDENT		Approx.
- Male respondent	18	44%
- Female respondent	23	56%
EDUCATIONAL LEVEL		Approx.
- Primary	7	17%
- Secondary	11	27%
- Vocational	2	5%
- University degree	8	20%
- Master's degree	8	20%
- Doctoral degree	5	12%
RESPONDENTS' AGE (range from)		
- Spain	66 – 88 years old	
- Romania	60 – 78 years old	
- Italy	20 – 77 years old	

A total of 41 adult/elderly respondents are involved in this study. The elderly group is spread across three participating European countries, i.e. Spain, Romania, and Italy, and female participation (56%) is higher than male participation (44%). Although the overall gender distribution among the study respondents appears to be roughly equal, it does not reflect the gender

distribution of respondents per country. The study engages more male than female elderly participants in Spain but female respondents are predominant in Romania and Italy. Romanian female respondents contribute 65% and Italian female respondents' share is 60%. In terms of the respondents' educational background, **Table 1** above indicates that the educational level among adult/elderly respondents is dominated by secondary education level, as 27% of the total respondents completed only their secondary degree. They are followed by those who obtained a bachelor's and a master's degree, representing nearly 20% of the education profile.

The respondents' occupational background is quite varied. Even so, there is quite a sizeable proportion of the respondents who work or have been working in the education sector, particularly as professors or teachers. Besides teaching jobs, elderly/adult respondents also serve as government staff in public offices and work in the commercial sector, such as dressmakers, entrepreneurs, drivers, project managers, and economists. The study also finds some female participants are housewives. Besides that, the data also shows that the Spanish and Italian respondents are all retirees, whereas the majority of the Romanian respondents are still active in the labour market. In Spain, all participants are retirees aged above 65, which is the Spanish retirement age. Similarly, almost all Italian participants are also retirees; 90% of the Italian respondents are above 67, which is the legal retirement age in Italy. On the contrary, the case of Romania is rather different. More than half of its respondents (53%) are below the retirement age (below 65). Thus, the difference in the country results in Spain and Italy might project a distinctive trend in comparison with the Romanian results.

B. Children

Table 2. Profile of child respondents

SPAIN	ROMANIA	ITALY
N=15 (5/m; 10/f) Age= 10-12	N=16 Age= 11-12	N=13 Age=10-13

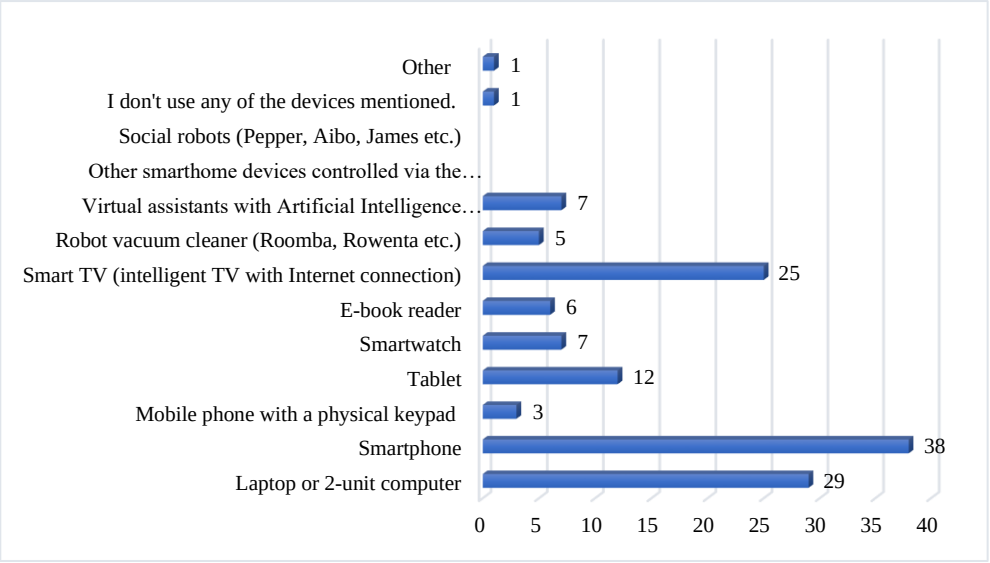
VI. DESCRIPTION OF THE SURVEY'S RESULT

A. Adults/Elderly and Robots

Results from this study indicate that the presence of technology in the adult/elderly respondents' everyday lives is inevitable. The majority of adult/elderly respondents reported that they frequently use the Internet for day-to-day activities. Having said that, a minority of these respondents – only two of them – commented that they do not use the Internet. The rest of the respondents use the Internet frequently. The respondents were also asked about the source of their Internet connection: apart from those who do not use the Internet, 39 respondents and 27 respondents answered that their Internet access comes from Wi-Fi and mobile data respectively.

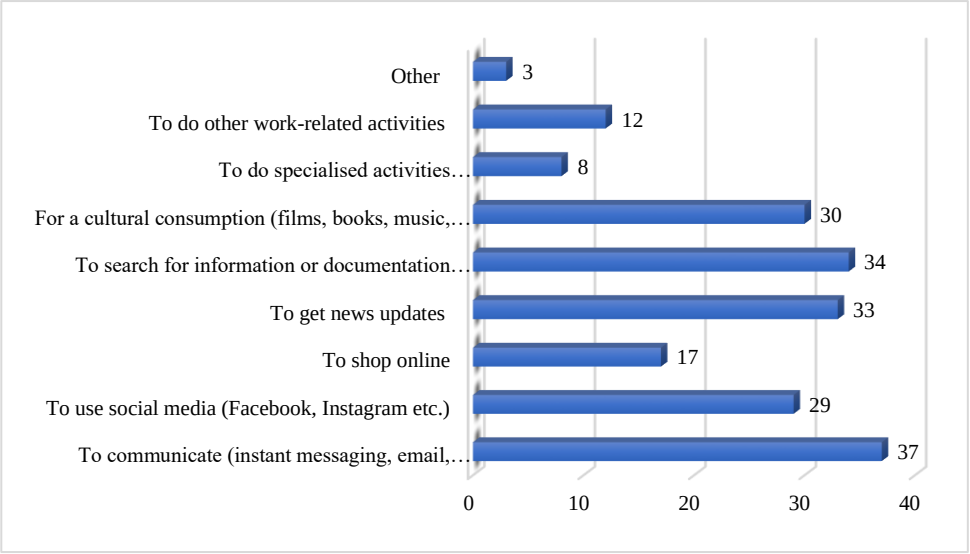
During the workshops, the respondents were asked to choose what kind of digital device they use on a regular basis. The selection of various devices mentioned in the study is illustrated in **Graph 1**. The same graph also indicates which of those devices is more popular. For the respondents, the most popular digital device is the smartphone, which is used by 38 respondents. For them, smartphones are handy and easy to use. Furthermore, having a smartphone in hand is becoming a habit. They also think that they are accustomed to navigating their smartphone and that it facilitates all of their needs, such as browsing and looking for information, reading news, taking pictures, and accessing maps and translation services. Besides smartphones, laptop/desktop computers and smart TVs are also popular among the respondents, being used by 29 and 25 respondents respectively. The majority of those who answer laptop/desktop indicate a high necessity for work and study purposes. Other than those three popular devices, the tablet ranks fourth in this list and is selected by 12 respondents. The survey results then indicate that the remaining device types are less popular and used by less than 20% of the overall respondents. For example, only seven respondents use a smartwatch and virtual assistants.

Graph 1. Popular digital devices used by the respondents

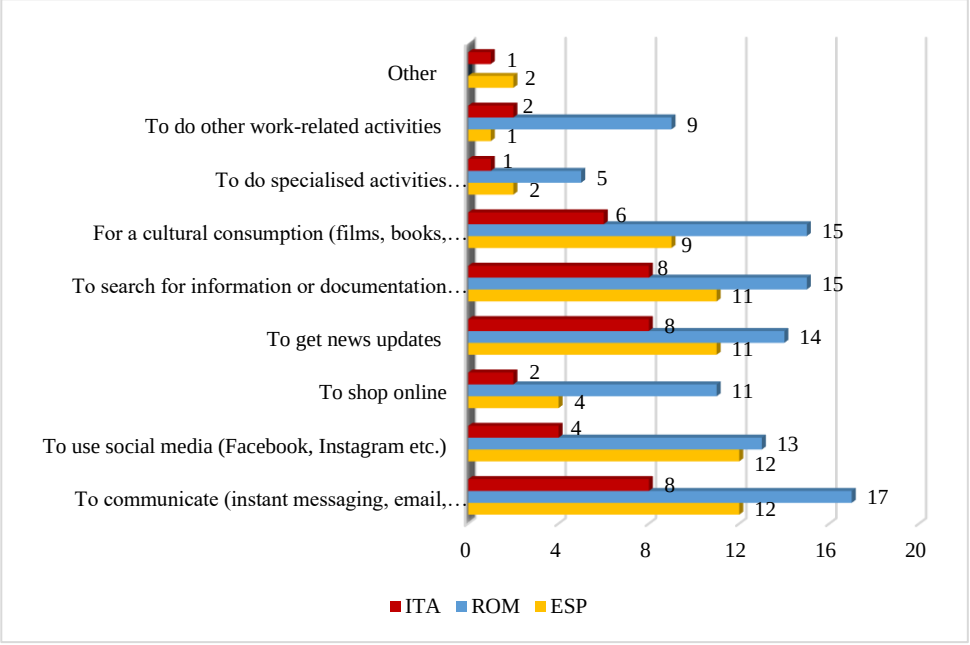


In the country landscape, the use of digital devices among the elderly population reveals a similar pattern. Among them, the use of smartphones dominates the studied population. All 17 respondents in Romania and 12 respondents in Italy reported that they use a smartphone, followed by nine Spanish respondents. Unlike the situation in Romania (16 respondents) and Italy (seven respondents), where the use of computer desktop/laptop ranks as the second most used device, 10 respondents in Spain rank smart TV instead. This makes computer desktop/laptop the third most used device in Spain, which was reported by six respondents. Interestingly, the use of virtual assistants with AI (reported by seven respondents across the three countries) and devices that support daily house chores, like cleaners or smart appliances (reported by five respondents from the participating countries) is relatively low. This is found more frequently among Italian respondents than among Romanian and Spanish respondents. In the case of virtual assistance, only a small number of study participants – namely, three from Italy, two from Spain, and another two from Romania – reported using this device. A similar trend is also observed concerning the use of robotic appliances, mentioned by only a small minority of the study's respondents.

Graph 2. Main purpose of using digital devices



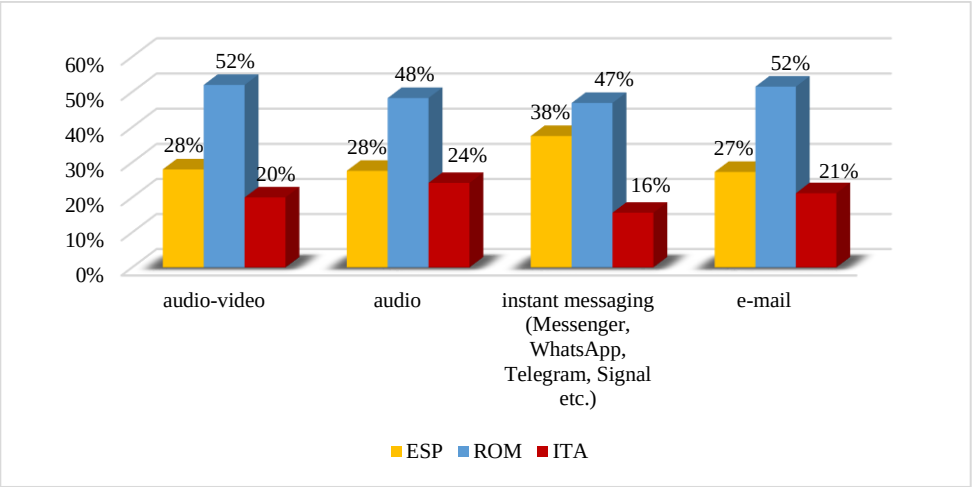
Graph 3. Country view of respondents' main purpose in using digital devices



Graph 2 above shows a list of purposes that drive the respondents in using their digital devices. The main purpose "to communicate" – with families, relatives and friends – is expressed by 37 respondents. Besides that, a large majority, namely 34 respondents, reported that they use devices to browse for information and read the news, as reported by 33 respondents. Subsequently, 30 respondents answered that they use their devices for entertainment, which includes watching films and listening to music. They also said that such devices are for accessing social media, as mentioned by 29 study participants. Furthermore, in terms of the preferred function of the device, 33 study respondents reported that they frequently use instant messaging features and 32 respondents said that they use devices to access email. Furthermore, 29 respondents confirmed that they use only the audio feature, which is a slightly higher number compared to those who use the audio-video function, as mentioned by 25 respondents.

Data shown in **Graph 3** indicates that communicating/connecting with family, relatives, and friends is the most cited response by all Romanian respondents, 12 Spanish respondents, and eight Italian respondents. Communication is followed by other reasons for using digital devices, namely accessing social media, browsing for news or any other information, online shopping, or entertainment. It is interesting to note that the online activity of Romanian respondents is consistently higher than that of the respondents from the other two countries. It can be detected that, for instance, nine Romanian respondents use their devices for work-related activities, in comparison with only one Spanish respondent and two Italian respondents that cite the same answer. This somehow confirms the earlier assumption on the age distribution profile of the Romanian respondents, which does not fall into the retirement age bracket. Besides that, online shopping activities are frequently reported by 11 Romanian respondents as opposed to four Spanish respondents and two Italian respondents. For that reason, it is also suspected that the Romanian respondents are more technologically savvy than the Spanish and Italian ones, as indicated by their relatively diverse use of technological devices.

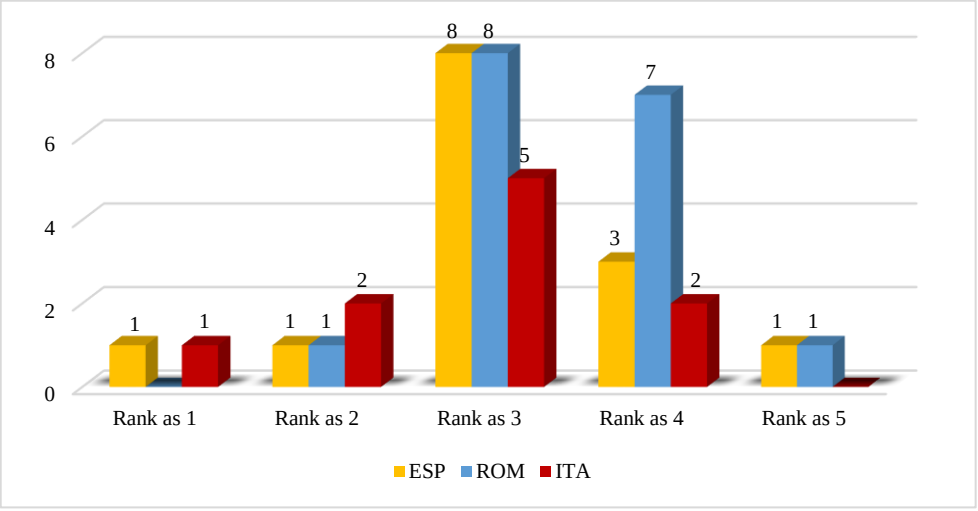
Graph 4. Country's share of popular online communication features used by respondents



Besides the respondents' individual motives, the study also looks into what technological features are used. The general trend among the three countries indicates that there is a consistently greater share of Romanian respondents compared to the Italian and the Spanish shares when reporting the use of preferred functions in their devices, as indicated in **Graph 4** above. A stark contrast is found in the use of e-mail, where there are 17 Romanian respondents – representing 52% of users of this function – compared to only nine Spanish users (27%) and seven Italian users (21%). Not only that, the use of audio and audio-video communication also indicates a similar pattern, where the Romanian share in these two features is consistently higher compared to the other two. Audio communication is used by 14 Romanian respondents, who represent 48% of those who use this feature, compared to only seven Italian respondents and eight Spanish respondents representing 28% and 24% of the users respectively. Likewise, audio-video communication is used by 13 Romanian respondents, representing 52% of this feature's users. This number is still greater compared to the combined figure for Italy (24% of the users, representing five answers) and Spain (28% of the users, representing seven answers). Lastly, despite the trend remaining the same, the share distribution in the use of instant messaging among respondents from the three countries differs slightly. The use of this feature

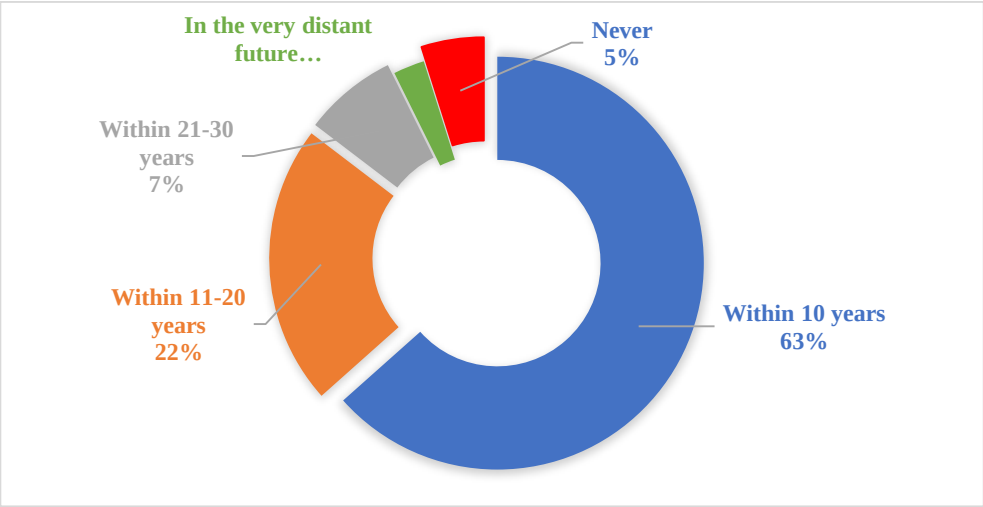
is quite popular in Spain, as indicated by 38% of users (12 Spanish responses) and coming second after the Romanian share (47%, 15 responses), whereas only five Italian respondents report the use of instant messaging features (16% of the users of this feature).

Graph 5. Respondents' assessment of their ability to use technology



Graph 5 above portrays the study respondents' self-assessment of their ability to use technology. The study also asks the respondents about their tech-savviness in operating technological devices. Responses gathered from the survey found that the majority of the respondents rank themselves as medium (3 on a scale from 1 to 5). This result is followed by those who rank themselves "4", meaning that they have better abilities. The proportion of those who assess themselves that way is dominated by the answers from seven Romanian respondents, followed by three Spanish and two Italian respondents. This links to the earlier explanation in terms of the Romanian respondents' relatively greater digital knowledge and more frequent use of various devices compared to participants from Italy and Spain.

Graph 6. Respondents' predictions about the evolution of robots for elderly care

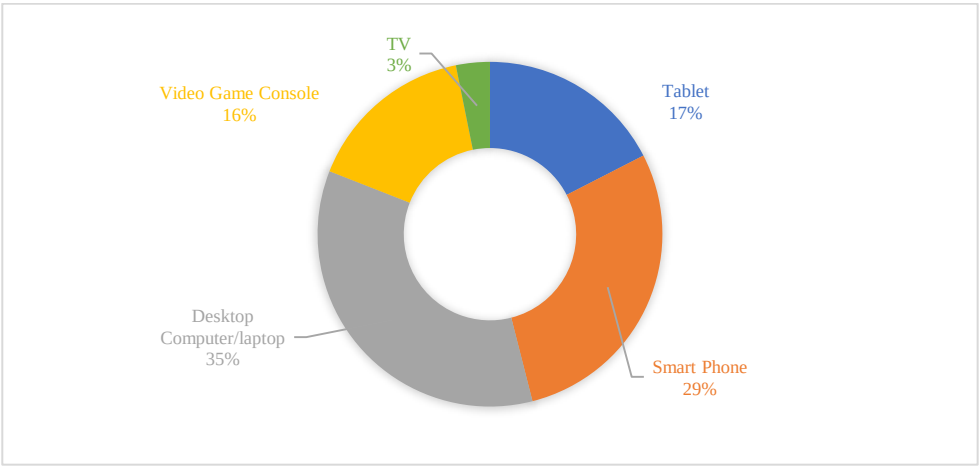


In terms of their experience with robots, the respondents consistently reported that they had never seen nor interacted with a robot in real life. These results are consistently shared by respondents from the three countries. Furthermore, as described in **Graph 6**, the respondents were also asked to predict the evolution of social robots as elderly caregivers. Most respondents believe that the evolution would take place within 10 years, as expressed by 63% of the total study participants. Country-segregated data provides a more detailed breakdown. Among those respondents who think the robot evolution will take place within 10 years, responses from the three countries are proportionally similar. The figures slightly shift for those respondents who think the evolution will take place between 11 to 20 years. In this segment, answers from Romanian respondents contribute to 56% of the opinion, whereas answers from Spanish and Italian respondents represent 33% and 11% respectively. Lastly, the data also indicate that, compared to the Romanian respondents, Italian and Spanish respondents are relatively less optimistic in terms of projecting the robot's evolution as an elderly caregiver.

B. Children and Robots

Unlike the elaborated elderly/adult section, the profiling part dedicated to children is rather limited. The discussion starts with a brief explanation of the various types of gadgets that children use on a daily basis. The study asks the participating children what digital devices they use frequently; the result is illustrated in **Graph 7** below.

Graph 7. Popular devices used by children in the study

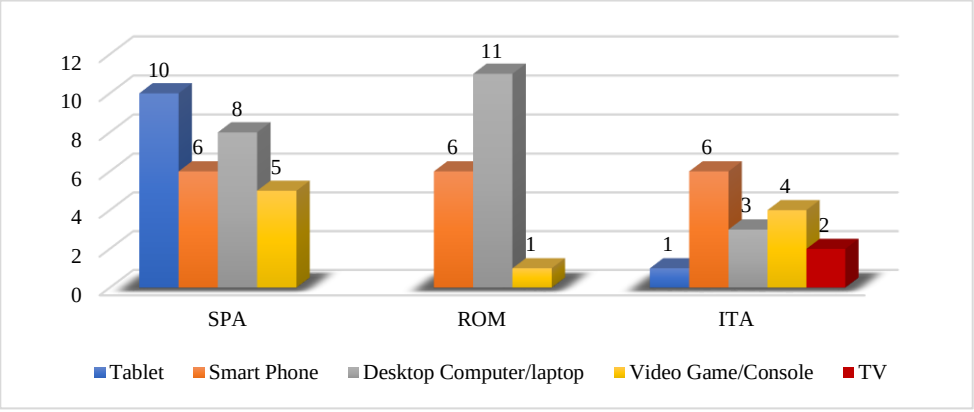


As shown by **Graph 7** above, the data collected by the study finds that there are five kinds of devices that children use on a daily basis. The use of desktop computers or laptops is predominant (35%). It is followed by the use of smartphones, which are used by 29% of the respondents. Tablets and video game consoles represent a relatively equal share of the devices used by children, namely 17% and 16% respectively. Lastly, only 3% of the children mention the smart TV as a device that they use daily.

However, if the data is segregated by country, then the study observes rather distinctive patterns for children in different countries, as shown in **Graph 8** below. In comparison to Italian and Romanian children, Spanish children significantly use the tablet more than the rest. It is reported that 10 Spanish children, in comparison with one Italian child and none from Romania, use tablets daily. Compared with Spanish (eight) and Italian (three) children, Romanian children mostly use desktop computers or laptops, as

reported by 11 Romanian children. Interestingly, the use of smartphones is equally popular among children from all participating countries. Six children from each country choose smartphones as their day-to-day gadgets. Apart from that, five Spanish and four Italian children use video game consoles, outnumbering only one Romanian child. Lastly, among these three countries, only Italian children mention the smart TV as a device they use regularly, but their number is small (two responses from Italian children).

Graph 8. Cross-country comparison of the use of digital devices by children in each country



VII. DISCUSSION

Data used in this study was collected through a series of workshops taking place in three participating countries. The workshops for children and those for elders were structured differently. Not only was there a distinction between respondents within different age groups but also the country context required some variations. Here, it is important to indicate that, despite being asked about some key aspects of the robots' features, the child respondents in Spain and Romania did not fill in exactly the same character file for their robots. Therefore, some aspects may appear in Spain but not in Romania and vice versa. In addition and unlike the process in Spain and Romania, the children's workshop in Italy was conducted rather differently and unfortunately does not allow the study to collect comparable information.

Consequently, the type of information gathered prevented comparisons across the three countries. For that reason, a large portion of the structured analysis in this section focuses on Romania and Spain, while Italy is included via the reports made by the workshop coordinators based on their direct observation(s) of the participants.

A. Gender and Ethnicity Aspects of the Robot

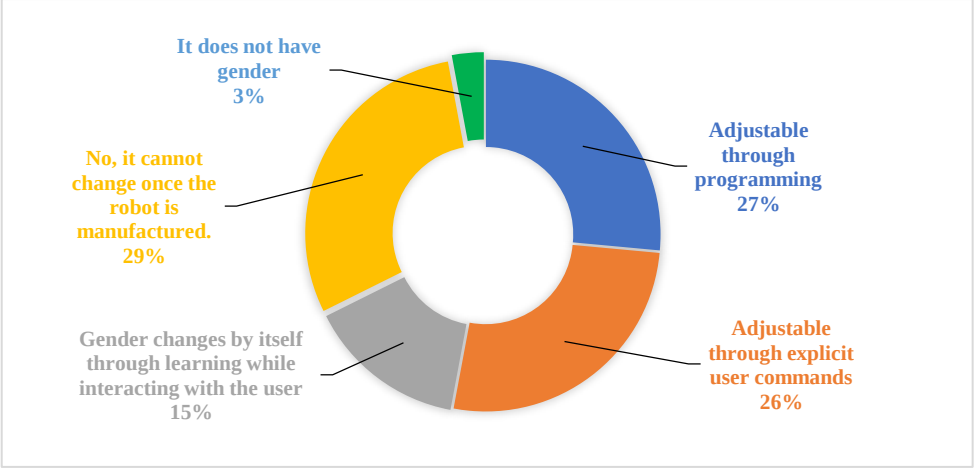
This section elaborates on the respondents' perceptions and expectations of the robot's gender and ethnicity. Collected data from the workshop series, especially in Romania and Spain, were tabulated and then analysed to develop the large majority of the content of this section. Furthermore, this part also presents separate findings between the adult/elderly and child respondents.

1. Adults/Elderly

In terms of the robot's gender, more than half of the elderly/adult participants in the study – which is approximately 61% – prefer the robot's gender to be "neutral". This is followed by 25% of the respondents who explicitly want the robot to be "female". Furthermore, 11% of the respondents think that the robot's gender should be fluid. Of note, none of the respondents specifically selected "male" as the preferred gender for the robot. If the results are broken down, it is clear that Spanish and Romanian participants have distinct preferences. Despite the large majority of the adult/elderly participants in Romania (69%, represented by nine answers from the Romanian respondents) and more than half of the Spanish respondents (57%, represented by eight answers from Spanish respondents) selecting "neutral" as the robot's gender, those who answered "female" come in second place. There are six Spanish respondents and only one Romanian respondent who would like the robot's gender to be female. In addition and despite the number being somehow insignificant, two Romanian respondents and one Spanish respondent prefer the robot's gender to be "fluid".

Besides the explicit preference for the robot's gender, the survey shows that the participants also associate the robot's gender with its voice. The result is consistent with the result on gender, as most respondents prefer the robot's voice to be female or neutral. This condition is strongly apparent among Spanish respondents, who mention that a female voice sounds "calming". This might also be influenced by the artificial voices generated by existing digital devices such as Alexa and Siri. Unlike the Spanish respondents, Romanian respondents show more diverse responses. Some of them emphasise the colour of the voice that is articulated as "warm", "friendly", "pleasant", and "calming" as opposed to explicitly referring to a male or female voice. Some other respondents even want the robot to have the voice of family members. Moreover, Romanian respondents also want the robot to have a human-like voice but which is clearly distinguishable from a real human voice.

Graph 9. Adjustability of the robot's gender



The study also asked the respondents in Romania and Spain whether and how the imagined robot's gender could be adjusted. **Graph 9** above illustrates the result of the respondents' view on the adjustability of the robot's gender. The result finds that more than half of the respondents, namely 68%, answered that the robot's gender would be adjustable. The adjustment can be done through programming (as expressed by 27% of the respondents),

through explicit user command (as mentioned by 26% of the participants), or adjusted automatically by interacting with the user (as mentioned by 15% of the respondents). Despite this, 29% of the respondents think that the robot's gender should not be adjusted at all after having been manufactured.

When answering the gender questions, some respondents keenly provide their justification. Those that support the idea of gender adjustability argue that it might be interesting to avoid routine. A Romanian respondent suggests that it should also depend on the individual user's desire; another respondent even added that human sensibility reacts differently depending on gender. For a Spanish participant, the robot's gender should be adjusted through an explicit user command in order to be more convincing while performing its tasks. An elderly respondent explains the reason she wants the possibility to change the robot's gender by saying,

"*It depends on the moment when I find myself asking for the robot's opinion, as the robot may be more convincing if it has one gender or another, for example, [advising on] women's make-up."* (female, 67 years old, Spain)

By saying this, the respondent implies that certain tasks or actions would be more convincing if performed by a particular gender. A similar response was given by another respondent, who focuses on the correlation between the robot's gender and user interaction.

"I think the interaction would be improved if [the user] could choose the gender of the robot at any time" (male, 72 years old, Spain)

A rather similar response was expressed by a male respondent from Romania, who said that human sensibility reacts depending on gender. These responses signal existing realities wherein gendered duties and tasks are apparent in this group of respondents. It also indicates a certain perception that the robot's gender will be adjusted according to the task given to the robot. These kinds of responses may imply a very loose interpretation that gender constructs imposed on a particular digital creation – in this case, an imaginary robot – could potentially maintain stereotypical tasks and functions based on the gender division of labour according to the particular society to which the users belong.

Despite so, some respondents think the robot's gender should be adjusted for purely practical purposes or to avoid boredom. For example, a Romanian female respondent highlighted the role of the user's individual preference and ability to choose. Likewise, another Romanian female respondent answered that changing gender is something nice to have. The respondent said,

"The user wants a robot that is a robot, not one that mimics a human. It is nice that the robot can change its gender" (female, 59 years old, Romania)

Besides that, some respondents clearly confirm their disagreement about gender adjustability. A Spanish respondent said that it is better not to have the possibility of changing the robot's gender simply because he does not know how to change the robot's gender. Lastly, a Romanian respondent argues that, regardless of whether it is adjustable, the most important part is the quality of the robot.

Besides gender adjustability, the study also elaborates on the workshop participants' perception(s) of the robot's ethnicity. In this case, the description of ethnicity – as explained in the questionnaires – refers to a set of particular traits that include languages, physical appearance, and behaviours that characterise the imagined robot. The majority of both Spanish and Romanian adult/elderly respondents prefer the robot's ethnicity to be "neutral" or "as neutral as possible". Similar to what some respondents indicated earlier about the robot's gender, the robot's ethnicity is not seen as important as long as the robot serves its function.

"Neutral. This aspect cannot be adjusted once the robot was built. Why the robot is not adjustable:
1. Because that is not important for an elder. If an elder needs a robot, they are definitely no longer concerned with physical appearance (not even with their own appearance). In addition, it is a useful robot, not a robot that stays "trendy".
2. That would imply useless additional expenses (time and money)
3. Habit - as a rule, elders are more conservative.
4. Although they manage to learn how to interact with the robot, elders will not be concerned with adjusting the robot's characteristics during the interaction." (female, 66 years old, Romania)

Some elderly respondents for whom gender and/or ethnicity do not matter focus more on the functionality of the robot. A Spanish respondent, for instance, indicated his desire for the robot to communicate in the user's native language. For such functionality aspects, some respondents indicate that the adaptability of the robot to the user is important, with language options being mentioned several times. Despite some participants considering ethnicity as not important, other participants think otherwise although such opinions are not explicitly articulated. A Romanian respondent mentioned that the robot's ethnicity should depend on its user, whereas a Spanish elderly woman said that it would depend on a situation in which the robot would be required to behave like one ethnicity or another. In another case, two female Romanian respondents indicated that ethnicity might be associated with "trust" as, besides providing stability and safety for the elderly, the robot would be a daily companion. In addition, the study also finds surprising answers, in this case. For example, a Spanish male respondent mentions that he would like the robot to be "white" but does not explain whether he is referring to "white" as ethnicity or as colour.

Like the aspect of gender, the study also asks the elderly/adult respondents in Spain and Romania whether their imaginary robot's ethnicity is adjustable. The data indicate that more than half of the participants in each country – 10 Spanish respondents and six Romanian respondents – would like the robot's ethnicity to be adjustable. From this pool, half of the respondents in each country would like ethnicity changes to be done through explicit user command, while about a third of each country's respondents prefer to change their robot's ethnicity through programming. Despite the prevalent desire to have adjustable robot ethnicity, there are relatively sizeable proportions of participants who do not share this view, namely six Spanish respondents and five Romanian respondents representing 43% and 45% of their respective overall figures.

2. Children

Despite the data collection processes for the adult/elderly respondents being slightly different, the workshops with the child respondents gave equally interesting insights into the study. Among the three participating countries,

children in Romania were asked to name their robot, estimate their robot's age, and determine their gender. Whereas the children in Spain implicitly associated gender with their imaginary robots by citing their preference for particular voices, some Italian children named their robots without specifying their gender. In Romania, seven out of 16 participating children answer that their imaginary robot's gender is "neutral", whereas one child mentions that the robot's gender should depend on the family to which it belongs. The "male" gender is chosen by five out of 16 children and the "female" gender is selected by a smaller figure, namely three out of 16 children. The divide between "male" and "female" robots suggests an interesting thread to pursue. While the "male" gender is selected by nearly all boys and only one girl, the "female" gender is opted for by exclusively girl participants. A similar trend is observed in Spain, where only girls selected the "female" or "female and neutral" voice as an indication of the preferred gender. These represent a third of the Spanish children's answers, namely five out of 15 responses. On the contrary, those who selected "male" and "male and neutral" voices are all boys whose responses count as one-fifth of the Spanish child participants. In addition, it is observed that "neutral" and "humanoid" voices are also listed in their preferred options, each selected by three children.

In Italy, the child participants do not humanise caregiver robots into a particular social role such as "wife", "kid", or "respectful butler" within the family. When the workshop coordinators show a short clip about a robot waking up a child instead of their mother, the participants (both elders and children) feel unease with that image, as reported by the project team in Italy. Not only have both elderly and child participants in Italy failed to associate caregiver robots with human action, but they have also expressed awkward impressions as if the robot had tried to replace the mother's role in the family structure (Report Italian Team, 2021).

Besides gender-related aspects, the study also explores how the child respondents in Spain and Romania perceive the ethnic traits of the robot. As the two countries do not use an identical robot character file, the understanding of "ethnic traits" may also differ from one context to another depending on the elaboration of the questions. Spanish children, for instance, distinguish the robot's "ethnicity" in terms of the categorical definition that contrasts human versus non-human, whereas Romanian children use a

completely different category. More than half of the Spanish children taking part in the survey describe the robot's "ethnicity" as just "robot", followed by those who answer "human". Moreover, the child respondents in Spain also write "other" in the ethnicity category, related to the robot's physical construction. Unlike the "ethnicity" that is described by the Spanish children, the child respondents in Romania specifically answer the robot's ethnic traits in a rather distinct way. More than half of the child respondents in Romania define the robot's "ethnicity" by mentioning a country or nationality. Some examples include "British", "American", "Japanese", and "Romanian". Some of their explicit responses about ethnicity are:

"It has an English accent, and it looks French. You can select the language" (boy, Romania)

"The little robot is inspired by an anime (a Japanese cartoon). Even if it doesn't resemble a Japanese person, I assure you it is up to date with what is happening in its country" (girls, Romania)

The other half of the Romanian child respondents mainly mention that it "does not have ethnicity", followed by "no specific race or ethnicity" and "adapts to any ethnicity".

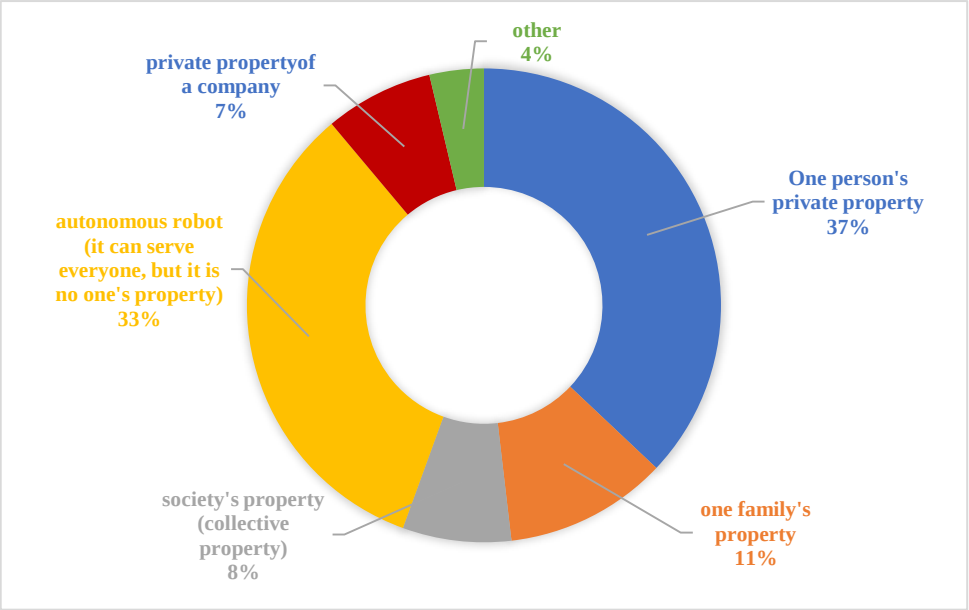
B. Friend and Owner Dilemma

This section elaborates on the relationship model between humans and robots as perceived by the respondents participating in this study. Both children and adult/elderly respondents describe the notion of the relationship between humans and robots in different ways. Like the earlier section, this part is also comprised of elderly/adult segments, followed by the discussion dedicated to children.

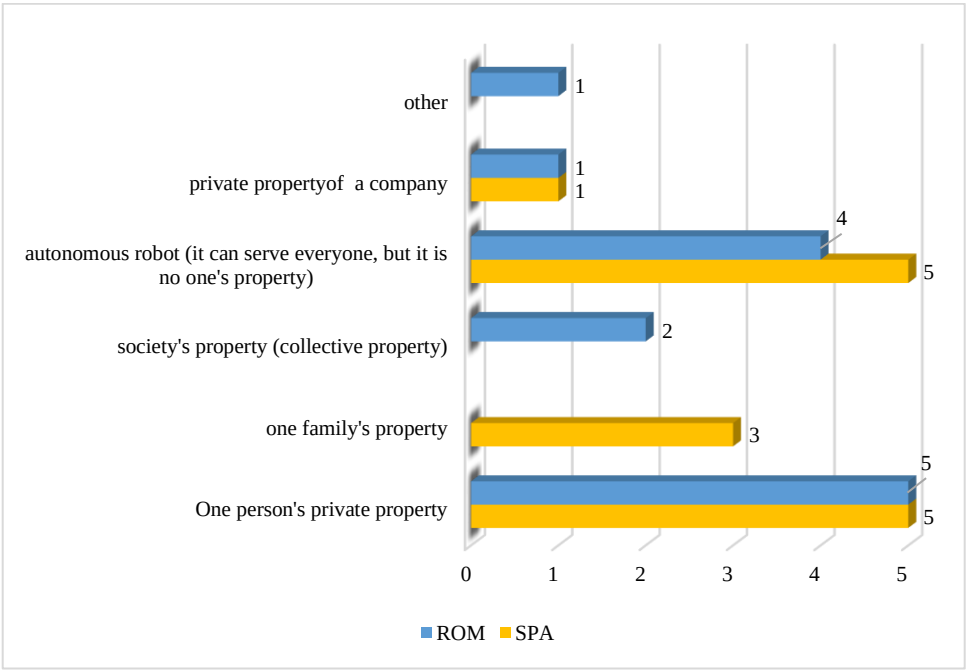
1. Elderly/Adults

In this study, relationships between humans and robots are described through the variable that indicates the ownership of the robot. Due to the different settings of the workshops in Italy, the explanation in this section only focuses on the context of Spain and Romania.

Graph 10. Ownership of the robot



Graph 11. Ownership of the robot (cross-country comparison)



Graph 10 above illustrates the elderly/adults' perceptions of who should own the robot (data gathered from Romanian and Spanish respondents only). Overall, there are two dominant views about the robot's ownership among the elderly/adult participants. First of all, 37% of the elderly/adult respondents view robots as individual/personal property. This figure is followed by 33% of the elderly/adult respondents who would like their robot to be autonomous (meaning no one's property). Moreover, the subsequent two categories are those who think of robots as familial property and as collective property, represented by 11% and 8% respectively.

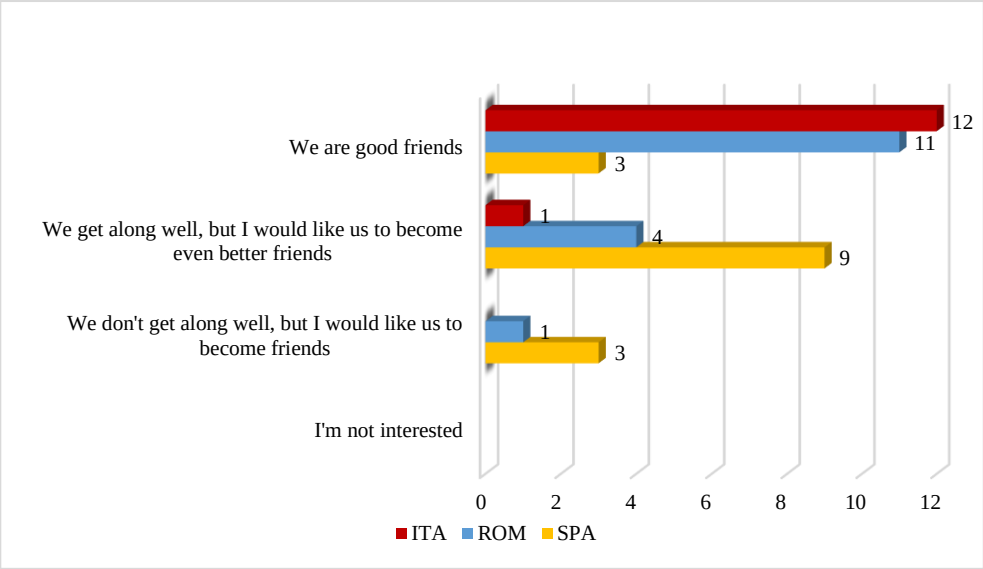
In the cross-country comparison, as shown in **Graph 11** above, the breakdown of the Spanish and Romanian data provides a better look at the robot's ownership. In general, the country trend indicates the two dominant opinions being robots as autonomous entities and robots as individual property. The robot is viewed as individual private property by five out of 14 Spanish respondents and five out of 13 Romanian respondents. Furthermore, the respondents who view robots as autonomous entities comprise five out of 14 Spanish respondents and four out of 13 Romanian respondents. Besides these two dominant patterns, there is a difference of opinion between participants in the two countries regarding collective types of ownership. Three out of 14 Spanish respondents would like their robot to be family property, whereas none of the Romanian respondents select this option. Conversely, the robot as social property (owned by society) is selected by two out of 13 Romanian respondents but no Spanish respondents.

2. *Children*

With the child respondents, the questionnaire uses the "friendship" analogy as child-friendly terminology to characterise the relationship between humans and technology. Generally, the children in all three countries had a positive attitude towards their "friendship" with technology. 59% of all child respondents confirm that they have a good relationship with technology, which is articulated as "we are good friends". Only a minority, around 9%, say that they are not comfortable with technology but would like to improve their "friendship" with technology. Additionally, nearly a third of the children

(32%) express their further interest in improving their "friendship" with technology despite already having a good relationship.

Graph 12. Children's relationship with technology



Graph 12 above explains the child respondents' relationship with their gadgets. Here, Italian children appear to be more technologically confident than their Spanish and Romanian counterparts. 12 out of 13 Italian children confidently state that they are "good friends" with their gadgets, followed by 11 out of 16 Romanian children. On the contrary, only three out of 15 Spanish children fall into this category. The reverse trend in the cross-country analysis emerges in the category that claims an intention to improve their relationship with technology despite already being on good terms, as nine out of 15 Spanish children choose this answer compared to four out of 16 Romanian children and one out of 13 Italian children. Finally, one out of 16 Romanian children and three out of 15 Spanish children do not seem comfortable with technology, even if they would like to improve this "friendship", while none from Italy select this option. In general, it can be roughly concluded that the Italian children in the study are more accustomed

to interacting with technology, whereas the Spanish children are potentially warier of technology.

As explained above, the study utilises the "friendship" analogy to describe the children's relationship with technology. In addition, the children are asked to describe how they perceive their ideal robot. By only including the data from Romania and Spain, it is found that the majority of the children view the robot as a friend and only a small portion of them perceive the robot differently. Some Spanish children view the robot also as a pet, whereas some Romanian children perceive the robot as a servant/butler or a sibling. As mentioned by a number of Romanian children,

"[The robot] *is a servant/butler. It is designed to help the elderly or disabled. The robot belongs to one person because it helps those who cannot take care of themselves"* (boy, Romania).

"[Mobix] *is a companion rather than a servant. It is mainly designed for [providing] company, its other tasks are secondary. It is good company for older people who no longer have someone to talk to or interact with. Mobix belongs to one person. If this robot were sold, it would only belong to one elder. That is, only that person uses it for [providing] company and other things such as help, etc."* (girl, Romania).

"*The robot is a brother. I think a brother will help and understand you in any situation. It will belong to a family. I think the robot should be part of the family, it should be integrated as if it were one of its members"* (boy, Romania).

Even though the word "friend" emerges quite frequently among the answers from both countries, the meaning of "friend" is treated differently by the Spanish and Romanian children. For Spanish children, the status of "friend" underlines the idea of an equal relationship between them. This understanding of "friend" appears to be more related to emotional attachment. A Spanish girl expressed that,

"Robot is a friend because a friend is someone who supports and helps you and [is] always there whenever you need him/her" (girl, Spain).

From their answers, the Spanish children treat the robot with the same quality as treating human friends and without a sense of possession. Some of them highlight the feeling of *comfort* as an important reason to befriend someone. In addition, they also underline *trust* as another important dimension of friendship. These two qualities are seen as crucial elements for the Spanish children in treating and perceiving the robot just like a human friend. A Spanish girl described that the robot is

"*A friend. Because I can tell him/her everything and I can trust him/her"* (girl, Spain)

Therefore, from this kind of information it can be interpreted that the Spanish children perceive the robot as a humanlike friend, although the form might be different, because they apply the same qualities of what they expect from a human friend, especially at an emotional level.

The Romanian children perceive the "friend" status rather differently. They do not seem too focused on the emotional idea of a "friend" but more on the physical presence, which also has its own implications. From their answers, the Romanian children treat "friend" as an extension of *service provision* within the family to which it belongs. The meaning of "friend" relies on the notion of *voluntary help* to perform some tasks for the human "friend", such as taking care of the children, doing homework, or doing domestic chores.

"The robot is a friend because we play together, we talk, we dance, etc. The robot belongs to a family because it can help with the housework and the cooking" (girl, Romania)

"*The robot can be a friend because in case I get bored, I play with it"* (boy, Romania)

"The robot is a friend. It talks to me friend to friend. It belongs to one person because it only talks to me, my family and my friends" (boy, Romania)

One Romanian child mentioned the robot "friend" can replace a *missing* family member, which does not necessarily mean the robot will be treated as a real family member. Besides "friend", some Romanian children also associate the robot with a butler/servant that is expected to do certain tasks,

including elderly assistance as previously mentioned. As a butler/servant, the robot belongs to society or to private owners that could also be one family. By associating the robot with a butler/servant, some Romanian children repeat the notion of "belonging to", which indicates possession or ownership.

C. Likeable and dislikeable features of the robot

1. Artificial Intelligence as part of the robot's features

During the workshops, the elderly/adult respondents were asked about their aspirations for the design of their ideal social robot. The large majority of the respondents, about 90%, would like the robot to be equipped with Artificial Intelligence. The same opinion was expressed by 13 out of 14 Spanish respondents and 11 out of 13 Romanian respondents, as they expect robots to have AI features.

2. Emotional and physical sensations transmitted by the robot

Besides the feature of Artificial Intelligence, the respondents were also asked about the emotions and physical sensations that their imaginary robot might project. The overall results show that the respondents are split equally between those who would like robots to have emotional and/or physical sensations and those who are not in favour of such features. The two categories each make up 48% of the total results, where Romania and Spain are considered together. The country comparison reveals a rather different picture: eight out of 14 Spanish respondents prefer robots not to show any emotional or physical sensations, while the rest of them are in favour. On the contrary, seven out of 13 Romanian respondents would like the robot to be able to signal emotional and/or physical sensations to humans, whereas the rest – five out of 13 Romanian respondents – are against such an idea.

All Spanish respondents who think that the robot should not have emotions uniformly state that a robot is a machine and not a human. This

underlines their arguments that it is not necessary for robots to have emotions and feelings. As illustrated by a Spanish respondent,

"I wouldn't like it [the robot] to feel emotions so as not to see it excessively humanised." (male, 68 years old, Spain)

The Romanian respondents gave more elaborate answers. Despite that, some informants also highlighted the same argument as the Spanish ones, namely that emotions and feelings are exclusively human aspects. A Romanian female respondent mentioned:

"*The robot has one structure only: physical structure. Sensations, emotions have to do with other structures, specific to humans, specific to all living systems (systems that have life). There are emotional bodies, mental bodies, etc. which are wrapped around the soul. And humans cannot place a soul in a robot. No matter the efforts, a robot will lack compassion and love. Since it lacks any receiving structures, it will not feel, and it will not be able to give."* (female, 66 years old, Romania)

Another opinion that is also interesting to note regarding this aspect is related to how the robot performs its tasks:

"*If it does not feel, it can perform the task it was created for correctly, without being influenced by the emotional and physical condition of the person around who it is."* (female, 77 years old, Romania)

Those respondents who answer that emotions/feelings and physical sensations are important features of the robot offer another type of argumentation. Spanish respondents who would like their robot to have feelings and emotions argue that such aspects would make the robot more like a human. However, these Spanish respondents do not refer to the robot's position or role in its relationship with humans; these participants basically compare robots vis-a-vis humans as if they were similar entities. Their view concerns emotional aspects that robots should own to be as similar to humans or as natural (as human) as possible. Here, the Spanish respondents focus their answers on similarity or closeness to the human being, while the aspects of the human-robot relationship are absent. On the contrary, the majority of the Romanian respondents who consider that the robot should have emotions

(and/or physical sensations) focus their attention on the functionality of the robot. Some responses from the Romanian elderly/adult participants are the following:

"*Besides monitoring their health and helping an elder with their daily activities, I think it* [sic: emotions and physical sensations] *would be key for a social robot designed to assist elders to alleviate the loneliness of the people they assist. That's why the robot should empathise with those people."* (female, 62, Romania)

"I think the robot should identify emotions and physical sensations and, through adequate response, simulate the existence of its own emotions. In the case of physical sensations, the reaction should be signalled clearly. In the case of emotions, there can be reactions such as repression, postponement, or other types of reactions. This would be necessary in order to establish a support relationship based on friendship and affinity." (female, 66, Romania)

"I think it would be preferable for the robot to 'feel' the physical sensations of the person it is assisting because it will be part of that person's life – a life that is not so ordinary or simple, a life where the elder is definitely alone most of the time since they need such a robot" (female, 59, Romania)

The Romanian participants placed themselves in the shoes of users who require certain features from a robot. A few answers from the Romanian respondents underline the importance of the users' needs, such as reducing loneliness, monitoring health, and assisting with daily activities, which are the main purposes of the robot's existence. For that reason and for the robot to perform its role well, emotions (and/or physical sensations) are required. This brings us to the conclusion that, unlike the Spanish respondents, the Romanian respondents seem more service-oriented, as most of their responses are often tied up with "the user" rather than simply "human", as frequently cited by the Spanish respondents.

3. Robot Functionality

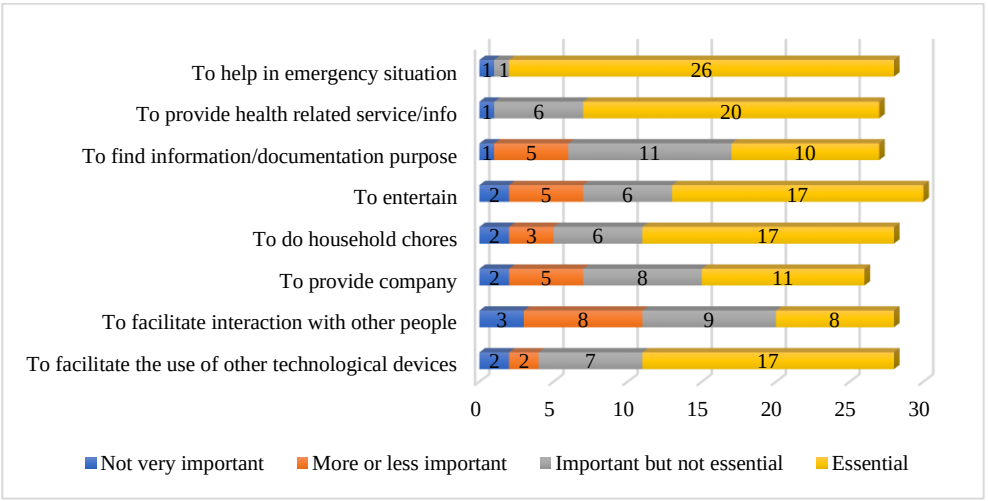
One of the crucial aspects of robot development is functionality. In order to understand the prospective users' expectations, the study also elaborates on

what the respondents would expect the robot to do. Like the previous section, this part also distinguishes between the elderly/adult participants' views and the children's views.

a. Elderly/Adults

Graph 13 below illustrates the expectations of the adult respondents concerning the tasks/functions of the robot.

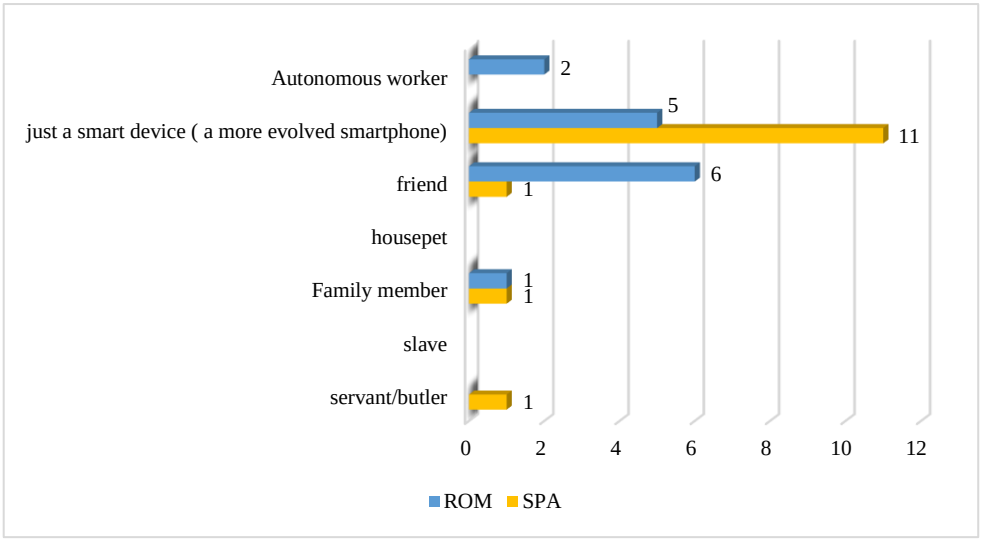
Graph 13. Adults'/elders' expectations of the robot's functions



In general, the majority of the adult/elderly respondents, about 26 out of 28 respondents, think that the essential function of the robot is emergency response, followed by functions for health-related purposes, selected by 20 out of 27 participants. Besides these two functions, 17 respondents also think that functions like entertainment, household chores, and facilitating the use of other technologies are equally important. Furthermore, only eight out of 28 respondents think that the robot's function of facilitating interaction with other people is essential, which ranks the lowest on the list of the robot's essential functions. This is consistent with 11% of the respondents (three out of 26 respondents) who think this function is not very important, which ranks first among the unnecessary robot functions. In terms of the cross-country

comparison, the result also shows the same trend for Spanish and Romanian respondents.

Graph 14. Respondents' perception of the robot's role



The study records that more than half of the overall adult respondents – around 57% – mention that the robot is just a smart device that is more sophisticated than a smartphone. One-fourth of the overall respondents would like to treat the robot as a friend. Interestingly, the picture is very different in a cross-country context. **Graph 14** above presents the cross-country perception of the robots. The majority of the Spanish respondents, 11 out of 14, think that a robot is just a smart device, in comparison with five out of 13 Romanian counterparts. The reverse trend is observed for the role of the robot as a friend. Nearly half of the Romanian respondents, six out of 13, think that the robot could be a friend but only one Spanish respondent said the same. In addition, despite the numbers being very small, it is important to note that one Spanish respondent thinks the robot should be a servant/butler and two Romanian respondents view the robot as an autonomous worker.

b. Children

Like the adult/elderly respondents, the children were also asked about the desired functions of the robot that they imagine. In general, they mention common responses about the robot's functions, namely helping people perform daily chores that include cooking, cleaning the house, carrying/buying groceries, and accompanying elders or people with disabilities. Among others, there are also some variations of the tasks that these children expect the robot to perform, such as: reminding schedules for taking medication or reminding deadlines, doing other tasks that humans are not able to do, and entertaining people with games, dance, and singing. Some children also mention that the robot could save them time, make their life easier, and also defend them.

For these children, the use of social robots serves three main functions, namely regular or daily house chores (primarily housekeeping), elderly caregiving, and child caregiving (nanny role). Children in the three countries show consistent opinions about what the social robot should be able to do. Despite so, the interview structure was performed rather differently in Romania, which made it possible to capture the differences between children's expectations of the social robot's duties for themselves and for the elderly. First of all, the housekeeping activities that they mention include a number of chores, such as: tidying up the house, doing the laundry, taking out the garbage, making the bed, cooking, and getting groceries. There are also some ad-hoc tasks such as providing suggestions or recommendations on day-to-day matters, reaching for items in difficult places, and functioning as a house security system.

Secondly, child respondents in the three countries mostly have similar opinions on elderly care activities to be performed by robots. Mentioned activities that fall into this category are around feeding the elderly, providing company, helping them to socialise, facilitating communication with family members and relatives, reminding them about medication schedules, helping them to move in case of mobility restrictions (like helping them to stand up or pushing their wheelchair), calling an ambulance, and entertaining the elderly. The study captures some interesting views expressed by children. A Spanish child mentioned that a robot could be a "bodyguard" for the elderly

and a Romanian child imagined that a robot could prevent the elderly from dying. Two children, namely one from Italy and another from Romania, specifically mention inclusive functions for disabled elders. For these Italian children, the robot could help the disabled by changing the format of communication between the robot and the user. For instance, the robot could switch its response to sound/voice for a blind person, while the response would be in a textual format for those with a hearing impairment (deaf). Moreover, a child also suggests that the robot should have an alarm and orientation mechanism for its user, as this is suitable not only for elderly but also disabled people.

Lastly, the third function that the children cite is child-sitting, which implies that the robot should play a similar function to a nanny. In carrying out this function, the children expect the robot to help them do their homework, which is mainly cited by the Romanian and Italian children. Besides that, the desire for the robot to play with the children is also apparent, particularly for the Romanian respondents, including cheering them up when they are sad. Additionally, these Romanian children want the robot to listen to their problems, keep them company, engage in conversation with them, and perform small tasks such as opening the door or bringing in some items. A Romanian child even said that the robot can be like a servant too.

4. The physical appearance of the robot

Physical appearance is considered one of the important features in designing a robot. In this section, the study will elaborate on the participants' different preferences concerning the physical shape and form of their imaginary robots. Since the elderly/adult respondents were asked a different set of questions than the child participants, the explanation provided in this section will discuss each one of them separately. Despite this study not focusing on the theory of the "Uncanny Valley"[24], which largely discusses the physical features of a robot, it is worth mentioning this concept as a point of reference.

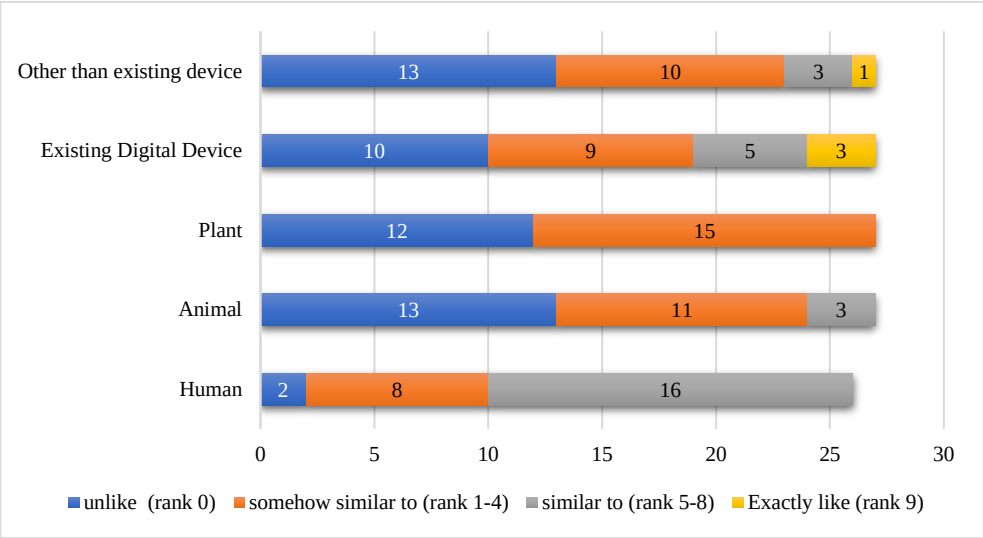
[24] The concept of the "Uncanny Valley" was introduced by Masahiro Mori, a Japanese roboticist. Mori hypothesized that almost – but not fully – humanlike artificial characters will trigger a sense of unease. However, empirical evidence of this hypothesis remains inconsistent, leading to new interpretations of this theory – see (Kätsyri et al., 2015).

Having said that, since the data collected in this study is mainly about the respondents' imagination about robots, and given the inconsistencies of the theory itself, the concept of the "Uncanny Valley" will not be employed further in this study.

a. Elderly/Adults

The study asks the elderly/adult participants to imagine the appearance of the robot. The character file offered five options for the robot's form. Does the robot resemble a human, an animal, a plant, another digital device, or an object other than a digital device? The respondents were asked to rank the robot's similarity with each item on a scale from 0 to 9. As a result, the study generated an inconclusive picture because the respondents' responses were thinly distributed across the 10 levels of the scale. This, in turn, complicates the interpretation of the data. For that reason, the various levels of these scales were grouped into categories. Therefore, the category of "unlike" corresponds to level 0; the category of "somehow similar to" is comprised of levels 1 to 4; the category of "similar to" is comprised of levels 5 to 8; and, lastly, the category of "exactly like" represents level 9.

Graph 15. Respondents' perception of the degree of the robot's resemblance to objects or living beings

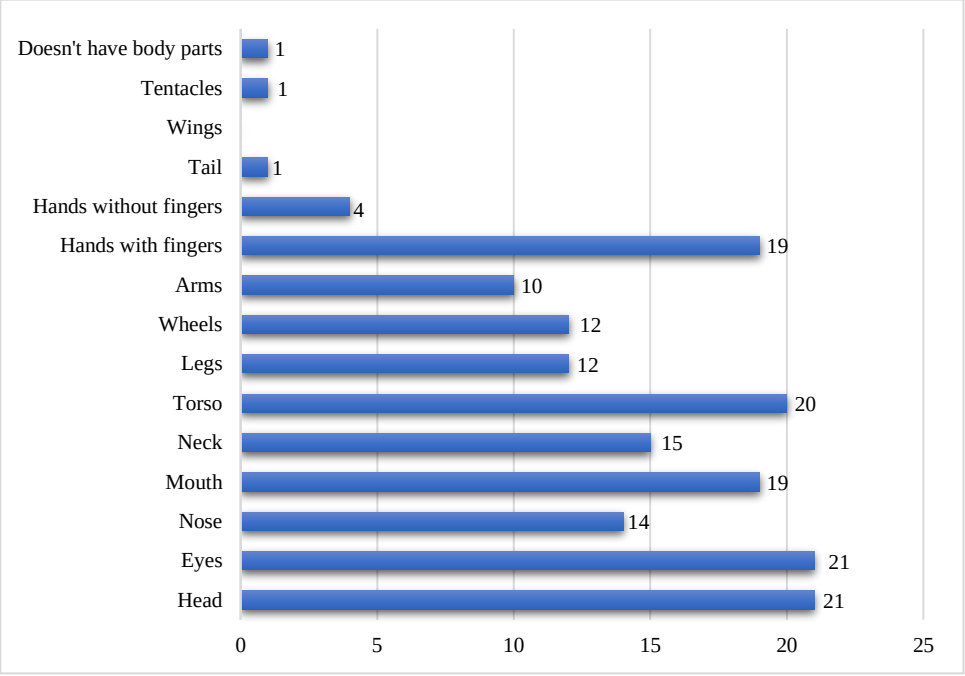


Graph 15 above shows the respondents' perception of the degree of the robot's resemblance to various forms. Overall, from the five shapes – human, animal, plant, existing digital device, and non-digital object – the respondents' preferences incline towards the human form, which dominates the overall result, as 16 out of 26 respondents would like a robot that is similar to the human form but not exactly like one. For some of the respondents, the development of robots aims to replace human caregivers and, thus, being closer to the human form is the desired option. In addition, some of them also comment that a robot closer to the human form would give the user the impression of being accompanied by another person. Besides that, only five out of 27 respondents consider that the ideal robot should resemble an existing digital device, followed by only three respondents who think it should take the form of a non-digital object. On the contrary, a robot in the form of a plant is less conceivable to the respondents, as 12 respondents say that the robot would not take the form of a plant and more than half of them (15 out of 27 responses) are less likely to imagine the robot's resemblance to a plant. One participant responded that it would be weird to talk with plants. A similar situation is also observed in the case of the robot's resemblance to an animal, as nearly half of the respondents (13 out of 27 responses) clearly do not view it that way and another 11 respondents are unlikely to. Despite so, there are

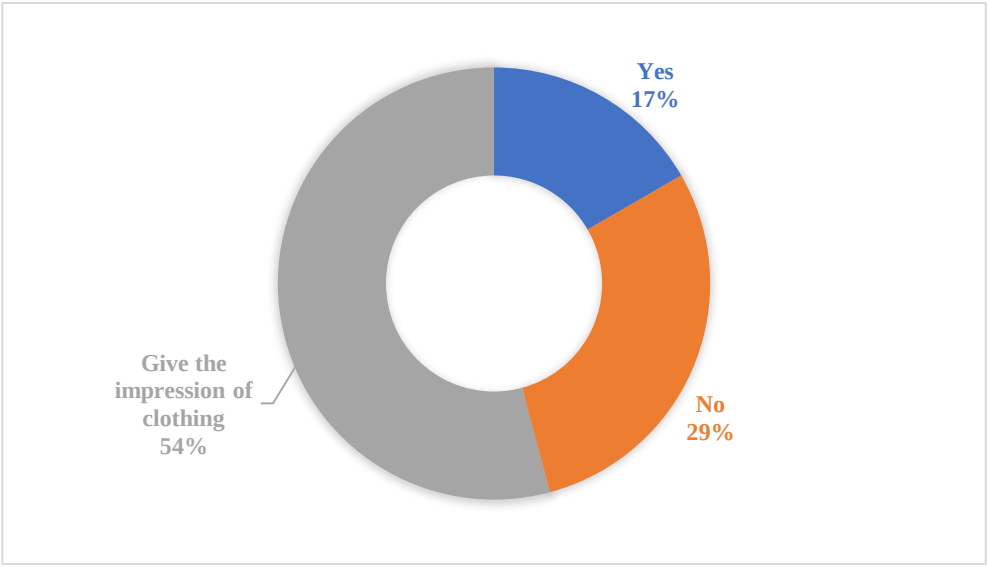
still three respondents who would like their robot's resemblance to be close to an animal. Lastly, a large segment of the respondents does not imagine a robot that resembles an existing digital device (10 out of 27) or an object other than an existing device (13 out of 27).

The study participants were also asked about the necessary body parts that would form the robot. As indicated by **Graph 16**, the overall results show that the respondents selected body parts according to the humanoid form. 21 out of 27 respondents from Spain and Romania believe that the robot should have at least a head and a pair of eyes. Furthermore, 20 respondents also think that it is important for the robot to have a torso. Besides the head, eyes, and torso, the mouth and hands with fingers are also considered necessary – selected by 19 out of 27 respondents. On the contrary, animal attributes such as tentacles and a tail are each mentioned by only one respondent.

Graph 16. Respondents' opinion on the necessary body parts of the robot



Graph 17. Respondents' perception of robot clothing



As the last part of the robot's appearance, the study also approaches the question of whether the robot appears to wear some kind of clothing. As illustrated by **Graph 17** above, in general, the respondents from both countries favour a robot with some kind of clothing. 13 out of 27 study respondents would like the robot's outer material to give the impression of clothing, but only four respondents explicitly state it should wear clothes. On the other hand, seven out of 27 respondents think that the robot should not wear any clothes.

b. Children

Figure 1. An illustration from a Spanish child respondent

Figure 2. An illustration from an Italian child respondent

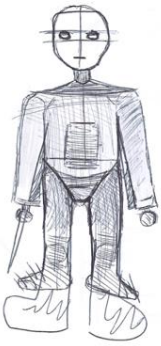
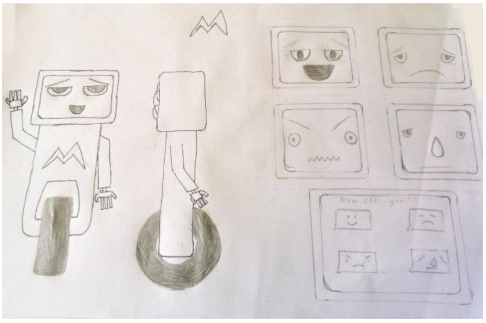


Figure 3. An illustration from a Romanian child respondent

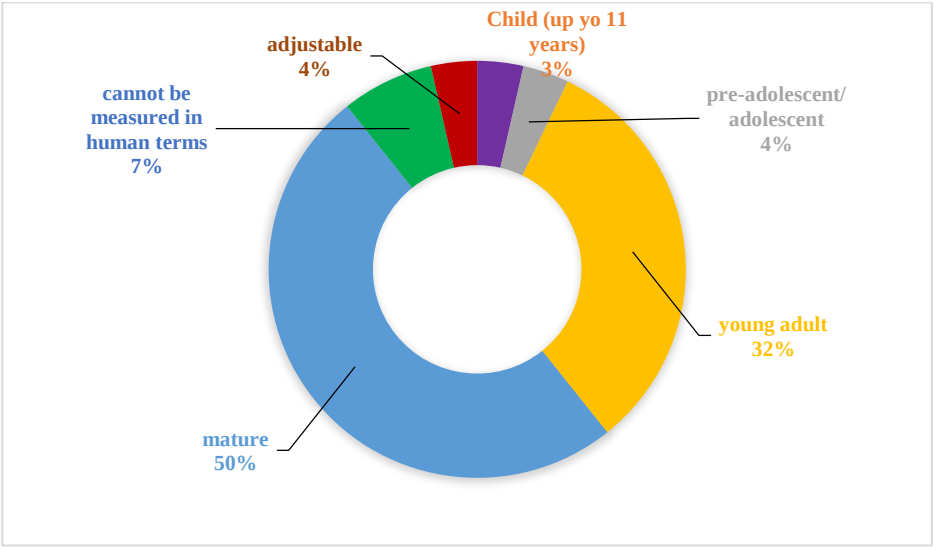


The children participating in this study have similar views about how they perceive the physical appearance of their ideal robot. The majority of these children prefer the robot to not resemble a human. A large proportion of the Spanish children favour the non-human form so they are able to distinguish the robot from a real human being. Moreover, a smaller portion of the Spanish children said that they would like something in between or a mix between "robot" and "human". Similarly, the children in Romania and Italy are in favour of the robot not having a humanoid form. For these children, alternative forms like pets or vehicles – for instance, cars – and abstract shapes or flying objects would be more interesting.

5. The robot's psychological traits

In the development of social robots, personality and psychological traits are key for prospective users. The character file described what types of personality traits children and elderly/adults were expecting. In general, the children mention a wide range of personalities that they desire from a robot. All kinds of positive and pleasant personalities were cited. Various types of personality traits include: friendly, intelligent, happy, trustworthy, affectionate, thoughtful, patient, optimistic, charismatic, attentive, and loving.

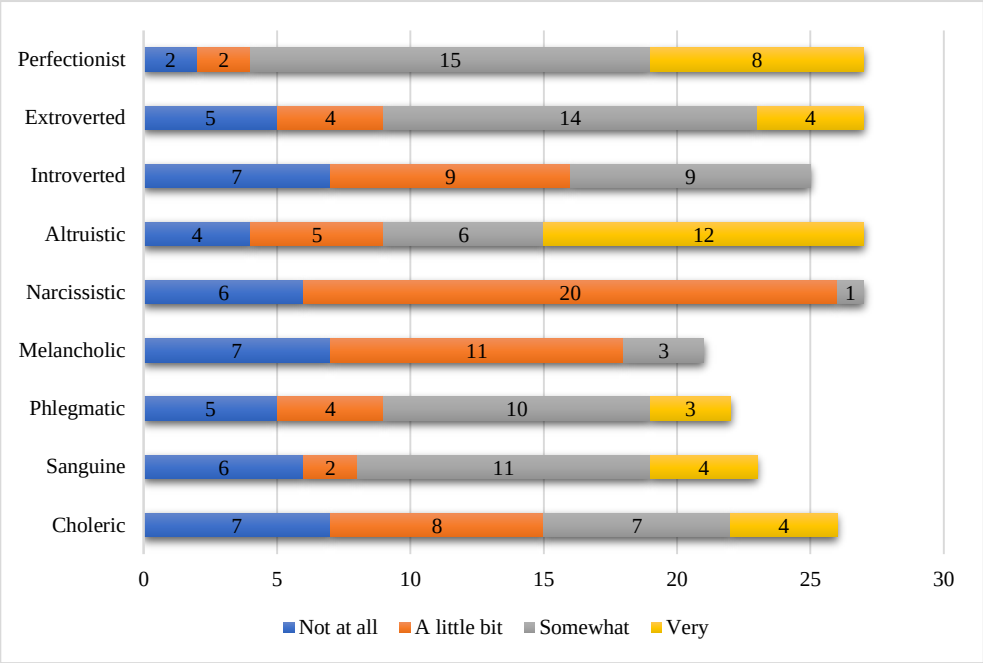
Graph 18. Adults' response about the robot's psychological age



Questions about the robot's psychological traits are useful for understanding the respondents' perceptions. **Graph 18** above illustrates the respondents' expectations of their ideal robot's psychological age. Half of the overall adult/elderly respondents think the robot should reflect the personality of a mature person. With such a robot, the respondents feel that they can have mature conversations on the same level of understanding. The other half of the respondents have various answers, dominated by those who believe the robot should have the psychological age of a "young adult", represented by nearly one-third (32%) of the participants (nine out of 27 respondents). Respondents choosing this answer said that engaging with young adults

makes the elderly more confident and brings back recollections of their youth. In addition, it instils freshness and dynamism into the elderly.

Graph 19. Respondents' perception of the robot's psychological traits

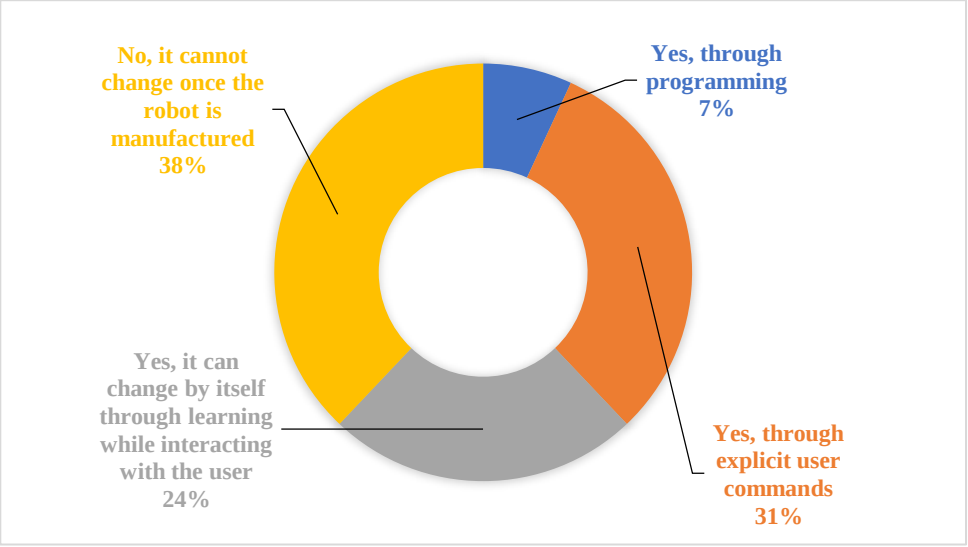


Apart from the robot's psychological age, the character file asked the adult/elderly respondents to rank the different personality traits of their ideal robot on a scale from 0 to 9. These personality traits are: choleric, sanguine, phlegmatic, melancholic, narcissistic, altruistic, introverted, extroverted, and perfectionist. In order to avoid a wide and thin distribution of the replies, the team grouped all replies into four categories, where 0 represents "not at all", levels 1 to 4 represent "a little bit" (or "slightly"), levels 5 to 8 represent "somewhat", and level 9 represents "very". As shown by **Graph 19** above, overall, most respondents think that the robot should be somewhat perfectionist (15 out of 27 respondents) and somewhat extroverted (14 out of 27 respondents). Moreover, nearly half, namely 12 out of 27 respondents, would like a very altruistic robot, while 20 out of 27 respondents would like

the robot to be a little bit narcissistic. Having said that, seven people would not want their robot to be choleric, melancholic, or introverted (not at all).

Furthermore, the study also asks the respondents whether the robot's psychological traits should be adjustable. **Graph 20** below describes the overview of adult/elderly respondents' opinions on the adjustability of the robot's psychological traits.

Graph 20. Adult/elderly respondents' view of the adjustability of robot psychological traits

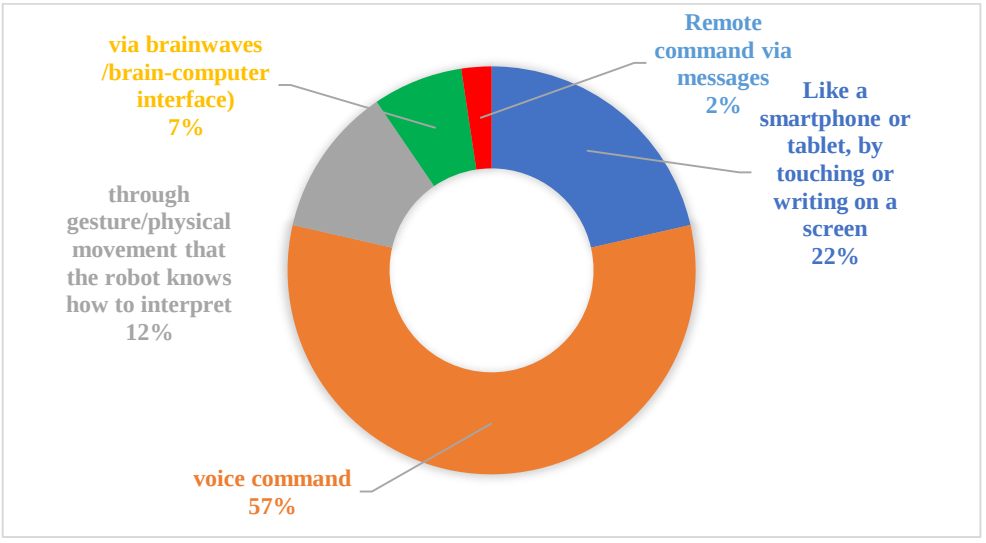


As illustrated above, the majority of the respondents said that the psychological traits of their imaginary robot should be adjustable, whether through programming (two out of 29 answers), explicit user command (nine out of 27 answers), or automatic adjustments as the robot interacts with users (seven out of 29 answers). Conversely, 38% of the overall respondents said that the robot's psychological traits cannot be changed once it is manufactured.

6. Robot–Human Communication

The study asked respondents about how robots and humans could communicate. More than half of the elderly/adult respondents (24 out of a total of 42 answers) prefer voice commands and more than one-fifth (nine out of 42 answers) think that controlling the robot should be like operating a smartphone or tablet, by touching a screen. Five respondents think about some gestures or movements that the robot would know how to interpret.[25]

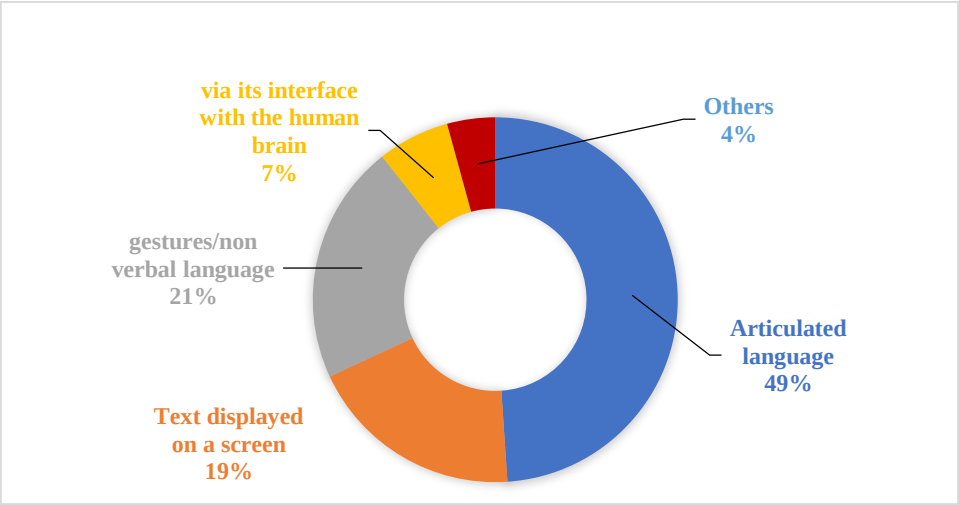
Graph 21. Perception of how the robot should be controlled by humans



Complementing the earlier view, **Graph 22** below illustrates how the robot communicates with humans in its turn. It shows that nearly half of the respondents (23 respondents) imagine a robot that communicates with humans through articulated language. This mode of communication is followed by gestures/non-verbal language, as ten respondents believe the robot should express itself (also) non-verbally. Moreover, nine respondents prefer the robot to communicate with humans via text displayed on a screen.

[25] This predefined item in the survey was inspired by Asimov's robot novels, where the people of Solaria could control their robots via subtle gestures (Editor's note).

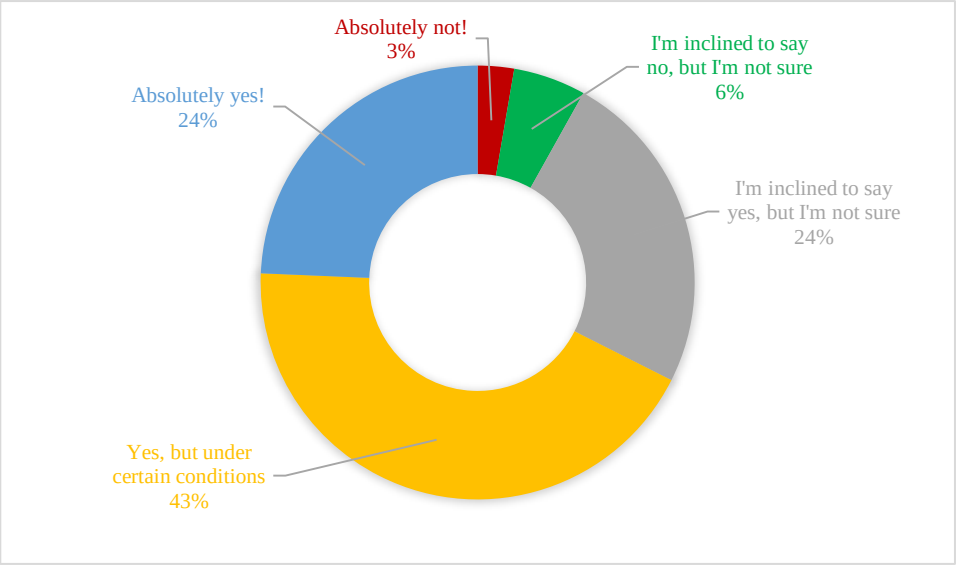
Graph 22. Respondents' perception of the way robots should communicate with humans



D. Perceptions of robots as elderly caregivers

Based on the data from the survey as well as from the workshops, this section will describe how adult/elderly respondents view the prospect of having robots in their lives. After the workshops, the majority of the respondents, namely 28 out of 37, still believe that the evolution of social robots as elderly caregivers will occur within ten years. Only a small minority of the respondents doubt that it will happen sooner. Contrastingly, only two respondents believe that this evolution will be realised in the very distant future. This figure came particularly from the Spanish respondents, who represent 14.3% of the overall share. A high level of confidence in the rapid advancement of robots is observed quite consistently across the three participating countries. Over 70% of the respondents from each country believe that the robots' evolution as elderly caregivers will happen within ten years, despite the percentage in Spain being relatively lower in comparison with the other two countries.

Graph 23. Adult/elderly respondents' acceptance of robots for elderly care

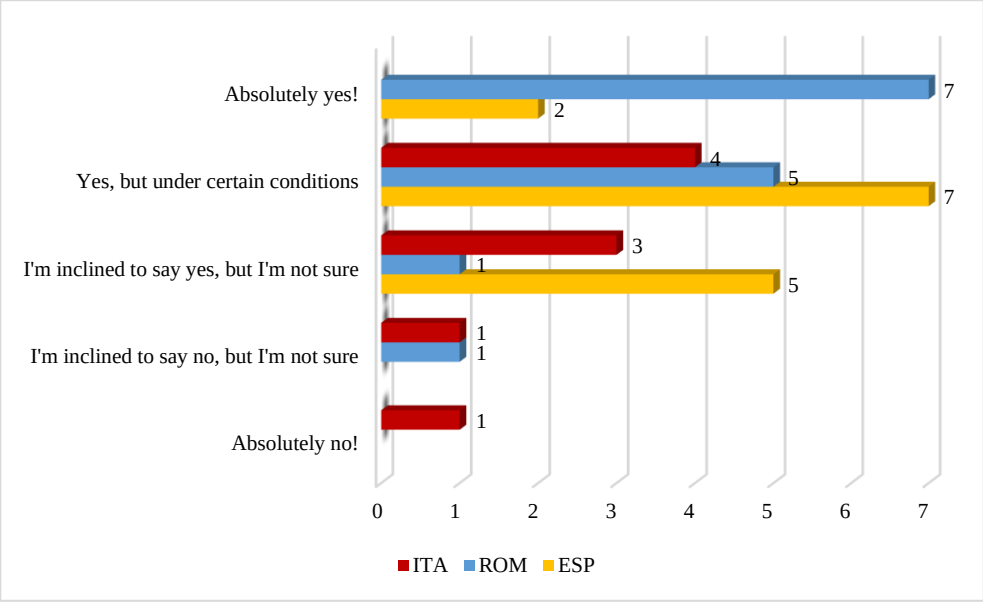


Graph 23 above illustrates the degree to which the adult/senior respondents would accept a robot as a caregiver or companion for themselves or a family member in the near future. Overall data from the three countries, Spain, Italy, and Romania, indicates that although the respondents tend to have a positive perception of the evolution of robots for elderly care, only nine of them would readily agree to have a robot caregiver/companion, while 16 respondents would accept such a robot subject to certain conditions. In addition, nearly a quarter of the respondents (nine) are inclined to accept the idea of having a robot companion/caregiver someday, yet they are not so sure about it. Lastly, only one respondent totally rejects the idea of having a robot caregiver/companion, while two respondents – despite not being sure – tend to say no to this prospect.

Graph 24 below shows a cross-country comparison in terms of the respondents' acceptance of robots for elderly care. The Romanian respondents appear more optimistic about the robots' evolution in comparison with the other two groups. The data indicates that seven out of 15 Romanian respondents absolutely support this idea, whereas only two out of 14 Spanish respondents think likewise. The result shows a reverse trend for those respondents who would accept robots, but only under certain conditions. Half

of the Spanish respondents (seven out of 15) fall into this category, compared to 44.4% of the Italian respondents (four out of 9) and 35.7% of the Romanian respondents (five out of 14) who think the same.

Graph 24. Cross country comparison of the respondents' acceptance of robots for elderly care



1. Advantages and disadvantages of robots as caregivers

Generally, Spanish respondents have a positive attitude towards the use of robots for elderly care. The majority of them think it is good, even if some also appear reluctant about the use of robots for elderly care. They mainly point out that the use of robots would be beneficial especially to overcome loneliness in the elderly population and to provide quick emergency help. Some also indicate the robot's support for the elderly in terms of caretaking. In addition, the Spanish respondents highlighted the robots' availability whenever the user needed it, which is not the case with human caregivers. However, despite such convenience, the respondents also think that human interaction is irreplaceable when it comes to human touch, empathy, and

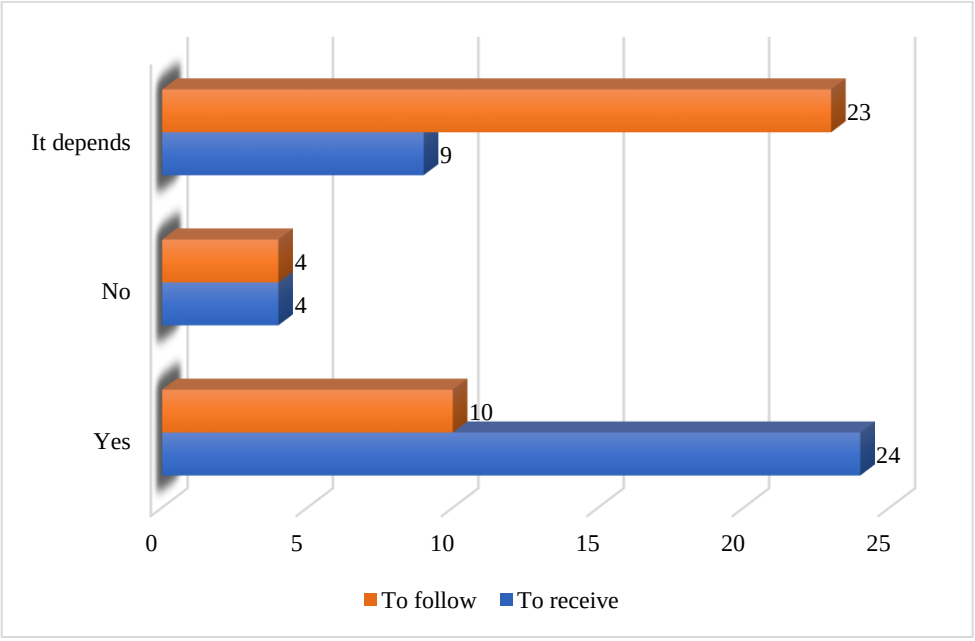
emotional connection. Some respondents signalled they would be clueless if the robot stopped working or if they faced technical difficulties/errors. Having said that, a respondent remarked that data protection and privacy issues could be of great concern.

Similar to Spanish respondents, most Romanian respondents also point out that the robot would be available for the elderly all the time, especially if they were lonely and weak. Interestingly, a respondent mentions that the robot is emotionless but always patient with the user, in this case the elder. Like the Spanish respondents, some of the Romanian respondents also think the robot could replace human caregivers and yet point out some disadvantages that they identify concerning the use of robots for elderly care. The Romanian respondents also worry that the robot could stop functioning, which may be caused by the incompatibility of new technology, technological errors, or insufficient analysis of the situation by the robot. Perceived drawbacks include the low ability of the elderly to use robot technology. Besides that, Romanian respondents think that the use of robots might cause adverse effects on existing diseases, as the robot's knowledge may not evolve at the same pace as diseases do. Additionally, respondents from Romania highlighted that one might become dependent on the robot, while the robot might become invasive at a certain point. Another negative issue is the potential size of the robot, as it might take up too much space in their houses.

Italian respondents think that robots for elderly care will be very useful if they can help the user with domestic chores and do anything at any time. In addition, elderly people with Alzheimer's, heart problems, or who are dependent on other people would benefit the most from such a robot since it can do repetitive tasks. The robot may also be able to predict and prevent dangers for the user. However, since the robot is not human, users will lose the human dimension when interacting with the robot. Like the respondents in Spain and Romania, Italian participants recognise that they would be facing difficulties if the robot broke down. Besides that, the robot might be too complicated to be understood by elderly users and would require constant updating. Lastly, the Italian respondents express their worry about having too many similar devices lying around the house without use.

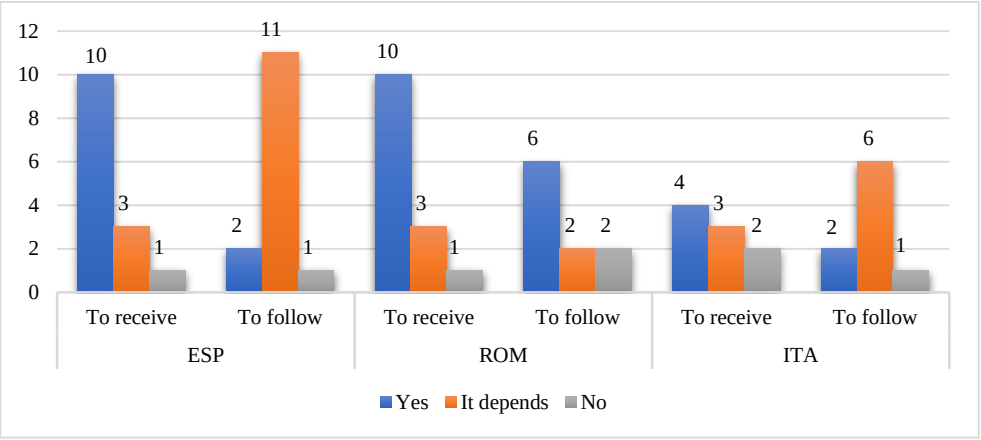
2. Recommendations from the robot

Graph 25. Respondents' view on health-related recommendations



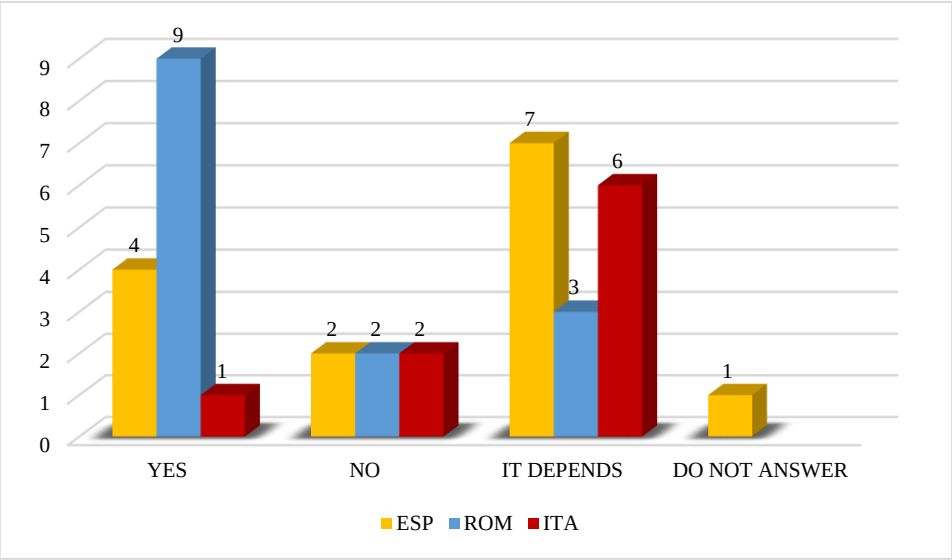
A big portion of the total respondents – 24 study participants – reported that they would like to receive health-related recommendations from the robot, as illustrated by **Graph 25** above. However, four out of 37 respondents are reluctant to receive such recommendations. Interestingly, even if most respondents are willing to receive health-related recommendations, they seem hesitant to follow such recommendations. It is found that 23 respondents say "it depends" when asked about it. Lastly, four respondents prefer not to receive health-related recommendations from a robot, and about the same number of respondents would also not follow such recommendations.

Graph 26. Cross-country comparison of respondents' perception of health-related recommendations



Graph 26 above provides a detailed cross-country breakdown concerning the respondents' views on receiving and following health-related recommendations from a robot. Among the three countries, only four Italian respondents are willing to receive health-related recommendations in comparison with respondents from the other two countries, amounting to ten respondents in Spain and ten in Romania. When asked whether they would like to receive recommendations from a robot, three respondents per country answered "it depends". When it comes to trusting a robot's health-related recommendations, the trend is slightly different in the three countries. In Spain, the majority of the respondents, namely 11 out of 15 answered "it depends" concerning their willingness to follow a robot's recommendations. This figure is similar to the one in Italy, where six out of nine respondents also answered that "it depends" whether they would follow the robot's recommendations or not. On the contrary, only two out of 14 Romanian respondents are reluctant to follow the robot's health-related recommendations. Similarly, another two Romanian respondents answered "it depends". In comparison with the respondents in Italy and Spain, respondents in Romania are relatively eager to follow recommendations from the robot. This is indicated by six Romanian respondents – in comparison with two Italian and two Spanish respondents – who are willing to follow such recommendations.

Graph 27. Country comparison of the respondents' willingness to wear monitoring devices on their body



The study also asks about the respondents' willingness to wear digital devices on their bodies. The data gathered indicates that the respondents who are willing to wear digital devices (38%) and those who answered "it depends" (43%) are relatively close in number. Besides that, 16% of the respondents refuse to wear digital devices. From the country-specific perspective, as illustrated by **Graph 27** above, nine Romanian respondents – compared to four Spanish respondents and one Italian respondent – are willing to wear digital devices. Implicitly, the trend is reversed in the case of the respondents who are more cautious about wearing monitoring devices. Six Italian respondents and seven Spanish respondents answer that "it depends" whether they would wear such devices compared to only three Romanian respondents.

Spanish respondents think that the recommendations from the robot would be valuable to consider. Although most of them would like to receive recommendations related to health, they would not fully trust such recommendations and would check them with their doctor. For them, the robot's recommendations are only complementary to medical advice from human doctors. Some of them even said that a robot is just a kind of help to make decisions and one should not depend 100% on the robot. Spanish

elderly participants mainly trust doctors as the knowledge authority in relation to any decision about their health. A Spanish respondent said that he will follow the robot's recommendations as long as the robot is developed by trusted "authorities", i.e. doctors. This way, the information generated by the robot could be more reliable. It can be said that the level of trust in the robot about health-related activities is relatively low and the only knowledge authority that the Spanish respondents trust is the (human) doctor. This perspective is also shared by some Italian respondents. The study indicates that Italian respondents are mostly pessimistic about the use of robots for elderly care. At the moment, most of the Italian respondents mention they do not need a robot.

Slightly similar to the Spanish respondents, some of the Romanian respondents are willing to receive recommendations from the robot. However, they would also rely on the doctor – as the knowledge authority – to make the final decision. Having said that, some of them do not want to receive any recommendations from the robot. Romanian respondents also base their decision on the need to wear a kind of monitoring device inside or on their bodies. These respondents also express some concerns about how their body data would be collected by such devices and how it will be used. Some Romanian respondents have the perception that the device will be implanted in their bodies and have high levels of privacy concerns about their data. Despite such concerns, some of them are also keen on wearing devices only for the purpose of monitoring their health. In addition, some of them also raise concerns about the comfort of wearing such devices during the day and whether these would disturb their daily activities.

3. Circumstances suitable for the use of robots for elderly care

The post-workshop survey also asked about the particular conditions in which the use of robots for elderly care would be necessary. For Spanish respondents, robots might perform many functions that human caregivers are unable to complete. The majority of respondents highlight special conditions like dementia, disability, and living alone in old age as suitable circumstances in which robots could provide elderly care. Despite so, some respondents also mention their expectations about what robots should/could do as elderly

caregivers. Some expectations include the robot's availability at any time and the robot's capacity to do domestic chores and simultaneously function as a caregiver and entertainer. The Romanian respondents also think robot caregivers would be very suitable for elderly people with special needs, including limited mobility (bedridden), other disabilities, and Alzheimer's and dementia. These respondents cite loneliness very frequently, followed by limited mobility/disability as situations when a robot caregiver would be necessary for the user, especially an elderly user. One respondent mentioned that whenever the human's work is overwhelming, the robot could take over the tasks. As one participant mentions, "*With the robot, solitude will be bearable (or less painful)"*. In Italy, the respondents did not provide specific highlights about some particular conditions in which robots could be used for elderly care. Emerging commentaries are around the provision of help in domestic housework, including gardening, plus the use of the robot as a reminder device and as an entertainment device for common activities with grandchildren. Lastly, respondents in Italy also highlight that robots might be better for community/collective use rather than personal use.

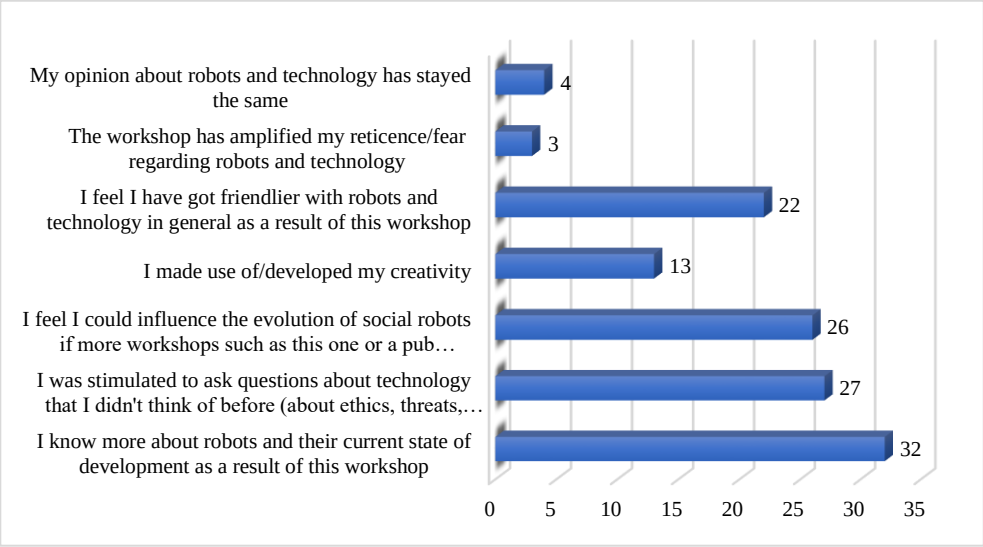
4. Prioritised situations to obtain a robot for elderly care

The participants in the three countries indicate somehow different responses concerning the prioritised situations in which robots for elderly care could be provided. The Spanish respondents note that the use of robots should be prioritised in the case of severe illnesses like dementia or Alzheimer's, for disabled elders, and for those elders who are economically poor. In the Romanian context, the respondents agree that loneliness is the particular situation in which people should be given priority to access the robot. In addition to that, people with disabilities and Alzheimer's should also be given priority to access the robot. Some participants mentioned that robots should be used at any time and as needed. Interestingly, a respondent commented that access to robots should be given to those who have money available, which could refer to people who can buy or afford robots. Unlike in the other two countries, respondents in Italy did not answer this question in a clear manner. They were mainly focused on the needs to which the robot should respond, which led to various priorities. Despite so, some respondents

mentioned loneliness/abandonment and health problems as the two dominant reasons for using robots in elderly care.

5. Attitudes and predictions

Graph 28. Respondents' experience of the workshop



As indicated by **Graph 28** above, overall, the respondents indicate some changes in their perception of social robots after participating in the workshop. 32 respondents reported that they know more about robots and their current state of development. What is more, 27 respondents claim that they were stimulated to ask new questions about technology and 22 respondents acknowledge that they have become friendlier towards robots and technology in general. Having said that, three respondents also indicate that their workshop experience has intensified their resistance to robots and four respondents mention that their opinion about robots and technology stays the same.

The study also compares the respondents' predictions of the evolution of social robots for elderly care before and after the workshop. It is found that there is a 13% increase in terms of those adult/elderly respondents who confidently think the evolution of robots will occur within 10 years, from 63%

before the workshop to 76% after the workshop. Despite this, the proportion of respondents who think the evolution will occur in the distant future also experienced a slight increase, from 3% before the workshop to 5% after the workshop. The number of those who think the robot evolution will occur within only 10 years was found to increase in Spain and Romania, whereas it experienced a slight decrease in Italy.

E. A note to understand robots: A glimpse from the children's gaze

1. Children's general perception of robots

The researchers found a number of emerging categories related to the children's experience of the workshop. Firstly, the children viewed robots as helpful as they can make human life easier. This kind of response is prominently found among Spanish and Italian children, while only a smaller number of Romanian children explicitly express the same notion. Secondly, a robot is good for providing company. Only child respondents from Spain and Italy note that having a robot is desirable because it can keep people company, especially when they live alone. Thirdly, some children, especially the Spanish ones, explicitly mention that robots will be necessary in the future. Fourthly, Romanian children frequently mention that owning a robot is nice as it could help them do their homework and make their life easier.

Child respondents from the three countries show rather distinctive tones when sharing their experience of the workshop. The majority of the Spanish children express a positive tone towards robots. Most of these children say that a robot is helpful as it would make people's lives much easier. Additionally, some of them also express that living with robots could be a good experience, especially if the users lived alone since the robot could keep them company. Despite the majority of the Spanish children describing their views of robots positively, the study also finds that some children are hesitant. A girl expresses her concern that living with a robot might make people lazy and fat. Another boy expresses his fear that the robot has the potential to rebel against humans. Italian children display more or less similar

opinions to Spanish children. Most Italian children say that they want to live with or at least own a robot in the future. For them, a robot is helpful to do tasks and to provide company in case of loneliness. Like the Spanish children, some Italian children are also slightly hesitant about the prospect of living with a robot. Although they generally like the idea of living with robots, some doubt it. Those who do not favour living with robots consider that technology is not always reliable.

The case of the Romanian children is rather different from the Spanish and the Italian. Indeed, some Romanian children also find that robots are helpful and friendly, which could make human life easier. However, in comparison with Spanish and Italian children, Romanian children express more reservations and hesitation about robots. Some Romanian children express a neutral opinion but others signal some alert about living with robots. Most children who express their reservations about living with robots mention the danger that robots might represent in the future and suggest it would be better not to grow too attached to a tech-based future. The study then speculates that such a response might be influenced by the existence of popular science fiction films and/or video games that many children enjoy. Lastly, the most distinctive feature of the Romanian children's perception is a clearer tendency to reject the possibility of living with robots in the future. Among all the respondents, despite a small number, only some Romanian children clearly oppose the idea of robots' existence.

2. Projection/prediction about living with robots in the future

In general, child respondents express that they are not afraid of the idea of living next to robots in the future. Most of them explain that the robot is designed to help and accompany people, so it would function like a friend. The idea that robots are helpful is articulated quite frequently, mostly by Italian and Spanish children. This introduces an affective and emotional type of reasoning while imagining one's relationship with robots. On the contrary, the majority of the Romanian children who say they are "not afraid" of the idea of living with robots do not justify their answer. Only a few children rationalise their reply in a more technical manner, such as "safety measures have been taken", "robots are not that smart", or they "don't have many

functions". Even though the majority of the children are not afraid of the idea of living with robots in the future, some children express their reservations. Most of these children who are concerned about the idea of living with robots in the future share their thoughts about the possibility of errors within robots that could backfire on human life. Spanish children who express their worry also imagine that robots could rebel against humans and eventually become evil.

In the cross-country comparison, despite the Spanish children expressing a positive view of robots, it also turns out that at least a third of them are scared of the idea of living with robots. In comparison with Romanian and Italian children, it appears Spanish children are more scared of the idea of living with robots. Having said that, the Spanish children who say they are and are not scared are divided almost equally among the population. This situation is rather different with the Romanian children. Most of them express their perception positively. More than half of the Romanian children who participated in the study are not afraid of the idea of living with robots in the future. Despite so, a small number of them also express their worry, which can be interpreted as fear. In what could be interpreted as a joke given the formulation of the reply, one boy wrote: *"Ummm... that robots will kill us at some point, so we must be careful".*

In comparison with Spanish and Romanian participants, responses from Italian children are rather different. Most of them seem to feel somewhere in between scared/afraid and not quite, expressing their thoughts vaguely. Noted expressions are "not really scared", "a bit worried", or "it depends". Since more than half of them express themselves in this manner, they might feel a bit uneasy explaining straightforwardly or are simply undecided. Having said that, only a small minority of these children feel scared about the idea of living with robots in the future. One Italian child believes that robots might explode and could revolt against humans.

3. Important lesson learnt

Some emerging themes appear from what the children have learnt from this workshop. Having said that, the study finds no significant differences or patterns among the responses from these three countries, as the replies are extremely diverse. First of all, from the workshop, the children

have learnt about robots themselves, including how robots are being developed, the various types of robots, and how the robots perform their functions. Furthermore, the participating children also note that there are various functions and tasks that a robot can perform for humans. Besides that, they also learnt about the interaction between robots and humans, as a child commented that having a robot is a kind of lifestyle and that robots are friendly and funny. Moreover, due to the experience of the workshop, the children became increasingly aware of what the future could look like in the presence of robots. They became concerned and gave some warnings about how the future could be when humans live with robots. One of them said that *"robots will kill us (read: humans) at some point"*. A child respondent expresses their fear that a robot could hit humans or provoke some kind of accident. The children's experience of the workshop helped them to reflect deeply on the relationship between humans and technology. A child said that human intelligence is always better than artificial intelligence. In the workshop, they also witnessed how technology has evolved, which made them understand that they can do fun and beautiful things with technology. Some of them expressed a kind of hope that social robots will be their friends in case they had none. They also noted the positive sides of robots' existence, namely that robots are not only able to make war or destruction. On a reflexive note, the children also showed that they have learnt about themselves, as one testified that they should not be scared of living together with robots. By participating in the workshop, these children are keen to make predictions about robots. For them, robots are a big invention and can be very important for society. Lastly, as the workshop for children was designed in a fun way, children have learnt exciting new skills. Italian children, for instance, were having so much fun playing with the drone. They mentioned that, through the workshop, they have acquired new skills like learning how to fly a drone.

VIII. CONCLUSION

It has been discussed over the years that the current technological advancement brings about various changes to daily human life. This study commissioned by the "Tele-Encounters: Beyond the Human" project

indicates a number of interesting insights to be explored in the near future. This study discusses how new relationships will emerge as an inevitable consequence of technology becoming an important aspect of human life. A critical node in this research lies in its elaboration on the ground of migration, which left behind many children and elderly people who are now confronted with the absence of traditional care, companionship, and assistance. This study involves both children and elders, as the main target groups of this initiative, through creative engagements in three different countries, namely Spain, Romania, and Italy. The creative workshops, facilitated by a group of theatre directors, digital animation artists, and robotics and ethics experts, aimed to consolidate imagined models for social robots in terms of personality traits, physical appearance, and ethical issues surrounding their use.

This study shows that several aspects contribute to how social robots are imagined and perceived by the respondents. By involving a wide variety of participants, namely children and elders with heterogeneous educational backgrounds, ages, professional experience, and ability to use technological devices, the study explains a few key aspects of the respondents' desired social robot design. In terms of physical appearance, the desired robot model is nearly human in form (anthropomorphic), although a very realistic human shape is unfavourable. On the contrary, the shape of a plant is rejected as it can generate awkward feelings. When it comes to functionality, the most desired function of the imagined robot is health-related, especially as a provider of emergency help and regarding the provision of health-related information or services. Besides that, elderly respondents also desire the robot to perform daily house chores, entertain them, and facilitate the use of other devices. In addition, child participants pointed out elderly care and child-sitting functions that the robot should perform. Lastly, robots that behave like mature or young adults are the most preferred by the elderly, with desired qualities like altruism and perfectionism. Robots with introverted or melancholic personalities are disfavoured. In terms of priority of access, the use of social robots should be prioritised for elderly persons with limited physical mobility and health-related ageing issues such as Alzheimer's.

The study indicates that the participants' general perception of and attitude towards social robots are mainly positive, despite the inevitability of

some negative comments. The participants' tendency to accept robots is marked by their expectation that the presence of social robots as elderly caregivers may address the issue of social isolation and the provision of quick emergency support. Although the participants generally expressed a positive stance towards the idea of social robots, they also pointed out some drawbacks that are important to examine. First of all, the lack of human interaction and physical human touch as staples for building and maintaining social relationships is crucial for the elderly respondents. Because of that, some elderly participants would not like robots to show emotions and empathy, as these are the prerogatives of human-to-human relationships. In addition, some adults – especially those with a higher education level and who are more technologically savvy – look at the issue of data privacy. On the contrary, those elderly people who are less savvy worry over the issue of robots having technical problems.

Unlike the adult and elderly respondents, the children express various concerns regarding their future life with robots. As their concern is more about imaginary scenarios, however, the study indicates that the child population also expresses a positive attitude towards the development of robots. The children believe that robots would be helpful and make their lives easier, which is why they are deemed important and necessary for the future. Despite the dominant positive attitude, the study also identifies negative concerns expressed by children who think that, eventually, robots would have the ability to manipulate human beings. More imaginatively, some children express their fear that, in the future, robots could turn against humans. Some other children also indicate that human life would become too comfortable in such a way that might jeopardise one's health situation due to a lack of physical activity.

Lastly, based on the participants' perceptions and attitudes, the study pointed out that there is an underlining tendency to feminise the robot. This is associated with the gendered division of labour in society, as the function of elderly caregiving and childcare is traditionally performed by women and is thus seen as feminine labour. Despite most of the imagined robots being presumably genderless, some answers emphasised that specific functions and tasks "better suit" women than men. This perception is also supported by the preference to have a more feminine (female) voice as it gives a soothing

sensation. In this work, there are a number of anecdotal examples expressed by participants that show how society-determined roles and tasks are strongly associated with the particular biological construction of males and females. This way of thinking features strongly when specific characteristics, such as a robot's voice, and its appropriate tasks are used to justify the gender of the robot. In addition, the available option to change the gender of the robot could potentially maintain stereotyped tasks based on the socially-constructed gender division of labour.

In addition, the issue of ownership reveals interesting insights into the different societies/cultures the study has engaged. During the study, this theme strongly emerged as an important aspect that might position the social robot differently and could be used to understand how a certain society functions. For instance, for a specific community, the ownership of a robot is related to one's individual capacity to obtain the robot, especially financial capacity and access to technology. On the other hand, for another community, the presence of a social robot may be understood as an investment for the community, as it could benefit not only a single individual or household but a larger group. This distinction has indicated how technological advancement in terms of social robot development could bring further welfare for one type of society, in which robots are commonly shared among members of society. On the other hand, the use of robots has the potential to further aggravate the welfare gap in another type of society, where access to public goods and services is associated with individual capacity.

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They are not human but 'human' – A Study About Experience With Virtual Robot Models and Perception Among the Elderly and Children in Italy, Romania, and Spain

Vinny Flaviana Hyunanda and Práxedes Muños Sánchez

Contents

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Vinny Flaviana Hyunanda and Práxedes Muños Sánchez

I. BACKGROUND

Over the last few decades, the development of information and communication technology (ICT) has been fascinating. Along with the increasing importance of the borderless society, the role of technology is paramount in maintaining the need to be relevant and up to date with the constant changes. Such changes have been fundamental to the current configuration of the human relationship, which has been gradually mediated through the existence of artificial intelligence (AI) or AI-infused products that have become a necessity in many homes. AI-infused products, such as virtual agents or assistants (for example: Alexa, Siri, and Google Home), home-appliances robots, and smart devices, have penetrated deeply into our contemporary society. Now, almost every member in the household has their own technological device to serve as the key mediator, not only in maintaining social relationships with other humans but also in facilitating the performance of daily tasks as efficiently as possible. On one hand, these new technologies provide flexibility, opportunity, and efficiency; on the other, they create a significant barrier for those who are not up to date with the rapid rate of development.

The strong presence of AI-infused products in many homes has been linked with the discourse of domestication theory, which discusses how technology is being implemented and modified by users, the interaction between them, and how users adapt to the technology (Berker et al., 2005; Lie and Sørensen, 1996; Søraa et al., 2021). Studies on domesticating

technology have been paramount to explaining the technologies as key actors that constitute daily life in our homes. Such domestic use of technology through the ownership of AI-embedded home products has increasingly become a necessity in the contemporary household, which requires agility to adapt to a constantly changed environment due to technological advancement. As a result, this rapid advancement brings different consequences to distinct groups of users, namely the elderly population and children/young adolescents. Czaja et al. (2006, 2018) pointed out that older adults are much slower to adopt new technology than the younger adult population. Unlike the younger population being relatively adaptive in employing technology, older adults may be willing to do so only when it has value in their life (Chien et al., 2019; Heinz et al., 2013).

On the contrary to the elderly population, children are avid users of digital technology. A 2016 OECD report clearly stated that children nowadays have been exposed to digital technology throughout their lives and are the most frequent users of digital services (OECD, 2016). As a result, the world has witnessed a significant increase in children's connectivity across the globe, especially the children of OECD and EU countries (EUROSTAT, 2017; OECD, 2017, 2019a). The literature terms children nowadays as "digital natives" who have been surrounded by technological devices and electronic gadgets growing up. In contrast, many adults who did not grow up this way are termed "digital immigrants" in the technology-infused society. A study by Livingstone et al. (2018) explained that 73% parents of 0-4-year-olds confirmed that their child had gone online and 0–3-year-old children had frequently used FaceTime and Skype to keep in touch with family members.

Along with the rapid evolution of technological devices and wide Internet penetration, children's online experiences have changed significantly over the past decades. A recent EU study in 2020 portrayed watching videos, listening to music, communicating with friends and family, visiting a social networking site, and playing online games as the top activities facilitated through an online presence (Smahel et al., 2020). In the area of child development and learning, technology-based remote learning has increasingly gained massive attention due to the COVID-19 pandemic, where technology became the backbone of everyday life. A number of studies that

focus on technology and children's learning have pointed out that important skills acquired by the children, namely reading, writing, information seeking, and critical thinking (Bowers and Berland, 2013; Jackson et al., 2011; Zhu et al., 2011), are direct results of technology's application. Furthermore, AI-embedded environments in the context of child learning also indicate improvement in children's creativity, collaborative skills (Kewalramani et al., 2021), language skills, and adaptive behaviour (Prentzas, 2013). Despite so, we also witness negative consequences generated from the problematic use of ICT, especially in the area of mental health. A study by Twenge and Campbell (2018) concluded that more than one-hour per day use of the Internet was associated with lower psychological well-being, including lower self-control, higher distraction, and lower emotional stability. On a similar note, a study that involved nearly 600 Polish children aged 9 to 13 by Żerebecki and Opree (2022) found that the use of social technology decreased life satisfaction and increased materialism among these teenagers. Lastly, despite the Internet providing virtual spaces for adolescents to cultivate positive experiences, Byrne and Burton (2017) warned that the Internet can be a dangerous arena wherein children are exposed to risks like pornography, violent images, bullying, harassment, and inappropriate marketing campaigns.

II. BACKGROUND – THE *TELE-ENCOUNTERS* PROJECT

In the initial study by Hyunanda and Palacios (in this book), the team invited child and elderly participants in the three countries – Spain, Romania, and Italy – to engage in country-based creative workshops led by a team of theatre artists, digital animation artists, and experts in ethics and robotics. In such workshops, children and elders participated in a series of creative processes by imagining models of social robots which included a number of key aspects, such as their code of ethics, personality traits, and physical appearance. Furthermore, results from these workshops were translated by the digital artists and technical experts into six interactive and AI-infused 3D virtual robot models available on an online platform, https://imaginaryrobots.eu/.

Unlike the first study, which centralised its process through a creative outlet, this second study paid attention to user experience aspects in dealing with technology. With this focus, the study invited a total of 150 children and 60 elders from Spain, Romania, and Italy to test the online platform in which six virtual robot models were hosted. The participants were asked to interact with different virtual robot models through chat and/or via voice command. Despite the first and the second studies sharing the same aspect of human-technology relationship under the umbrella of virtual robot development, these studies are treated as two separate studies. Although the team maintained some kind of continuity in the process in terms of timeline as well as the subject of the study, they should not be read as two reciprocal works that influence one another due to the differences in methodological selection and research design, including distinct samples.

In this study, we use a few terminologies derived from the ICT field that will appear frequently throughout this text. The key terms that we find useful are:

1. "Robots" are machines that resemble living creatures in being capable of moving independently (as by walking or rolling on wheels) and performing complex actions (such as grasping and moving objects). This definition is extracted from Merriam-Webster Online Dictionary (accessed 20 Feb 2023). Although the word robot can refer to both physical robots and virtual software agents, this text uses "robot" when referring to the physical sense.
2. "Virtual Robots" in this research refers to the animated characters developed by the project programmer and 3D animation designer. They are accompanied by bots that function with programming languages, algorithms, and AI to produce human-like text.
3. "Chatbots" are intelligent conversational computer programs that mimic human conversation in its natural form. Chatbots can also be defined as "online human-computer dialogue system(s) with natural language" (Cahn, 2017). In this study the terminology of "chatbot" is used when referring to the chat facility that accompanied the animated characters.

4. A "virtual agent" is a software program that uses scripted rules and AI applications to provide service(s) to the user[26] (Botelho, 2022). In this study, the terminology of "virtual agents" is used interchangeably with "conversational agents" despite there being a slight difference between the two.

III. THEORETICAL FRAMEWORK

Rapid technological advancement, along with the boom of robot development, has generated endless opportunities for human civilisation. Nevertheless, this rapid acceleration also leads to unanticipated fears and worries due to the consequences that it will bring. The fear of job losses due to automatization and the worry that robots may take control of human existence (Cellan-Jones, 2014; Sterling, 2019) are two of the many horrific imaginings that humans predict in response to such advancements. Despite that, it is important to note that human perceptions about technology, especially in the area of robot development, are influenced by various aspects including demographic factors (Haring et al., 2014) and educational background (Szczepanowski et al., 2020). In addition, growing studies in this area elaborate on numerous aspects around human perception and robots. For instance, a study by Ray et al. (2008) pointed out that 81% of the study respondents indicated positive attitudes toward robots that assist humans at the personal level, such as in household chores, security, and entertainment, as well as at a societal level. On the other hand, the child participants indicated a preference for cartoon-like or animal-like robots and an expectation of obtaining help with homework and housework, as well as providing company (Lin et al., 2009).

[26] https://www.techtarget.com/searchcustomerexperience/definition/virtual-agent#:~:text=A%20virtual%20agent%20(sometimes%20called,service%20or%20guidance%20to%20humans.

A. Robots and Older Adults

Due to their inherent flexibility, new technologies enable different segments of society to benefit. Despite so, the benefits of new technologies are not equally distributed among population groups, with particular emphasis on the elderly population. A study conducted by Vaportzis et al. (2017) with older adults underlined a number of barriers they face while interacting with technology. First and foremost are a lack of instruction and guidance, in addition to a lack of knowledge and self-confidence among the elderly population. For this group, the use of technology is too much and too complex, while they feel technically inadequate in comparison to the younger generation. For that reason, the adoption of technology among the elderly in this study is doubted despite their willingness to use a tablet as the discussed device in the study. Echoing this, Breazeal et al. (2019) pointed out significant challenges in the use of technology, especially online social networking for the elderly. They referred to Sheldon (2012), who argued that social networking sites were initially designed and developed for younger people and lacked adequate features for the elderly. For that, it is important to consider how older adults adopt and use new technology (Forlizzi et al., 2004), in which age is likely a decisive factor in determining their relationship with ICT (Abbey and Hyde, 2009).

Technological advancements may bring various advantages to the older adult population. A number of studies have indicated some benefits for the elderly due to the use of robots in their daily life, such as in the areas of health related to brain stimulation and the cognitive functioning of the elderly (Optale et al., 2010), social communication related to promoting quicker access to information (Morris et al., 2013; Warschauer, 2004), and maintaining social connection and keeping in contact with family and friends (Beer and Takayama, 2011; Gamberini et al., 2006; Perrin, 2015; Sheldon, 2012). A number of studies have pointed out that the use of virtual reality is believed to generate a positive impact on social interactions and life satisfaction for seniors (Chapouli et al., 2014; Sun et al., 2020; Tsao et al., 2019). Other than that, the use of robots also improves quality of life in the area of mental health, promotes independency to live longer (Geraedts et al., 2014; Orpwood et al., 2010), reduces loneliness (Czaja et al., 2018; Sheldon, 2012),

and offers entertainment (Ostrowski et al., 2019; Sidner et al., 2018). Other than that, Chen et al. (2018) pointed out the potential use of robots to alleviate symptoms of depression. Similarly, ICT plays a key role in reminiscence therapy for the elderly. Sarne-Fleischmann et al. (2011) pointed out that web-based applications are useful tools for therapists. Additionally, the use of virtual augmented reality in this kind of therapy, including interaction with robots and AI through conversational agents, was found to be successful to stimulate the memory and develop communication due to the ability to simulate conversation with a human therapist (Carós et al., 2020). This made robots able to provide emotional support through their interactions with elderly users by replaying uploaded digital material (Kuwahara et al., 2006). Lastly, such use also enables elders to access ICT by reducing the technological gap through teaching them how to use it (Bailey and Ngwenyama, 2010).

In the contemporary environment, the elderly population tends to be ignored and marginalised in the face of modern technological advancements. Vacek and Rybenská (2016) found that senior citizens often have the tendency to label themselves as beginners in their interactions with technology. They face significant problems around the technical aspects of the devices, wherein they do not have sufficient understanding about the use of ICT. Such problems could also be worsened by physical conditions and barriers that can impede their comfortably accessing technological devices in their homes (Koutsogianni et al., 2011). A growing body of literature (Beer and Owens, 2018; Cortellesa et al., 2021; Ho, 2020) has paid significant attention to the relationship between elders and their interactions with technology, especially the involvement of AI for various purposes.

One of the recurring themes relating to the relationship between elders and technology is combating social isolation (Balki et al., 2022; Fraune et al., 2022; Isabet et al., 2021; Latikka et al., 2021; OEK Lee et al., 2022; Perugia, Rodríguez-Martín et al., 2017; Perugia, Díaz Boladeras et al., 2017; Sidner et al., 2018). Such a topic has increasingly captured growing attention due to the ageing population, especially in most European countries. In response to such problems, AI-embedded technology is growing increasingly popular as an alternative. A study conducted by Razavi et al. (2022) found that elderly people tended to talk more with AI-based dialogue agents when the topics

were deep and more intimate. This shows that, in the context of difficult conversational topics that are emotionally intense and intimate, the use of an AI-based conversation agent provides valuable insight to help elders navigate important challenges in their lives. Despite all of the above, there is a growing ethical concern around the rapid acceleration of the use of AI, which remains unknown. One of some possible alternatives is to ensure what values are produced by the development of AI and its use along the trajectory of technology. As cited from Ruiz (2018)[27]:

> It could be affirmed that the creation of systems and programs that exceed or equalize human capacities remains far. In order to reach that point, programmes and models of Artificial Intelligence will not only be able to improve their learning process, but also will require the power to communicate in a human language, make judgements and plans, manage feelings, to perform freely … (Ruiz 2018: 411)

Adding to Ruiz, Chu et al. (2022) – referring to another study by Whittlestone et al. (2019) – developed a scheme that demonstrated the cycle of injustice in how technology is developed, applied, and understood by members of society. As shown by **Figure 1** below, this symbolic reconstruction pushes certain groups of elderly adults to the fringe as AI enforces discriminatory values based on age, which could be understood as a digital divide:

> Ageism is a bias that currently remains understudied in AI research. The exclusion of older adults from technology development maintains a broader cycle of injustice including societal ageist attitudes and exacerbates the digital divide. Thus, we urge future AI development and research to consider and include digital ageism as a concept in the research and policy agenda toward building fair and ethical AI (Chu et al., 2022, p. 953).

[27] This is the English translation of the original citation in Spanish:

> se podría afirmar que la creación de sistemas y programas que excedan o igualen las capacidades humanas todavía está lejos. Para llegar a ese punto, los programas y modelos de Inteligencia Artificial no solo tendrán que ser capaces de perfeccionarse en su proceso de aprendizaje, sino que además requerirán el poder comunicarse en un lenguaje humano, realizar juicios y planes, manejar sentimientos, desempeñarse en libertad... (Ruiz, 2018, p. 411)

Figure 1. Cycles of injustices in how technology is developed, applied, and understood by members of society

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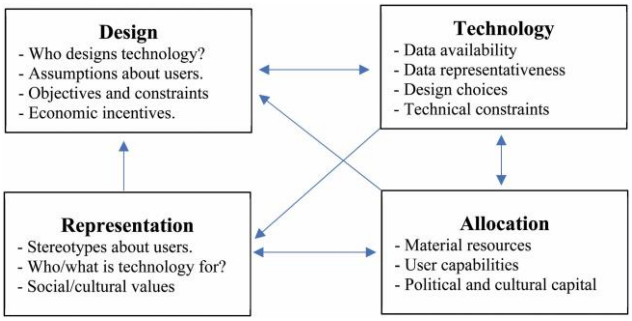


Note. Chu et al. (2022: 949), from Whittlestone et al. (2019)

B. Robots and Children

Unlike the elderly as the "digital immigrant", children as the "digital native" grow up surrounded by the existence of technology that rapidly changes. This technological explosion means that children are tech-savvy from a very young age (Hooft-Graafland, 2018; Pew Research Center, 2020; Romero Tena et al., 2019; Wartella et al., 2022) due to broad access to various digital technology in their daily lives (Danby et al., 2018; Lorna and Yelland, 2020). Similarly, Romero Tena et al. (2019) demonstrated that participating children in their study had access to and used technology from the age of 2 years old. Young children are somewhat fluent in navigating the digital realm in almost every aspect of their life. Despite so, it is necessary to view technological development in the context of children as a double-edged sword that generates both positive and negative influences all at once. A study by Rideout (2010) found that, on average, children between the ages of 8 to 10 years old spent nearly eight hours a day engaged with different forms of media, while teenagers spent no less than 11 hours a day in the same way. As a consequence of such exposure from a very young age, a study conducted by Cheung et al. (2017) among 715 parents revealed that the longer the time

toddlers played with touchscreen devices, the less they slept. Similarly, Arora et al. (2014) affirmed that children of 11 to 13 years old reported difficulties falling asleep due to online social networking, frequent use of mobile phones, and video gaming. This study then concluded that the largest reduction in weekly sleep was observed among those children who frequently used social media.

There has been a significant proliferation of research in various fields elaborating potential linkages between emotional well-being/mental health outcomes and technology use among children. It has been commonly found that most modern children in Western countries, such as in EU countries, use computers during class time, own a smartphone to keep in contact with their friends and family, and enjoy playing online video games with their friends in their spare time. Recent data from International Telecommunication Union (ITU) recorded that in 2020, 71% of the world's youth population (between 15 to 24 years old) were using the Internet compared with 57% of the other age groups. This segment of the population shows various preferences in using the Internet for different purposes, such as gaming, chatting, and social networking (Durkee et al., 2012). This intensive use of media-driven technology has brought a significant concern for child development, especially in relation to emerging social issues like cyber bullying, body image (Garett et al., 2016; Holland and Tiggemann, 2016; Kaloeti et al., 2021; Tiggemann and Slater, 2016), lower attention span (Takeuchi et al., 2016), and risk of mental health problems. Excessive use of technology is generally associated with poorer outcomes in adolescents, including physical, behavioural, attentional, and psychological issues (Rosen et al., 2014). Some negative effects were highlighted by a number of studies around gadgets addiction – particularly related to game addiction – that led to children's passiveness, alienation (Chiu, 2014), increased stress, self-perception problems (Andreassen et al., 2017), escapism, mood disorders, physical aggression (Jap et al., 2013), anti-social behaviours, and emotional management deficits (Suhana, 2017). Furthermore, the excessive use of video games has been increasingly concerning, with the Internet Game Disorder or IGD having been included in the penultimate version of the Diagnostic and Statistical Manual of Mental Health Disorder or DSM-V 2013, as well as the

2015 DSM-V-TR[28]. However, the inclusion of IGD remains problematic and highly disputed, with the validity of its construction being contested (OECD, 2019b: 9). In particular, this is related to the use of the "Internet" and "gaming" as if these two terms were interchangeable notions that determine this particular type of addiction. Griffiths et al. and Pontes (2017) have argued in their study that Internet addiction and IGD are not the same and called for further examination to clarify these terms. Having said that, although the DSM-5-TR does not include social media addiction and other types of Internet addiction, the debate remains wide open. Despite such controversy, one can suggest that allowing moderate engagement in online activities may actually be beneficial in terms of subjective mental well-being and adolescent connectedness, whereas excessively less or too much is detrimental (Przybylski and Weinstein, 2017).

On the contrary, a controlled use of technology in order to support cognitive development in the area of early childhood education has indicated pleasant results. Machine learning and AI technology have been used to promote effective learning among children by utilising robot-generated learning content in classrooms (Ali et al., 2019; Belpaeme et al., 2018; Fridin and Belokopytov, 2014; Park and Kwon, 2023; Yang, 2022). Studies by Pérez-Marín (2021) and Song et al. (2017) concluded that AI-driven conversational agents have been successful in providing opportunities to improve children's skills. This type of learning with the help of an AI-based conversational agent has the potential to help children with their reading, as the chatbot helps their understanding in a different setting (Liu et al., 2022; Xu et al., 2021). In the environment of early childhood education, AI tools are increasingly being used to foster learning and development among young children (Lin et al., 2020; Su et al., 2022; Su and Ng, 2023; Undheim, 2022; Xie et al., 2022). In a country that uses IT-based learning as its backbone in education, such as Singapore, a recent survey indicated that the use of digital technology would affect children's reading abilities in the early years (Mah et al., 2020). Although the use of digital technology in the area of early childhood education has introduced many learning opportunities, it can also lead to unequal educational outcomes (Martínez-Domínguez and Fierros-

[28] For further reference, please see https://www.psychiatry.org/patients-families/internet-gaming

González, 2022; Tawfik et al., 2016; van de Werfhost et al., 2022). Besides that, emerging studies have reported that AI-driven tools, including smart or social robots, can enhance social interactions among children and promote greater participation in learning activities (Belpaeme and Tanaka, 2021; Druga et al., 2019; Kewalramani et al., 2021; Rohlfing et al., 2022).

Besides the educational environment (Hood et al., 2015; Tanaka and Matsuzoe, 2012), robots are also used as telepresence robots to support childcare (Abe et al., 2018; Arroyo et al., 2017). Some companies like Bloomz, Eleyi, Oncare, MyKidzDay, and KidCheck are providing childcare software, applications, and technologies to help parents monitor their children. Now, more and more AI-infused devices are present in children's lives, like voice personal assistants, household robots, and networked smart toys (Williams et al., 2019). For that reason, the presence of social robots gains prominent interest as they are designed to display socially-appropriate and meaningful behaviour in their natural interactions and communications with humans (Feil-Seifer and Mataric, 2005; Fong et al., 2003; Lee et al., 2006). Consequently, emerging studies have underlined a rising trend in using social robot applications for childcare. For instance, robots play key functions in delivering messages between parents and children, as playmates, as tutors, and as conversation partners (Kory-Westlund and Breazeal, 2019; Osada et al., 2006; Smakman et al., 2022; Vogt et al., 2017). Lastly, the prominent use of social robots for childcare was pointed out clearly by Lee et al. (2022) in their study. This study concluded that social robots can help dual-income parents raise their children by facilitating social interactions as well as entertainment, followed by consultations from childhood development specialists for those parents.

IV. METHODOLOGY

A. Design of the Study and Approach

This study employed a quasi-experimental research design in combination with a user experience approach. The selection of the quasi-experimental

study enabled the research team to widely elaborate on the experiences of the target population about their interactions with the virtual robot models, as the main intention of this study. This design also removed some technical challenges that were experienced during the implementation of the study. First and foremost, one challenge was to conduct a full experimental study due to contextual differences among the three participating countries. Secondly, it was difficult to fully randomise research participants. Thirdly, the time restriction did not allow the team to widely elaborate methodological options and, lastly, the available resources were too limited to conduct a randomised experiment. Consequently, guided by Cook and Campbell (1979), this study encompassed a non-randomised intervention by selecting study participants who were interested in engaging in a series of interactive trial sessions which involved a number of virtual robot models hosted by a web-based platform.

Due to a number of challenges encountered above, the selection of a quasi-experimental design allowed some generalisations to be made about the population which was targeted as the users of the interactive platform developed by this project. It was also expected that findings in this study could be applied to other subjects with different environments which may include longitudinal settings. Furthermore, in the context of this project, namely the creation of a virtual robot model driven by a platform's development, the research team considered the usability of the platform which was frequently associated to the user experience or UX research. UX research aims to help unravel a number of issues that can explain the users' understanding and perception of the designs, including how the intervention trial may influence their perception on associated products or features (Marsh, 2022; Nunnally and Farkas, 2016). Following that, the combination of a quasi-experimental design for the purpose of UX research provided an opportunity for the research team to gather data about what experiences the research participants encountered during the trial intervention. Lastly, this composition of research design enabled future necessary modification to improve the platform design in order to optimise its usability.

B. About the Platform

The platform https://imaginaryrobots.eu/ was created based on a series of creative workshops in Spain, Romania, and Italy. The creation process went through three phases, namely visual design, audio design, and lastly the development of the platform. In the first phase, the 3D artists utilised the Blender application to transform drawings from the workshops into digitalised 3D animated figures that represented six virtual robot prototypes: Nurse Robot, Sports Robot, Friend Robot, Storyteller Robot, Dancing Robot, and Reflective Robot. Each robot was equipped with a set of personality traits which aimed to provide the potential user with a narrative story about their identity. For instance, the Friend Robot was tailored to provide company to humans and alleviate any feelings of loneliness, while the Storyteller Robot's functions were storytelling, entertainment, and memory and communication training. Following that, the sound engineer then integrated audio-related aspects into these animated figures. Once the visual and audio components of each animated figure were fully developed and synchronised, they were placed in a web-based hosting platform utilising Unity technology, which is often used in video game development. **Figure 2** below shows how the platform looks.

In the third phase, once the 3D animated figures were fully placed into the website, the ICT team employed Microsoft Azure – a cloud platform for data storage, infrastructure services, and a web platform – for the development and deployment of this project. Furthermore, for the purpose of developing conversational models of each chatbot associated with its respective robot model, the team utilised Natural Language Processing (NLP) resources through the service provided by Azure called Cognitive Service, which complemented with the OpenAI GPT-3 language model. The Azure Cognitive Service also allowed sentiment analysis derived from the conversation which then rendered one of the six sets of animation. This loosely represented emotional expressions produced by the virtual robots. Other than that, it is important to note that the platform did not store any previous conversations between chatbots and users. Thus, the bots did not have any continuity in their conversation based on the previous interactions.

Further information on the technical elaboration of the platform is attached in the Annex.

Figure 2. Main interface of the platform

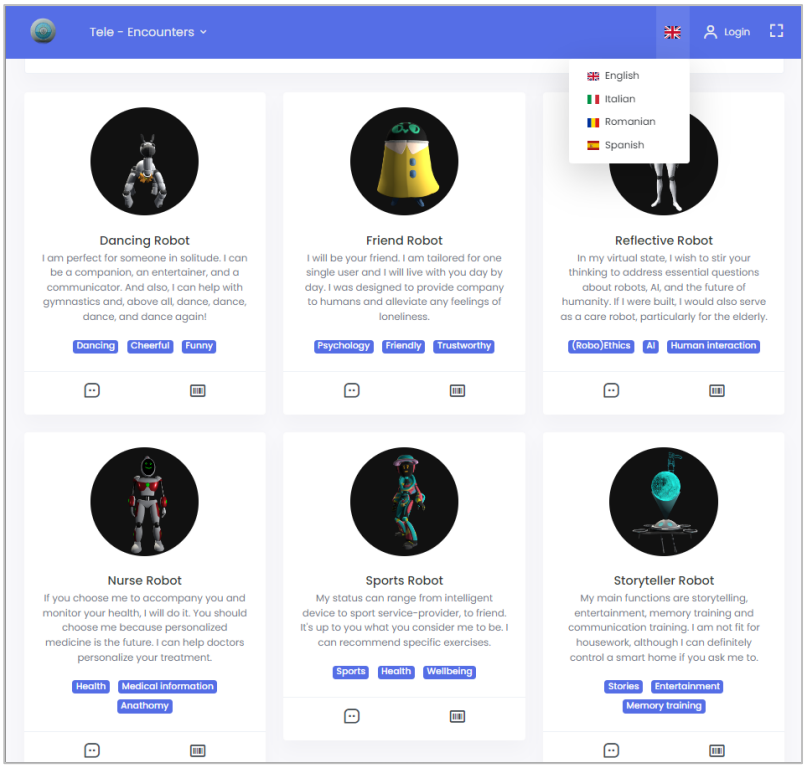
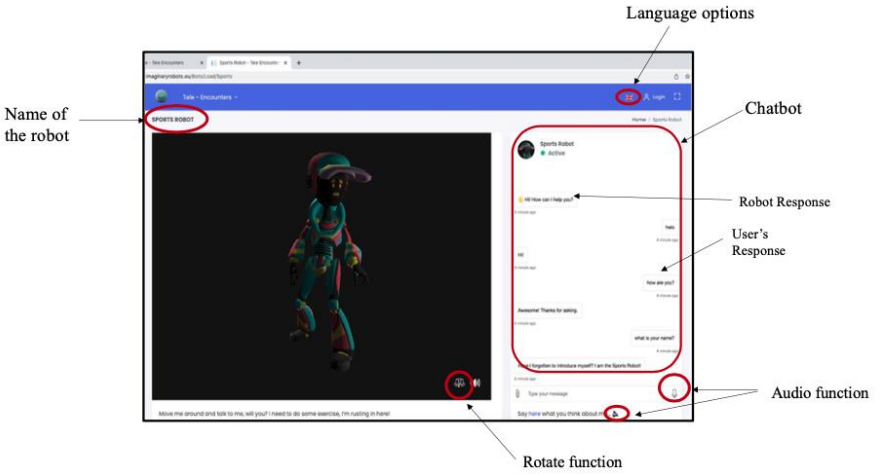


Figure 3. Chat interaction example with the virtual robot model



C. Data Collection

As previously mentioned, this study is a continuation of the previous study (please refer to the preceding chapter) that elaborated on the creative imagination of the elderly and children as a base for developing virtual robot models. In this study, the research team employed a similar approach to the previous study in terms of recruiting the study participants. Realising the challenge to recruit study participants with socially comparable aspects across countries, the study team allowed a certain level of freedom for each participating country to recruit study participants that fit the agreed generic profile. This recruitment model therefore influenced the type of trial sessions conducted by each country. Having said that, it is important to note that, due to a number of aforementioned reasons such as limited resources, time restrictions, and country-level differences, a high level of flexibility and compromise within the data collection process were critical to ensure the delivery.

Data used in this study was collected from a user-experience survey conducted during the trial sessions done in Spain, Romania, and Italy. Each of these countries independently hosted two types of trial sessions involving elders and children. Moreover, due to different levels of participants' recruitment models, the sizes of the country project teams, logistical readiness, and time availability, each country approached the trial sessions differently.

1. Implementation in Spain

The Spanish team organised the trial sessions in three large groups, namely two trial sessions with the children and one session for the elderly. To recruit the participants of this study, UCAM – the Spanish partner – collaborated with a primary school in order to implement the trial with young adolescents on the school premises. The trial sessions were conducted on the same day with two consecutive classes and lasted for about one hour for each session. During the trial implementation, the children used their personal laptops to try the platform and engage with the virtual robot models. Both trial sessions with the children were basically collective exercises, where each

student interacted with the robot models individually and at the same time. For that, the research team did not play a significant role as the human mediator that facilitated the interaction between the user and the platform. Following the children's interactions, they were requested to fill out a paper-based questionnaire that was intended to capture their experience in interacting with the platform as well as their perception about the virtual robot models. Lastly, to ensure there was no confusion during the process of filling out the questionnaires, this was done together with one research team which cited the questions one by one.

In the case of elder recruitment, UCAM involved the participation of an elderly centre and invited them to participate in a trial session on the university premises. Besides the participating elders, the head of the elderly centre and a social worker were also present. Beforehand, the research team prepared a classroom which was equipped with desktop computers for every participant. Slightly different to the implementation with the students, the team had prepared the webpage ready to be used by the elderly on every computer. Following that, the team gave a small demonstration on how the platform worked and invited the elders to interact with the platform by themselves.

Unlike the smooth implementation with the children, the team faced quite a challenge during the sessions with the elders. Despite their regular use of mobile phones, they were not familiar with using computers. For that reason, operating computer equipment and engaging with the virtual robots posed a significant challenge. Even though there are facilities to try both audio and text format to interact with the virtual robots, the elderly participants struggled to operate this equipment. Facing such a challenge, the team had to take quick decisions to change the modality of the implementation on the spot. Consequently, rather than the individual exercise, the implementation approach turned into a collective exercise which required facilitation from the team. Here, one team member operated the central computer that was projected through a smartboard, invited the elderly participants to ask questions to the virtual robots, and read the responses from the bots. The limitation of this approach was the domination of certain participants that tended to speak more than the other. This also explained that those who sat in the front row tended to actively participate more than those who sat in the

back. Lastly, upon finishing the sessions, the participants were asked to fill out the printed questionnaires in the same way as was done with the children.

It is also important to note that all trial sessions were conducted in Spanish, including when the participants interacted with the platform. In the case of children's sessions, some children utilised English and some other languages in their conversations with the virtual robots. Furthermore, no children reported the use of inappropriate language generated by the bot's responses during the sessions. Similarly, the elders' session was done in Spanish, including the interacting language with the virtual robots. However, some English responses were also generated by the bots during the implementation. In this case, a team member manually translated the bot's responses into Spanish. Lastly, no participants in the elderly sessions reported that any inappropriate content occurred during the trial sessions.

2. Implementation in Romania

As the implementing partner in Romania, Teatrul "George Ciprian" also hosted a number of sessions for both child and elderly participants. In the case of the elderly, there were two group sessions and some individual trial sessions. Moreover, Teatrul "George Ciprian" recruited the participants in collaboration with a local library to implement the trial on the temporary premises of the library. Involving a number of youth volunteers and library staff, the Romanian team had to make sure that the space was convenient for the elderly participants. Besides that, the team also prepared necessary equipment such as laptops, mouses, LCD projector, and projector screen. The group sessions were conducted in two days; each session lasted for one and a half hours. In the group sessions, despite each elder having been provided with a laptop, the interaction experience with the bots was basically a collective one. This was because of their lack of familiarity with using computer. As a consequence, these elders were assisted by the team and the volunteers. In this case, the team members acted as human mediators that navigated the platform and typed the questions. Sometimes, when the bots replied in other languages, the human mediators also suggested using the translation service Google Translate to facilitate the language barrier. Following that, the participants were asked to fill out the printed

questionnaires individually, although some elders required assistance from the team.

In the case of individual sessions with the elderly, the recruitment format was a little bit different. Unlike previous sessions, elders involved in individual sessions were recruited through personal networks. They were invited to the premises of Teatrul "George Ciprian" or the personal space of the team member in which the sessions were conducted. During the interactions, the elderly participants were always accompanied by one team member who helped them to not only formulate questions to the bots, but also served as a simultaneous translator/interpreter due to the language barrier. Following every session, the team member surveyed the participants by filling out the electronic questionnaire stored on Google Drive.

The trial sessions with the children in Romania were conducted in various ways, namely face-to-face class-based group sessions that involved a large number of children at the same time (including one child with a visual impairment disability), face-to-face small group sessions, a few online individual sessions, and a group session facilitated by the Zoom video conference service. The method of participants' recruitment was also varied, namely through partnership with local schools and through personal networks. Sessions with the children lasted between one to one and a half hours each. In the face-to-face group sessions, interactions with the virtual robots were mediated by the team member using one laptop projected onto a screen, while the participating children engaged collectively as a group. Due to the language filter in the bots working better in English, the interaction involved simultaneous translation from Romanian to English and vice versa. Therefore, during the trial, questions to the virtual robots were asked by the children in Romanian, translated to English, and typed by the mediator. Consequently, the answers generated from the bots were translated from English to Romanian by the team members. In some sessions, the interaction was done only through text (typing) due to technical problems in the audio equipment. Generally, however, when all equipment was working well, the participants tried audio and text formats. Moreover, due to the limited time available, not all robot models were tested. Afterward, the children were asked to fill out questionnaires digitally through scanning the provided QR code in order to access Google Forms.

Beside face-to-face sessions, the Romanian team also conducted a few online group and individual sessions with some children. These sessions were made possible due to the Zoom video conference facility that allowed children from various locations to participate in this activity. In this online modality, the team member used the share-screen facility to demonstrate how the platform worked and tried the robots one by one. Due to conflicting configuration between Zoom and the tested platform, the online sessions were mainly done in text format, despite on some occasions the audio format having been tried. After the interactive session, the children completed the online questionnaire on their own.

Unlike the trial in Spain, the implementation in Romania was rather intensively facilitated. Here, the role of the project team was prominent in mediating the user while engaging with the platform. It was also critical in translating the responses due to language barrier. This was mainly derived from the language filter issue, wherein it worked better in English in comparison with other languages. In addition, as with what has been observed in Spain, the involvement of elders in Romania also required a younger person to assist them in operating the devices.

3. Implementation in Italy

Industria Scenica, the Italian partner that implemented the data collection, approached the trial session rather differently. Because of their strong roots in the community where their presence is key, the Italian team underwent a tailor-made participatory approach (Cagna et al., in this book) for this trial. This also meant a distinctive way to implement this activity in comparison to Spain and Romania, which required a rough consideration of some unintended consequences that may have jeopardised their future work with the community. For that reason, rather than hosting a group activity, the Italian team approached the elderly participants individually in their residence or in a public places like parks. This type of approach was key to Industria Scenica's style of activity implementation due to their organisational character, which differentiated them from UCAM and the Teatrul "George Ciprian". Consequently, the trial with elders was intensively mediated by the team member, who also assisted the participants with how to operate the

device (a laptop), translated simultaneously between English and Italian, and helped the elders fill out the questionnaires.

The Italian team recruited the elderly participants mainly through the existing connection that had been built between Industria Scenica and the participants. Moreover, during the trial implementation, the team allowed the elders to ask questions in Italian which were then translated into English by the team. Due to the previous concerns of inappropriate and sexually-explicit content generated by the bots during the internal test, the Italian team decided to focus the interaction with the platform in English. This was mainly because the use of English during the platform interaction generated less inappropriate content compared with the interaction in non-English languages. This practice was similar with what was experienced by the Romanian team (but not Spanish), which then led to simultaneous translation from Italian to English and vice versa, as well as mediated use of the platform through the role of the human facilitator.

Unlike the trial sessions with the elderly, activities with the children were implemented as a group exercise, namely two large group sessions and a few small groups. In the case of the large group sessions, the Italian team collaborated with a local school which they had involved in their previous project. Activities with the children from the local school were comprised of two class sessions. Initially it was planned that the trial sessions with the students would take place in a computer lab in order to facilitate the children's direct interaction with the platform. However, due to inappropriate content generated by the bot platform through the use of GPT-3 technology as previously mentioned, it was required for the Italian team to change the initial plan. Consequently, the focus on the individual experience of each child had to be discarded and emphasis was put on the mediated use of the platform. This meant that the team member operated the platform centrally and projected it onto a large screen. With this set up, the children – as a group – told the Italian team what they wanted to ask to the robot in Italian, then the team translated the questions into English and typed them to the bots. Subsequently, the bots' responses in English were translated back to Italian so the children would understand. After that, the children were asked to access Google Form in order to complete the survey.

This approach was also carried out during the smaller sessions. Children who participated in the smaller sessions were recruited through personal networks and the trial sessions were conducted in private residences. During the sessions, an Italian team member operated the platform with a laptop and the children sat nearby to facilitate them looking at the screen together. Due to a smaller number of children in each group, between 3 to 4, they had the opportunity to directly interact with the robot in English via chat or audio. For those who did not speak English, the team mediated the interactions as well as translated the content. Since the private small sessions were conducted before the large ones, the Italian team noted the problems generated by the GPT-3 technology which exposed inappropriate and sexual-related content. Having realised that this problem would jeopardise the planned sessions with the school, the Italian team reported such occurrences to the project team. As a result, the tech team removed the language filter which only allowed English-driven interaction. Despite so, it does did mean that GPT-3 technology would stop generating inappropriate content. Having said that, by only allowing English-driven interaction, such a risk could be limited. Lastly, the children were asked to complete the questionnaires through Google Form.

D. Data Analysis

Due to some variations in conducting the trial sessions in the three countries, there were no strict and rigid standards that regulated how the country teams administered the questionnaires. As previously explained, the administration of the questionnaires was done via two mechanisms, namely printed questionnaires and online questionnaires through Google Forms. In the case of printed questionnaires, respondents' answers were manually tabulated in parallel to the process of ensuring data consistency and data cleaning, whereas the online mechanism enabled direct tabulation. Having said that, the process of data cleaning remained manual.

Furthermore, data gathered from the trial sessions were stored in a share drive accessible to all team members of the project. Collected raw data were grouped based on the respondents' category, namely older adults

(elders) and children. As the results were tabulated and analysed, a number of categories emerged, namely: respondents' relationship with technology, respondents' experience during and after the trial sessions, and lasty their perceptions about the virtual robot models with whom they were interacting. In addition to the quantitative survey, the study team also included additional data from the observation reports written by the researchers from each country. By adding the qualitative data, it aimed not only to contextualise the research settings but also to assemble a coherent, satisfying, and valuable synthesis within the research process.

E. Critical Challenges

In addition to the methodological challenges stated in part IV(A) above, it is also important to note some other challenges that occurred during the study implementation. First and the foremost was the pre-filtered GPT-3 technology that often generated inappropriate content for non-English in the case in Italian and Romanian. As an autoregressive language generation model, GPT-3 enabled the training to produce human-like text by pre-filtered OpenAI on a vast amount of text sourced mostly from the Internet. Certainly, the unlabelled dataset used to train this language model was primarily in English which, to some extent, limited its precision in other languages. A paper written by Floridi and Chiriatti (2020) pointed out that GPT-3 did not have the capacity to understand semantics or the context of the request. It only understood syntaxis in a statistical manner and the ability to associate words. For that reason, GPT-3 started to produce irrelevant responses which also seemed to generate unethical outcomes.

Second of all, in relation to the problem generated by GPT-3 technology as explained above, the project teams had to drastically modify the trial implementation, especially the Italian team. Eventually, this unanticipated occurrence changed the direct user-platform interaction to a human mediated format that involved simultaneous interpretation between the original language and English. This language-related problem of GPT-3 certainly limited the interaction, which should have been less filtered by the implementation team due to such inappropriate content. Unlike in Italy and

Romania, the Spanish team did not experience such a problem. This is possibly due to the statistically greater size of the open database in Spanish in comparison with Romanian and Italian.

Thirdly, due to the pre-trained language model used by the platform, participants tended to compare the quality of the content and how the bots responded to them with more popular virtual assistants like Alexa or Siri that were more sophisticatedly developed and trained. Therefore, it is important to acknowledge a certain level of bias from the respondents who had prior exposure to similar or even more advanced technology. For that reason, their prior experience in engaging with AI-driven technology somehow contributed to their idealisation about the robot being something beyond-human, which should always produce precise and accurate responses. Consequently, this idealisation failed to satisfy the reality of a pre-trained language model like GPT-3 that produced unexpected responses.

V. SAMPLE STRUCTURE – THE STUDY PARTICIPANTS

This section will elaborate the profile of the study participants, which includes their demographic profile, educational background, labour experience, and current experience with technology.

A. Description of the Study Participants (Elders and Children)

This study was carried out in three participating countries of the Tele-Encounters project, namely Spain, Romania, and Italy. It involved 150 children and 60 elderly participants to test six models of virtual robots developed by the project. As illustrated by **Table 1** below, the study engaged more females, represented by 60% of the elderly participants and 60% of the children. This general pattern also reflected a similar trend across the participating countries, both for elders and children.

Table 1. Respondents' gender, age, and education profile

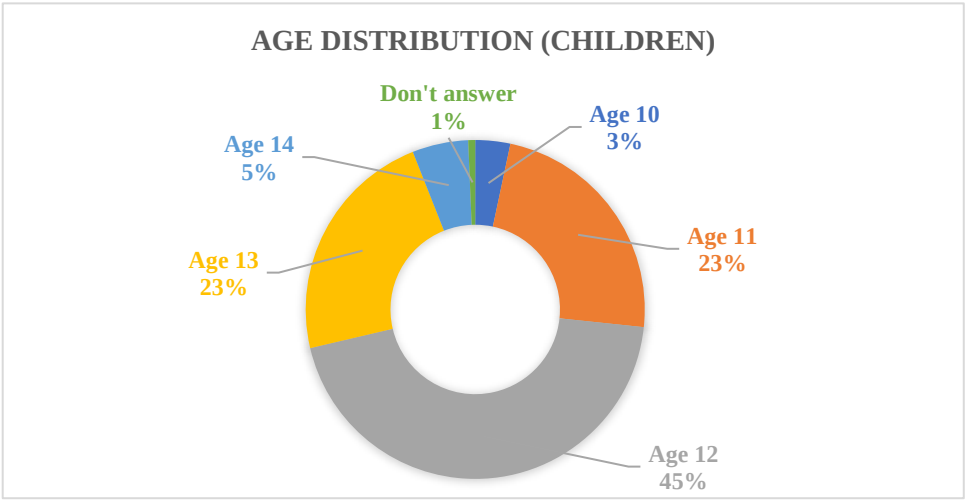
	Children (n=150)			Elderly (n=60)		
	Spain	Romania	Italy	Spain	Romania	Italy
Gender Distribution						
Male	21	19	22	4	10	10
Female	29	27	28	16	10	10
Other		4				
Age Distribution						
Age 10	3	2			-	
Age 11	11	8	16		-	
Age 12	21	18	28		-	
Age 13	10	18	6		-	
Age 14	4	4			-	
No answer	1				-	
Level of education						
Basic Education		-		14	2	6
Secondary Level		-		4	1	10
Post-High School		-		2	5	-
University Degree		-		-	12	2
Postgraduate and above		-		-	-	2

In terms of the age distribution of the child respondents, nearly half (45%) of the children were 12 years old, followed by 11 years old and 13 years old children who made up 23% of the child respondents for each age group. Having said that, the study noted that age diversity among the child participants was relatively different across the three countries. It was observed that the age composition of the Spanish and Romanian children was relatively broader compared to the Italian children's age distribution.

The landscape of the elderly participants in the three countries showed an interesting picture. Unlike the child participants, the age distribution for the elderly respondents was much greater, namely between 52 to 80 years old. In this segment, a little more than a third of the respondents (37%) had completed only basic education. The proportion of elderly respondents who completed only basic education was mostly found among the Spanish elderly. This figure was followed by those who obtained a secondary level of education, at about a quarter. Respondents with this characteristic were

mostly found among Italian respondents. Furthermore, the study also noted that 23% had completed a university degree, which was dominated by elderly respondents from Romania. A very brief look at the distribution of educational attainment at the country level depicted that 70% of Spanish respondents completed basic education, 50% of Italian elders completed secondary-level education, and 60% of the Romanian elders completed a university degree.

Graph 1. Age distribution among children



Graph 2. Educational attainment distribution among the elderly

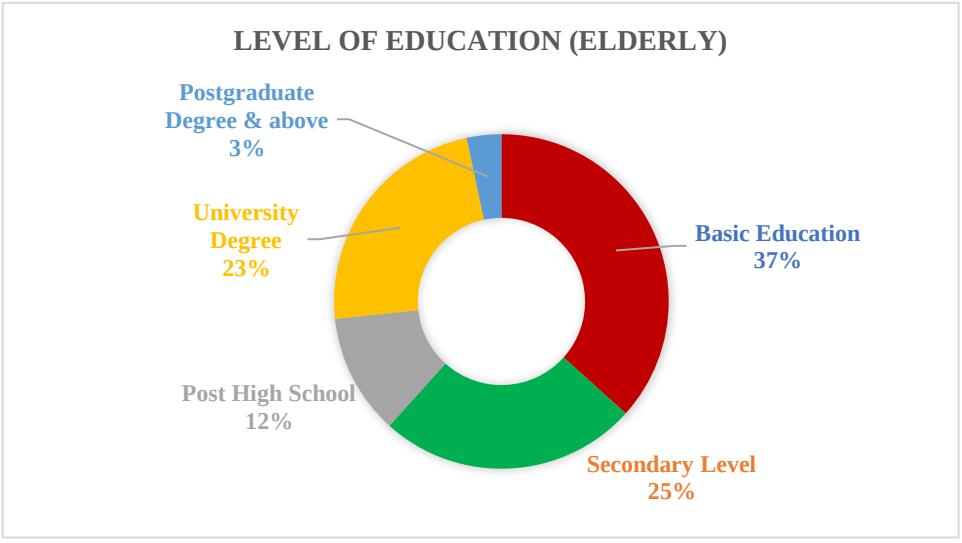


Table 2. Job profile among elderly respondents

Type of Jobs of Male Respondents (Before Retirement)	**Type of Jobs of Female Respondents (Before Retirement)**
In the army (Lieutenant), newspaper journalist, colonel in the army, mechanical engineer, specialist technician in export and import, custom controller, teacher, theatre acquisition expert, head of technical department in theatre, mechanical department, management of mechanographic procedures, clerk, entrepreneur (automotive), nurse, schoolteacher, electrician, factory worker	Housewife, administrative assistant, shopkeeper, courier, work in library, seamstress, biology teachers, primary teachers, librarian, high-school teachers, university lecture, pensioner, cleaning lady, university professor (educational science), dancing hall manager & labour union technician, entrepreneur (cleaning service), homeworker, psychiatric doctor

Table 2 above indicates the various jobs of the study respondents before their retirement. It was observed that the dominant jobs that were frequently cited by the respondents were educators which include teachers, university professors, and lecturers. For the male respondents, the dominant type of job was engineering in various sectors, including in theatre as well as the automotive industry. Teaching professions were also frequently cited by the male respondents. As the Romanian partner was a theatre institution, the study found that some respondents demonstrated an affiliation with this sector. For female participants, the study observed two dominant professions, namely housewife and teacher. Besides that, the study also recorded other professions like small business owners and administrative workers, which included those who worked in libraries.

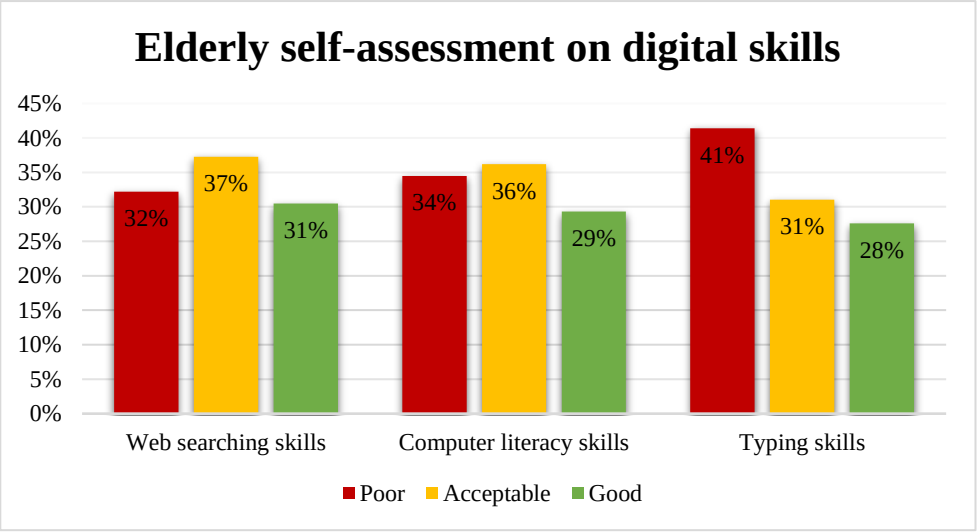
B. Respondents' Experiences with Digital Devices

1. Elders and Technology

In this study, the participants were asked to evaluate themselves in terms of their digital knowledge, their familiarity with digital devices, and their competency using digital devices. Generally, quite a large proportion of the elderly respondents had a recent encounter with technology. About 44% of the elders had just started to use digital devices in the last 10 years or even less. Furthermore, the study also identified around 35% of the elderly participants had much longer engagement with digital devices, namely between 11 and 20 years. From the country's perspective, those elders who had a very recent encounter (in the past 10 years) with technological devices in Spain were very dominant, namely around 71%. This view differed from the situation among Romanian and Italian respondents, where there was a greater proportion of respondents that had been using technological devices for a much longer period of time, namely between 11 years and 20 years. In addition, the study also elaborated on the frequency of the use of digital devices among elderly participants. The result indicated that a sizeable proportion of the respondents, namely 68%, used digital devices every day. Moreover, about 20% of elders commented on using technological devices nearly every day. Consequently, it could be said that a large majority of the participating elders used technological devices frequently or on a day-to-day basis.

To assess respondents' digital skills, the study selected three indicators to analyse the level of their digital skills. The three indicators were (1) the ability to do web searching, (2) computer literacy skills, and (3) the ability to type on a keyboard. **Graph 3** below illustrates the result of the respondents' auto evaluation of such skills. (Important note: This is a general landscape of how the respondents evaluated themselves on these skills. The category of "poor" comprises those who chose "very poor" and "poor" altogether; the category of "good" comprises those who chose "very good" and "good" altogether).

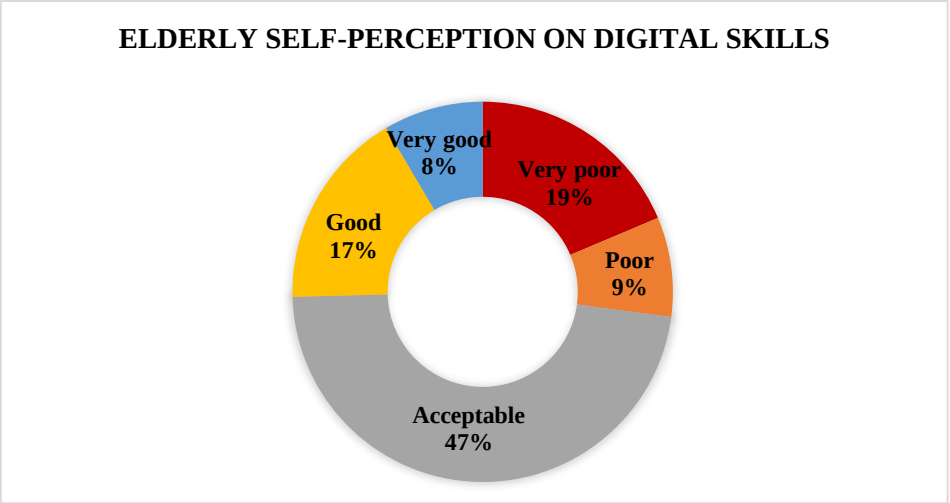
Graph 3. Self-assessment on digital skills among the elderly



In terms of web searching skills, the results indicated a divided view. Among the elderly respondents, more than a third or 37% viewed their web searching skills as acceptable, whereas those who viewed their skills as good and bad were relatively the same size, namely around 30%. In terms of computer literacy skills, the results showed a similar landscape. More than a third of the elderly participants, or 36%, self-evaluated their skills as "acceptable". Here, it can be seen that the respondents seemed less confident in this ability, as 34% of them marked their skills as "poor" in comparison with 29% who marked them "good". Lastly, a slightly different trend was observed in typing skills. About 41% of the elderly respondents considered their typing skills "bad" and only 28% considered them "good".

Besides conducting self-assessments on the digital skills of elderly participants, the study also looked into respondents' self-perception in terms of how they evaluated their ability to operate digital devices. **Graph 4** below describes the distribution of respondents' opinions about how they evaluated themselves in relation to the use of digital devices.

Graph 4. Self-perception on digital skills among the elderly participants



As illustrated in **Graph 4** above, nearly half of the participants, or 47%, evaluated their digital skills as "acceptable". Despite so, there was a very small minority, or 9% of the respondents, that considered their skills "poor", while 19% of elderly participants considered their skills "very poor". On the contrary, the study observed that 8% evaluated their skills as "very good", whereas 17% considered them "good". At the country level, the picture showed a rather different image. The results of the Spanish respondents were basically dominated by 37% of the respondents who evaluated their skills as "acceptable", followed by 32% that viewed themselves as "very poor" users. Unlike in Spain, a large majority of the elderly respondents in Romania, or 70%, evaluated their skills as "acceptable" while the rest of their opinions were distributed across the polar. In Italy, despite there being 35% of participants having evaluated themselves as acceptable users, nearly half of the Italian elderly respondents considered themselves "good" or "very good".

The study indicated that the study participants tended to have a positive relationship with technology. Half of the elderly respondents, or 50%, commented that they liked technology. Despite so, it was also observed that 23% of the participants neither hated nor liked technology (neutral). From the country perspective, the study noted that 70% of elders in Romania confirmed that they liked technology. In Spain, the landscape was rather

different: 35% of the Spanish elderly respondents commented that they liked technology, while another 25% of Spanish respondents clearly expressed that they did not like technology. In Italy, the study noted that nearly half of the respondents, or 45%, expressed their liking of technology, followed by 35% that neither liked nor hated technology.

2. Children and Technology

The study understands that the role of technology, in particular through digital devices, in the life of children is inevitable. To get a better picture of how children interact with technology using digital devices, the study gathered information about the frequency of use of six types of devices, namely smart TVs, video games, desktop computers, tablets, laptops, and smartphones. Here, the children were asked to rank the frequency of use of all six devices, with the assumption that these were the most common devices used by children. In general, among all the available options, children used smartphones the most and desktops the least. From the country's perspective, the daily use of smartphones among Romanian children was higher than the use among Spanish children.

Table 3. Digital devices' frequency of use among Spanish and Romanian children

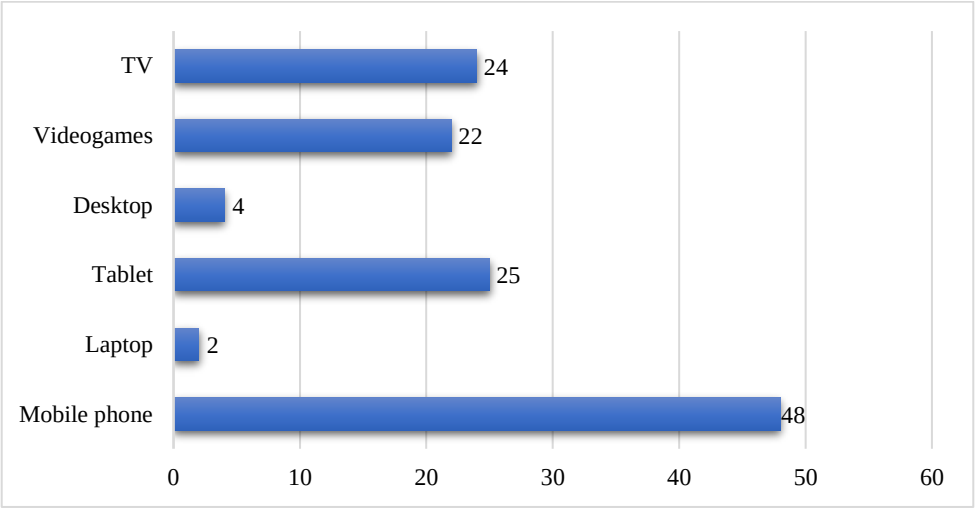
	Spain					**Romania**				
	Frequency of use					Frequency of use				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Mobile Phone	22%	32%	18%	24%	4%	4%	82%	8%	2%	4%
Laptop	6%	57%	29%	6%	2%	20%	18%	16%	40%	6%
Tablet	50%	8%	13%	19%	10%	58%	4%	4%	48%	16%
Desktop	63%	4%	4%	15%	15%	32%	12%	18%	26%	12%
Video games	30%	10%	20%	26%	14%	66%	12%	4%	6%	12%
TV	4%	31%	22%	29%	14%	12%	24%	22%	36%	6%

Note:

(1) I don't use
(2) Every day
(3) Almost every day
(4) Once a while
(5) Rarely

As indicated by **Table 3** above, 82% of the participating Romanian children used smartphones on a daily basis compared to 32% of Spanish children. Furthermore, the daily use of laptops in Spain was higher than in Romania. The study observed that 57% of Spanish children used laptops every day compared to 18% of Romanian children. For Romanian children, the use of laptops was generally "once in a while" use, as expressed by 40% of the children.

Graph 5. The use of digital devices among Italian children



Contrastingly, Italian children did not express themselves in the same way as the Spanish and Romanian children. As illustrated by **Graph 5** above, only two out of 50 children used laptops. Furthermore, data generated around the use of other types of gadgets, like tablets, desktop computers, and video games, revealed a similar pattern among children in Spain and Romania. Among all the options provided in the study, these three gadgets are the least used by Spanish and Romanian children. Unlike their Spanish and Romanian counterparts, at least a quarter or 25% of participating Italian children used tablets. Finally, in terms of the use of video games consoles, the study found that there were more Romanian children – represented by 66% – than Spanish children – represented by 30% – that never used video games consoles; in Italy, nearly half of the participating children or 44% said that they used this device.

3. Participants' Experience with Artificial Intelligence

One of the principal aspects of the project was the use of artificial intelligence (AI) to facilitate the interaction between humans and imaginary beings. For that reason, the study also captured the participants' previous experience with AI and how they understood such experiences. Results among the elderly participants indicated a clear picture where a large majority had never seen nor interacted with a social robot. Furthermore, a large proportion of the elderly – represented by 67% of the participants – had never used a virtual assistant (device), while only a very small proportion – about less than 10% – of the elderly participants used such devices quite regularly or on a daily basis.

The common use of virtual assistant, such as Alexa, Siri, or Google, in many households, particularly to facilitate users in doing domestic chores, has been normalised as part of day-to-day reality. Embedded virtual assistants in our technological devices, for instance mobile phone, smart TV, or GPS, are no longer seen as a luxury item but a necessity. This reality was also articulated well by the elderly participants, especially the introduction of virtual assistance into their life by younger family members such as their children or grandchildren. Despite the presence of existing models of virtual assistants having generated enthusiasm and excitement, some elderly participants also indicated resistance toward this technology mainly due to their unfamiliarity with digital life.

Among the elderly participants, the study found that they articulated virtual assistants in three different ways. First was as "a provider of help". As the name implied, the elderly participants generally mentioned a series of tasks or commands which they usually asked the virtual assistant to perform. Such tasks included searching for information on Google, asking specific questions, navigating during driving, asking for reminders, making calls to friends and relatives, and running their home appliances. Second of all, elders also cited "providing company" when describing a virtual assistant. This function was associated with the third description, which was "entertainment". This entertainment role was articulated by the elders through their specific commands, such as playing music having been frequently cited by the participants. Having said that, despite the number not being significant,

the study identified that elders' resentment for technology was articulated as a "distraction" by a Spanish elderly, which indicated the respondents' less than favourable attitude toward the virtual assistant.

On the contrary, the landscape of human-machine interactions among the children participants demonstrated a very contrasting result. More than half of the child respondents – represented by 52% – had interacted with a robot before. This result appeared more prominently in Spain and in Romania, as a respective proportion of 73% and 63% indicated their experiences of interacting with a robot. On the other hand, this showed a stark difference compared to the Italian children, as a great proportion – about 72% – had never interacted with a robot beforehand.

Besides that, the study also elaborated on the children's experience with virtual assistants. As predicted and despite the frequency of interaction being quite varied, a large majority of the participating children had experience using a virtual assistant, with only less than a quarter of them, or 22%, having never used a virtual assistant before. Furthermore, at the country level, the result among Spanish children was skewed towards less frequent use of virtual assistants. This was represented by 38% of Spanish children having used a virtual assistant rarely or in a less frequent manner, plus a small proportion of Spanish children (10%) never having used it. A similar trend was also observed among Romanian children. About 30% of Romanian children had never used a virtual assistant and around 22% rarely used such technology. A slightly different result was observed in Italy, as more than a third of the participating children, despite not doing so regularly, had used a virtual assistant once in a while. Having said that, about a quarter of the participating children in Italy had never used this technology.

Similarly to the elderly participants, the children were also asked to describe the meaning and function of a virtual assistant. From all the answers received, the study categorised the children's responses into two groups, namely the material description of a virtual assistant (which can be interpreted as how these children defined this technology) and the qualitative definition (which was linked to the roles and tasks for which the virtual assistant was developed). Firstly, in terms of material description of a virtual assistant, a homogenous description was generated from their responses. As most children were familiar with the presence of virtual assistants in their homes

and day-to-day life, they saw it as embedded in their technological devices. Therefore, answers like "robot", "machine", "gadget", or "home appliances" were commonly found and frequently cited by these children. Despite the majority of the children having answered that way, the study also noted that a number of them mentioned a "virtual person" to define what the virtual assistant meant to them. For them, a "virtual person" was equipped with a set of characteristics that relate to a human being, with a strong emphasis on the domain in which it lives, namely "not in a real life". A few responses from the children are cited below:

"It's like a virtual person that helps you if you have some questions or if you want to see something, including to see the place where you want to go" (Girl, 11 years old, Spain)

"*I like them because they entertain me when I am bored and help me sometimes when I have some questions, especially when I do my homework. They are like a common person that helps me, but in a mobile phone"* (Girl, 13 years old, Spain)

"They are virtual persons that help us in our house" (Boy, 12 years old, Spain)

From the above, the study underlines the intersection between "machine" and "human" under the idea of hybridity. For these children, the virtual assistant was not in a human form but actually performed human tasks. Likewise, the virtual assistant embodied human aspects, especially in terms of developing a social relationship with humans as the users. At the same time, however, the virtual assistant did not live in human reality. For the children, a non-human character was projected by the idea that it was not biologically constructed as human, but was a "thing" or product which was described as machine, robot, or home appliance. Having said that, the children also noted that despite virtual assistant was a product and its behaviour resembled human behaviour, for instance "*they respond to your questions*" (Boy, 13 years old, Spain), "*to talk when I am bored*" (Girl, 12 years old, Romania), "*with my best friend, we ask Alexa to help me with homework, especially English and math"* (Boy, 12 years old, Italy). To some extent, the examples above show how these children portrayed their relationship with the

virtual assistant by mirroring human-to-human interaction. This kind of interaction, as perceived by the children, was based on the quality of social relationship rather than being based in physicality.

Secondly, besides the material description, the children's answers also highlighted a number of qualitative definitions. General qualitative aspects that the children pointed out were the functions and characteristics of a virtual assistant. In this aspect, the children's answers shared similarity with those of the elderly, which are: the provider of assistance and information, for entertainment purposes, and responsive to questions and queries. Besides these, the study also identified that timing emerged as a recurring theme in their responses, especially when the children mentioned "everyday" or "when I need". Moreover, the timing aspect was associated with the respondents' emotional states to a certain extent. This theme came about with several anecdotes that highlighted when they were feeling lonely or sad, including the times when they had nothing to do. For that reason, talking and interacting with virtual assistants by requesting jokes or playing music helped them to alleviate such loneliness and boredom. Following that, the children perceived virtual assistants as key to mediating social interactions with fellow human beings, as well as facilitating the performance of daily tasks controlled through technological devices.

VI. RESULTS

A. Experience During the Workshop Trial (Comparison Between Elders and Children)

This section focuses on how the study participants, both elderly and children, evaluated their personal experiences in engaging with the interactive platform. Although the variables collected from the participating children and from the elderly respondents were not exactly the same, generated results are comparable enough in demonstrating their personal experience during the platform trial events, which were conducted in the three participating countries. In this part, the quantitative findings, qualitative information, and details that would be useful to contextualise the study environment are all

presented. Furthermore, this section will focus on four aspects, namely: the mode of interaction used during the try-out sessions, the language used by participants while interacting with the platform, the most attractive robot model that caught their attention during the try-out sessions, and the appropriate name used to call the robot model.

First of all, as aforementioned, the trial sessions in the three countries were conducted differently according to different levels of equipment readiness and distinct technical specificities in each country. Because of such differences, results differed from one country context to another, subject to the way the trial sessions were organised by the project committee. In general, every trial session allowed the respondents – both elders and children – to try two types of interaction, namely via audio mode and textual. During each trial session, the project teams enabled the elderly participants to use both modalities. However, not all elderly participants felt comfortable or that it was technically feasible to use both. As a result, about half of the elderly participants, or 52%, tried in both formats – audio and text – while about 40% only interacted through text. Those elderly participants who interacted with only text were mainly the Spanish respondents, which accounted for 72% of the total Spanish elderly respondents. This result was influenced by the way the try-out session was organised and the limited technical ability of the Spanish elderly participants, which limited the use of audio mode with a convenient setup. On the other hand, a large majority of Italian elderly respondents, namely 85%, tried both audio and text modalities during their interactions with the platform.

Try-out sessions with the children indicated that, in general, more than half of the participants tried the platform with both formats – audio and textual. It was also found that about 35% of the participating children interacted only through text. Despite so, only a small portion of the child respondents, or less than 10%, tried the platform only through audio. In the country-specific context, about half of the participating children in both Spain and Romania tried the platform only with text. This figure was more than those children who interacted with the platform through the combination of both modalities. The situation in Italy was rather different. As the try-out sessions in Italy were conducted in a more intimate way involving a smaller group of children via intensive facilitation from the project personnel, it

resulted in more children trying both audio and text forms during their interactions with the platform.

Second of all, the languages that the respondents used during their interactions with the robots varied. This depended not only on the host country, but also on the issues related to the language filter due to problems generated by the GPT-3 technology used by the virtual robot model. It was obvious that the high usage of a language corresponded to the respective country where it was spoken as the main or official language. Among the elderly participants, the study noted that they were more comfortable interacting with the common language of their country of residence. In Spain, all elderly participants interacted in Spanish despite a few of them also having interacted in English, or 10% of the participants. It could be said that the use of Spanish among elderly participants was the advantage derived from the platform's development having been done in Spanish. In addition, the way the trial session was conducted, which was a group exercise, also facilitated language switching between English and Spanish through the role of the group facilitator. In Romania, 85% of the respondents interacted in Romanian despite there being some respondents, or 35% of the participating elders, that reported that they interacted in English. Despite so, it should not be read and interpreted that the reciprocal conversation with the platform was carried out fully in Romanian. Instead, due to the mediated process during the trial experiment, most interaction was done in Romanian through translation to and from English. In Italy, the situation was rather different: a majority of the participating elders interacted in non-Italian or English. This was mainly due to limitations of the GPT-3 technology that generated inappropriate language such as sexual-related content during interactions using Italian. For that reason, it was decided by the Italian team to mediate the interaction with English as it generated less inappropriate content. In addition, the study also observed that some respondents in Italy used other languages like Portuguese.

A similar pattern of language use was also found among the children. In Spain, a large majority of participating children, or about 96%, interacted in Spanish. Despite Spanish being the main language of interaction, a sizeable proportion of these Spanish children, or 44%, also used English in addition to other languages like French. Furthermore, as previously explained in relation to the problem with the language filter, the trial sessions in Romania and Italy

purposedly used English as the principal language of interaction. This decision was taken due to ethical concerns of inappropriate content which had occurred sporadically during the internal test. Despite so, common languages like Romanian and Italian were still being used by the children to ask questions to the team member, who acted as human mediator and translated in English. Lastly, it was observed that the use of English among children was much wider than among the elderly due to children's earlier exposure to English.

Third, the participants interacted with six robot models through this web-based platform, each one of the robots having been built according to a specific knowledge base designed for them. These robots were Nurse Robot, Sports Robot, Dancing Robot, Storyteller Robot, Reflexive Robot, and Friend Robot. Among the elderly participants, there was no dominant robot model that prompted particular attraction. Generally, the elderly population had diverse preferences in terms of selecting the most preferred robot model. Of the six available models, nearly a third of the elderly respondents, or 30%, chose the Nurse Robot as most preferred. This was followed by the Dancing Robot as the second most preferred virtual robot, as selected by 21% of the respondents. Moreover, a rather distinct landscape was observed at the country level. In Romania and Italy, the Nurse Robot was favoured by 30% and 35% respectively; in Spain, the Nurse Robot was selected by a smaller proportion, namely 24%. Significantly fewer Spanish elderly respondents chose the Nurse Robot than those who selected the Dancing Robot, which obtained 40% of the votes, and the Sports Robot, which was selected by 29%. On the other hand, the Friend Robot received higher votes in Romania, selected by 25% of the respondents, whereas the Storyteller robot was selected by a quarter of the participating Italian elders.

Unlike the results of the elderly, the children's preference for their favourite virtual robot signalled a different trend. Despite there being no single dominant robot model that appeared strongly in the result, the Friend Robot obtained more attention compared to the rest. Among the child participants, the Friend Robot was opted for by 35%. Following that trend, the children were also attracted to the Sports Robot, which was selected by 23%. At the country level, the trend indicated a slightly different picture. The

Friend Robot was ranked first in two countries, Spain and Romania[29], which was preferred by 35% and 46% respectively. In contrast, Italian children preferred the Sports Robot, which was opted for by 31% and outnumbered the other robot models. Moreover, it was also interesting to observe that the Storyteller Robot was favoured by 23% of the Italian children, as this robot model received little attention in Spain and Romania.

Lastly, the study asked all participants of both groups – elders and children – to choose what to call the robot models. Among a number of options provided in the survey, nearly all participants in the three countries selected "virtual being" as most appropriate for the robot models. Some responses from the elderly participants are displayed below:

"Because they don't have what a real being has – feeling" (Male, 71 years old, Romania)

"Virtual being, and it's better that for now it stays virtual, in the fiction world. Because I think this type of robots are not yet so advanced to know everything, they can be a good idea for play online or making experiments" (Female, 65 years old, Italy)

"Because they are machines" (Female, 68 years old, Spain)

"As they have the characteristic of a being, but they don't have real life" (Female, 72 years old, Romania)

Those that viewed the virtual robot model as a "virtual being" were prominently found in Romania and Spain, in comparison with the participants from Italy. From the elders' responses that answered "virtual being", the study identified two emerging aspects that underlined this answer. The first was the characterisation and the animated feature that they saw on the screen. This highlighted the idea of a "fiction world" vis a vis "the real world" that we are living in, which focused on the domain where the robot stayed: on the screen. The second was the idea of "not real", which was different from what they understood about humans as living beings. For the participants, they could not have physical contact with the virtual robot. As a consequence, the

[29] In Romania, due to some tech related issues during the implementation of some small online sessions and lack of time, not all six robots were tested equally. For that reason, the Friend Robot came as the most preferred model among the tested robots.

virtual robots did not encompass feelings and emotions which were fundamental to building a relationship with fellow human beings. This separated the user and the virtual robot on the grounds of detachment from human reality. Unlike the trend in Spain and Romania, in Italy, the distribution of votes among various names did not show a stark contrast between one and another. Among a number of options, "virtual being" and "other" were equally voted by 40% of the Italian elderly participants. Lastly, the option of "actor/performers" was opted for by 35% of Italian respondents, outnumbering 5% of Spanish respondents and 15% of Romanian respondents that selected the same.

"Virtual Beings", as the most selected response among the children, was worthy of further explanation. Despite the study having found some similarities to the explanation from the elderly participants, the children elaborated their justification broadly. The children emphasised the medium of their interaction, i.e. the technological devices that they used to interact with the virtual robots. Moreover, they also underlined the physical presence of humans in comparison with the virtual robots in the platform. This comparison linked with the discussion of which one was "real" and which one was not, as well as the perception about the robot's physical presence that could not be touched. Following that, emerging themes also elaborated the qualitative criteria of human versus non-human, such as the existence of two different worlds – namely the real world where human lives versus the virtual world where the robot lives. Furthermore, for the children, the virtual robots knew a lot of information because they were computers. This contrasted with the perception of being human and having limited knowledge. Besides knowledge, another theme that appeared frequently was the social aspect of humanity. This highlighted the interactions among humans in which emotion becomes an inseparable part of the quality that distinguishes robots and humans. Additionally, the study also noted a number of sporadic responses that were worth granting attention. One incoming response implied the missing essence of life in the virtual robot, which was an embedded quality of being human. For that reason, the virtual robot did not own the meaning of life. Lastly, the study also identified a number of responses that cited "puppet", as expressed by an 11-year-old boy from Italy, "*Because it looks as somebody controls it remotely"*. Here the children that described the virtual

robot as a "puppet" underlined the idea of "control", which strongly emerged in the representation. For them, the robots were not autonomous which meant there were other figures that operated them.

B. Respondents' Personal Experience When Interacting With the Virtual Robot Model (Comparison Between Elders and Children)

1. Among Elderly Participants

In this section, the explanation focuses on elaborating two key findings around the respondents' personal experiences during their interaction with the virtual robot models through the platform. First of all, it describes the collective reflection on the individual experience of the elderly and child participants in navigating the platform in order to start their interactions with the virtual robot models. Second of all, this section explains their perceptions of the virtual robot models with whom they have interacted.

Table 4 and **Graph 6** below show how elderly respondents reflected on their individual interactions with the virtual robot models during the try-out sessions. In order to tease out such experiences, the elderly participants were guided by a number of affirmative statements to which they were required to respond. The spectrum of responses was available in five segments, namely "strongly agree", "somewhat agree", "not agree or disagree", "somewhat disagree", and "strongly disagree".

First of all, from the five affirmative statements, it can be seen that elderly respondents indicated positive experiences with the virtual robot models. **Graph 6** indicates that a large majority of the respondents or 71% were strongly and somewhat in agreement that the virtual robot models understood them easily. Despite a strong result with respect to their perception of the extent to which the virtual robot models understood them, the study also found a contrasting reality: 61% of the participating elders strongly and somewhat agreed that they needed to rephrase commands a number of times so the robot could understand them. This result could link to the following aspect, namely the way to start interacting with the robot. Among all participating elders who responded to this statement, only 22%

agreed that a specific instruction to start a conversation with the virtual robot models was unnecessary. This brought nearly half or 47% of the elderly respondents to imply that they needed a specific instruction to initiate a conversation with the virtual robot models. Moreover, in terms of experience in navigating the platform, the study did not arrive at a solid conclusion; 39% of the elderly respondents expressed a 'neutral' opinion, outnumbering the 32% of respondents that found navigating the platform confusing and the 30% that expressed otherwise. The last affirmative statement was still linked with the previous statement that focused on the accessibility of navigating the platform. As illustrated by **Graph 6**, 40% of the elderly respondents found that it was challenging to navigate the virtual robot model. In all three countries, despite the elderly participants having interacted with the platform through the assistance of the country team members, their opinions indicated there was confusion when interacting with the virtual robot. Having said that, this slightly outnumbered those participants who found that navigating the robot model was easy, namely 38%. Given the slight difference between the two distinct opinions, it might be worth thinking about that the fact the elders were assisted, which may have created the impression that navigating the robot was easy since somebody else did it for them.

Table 4. Reflection of the elderly respondents on their personal experience interacting with the virtual robot model

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
"I don't need a specific instruction to start a conversation with the robot model"	5%	17%	32%	10%	37%
"It was easy for me to navigate the robot model(s)"	10%	28%	22%	12%	28%
"I find it confusing when I navigate the robot model(s)"	14%	18%	39%	14%	16%
"I feel the robot model(s) understand(s) me easily"	29%	41%	16%	7%	7%
"I need to rephrase my commands several times so the robot model(s) understand(s) me"	21%	40%	16%	11%	12%

Graph 6. Reflection of the elderly respondents on personal experience interacting with the virtual robot model

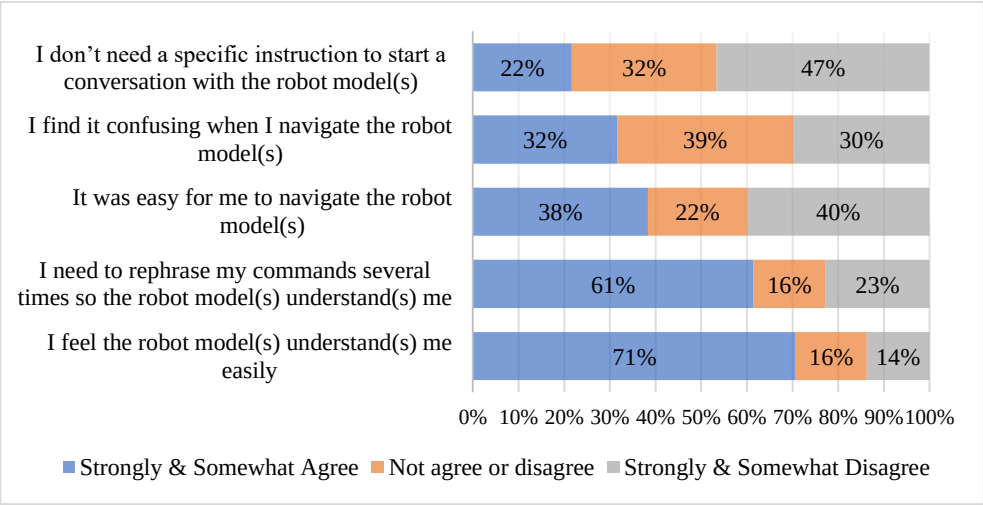
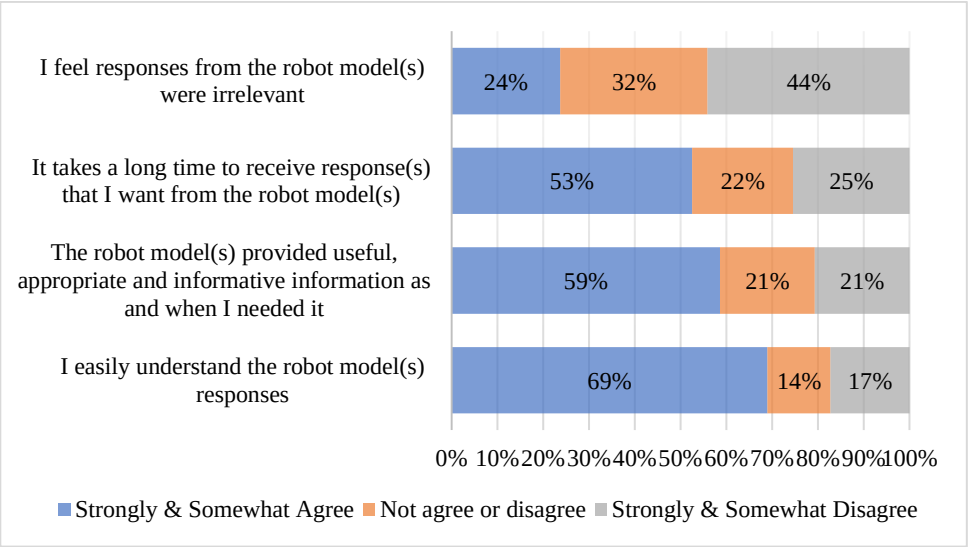


Table 5 and **Graph 7** below demonstrate the respondents' experiences during their interactions with the virtual robot models. Similar to the approaches employed above, the respondents were asked to respond to a series of statements provided in the survey questionnaires by choosing one of the five available options.

Table 5. Opinions from the elderly respondents about the responses of the virtual robot models

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
"I easily understand the robot model(s) responses"	38%	31%	14%	12%	5%
"The robot model(s) provided useful appropriate and informative information as and when I needed it"	31%	28%	21%	16%	5%
"I feel responses from the robot model were irrelevant"	14%	10%	32%	36%	8%
"It takes a long time to receive response(s) that I want from the robot model(s)"	17%	36%	22%	17%	8%

Graph 7. Elderly respondents' opinions on the virtual robot models' responses



As shown in **Graph 7** and **Table 5**, the perceptions of elderly respondents of the robot were generally positive. Among the four statements asked, the study found that a large proportion of the respondents, or nearly 70% of the participating elders, commented that they could easily understand the responses from the robot model. Only 17% of the respondents perceived that the responses generated by the virtual robot models were not easy to understand. Besides that, more than half of the respondents, or 59%, agreed that the virtual robot models provided useful, appropriate, and informative information as and when needed. On the contrary, 24% of the elderly respondents viewed that the responses generated from the virtual robot model were irrelevant. Despite the positive response, the elderly respondents also expressed their negative experiences, especially related to the waiting time. This was expressed by 53% of the elderly participants, who commented that it took a long time to receive the responses from the virtual robot models. On the contrary, about 25% perceived otherwise.

2. Among Children Participants

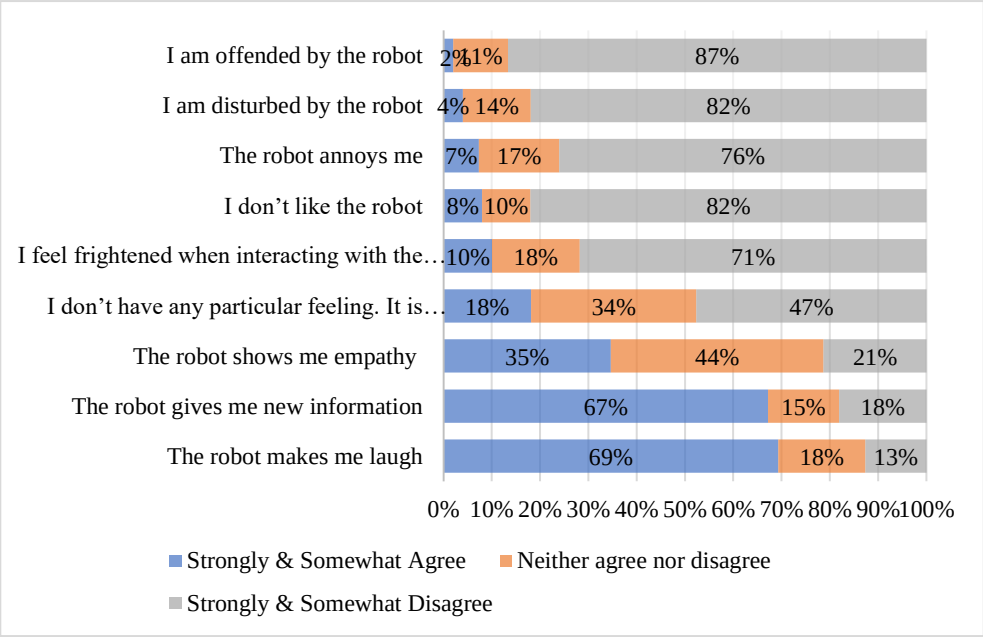
To elaborate on the children's experiences interacting with the virtual robot models, this section is developed based on the questionnaire segments that were particularly aimed to capture children's reflections on such aspects. Generally, the children expressed that their interactions with the virtual robot model was different from human interactions. More than a third of the participating children, namely 34%, commented that the interaction with the virtual robot model was fabricated, or not like the interaction with fellow human beings. The study also observed that 29% believed that their interactions with the robot model were weird; they were aware that it was not a human being. Despite the majority of them commenting that their interaction with the robot was not natural, about 21% of the children thought otherwise. For them, their interaction with the robot was just like those with fellow human beings.

Furthermore, the questionnaires provided the child respondents with a number of statements to respond to in order to guide them in articulating their experiences. Their responses were then reflected by selecting one of the five available options, which ranged from "strongly agree" to "strongly disagree" as tabulated in **Table 6** and **Graph 8** below.

Table 6. Children experience during the trial with virtual robot models

Statements	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly Disagree
I feel rightened when interacting with the robot	2%	8%	18%	23%	48%
I don't like the robot	0.01	7%	10%	36%	46%
The robot annoys me	-	7%	17%	40%	36%
I am disturbed by the robot	-	4%	14%	32%	50%
I am offended by the robot	1%	1%	11%	37%	50%
The robot makes me laugh	15%	54%	18%	7%	5%
The robot gives me new information	32%	35%	15%	14%	4%
The robot shows me empathy	11%	24%	44%	16%	5%
I don't have any particular feelings. It is just neutral	5%	13%	34%	35%	13%

Graph 8. Distribution of children's opinions during the trial sessions



As indicated by **Graph 8** and **Table 6** above, in general, the children's interactions with the robot resulted in a pleasant experience for them. Among the nine emotional sensations gathered, being able to laugh because of the virtual robot was the emotion cited the most, expressed by 69% of the participating children. Furthermore, about 67% of the children agreed that the robot gave them new information. As observed from **Graph 8** above, a large majority of the children disagreed with the negative affirmation. It can be seen that more than 80% of the participating children expressed disagreement with the affirmations that indicated negative emotions, such as "offended" mentioned by 87%, "not liking the robot" expressed by 82%, and "being disturbed" cited by 82%, in addition to 76% that opposed the statement of "the robot annoys me".

In conclusion, the study generally found a positive experience among elders and children in interacting with the virtual robot models. For elderly participants, they positively perceived that the robot could understand them easily. For that reason, the responses provided from the robot were also understandable. Moreover, positive experiences were also expressed by the elderly respondents with regard to the content of the information. For them,

information that they received from the robots was informative, useful, and appropriate. Despite the positive experiences, the elderly participants also expressed negative experiences, especially in relation to initiating conversation with the virtual robot models. These negative experiences were expressed by those elderly participants who faced challenges in interacting with the robot model. For them, their commands had to be rephrased a number of times before obtaining their desired responses. Additionally, the participants also commented on the need to have a specific instruction to start a conversation with the virtual robots. The elders also felt that they had to wait a long time before receiving the responses.

C. Respondents' Perceptions of Their Interactions with the Robot Models (Comparison Between Elders and Children)

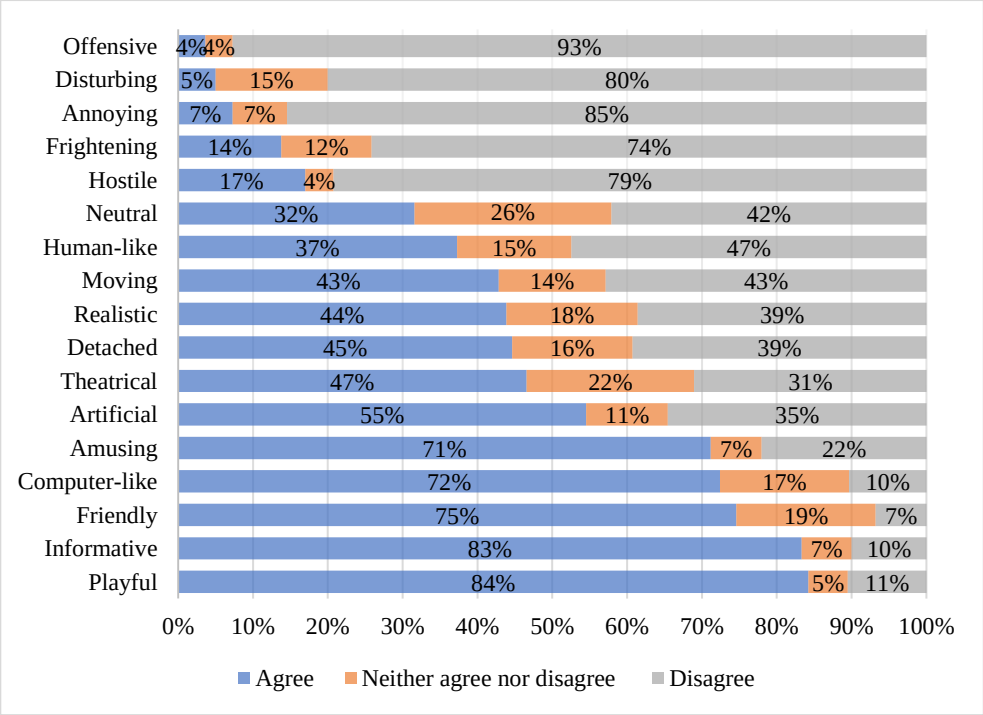
In this section, this report elaborates on the respondents' perceptions of their interactions with the virtual robot models that they accessed through the platform. Here, results from both elderly and child respondents focus primarily on the individual perception of the elderly respondents in regard to their interactions with the virtual robot models. Following that, it also explores a number of emotional sensations generated after the children interacted with the virtual robot models.

1. Among Elderly Participants

Graph 9 below shows a variety of emotional sensations that the elderly participants were asked to select from to establish which best described their interaction with the virtual robot models. Unlike the previous section, which focuses on the functional aspects of the interaction including the responses generated by the virtual robot models, this section aims to capture emotional sensations generated from their interactions with the robot models. Furthermore, indicators used to build this section put a strong emphasis not on the physical evaluation of the robot but instead on the subjective

perception and interpretation of the participants' evaluation in relation to the real-time interactions during the trial sessions.

Graph 9. Elders' perceptions about interactions with the virtual robot models



Based on **Graph 9** above, in general, the elders' perceptions regarding their interactions with the virtual robot models were generally positive. From the 16 indicators used in the questionnaires, the study identified the five strongest and most dominant sensations that the respondents illustrated about their interaction with the virtual robot models. First of all, the dominant sensation cited was "playful", which was expressed by 84% of the elderly respondents. This was followed by "informative", which was mentioned by 83% of the respondents. Furthermore, about 75% described their interaction with the virtual robot model as "friendly", whereas 72% of the elderly described that their interaction was "computer-like". Lastly, 71% of the participants chose "amusing" to illustrate their interactions with the virtual robot models.

Besides that, the elderly participants were also asked to select the three strongest sensations during their interactions with the virtual robot model.

Through this, it aimed to understand how they perceived their interaction with the virtual robot. The study categorised their responses into five main categories. The first was experience-related sensation such as fun and entertaining. The second was sensation related to the content of their interaction, such as informative, useful, and accurate. Through this type of sensation, the study underlined that there existed a certain level of expectation of the participants regarding the type of information that they expected from the virtual robot. The third was sensation associated with the virtual robot model itself, for instance like a computer. The fourth was respondents' expectations for certain jobs attached to the robot's profile. This sensation was particularly present in describing the Nurse Robot, which was associated with health workers and related to their image and how they looked. Lastly was the sensation that underlined that the robot was not human being. Some participants expressed their concern that the robot might replace human work in the future, especially the job of health workers in dealing with human life.

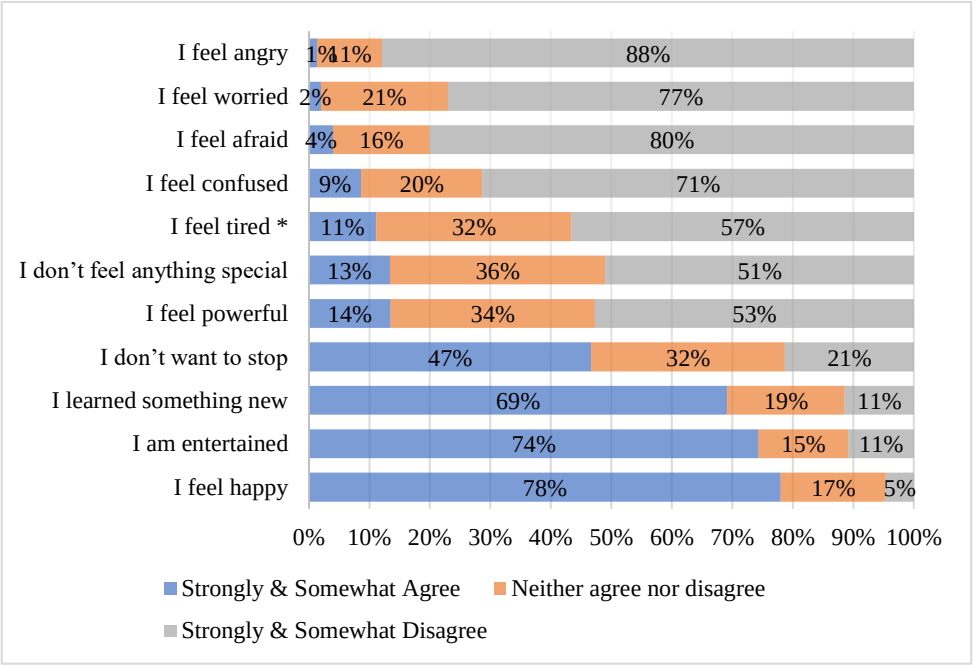
2. Among Child Participants

Table 7. Emotional sensation produced after the interaction with the robot model

Statements	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly Disagree
I feel happy	27%	51%	17%	3%	2%
I feel afraid	2%	2%	16%	27%	53%
I don't feel anything special	6%	7%	36%	33%	18%
I feel angry	-	1%	11%	28%	60%
I feel confused	1%	8%	20%	31%	40%
I feel tired*	5%	6%	32%	25%	31%
I am entertained	24%	50%	15%	6%	5%
I feel powerful	6%	7%	34%	32%	21%
I don't want to stop	19%	28%	32%	13%	9%
I learned something new	28%	42%	19%	7%	4%
I feel worried	1%	1%	21%	21%	56%

(*) Only Spanish and Italian respondents

Graph 10. Emotional sensation produced after the interaction with the robot model (children)



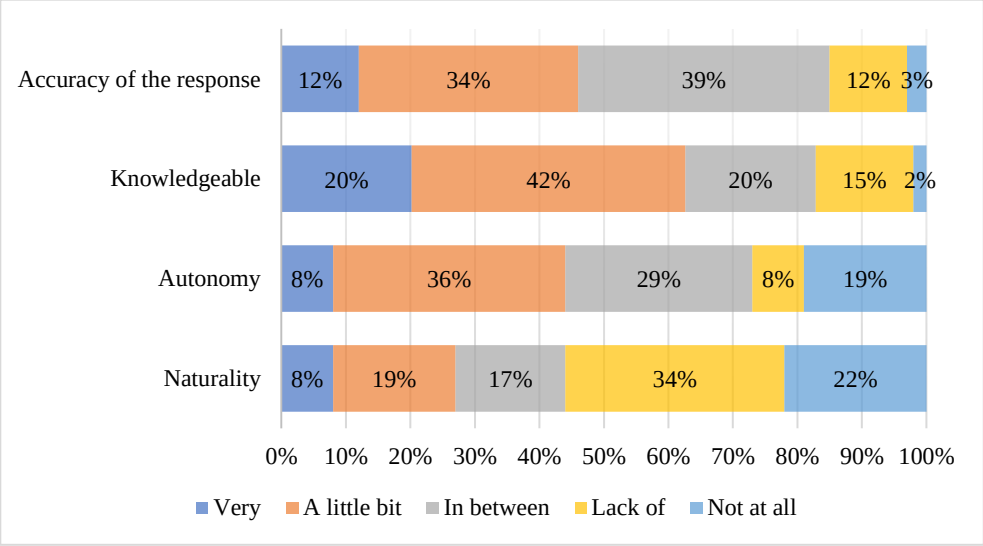
Graph 10 and **Table 7** above indicate a series of emotional sensations experienced by the children after their interactions with the virtual robot models. Generally, the interactions with the virtual robot models did not project any negative emotions from these children. Furthermore, it can be seen that the children rejected or disfavoured negative affirmations mentioned in the after-trial survey. The results stated above indicate that the dominant emotional sensation experienced by the children was "happy", which was expressed by 78% of the participants; the sensation of being "entertained" was favoured by 74% of the respondents. Another notable sensation was the experience of learning something new, which was expressed by nearly 70% of the children. In addition, the children's positive experience was indicated by disagreeing with negative affirmations that were asked. Nearly 90% of the children did not feel any sensation of anger after their interaction with the robot. Similarly, 80% did not feel afraid when interacting with the virtual robot, nor worried, as expressed by 77% during their participation.

D. Respondents' Perceptions About the Robot (Comparison Between Elders and Children)

1. Among Elderly Participants

This section focuses on the elaboration around respondents' perceptions of the virtual robot models, with whom they interacted through the web-based platform. The elaboration was mainly centralised on the qualities of the interaction which were analysed through four aspects, namely the accuracy of the robot's response, the robot's knowledge of the topics of the interaction, the robot's autonomy, and the robot's naturality. **Graph 11** below illustrates these four aspects that contribute to shaping the perception of the elderly participants in this study.

Graph 11. Elderly perception of the virtual robot models



As we can see from **Graph 11** above, the participants' perceptions of the naturality aspect of the virtual robot model lean towards "artificial" rather than "natural". The study indicated that about 34% of the elderly respondents thought that the virtual robot models was lacking naturality aspects. This figure was followed by 22% who believed that the virtual robot models were not natural at all. Having said that, there was a small number of respondents,

about less than 10%, who perceived that the virtual robot models were very natural. For the elderly participants, the opinion about artificiality versus the naturalness of the robot was associated with the understanding that the virtual robot models were programmed. Consequently, the participants commented that these virtual robots were machines whose responses were generated by a dataset. In this context, some participants were more critical in terms of the aesthetic aspects of the virtual robot models by commenting on the coherence between image, movement, and audio. Besides that, this group of participants also pointed out the quality concerns, such as waiting time and the coherence of the responses in respect to the commands or questions asked by the elderly. Some others also pointed out on the lack of human physical touch when interacting with the virtual robot models as an indicator of defining the robot as artificial. In addition, the elderly participants who thought the robot was artificial viewed that naturality was associated not only with human-like resemblance and simulation, but also human involvement as a social being. The concept of natural for this group of participants is something social which involve other human being in the interaction. For that reason, as they viewed the virtual robot lack of human interaction, they associated these robots with a machine that is programmed.

Following that, in terms of the "autonomy" of the virtual robot models, the study generated a rather ambiguous result. A large proportion of elderly participants perceived that the virtual robot models showed a slight indication of "autonomy". **Graph 11** above shows more than a third of the elderly respondents, or about 36%, answered that the virtual robot models were somehow autonomous. It was followed by nearly 30% of the elders that perceived that the virtual robot models were not autonomous or dependent. Despite its ambiguous quantitative result, the study noted that the qualitative information provided further explanation. From the qualitative responses, the participants understood the autonomy of the robot in two different aspects, namely in relation to the robot as a material form and in relation to the function or responses generated by the virtual robot models.

First of all, in terms of the robot as a visual and material form, their generated responses transmitted an understanding that the participants did not interact with human beings in real-time. This perception occurred due to the participants' association with messaging services like WhatsApp or chat

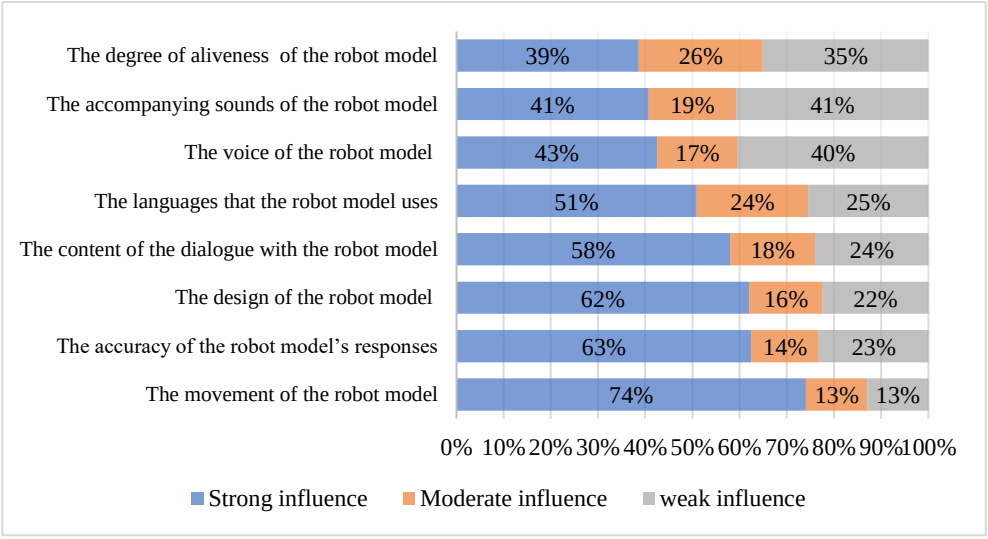
features on social media platforms. This appeared to be an important aspect in understanding "autonomy" in terms of interacting with the virtual robot. Secondly, in terms of how the robot functioned for the users, the study identified that in order to consider whether the robot was autonomous, it was important to find the connection with the person (or thing) behind their screen. Despite it being a robot, the elderly participants in this experiment seemed to associate the robot with a similar concept like a puppet with a puppet master that controlled the conversation. In addition, questions or commands initiated by the participants were understood as triggers that made the robot move, reply, and function. Moreover, according to the elderly participants, the quality of the robot's response remained limited and did not allow the virtual robots to reply to many things.

Besides the two aspects above, the study considered that the interactions between the participants and the virtual robot models were, to some extent, associated with the level of knowledge of the virtual robots. **Graph 11** shows that nearly half of the elderly respondents, or 42%, perceived that the virtual robot models were a little bit knowledgeable. The majority of those who responded in this way focused on the quality of the response, which was not up to the expectation of the users as the virtual robot replied incorrectly or even off topic. Having said that, the elders also noted that some answers were realistic and made sense. For elderly participants, some responses that corresponded to basic questions were seen as good, but they also doubted whether the virtual robot could handle more complex questions on particular issues. In this sense, the participants were willing to tolerate the coherency of the responses provided by the virtual robots. Lastly, the aspect of "accuracy" was also viewed as being associated with the interaction between the users and the virtual robot models. As indicated by **Graph 11**, the participating elders tended to perceive the responses given by the robot as neither accurate nor inaccurate, which accounted for nearly 40%. Moreover, some participants highlighted the lack of information generated from the knowledge base of the robot, which was reflected in the robot's responses. Besides that, the elders also commented that the language barrier and technological equipment used during the trial somehow limited the interaction between the users and the robots. This was particularly linked to English as the main interacting language, which the participants felt reluctant

to verify. Lastly, the knowledge background of the respondents became a determining factor that the respondent used in assessing the accuracy of the responses.

Besides the four issues discussed above, this section also showed a number of aspects that encompassed the physical attributes of the virtual robot models: the auditive aspect, the movement, and content-related aspects. To obtain the responses, the respondents' answers were categorised in a rank-based group from "1" to "5", which represented the weakest to the strongest influence of each one of these aspects. The rank given represented how influential these aspects were with respect to their interaction with the robot models. The results of this indicator are illustrated by **Graph 12** below.

Graph 12. Elders' perceptions of the virtual robot models



From **Graph 12** above, the aspect of the movement of the virtual robot models had the strongest influence on a large majority of the elderly respondents. In this aspect, 74% of the elderly respondents commented that how the virtual robot moved influenced their interaction. Following that, the element of the accuracy of the responses of the virtual robot models substantially influenced 63% of the elderly participants. Likewise, nearly the same proportion of the participants, or 62%, mentioned that the robot's design strongly influenced their interaction. In contrast, the category of auditive

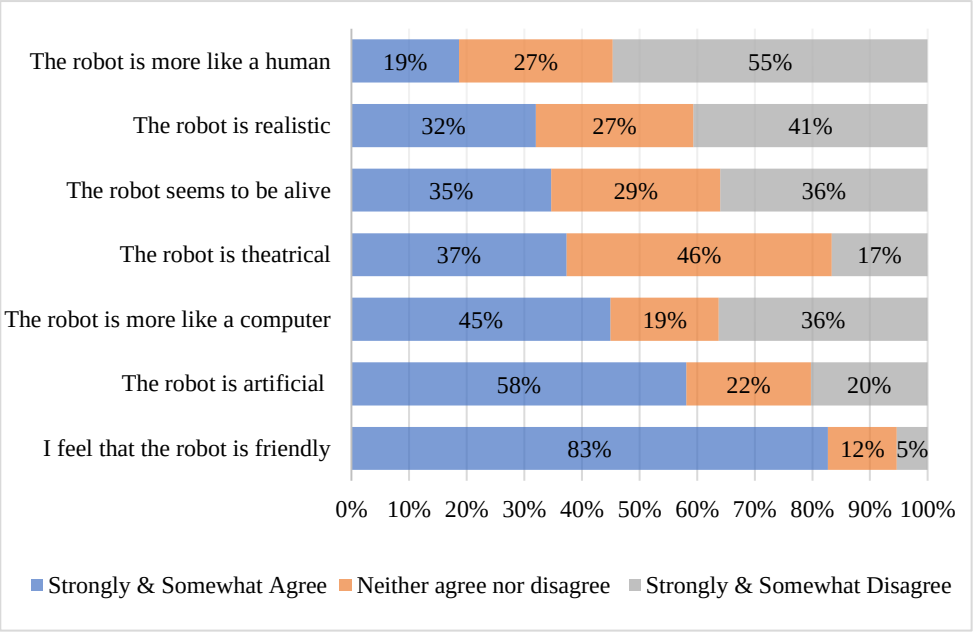
elements, namely the accompanying sound and voices of the robots, was less attractive to the participants. Around 40% of the participating elderly commented that these two auditive elements of the virtual robots generated a weak influence for their interaction with the virtual robot.

Compared to the overall view, the country-specific results indicated some distinctions among elderly participants from the three countries. First of all, in terms of the robots' physical appearance, namely the movement of the robot and the design of the robot, the country level data portrayed a consistent result among different participants in these three countries. These two aspects strongly influenced their interactions with the virtual robot. Second of all, in regard to the content of interaction, the study found a slightly different pattern among these countries. For the majority of the Romanian and Italian elderly participants, the content of the dialogue with the virtual robots strongly influenced their interaction. On the contrary, the Spanish respondents indicated otherwise. Following that, the study noted that Spanish and Romanian elderly participants viewed that interaction language as having strongly influenced their interaction with the virtual robot models. This was unlike most Italian participants, who did not share the same opinion. It appears that this result was caused by the inefficiency of the language filter of the platform, which somehow challenged smooth interaction between the virtual robot and the Italian elderly in particular. Lastly, in terms of the auditive aspect, the voice of the virtual robot model strongly influenced the interactions of the Italian elders. For Spanish and Romanian elders, the robot voice was one of the least influential aspects in relation to their interaction with the virtual robot.

2. Among Child Participants

This section aims to explore the children's perceptions about the virtual robot models. The elaboration focuses on a number of aspects, namely the physical or material appearance and some generic characteristics of the virtual robot models, the knowledge and the accuracy of the responses provided by the virtual robots, and key aspects of the virtual robot models that influenced the children's interactions.

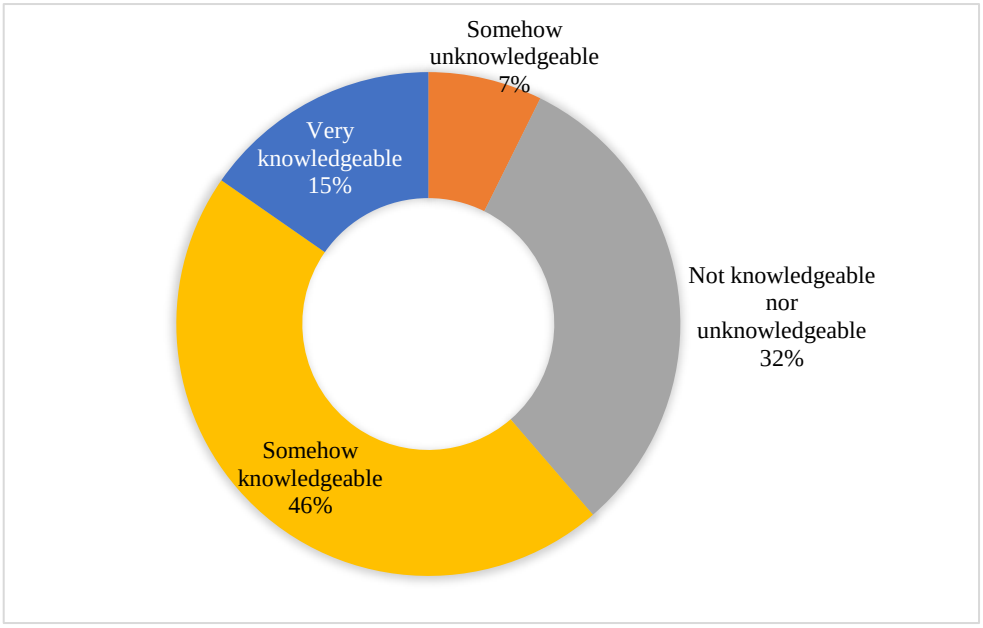
Graph 13. Children's perceptions about the robot model



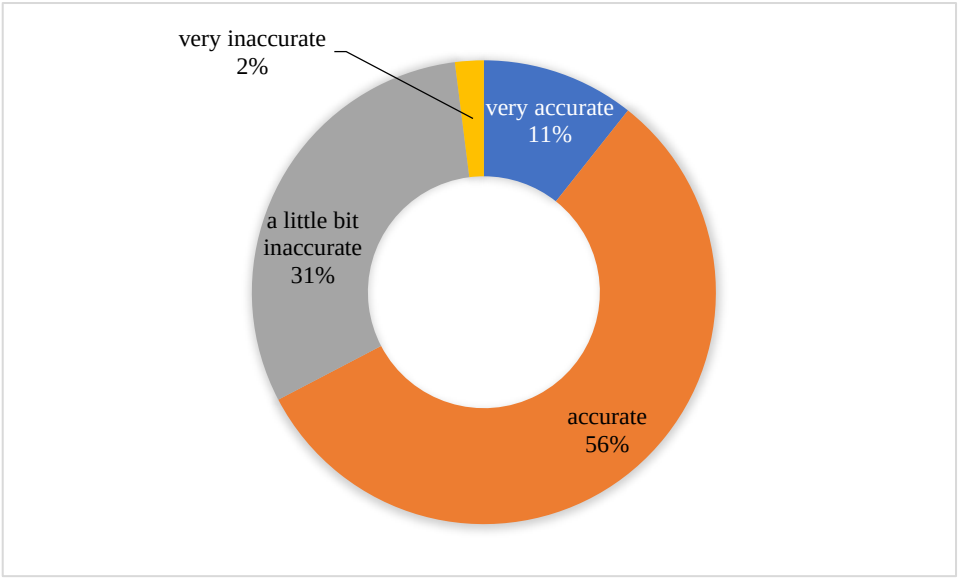
Graph 13 above indicates the children's perceptions of the robot models that emerged after their interactions through the platform. Among the seven indicators selected by the study, friendliness appeared strongly as the most agreeable perception by the children, with as much as 83% of the participants thinking alike. Besides that, other noticeable key perceptions were artificiality and computer-like, as expressed by 58% and 45% respectively. The argument on the artificiality of the virtual robot models was strongly present among the Italian and Romanian children, whereas the proportion of the Spanish children that thought likewise was not as substantial. Contrastingly, in terms of the characteristic of computer-like, more than half of the Spanish and Romanian children shared this view while more than half of the Italian children thought otherwise. Following that, the perception of "the robot is more like a human" was rejected by more than half of the children, or 55%. This opinion was consistently shared by the children across the three countries. This perception was also supported by the participants' disagreement with an affirmative statement that virtual robot models were realistic, as expressed by 41% of the child participants. Such

disagreement strongly appeared among the Spanish children as opposed to the Italian children, who thought otherwise.

Graph 14. The level of knowledge of the robot



Graph 15. The accuracy of the robot's responses



Graphs 14 and **15** above show two aspects of the virtual robot models that were assessed by the children, namely the level of knowledge and the accuracy of the robot's responses. In terms of the robot's knowledge, nearly half of the participants, or 46%, commented that the virtual robot models were somehow knowledgeable, followed by nearly a third of child participants who perceived that the virtual robot models were neither knowledgeable nor lacking in knowledge. Having said that, a small number of children (7%) thought the robot somehow lacked knowledge. Following that, in terms of the accuracy of the responses, more than half of the participating children, or 56%, commented that the responses were accurate. Some anecdotes mentioned by the children are the following:

"*I think it is accurate, because some responses are really good and it gave me correct information. In some others, it gave me whatever answers it likes…"* (Boy, 13 years old, Spain)

"*I believe the robot's replies are accurate. I realised this as a result of the replies given by the friend robot. It knew a lot about loneliness and friendship. It was interesting"* (Girl, 11 years old, Romania)

"*… because the reflective robot gave me replies on issues that I don't know"* (Girl, 13 years old, Italy)

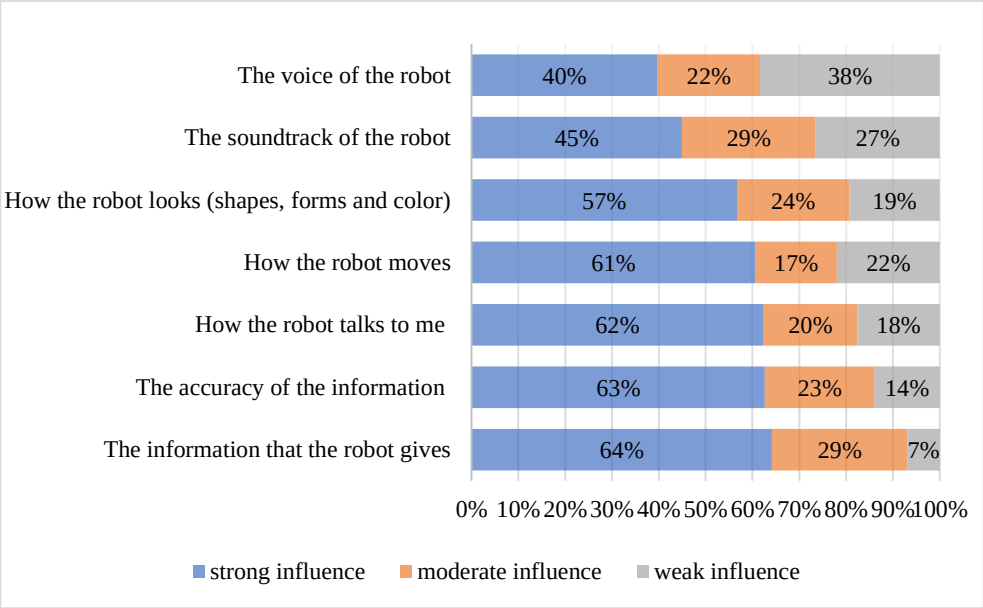
Besides that, the study noted that about 31% of the participating children commented that the responses were a little bit inaccurate. Some reasons cited by these children are included below:

"*Because it responded to me in another language. It gave me long answer (sometimes) and did not respond correctly to my questions"* (Girl, 13 years old, Spain)

"*The robot has different replies for similar questions"* (Girl, 11 years old, Romania)

"*Sometimes it said something that we didn't understand or it said things different from our questions"* (Girl, 12 years old, Italy)

Graph 16. Elements that influence children's interactions with the robots



Graph 16 above shows some key elements that were considered important aspects that might influence the user's interaction with the virtual robot models. The study found that, unlike the result among the elderly population, the accuracy of the information and the information that the robot gave emerged as two key aspects that strongly influenced their interaction with the robot. The opinions concerning the quality of the content were shared among 64% and 63% of the participating children, who viewed the information content and the accuracy of the information as having strongly influenced their interaction. This was followed by 62% of the children that valued the way the robot talked to them as having influenced the interaction. As also expressed by the elderly participants, the auditive aspects, namely the voice of the robot and the accompanying sound of the robot, were considered less influential by 38% and 27% respectively.

VII. CONCLUSION

In the past few decades, the world has witnessed the vast development of technology that has contributed to the unimaginable change of how the human world is organised. This inevitable change has reconfigured not only the structure in our society but also the forward-looking conjecture about the future through the facilitation of technology. In this everchanging world, the development of AI-infused technology that deeply penetrates into human life not only brings much excitement but also generates unimaginable fear, especially for the elderly population that has been generally left behind in this advancement. The development of AI has facilitated the creation of countless technology-driven projects and more innovations to explore its potential for the future betterment of human welfare. As a continuation of the previous initiative under the umbrella project "Tele-Encounters: Beyond the Human", this study intends to capture the experience of elderly and children interacting with a number of virtual robot models that are hosted in a web-based platform. Furthermore, a key component of this study also aims to understand how these virtual robots are perceived by the elderly and children, including what aspects influence such perceptions.

Based on the emerging literature around the presence of robots that facilitate human life, as presented in the above theoretical framework, the use of robots have indicated the potential to alleviate isolation among the elderly population. Besides that, the use of robot technology may also increase the quality of life of elders through various activities which stimulate the brain and cognitive functioning, even postponing mental syndromes. Other than that, the use of virtual robots could facilitate the elderly to access necessary external services as well as serve their day-to-day needs. Previously, necessary external services such as healthcare and banking were far from elderly users, especially those with limited physical mobility. With the facilitation of robots such as virtual agents, elders are able to access services like tele-medicine, Internet-banking, or online groceries. The use of chat-based virtual robots or assistants that are facilitated by AI are also highlighted in the area of child development. In some areas, like early childhood education, the employment of robots enable an effective learning environment. Finally, the use of AI-driven applications have increasingly

gained more attention as child caregivers, supplementing the more conventional model of childcare. In some fast-paced societies where the use of technology is much more prominent than in others, the use of robots as child caregivers aims to fill the childcare gap in dual income families, as previously mentioned in the earlier part of this chapter.

Despite the positive use of technology in various forms, like virtual robots and AI chatbots, this study clearly demonstrates that the elderly face significant barriers in their interactions with virtual robots. As experienced in the study, the participating elders required assistance to operate the virtual robot as well as intensive facilitation in order to obtain what they were aiming to get. This occurs due to a lack of easily understood instructions and guidance in using virtual robots, which causes significant confusion among the elderly. The study also identifies a lack of confidence among the elderly users in terms of their capacity to use digital technology. Despite the predecessor study having been able to gather imagination from the elderly population about the robot, it might be insufficient input to create an elderly-friendly website and the content that fulfils the needs of the elderly. In addition, the fact the elderly population has been generally excluded from technological advancement means it has become a central issue to consider while developing for any technology which targets the elderly as potential users. Despite it having been said that children these days are ardent users of technology, much literature suggests that excessive use of technology may bring negative results to children, among which are Internet addiction problems and health-related consequences due to excessive and unregulated screentime. Furthermore, increased global connectivity among children is also facilitated by intensive use of social media, which in turn results in online bullying. As a consequence, this leads to growing problems with mental health as well as other type of social behavioural issues.

In this study, “virtual being” is considered the most appropriate name by which to define the six virtual robot models with which the participants interacted. This is mainly due to social attributes that reflect human-like qualities, namely carrying out conversation, assisting, and providing accompany. Among the six virtual robot models available in the web-based platform tested by the participants, children and elders have a distinct preference; the children prefer Friend Robot, whereas elders choose Nurse

Robot. Furthermore, both elders and children generally express positive experiences during the trial sessions. The majority of the elderly respondents comment that the virtual robots understand them, while the replies they receive from the robots are useful, informative, and appropriate. However, despite pleasant experiences with the platform, the study indicates less pleasant experiences during their interactions. These elderly respondents point out excessive waiting time before they receive the response from the virtual robot. Not only that, a large number of them also report that they need to rephrase their questions a number of times in order to get the responses for which they are looking. Additionally, as this experiment is relatively new to many of the elderly respondents, further instruction on how to start a conversation with the virtual robot is needed, especially to assist them in navigating the platform and the virtual robot in the first place. On the other hand, the young child participants note that the most prominent outcomes during their interactions are that the virtual robots make them laugh and provide them with information.

The study also identifies that such a positive experience from the elders and the children generates a more pleasant interpretation regarding their interaction with the web-based platform. For elderly participants, the nature of the interaction with the virtual robot through the platform is seen as playful and informative. Besides that, the elders are aware that conversations with the virtual robots are scripted, with a set of pre-prepared responses. However, it is also important to note that, due to the diversity of questions from participants, the probability of producing scripted responses is very low. For that reason, the role of GPT-3 technology in generating responses is a crucial feature of this virtual robot model. Therefore, the ability to generate believable human-like responses could result in perilous consequences for those who do not possess previous knowledge about GPT-3 and similar language model. Other than that, the elderly also view their interactions with the virtual robots as friendly because they do not sense any offensive or threatening sensations while engaging with the platform. Likewise, the children note positive emotional sensations once they interact with the virtual robots. For these children, the feeling of happiness and being entertained are the two most prominent cited answers. Following that, the sensation of

learning something new after their interaction with the virtual robots has been repeatedly mentioned by these children.

This study highlights a number of important perceptions about the virtual robot models generated by the elders and children during their interactions. It is agreed by majority of the participants – both elderly and children – that the virtual robots tend to be artificial and appear like a computer. Other than that, the participants perceive that the virtual robots that they interact with are somehow knowledgeable and a little bit accurate. Following that, the study also underlines a number of important elements that are considered during the development of the virtual robot model which differently influence elderly and child participants. For the elderly, robot design and movement heavily influence their interactions with the virtual robot model, whereas content-related aspects like information and the accuracy of that information critically influence their interactions. On the contrary, both elders and children view the auditive aspect of the robot, namely the accompanying sound and voice, as the least influential aspect.

Despite the fact it may be considered a premature step toward the development of a robust AI-based virtual robot, some insights from this research may contribute to the future improvement of the virtual robot development in general. An experimental initiative like Tele-Encounters, which births the creation of virtual robot prototypes, raises the possibility for children and elders to have a virtual companion without the intention of fully substituting human companionship. The idea of having a virtual assistance that is accompanied by a visual representation facilitated by AI indicates the potential to help the elderly overcome the condition of social isolation, as well as play a role as a virtual AI friend for the children. Furthermore, the multifaceted roles performed by virtual robots, such as playmate, tutor, and conversation partner, can require more in-depth and thorough creation processes which incorporate the specific needs of the user's group. By understanding the twin characters of robot technology, it is important to pay close attention not only to the positive outcome due to its usage but also negative aspects of such technology, which have been explained previously.

For future work, involving the elderly perspective in conceptualising the robot is key. As much as the platform development has incorporated input from the elderly and the children with respect to the artistic formation of the

virtual robots, the end-user perspectives remain absent. Such perspectives could include the functionality of the platform and how it operates, specific requirements based on different groups of users, and the practical uses of the virtual robots that could facilitate daily tasks and needs of different groups of users. As previously stated in the findings, many elders associate the robot with a physical presence which they can both touch and interact with directly. This contrasts an AI-driven chatbot accompanied by an animated virtual robot, which is new for these elders as it is totally distinct from their usual chatting via messaging applications. Furthermore, the elderly tend to talk more to AI if it involves a deeper conversation that requires profound emotional investment. This kind of virtual robot model needs a richer and more complex knowledge base to carry out fruitful and meaningful conversations with the elderly. Having said that, it is also important to pay attention to the ethical considerations that may influence the relationship between the robot and the user.

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IX. ANNEX

1. Robot Model Design Phase – *Tele-Encounters* Project

In the initial process, the team conducted creative workshops in different countries with children and elderly adults. Once the questionnaire results were generated, we found very valuable information for developing the robots' design. Furthermore, we proceeded with the rest of the stages until the six robots with different emotions, personalities, and actions were fully developed.

During the process of mapping the information, it was discovered that the preferences between the two age groups varied. The elderly groups tended to prefer realism in design in terms of the appearance and movement of the robots. On the contrary, the child groups leaned toward a more unrealistic physical form, namely more abstract forms and movements.

In the design phase, the team employed the co-creation brainstorming technique with the group of designers. Here, the team analysed different characteristics of the robots, namely sizes compared to an adult, actions to be done, the composition of the materials from which they would be made, types of movements according to their anatomy (flight with propellers, wheels or use of tentacles) etc.

Furthermore, the team transferred all the ideas onto paper to be realised visually. In this way, the team selected some models that best represent the preferences of the target groups.

The second design phase was called "the polygonal modelling" of the 3D designs. To realise this, the team employed Blender, a computer-assisted design program which offered a full rendering digital production suite and enabled a fully updated version according to the needs of the three-dimensional project. The advantage of being free of charge is another aspect that the project considered.

To add colour and materials to the robot models, the team used the same program as it allowed for the replication of real lighting with raytracing technology. This provided the robots with a greater sense of realism. On the

other hand, as these models already had enough angles from the previous modelling phase, they could be connected with digital bones and animated.

Taking into account the personality, actions, and attitudes of each of the robots, the digital artists granted the appearance of movement to the robot models through the animation keys that provided information about the changing position in the axes (X, Y, and Z) on the programming timeline.

Some of the three digital artists used Mixamo, a website that offered various references related to animation which can be traced through motions captured by programs.

Once all animations were approved, they were exported into the OBJ format, which contained colour, material, and information about the models' movements, and implemented in the Unity Video Games Software, which is a free licensed cross-platform game engine for education purposes.

2. Platform Development: *Tele-Encounters – Imaginary Robots* (Technologies Used)

For the development and deployment of this project, Microsoft Azure was used as a cloud platform for data storage, infrastructure services, and web platforms. For the development of the conversational models of each of the chatbots, Natural Language Processing (NLP) resources were used through Azure Cognitive Services, complemented with the OpenAI GPT-3 language model.

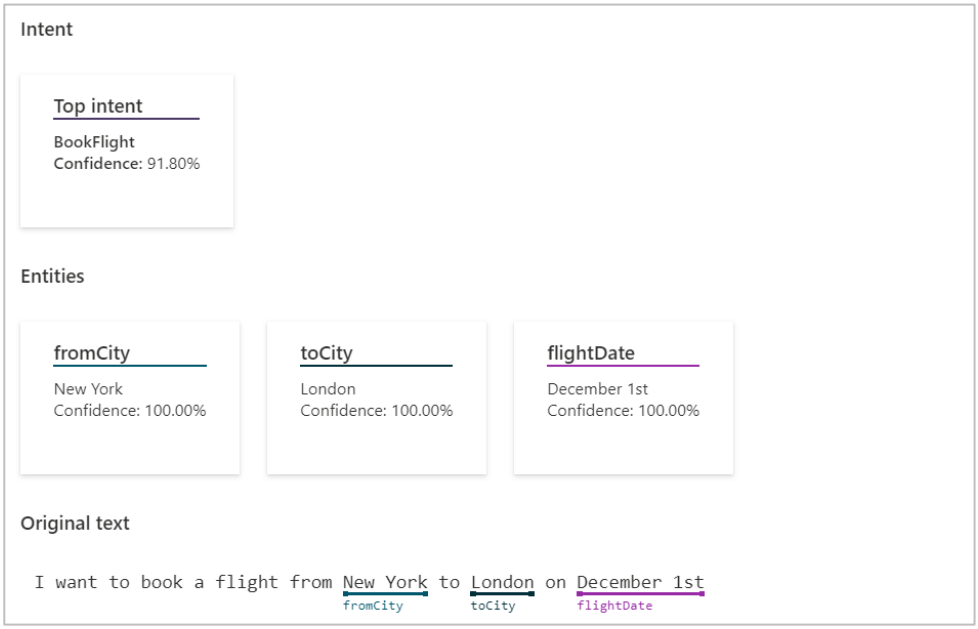
Azure Language Service

Azure Cognitive Service for Language is a Microsoft cloud service that provides natural language processing (NLP) features for understanding and analysing text.

Conversational Language Understanding

This allows for the creation of customised natural language recognition models to predict the general intent of an incoming utterance and extract important information from it. See **Figure 4**.

Figure 4. Conversational Language Understanding



Sentiment Analysis

This feature detects different behavioural and sentiment aspects derived from a sentence or conversation, to be reflected in numerical sentiment indicators and used for interactions with virtual beings. See **Figure 5**.

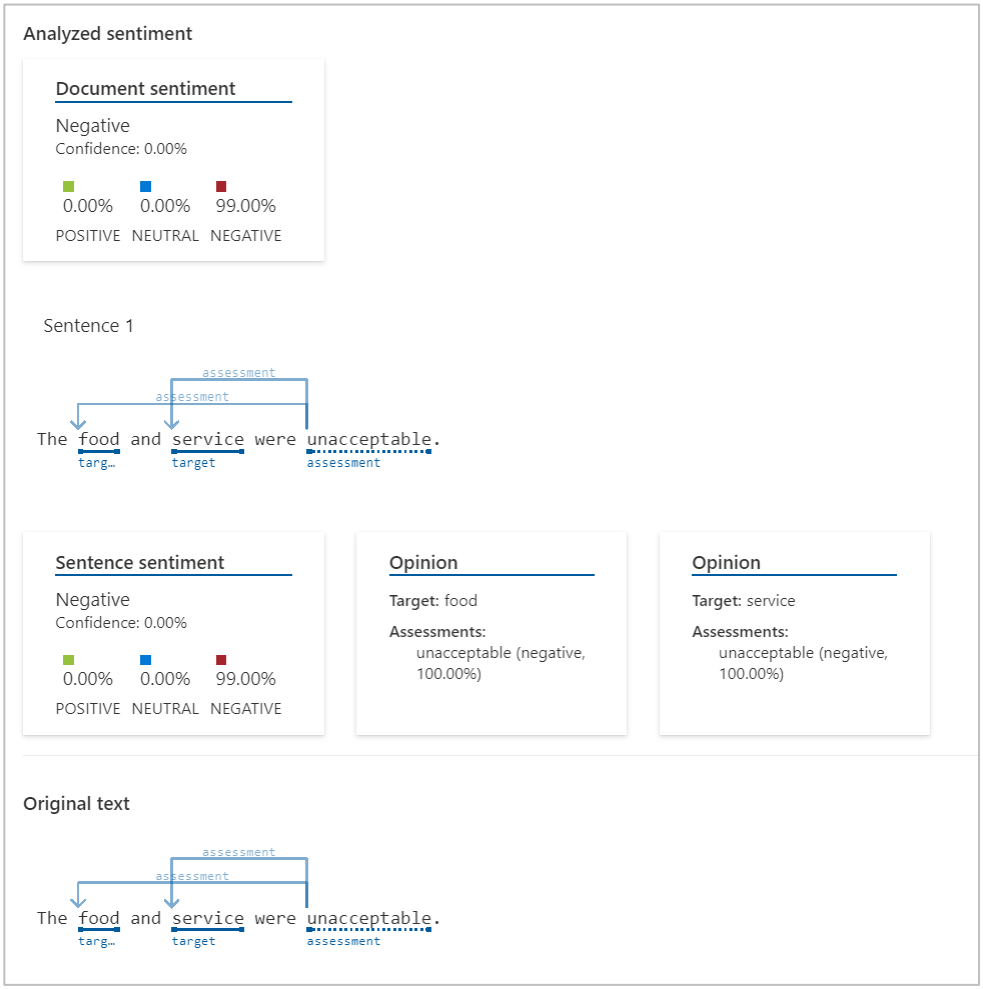
Language Detection

This feature allows for language detection of words, phrases, and entire documents and returns language codes for a wide number of languages, language variants, dialects, and some regional or cultural languages. See **Figure 6**.

Knowledge Bases Q&A

Design of targeted and conditional question and answer sessions to find the most appropriate responses to user input. See **Figure 7**.

Figure 5. Sentiment Analysis



GPT-3 Language Model

Access to OpenAI's GPT-3 API is also integrated for unstructured dialogues that are not contained in the knowledge bases of the individual bots, nor in their predefined conversational designs.

Figure 6. Language Detection

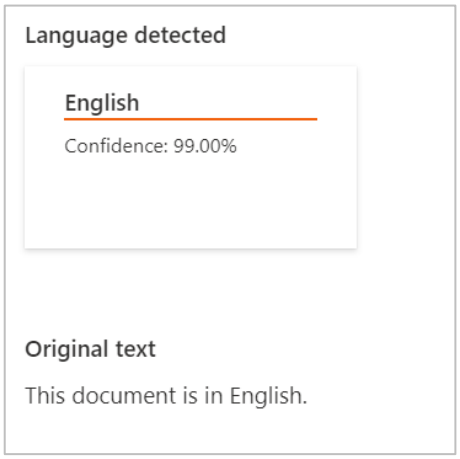
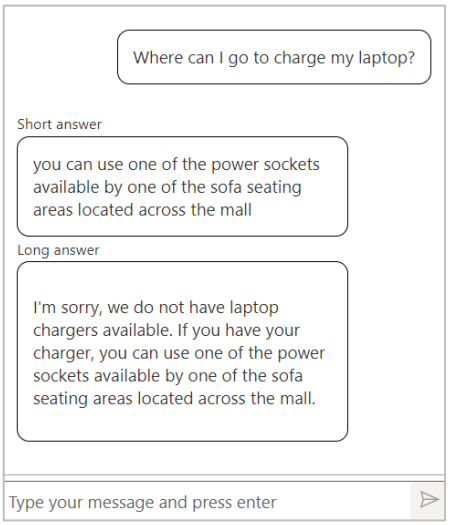


Figure 7. Knowledge Bases (Q&A)



Azure Bots Service

This consists of a development framework and a processing service for conversational systems oriented towards the design of chats and conversation tools. This environment was used to develop the chat engines for each of the bots in the project using the NLP services described above. This service connected the chats with the 3D virtual models visualised on the web and which interacted depending on the results of the sentiment analysis metrics of each sentence of the conversation in the chat.

Website

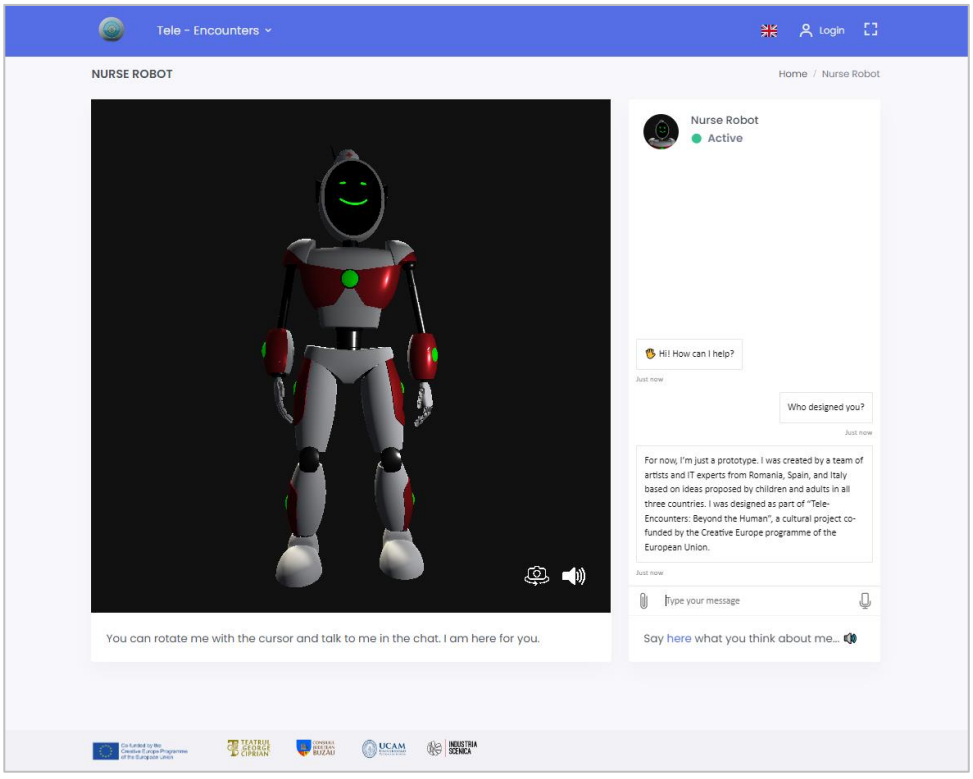
The web platform has been developed entirely in .NET Core and hosted in Azure. It is a multi-language website that integrates this feature with the interaction of each of the bots in the corresponding language.[30]

[30] The multilanguage feature was taken out after trial sessions due to the low-quality content generated in languages other than English. While the chatbots seemed to be doing rather well in Spanish based on reports by the UCAM team, the content generated in Romanian and Italian eschewed the content filters. The technical team tried blocking specific words in Romanian and Italian – however, this made the chatbots incapable of carrying any conversation, as they identified too many contexts as potentially pertaining to the blocked

3D Robots

They were developed in Unity and included integration with the sentiment analysis service to react to chat conversations. See **Figure 8.**

Figure 8. 3D model - The Nurse Robot



words. Moreover, it appeared that the chatbots did not even access their knowledge base in other languages, as they failed to give the preestablished replies for key questions they had been trained on in English. They also tended to give grammatically incorrect replies or to reply with code sequences or aberrant symbols when the conversation was not in English. Also, the chatbots would always switch back to English after a few replies, even if the conversation had been initiated in another language. (Editor's note).

Culture Creates Community. Community Creates Culture.

Paola Cagna, Isnaba J. Miranda, Ermanno Nardi

Contents

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Industria Scenica. Who are we?

Industria Scenica is a creative enterprise founded in 2012, formed as a social cooperative. We do theatre, artistic research, community dramaturgy and cultural welfare projects. We create cultural products with strong citizen involvement to promote the well-being of the communities.

Our vision is to promote cultural production as a shared responsibility amongst citizens. By cultural production we mean all forms of expression of living together in a community: live performance, celebrations, crafts, video, cinema, music, pictorial art, etc. Industria Scenica intends to facilitate access to culture, train to active citizenship and revitalise abandoned spaces. We also want to encourage young artists by offering them opportunities for studying and for performative research. For us it is essential to promote collaborative networks: each project is supported by public and/or private institutions, it foresees community participation and is developed in a network with the different realities inside and outside the territories in which we operate. As quoted by Seia (2016):

> Culture is not like oil, but it is like water. It is fundamental to life and must be for everyone. Everyone has the right to use it and the duty to preserve it: it must not be wasted, polluted, or destroyed, because if it was to be lost, humanity would end with it. Science is demonstrating that bringing together mind and body under the sign of beauty, perhaps even with the contribution of technologies, is the best way to bring back man and his well-being to the centre.

Community? Which Community?

From Tönnies (1887) to the present, multiple definitions of Community have been developed and they all contribute to understanding the interactions between individuals and the environments they inhabit. For Industria Scenica, a Community is a social organisational structure made up of institutions, educational and cultural agencies, identities and individuals who belong to multiple other Communities.

From an operational point of view, when we design and plan experiences of community dramaturgy, creative territorial enhancement, and cultural participation, we adopt a definition of Community that describes a specific geographical perimeter. Often our communities are citizens of a specific city, pupils, teachers and parents of a specific school, artists who share a common creative need. We position ourselves here, within the idea extensively discussed by Bernardi, that '(...) there is no Community, but there are multiple Communities' (Bernardi, 2019: 40). All such communities have a central value in the life of every citizen and, despite being a special place to convey one's and others' skills and resources, they can also degenerate into fundamentalist, closed and sectarian systems, consequently becoming a claustrophobic and depersonalising environment.

Industria Scenica also belongs to several communities that share a perimeter of meaning, ideas and behaviours. Perhaps even in a utopian modus, we promote an idea of Community as an evolving organism that, through the valorisation of its own creative resources, is capable of re-elaborating the complexity and rethinking of the social geography that characterises it, thus giving voice to the differences it hosts. Artistic language and creative experience favour the redesign of a cultural topography; they are generative and regenerative because they open up the possibility of addressing the same theme from different perspectives: through a format (performance, exhibition, event, podcast, etc.), with recognized roles (actor, artist, playwright, audience, trainer, pupil), in special places (a theatre, a square, a school).

Thus, we work to increase citizens' awareness and responsibility for cultural production in their own territory, inspired by Stefano Zamagni (RAI Cultura, 2019): 'Responsibility as care: being responsible for what you

do, but also for what you don't do'. This definition transforms the interaction between citizens and cultural agencies. It is also close to a definition of Community that includes socio-political and economic-financial inequalities and favours the construction of protected spaces for debate on issues that often generate conflict: discrepancies between generations, technological development and power distribution.

Let's celebrate!

> I have to take care of the other, the others, of the community, of the environment, and therefore I cannot hide behind meaningless phrases such as 'I'm not to blame if this or that happened'. Because, I have to ask myself what I could have done in that particular context and I didn't, and so that happened. The Community is the arrival point of a journey that is also a starting point. (Stefano Zamagni in RAI Cultura, 2019)[31]

It is within this perimeter of meaning that for us, Industria Scenica, Culture creates Community and Community creates Culture. Community and Culture nurture each other. The diversity of cultural formats, the artistic experience, the live performance and the workshops are opportunities for learning and transformation. Places, heterogeneity and public engagement are useful tools for rethinking one's identity and role and perhaps also for redesigning and transforming social strategies. The encounter between artists, cultural agents, the public and citizens fosters the growth of other roles, such as community archaeologists, community playwrights, human living treasures, testimonials; it also fosters alternative and different concepts to redefine oneself as a citizen, to develop one's own abilities, to review and redistribute civic responsibility. The expression 'Culture creates Community and Community creates Culture' also stimulates the reflection on the concepts of interculture, cultural production and public because 'the territory of intercultural dialogue is precipitous and labyrinthine, full of geysers and cracks, of intolerant ghosts and invisible walls' (Gómez-Peña, 1994: 18).

The creative process that we implement includes marginal situations, peripheral cultures, shadowy spaces, conflicts, ruptures and failures that are all part of the progressive evolution of communities. Activating places for

[31] For more information, see Zamagni (2019).

artistic exchange and practice also means identifying other spaces that carry cultural value for a territory, describing the relationship that is built with space and digital communities, mapping and describing places that no longer exist and evaluating the impact they have on the emotional infrastructure of the people-actors, who have experienced and known them. Planning a Theatre Season means meeting interlocutors and representatives of local organisations and accommodating their issues and concerns (work, families, environment and education). Managing a cultural centre means responding to citizens' need for entertainment and cultural participation, thus promoting an accessible culture, breaking down architectural barriers, diversifying the offerings, controlling prices and making the public the protagonists.

The effects of cultural promotion can be seen physically in the cities we work in, especially in Vimodrone, in the province of Milan, where we have transformed the historic dancehall Sala da Ballo Dancing Everest into the Martesana Cultural Centre Everest - Spazio alla Cultura: the walls of the schools, the town hall and the library have changed colour, many citizens over 65 participate as volunteers in participative communication campaigns[32], creating podcasts, becoming protagonists of video campaigns for fraud prevention, offering support to various local cultural activities. In addition to Vimodrone, we operate in other cities, where citizens have founded Cultural Committees and together they activate cultural welfare projects, promote reading and books, and suggest the programmatic guidelines for the community's cultural growth. This is a testimony we recently collected:

> I wanted to be here tonight to greet you, but also to say THANK YOU! I'm one of those people who until recently thought that theatre, cinema and entertainment were important but not essential activities. Now I believe that you do a FUNDAMENTAL and very important job. I admire you for the passion and enthusiasm with which you continue to design and programme. I assure you that it is really important for everyone, and I think it is important that you know that! Thanks, on behalf of myself, of the committee (I think!) and of the whole Vimodrone community! (Marina, 2021)

Creating culture - or perhaps it is more pertinent to write Participating in the cultural life of the Community - facilitates mutual exchange and reciprocity.

[32] See the below section 'The Participative Communication Campaign'.

By reciprocity, we mean ‘giving without losing and receiving without taking away’ (Zamagni, 2021).

In March 2020, we had to close the door of Everest - Spazio alla Cultura due to the COVID-19 pandemic and at the same time all citizens closed their doors in search of protection and comfort within the walls of their homes. As we were no longer able to host our audiences, we had to review the ways of cultural fruition and participation, because we believed (and we still believe!) that culture can make people better and be a support cane - the raft that helps people to get through the storm: from installations to video mapping, from podcasts to telematic theatre, from door-to-door performance to dance halls on Ape-cars. These strategies, creative intermissions that helped to breathe, allowed people to reframe what was happening and to strengthen social ties despite everything[33]. In short, cultural activities are capable of transforming time and space and making everyday life magical (see mask experiences, carnival, performances). So yes, let’s celebrate and build spaces of transition and transformation, tangible and intangible places, celebrations, and opportunities for social debate together with the citizens, together with the audiences.

Community Dramaturgy

The tool of community dramaturgy takes on a fundamental role in our work as a model of cooperation and social care based on performing arts, being attentive to the different ritual systems and specific cultural characteristics of each community involved.

Community dramaturgy builds the social scene creating a network between what is there. If there is nothing, it reinvents everything: from personal identity to community traditions. The creation of events, rituals and celebrations is the main instrument that social dramaturgy uses. It is the best space for groups to show themselves and interact with other groups, for people to get to know each other and for the community to dialogue with the institutions.

[33] The impact of culture and art on health, especially in times of crisis such as the COVID-19 pandemic, is discussed by Zbranca et al. (2022).

At an international academic level, community dramaturgy is incorporated into the concept of applied theatre (Taylor, 2003). By applied theatre we mean a theatrical practice implemented by a group of people who work together using theatrical techniques to represent, discuss, address and solve the existential and social problems of people, groups, communities and society. Applied theatre includes many forms of theatre such as educational theatre, community theatre, political and civic theatre, theatre of the oppressed, prison theatre, popular theatre, emergency and conflict resolution theatre, development theatre, and as well community dramaturgy.

Although included in this field, community dramaturgy broadens its perspectives, as it is not limited to the theatrical medium, but insists on daily and festive rituals and community events by reconstructing connections, interactions, ties, friendships, relationships, agreements (Bernardi, 2004). Community dramaturgy includes the two different perspectives suggested by the etymology of the terms theatre and drama. The former refers to vision, the latter to action. The first requires a theory. The second requires a practice.

> Any village (local, virtual, global) is above all a social fabric. For which, as for clothes, designers, weavers and tailors are needed. The "plot-turges". The community today is no longer a small village. The WE cannot be a sect or a stronghold. It is a global village. It is the Earth. (Bernardi and Giaccardi, 2007: 235)

Community dramaturgy deals with the overall communication of the theatrical matter in all places where it is possible (in our case the matter of the community) by analysing (to accept, to modify, to create) the places, times, texts, words, actors, gestures, manners, genres, settings, sounds, lights, contexts, etc.

Community Dramaturgy in *Tele-Encounters: Beyond the Human*

The projects of Industria Scenica see citizens as protagonists of conception and creation processes for creating a quality cultural proposal in different contexts (city, town, school, district, condominium, etc.), creating places for meeting and discussion, spaces for experiencing yourself as a person and for celebrating the city. As described above, the heart of Industria Scenica's activities is the Everest - Spazio alla Cultura in Vimodrone, which from a

dance hall has been redeveloped to become a cultural hub. Everest - Spazio alla Cultura and all the people who animate it have also become the headquarters and fulcrum of *Tele-Encounters: Beyond the Human*, hosting the project activities and the production of the telematic performance *2032 SMART-FAMILY*.

For Industria Scenica, culture is everywhere: every person has a potential that can be enhanced in an artistic context - every place can be a stage and every gesture can be transformed into a ritual. Thus, the public of Everest - Spazio alla Cultura and citizens in general are called to act and to be protagonists and responsible for their own neighbourhood, country, city. This is in line with what is suggested by the Creative Europe Programme (European Commission, 2018) that sets as its objective a greater cultural participation of the European citizenship and the use of culture and the arts to promote greater social inclusion. For the *Tele-Encounters: Beyond the Human* project we have brought our expertise as community dramaturges and artists to respond to the goals proposed by the European Commission. We have involved our audiences, and therefore citizens, in a theatrical production, in the interaction with digital arts and in the project communication, specifically: in the robot development workshops and the participative communication campaign.

Robot Development Workshops

The first project actions carried out together with the community were the robot development workshops. They intended to compare, understand and design future social robots, starting from participants' needs, imaginaries and desires without any limits to creativity and imagination. The workshops were aimed at two target populations, namely the elderly over 65 and teenagers. Thanks to Industria Scenica's stable presence in the local community and the social relationships established over the years, numerous and curious citizens responded to the call and we selected two groups with the following features: 1) elderly people over 65 who attend the dance hall, active citizens in the area who participate in the Cultural Committee, who do voluntary work, participate in the *Grandparents Who Read* project and other cultural actions; 2) teenagers, who attend the Everest theatre course, all regularly enrolled in a school institute (second-generation adolescents also adhered to the proposal).

These two audiences often participate in other Industria Scenica initiatives such as Theatre Season, festivals, public theatre readings, guided tours, family theatre, school theatre, projects on road safety and prevention, etc. We could almost define them as Everest regulars. They are engaged citizens who are strongly motivated to participate in cultural actions.

The question asked to the participants was 'What makes a social robot pleasant or unpleasant in people's eyes?'. While remaining within the framework of the project methodology[34], the creative process of future social robots was structured differently according to the audience, which was also based on the different backgrounds, ages and interests of the target groups. Moreover, the community dramaturges have had to deal with a new variable since 2020: the COVID-19 pandemic, physical and social distancing and the related restrictions. The workshops were organised in April 2021, almost a year after the strict lockdown experienced by Italian citizens in 2020, but still in the midst of restrictions on public events organisation and participation. In the spring of 2021, many cultural events were permitted again, but with limited interactions and widespread fear of infection. Despite this, the workshops were, especially for the elderly, the first real opportunity to get together in a protected context, to start participating again in creative processes and to imagine the future.

In the wake of the pandemic restrictions, the workshop for people over 65 was initially conceived in online mode; however, this would have excluded most of the elderly over 75, who have little or no knowledge of ICT. For this reason, in compliance with the anti-COVID-19 regulations in force at the time, we proposed to these elderly people to meet in person; this while we involved people over 65 in an online meeting, as they are more familiar with ICT. For the over 75s, we then decided to meet at two different times: 1) a preliminary meeting, which took place on 17 April 2021, to present the project and its themes; 2) the actual workshop, held on 23 April 2021. With experience, we have observed that elderly's involvement often requires a gradual process, especially when the proposed topics are new or far from their daily experience. The preliminary meeting was essential to engage and stimulate those with little or no knowledge and familiarity with ICT, robotics,

[34] See Hyunanda and Palacios Ramirez in this book.

AI and the art/technology mixture. The challenge was to link these topics to their life experience: how is technology already part of their life? How is robotics present in their homes? We call this phase of inquiry 'performative mapping'. It is a first step, a first contact with the target public to engage the participants and create fertile grounds for discussion of the content. The next time we met for the workshop.

In collaboration with Emanuele Micheli (School of Robotics, Genova[35]), the over 75s experienced 'Codey Rocky', a very emotional little robot. Other robots were shown on video stimulating discussion about their functionality, aesthetics and even the ethics around their use. Always following a principle of gradualness, only lastly the elderly were asked to imagine the characteristics of a caregiver social robot - starting from their needs and from the technology they had observed shortly before. The involvement observed in the participants was total.

Later, we involved a group of people over 65 more familiar with ICT: for work and personal reasons, the COVID-19 pandemic and the consequent lockdown accustomed this group to technology and to carry out online activities. Despite the greater familiarity with ICT, robotics and roboethics, even with this second group, a gradual involvement was adopted. First, they were asked to add words related to 'robot' into an online word cloud generator. Secondly, we shared some robotics videos in the field of physical care and rehabilitation.

As for the target audience of adolescents, Industria Scenica has over the years established strong ties with local schools by organising theatrical performances or entering classes with workshops and courses in which the arts are means of promoting awareness and knowledge of various topics, i.e. cyberbullying. Unfortunately, due to the pandemic regulations in force in the 2020-21 school year, the schools' participation has been impossible. For this reason, we chose to involve another community close to Industria Scenica, namely the girls and boys who attend theatre courses led by teacher Mabel Lopez. Following a written invitation hand-delivered to them, the workshop was held face-to-face on 24 April 2021, which combined theatre and robotics. Again, always following a principle of gradualness, we used the participants' theatrical skills to introduce robotics and roboethics. First, we invited them to

[35] https://www.scuoladirobotica.it/ (accessed on 4 April 2023).

recreate a robot using their own body. From this exercise emerged both the daily experience with ICT and AI and their imagination: who imitated the most common voice assistants such as Alexa and Siri; who interpreted more complex robots inspired by films, animations or comics. The next step was to show them some videos on the latest developments in technology, especially robotics. Next, they built and coded four different robots (a drone, a small social robot, a mobile robot and a frog robot). In the second part of the workshop, the students imagined future social robots - guided by a few simple questions - each of them profiled an imaginary robot by drawing it, describing its personality, physical characteristics, and functions, especially in relation to care. The next step was to interpret these robots with theatrical improvisation techniques: again, their theatrical skills allowed them to give voice to the imagination, deepening the robots initially imagined. A 3D artist, Alessandra Piras, attended all the workshops and sketched robot models starting from the emerging ideas.

The Participative Communication Campaign

Participative Communication Campaigns are communication campaigns that deal with topics of cultural and social interest. These campaigns envisage community members' engagement as protagonists in the promotion of cultural events: posters, flyers and calendars, as well as materials for online dissemination[36]. This is possible, because we believe that culture is everywhere: every person has a potential that can be enhanced in an artistic context, every place can be a stage and every gesture can be transformed into a ritual. Thus, citizens are called to act and to be the protagonists of their neighbourhood, country, city. Art is in the eye of the beholder, it is in the hands of everyone and it is able to regenerate places, as stated by Venturi (2017):

> The secret of this particular type of regeneration lies in understanding 'culture as yeast', like a molecule that changes the consistency of everything it binds to, dilating its perimeter. This is the generative mechanism capable

[36] https://www.industriascenica.com/everest/campagna-di-comunicazione-partecipata/ (accessed on 4 April 2023).

of activating citizenship and cultural associations and of designing those hybrid networks capable then of giving perspective to abandoned spaces.

Industria Scenica engaged the Vimodrone community mainly for the promotion of the Theatre Season that takes place at the Everest - Spazio alla Cultura. Each season proposes a topic and a reflection that frames the performances and the communication campaign.[37] Going back just a few years, the *What Are You Looking At?* campaign launched the 2018/2019 theatre season. In this campaign, reality becomes the result of numerous cultural elements that interact with each other. With a careful look, small ideas can be collected in people and places and it is possible to enrich them with artistic elements: the local commercial activities and realities seen through the eyes of art and culture are to all intents and purposes works of art and acquire value. The coffee bar became *La Bottega del Caffè*, the barber shop was the *Barber of Seville*, the Vimodrone NonsoloMamme nursery was the *Snow White and the Seven Dwarfs*, and so many others.

The 2019/2020 cultural season was promoted with the *Art Is in Your Hands* campaign. We wanted to open new fronts for reflection on the relationship between culture and civic participation through actions that on the one hand promote social responsibility and foster awareness of individual, civil and social rights and on the other hand produce cultural content and products of artistic value. The message we conveyed was that the community needs to be heard, especially in the context of the erosion of citizenship spaces. How do we go through public places? What relationships are triggered in clichés? What is the artistic code that best describes them? Thus, some places in Vimodrone were looked at and experienced in a different, concerned, artistic way by citizens and associations from the area: the market became a circus tent; children in theatrical choreography and masks transformed the square into a stage; the Everest historic dancers danced in a supermarket making it into a ballroom. The diversity of places and the multiplicity of artistic languages increases the possibilities of engaging citizens in the cultural project. The elitist aspect of cultural products is replaced by popular, inclusive and representative forms of the various local interloc-actors.

[37] The campaigns are available at www.industriascenica.com (accessed on 4 April 2023).

The following campaign, 2020/2021, brought with it the reflections of the first year of the pandemic. Already during the 2020 lockdown, we wanted to launch the message '#thereareralwaysthingstodo' and the campaign went back to the theme that: despite everything, if we want, we can and there are always opportunities for change. In the face of the pandemic scenario, the metamorphosis must be welcomed as an experience of growth and innovation. Hence the title *If You Want... You Can!* and the transformation of small daily gestures (a yawn, a hug, a moment of relaxation, etc.) into something else that fills the everyday with meaning. The campaign for the current season (2022/2023) is entitled *Let's Celebrate!* to rediscover the holidays, rituals, events that allow us to meet, be together, look at each other eye to eye, smile and have fun. Celebrating together means acting together, representing together, designing, getting excited, relating, caring and feeling part of a community that works for a common goal, participates, remembers the past, celebrates the present and imagines a future. Again, the celebration and culture in the broadest sense become fundamental for keeping a community together, evolving, learning and regenerating its identities.

The participative campaign for the *Tele-Encounters: Beyond the Human* project has its roots in all the experiences mentioned above and in many others. It was not done to promote theatrical seasons as previously, but to promote the specific activities of the project itself, i.e. the telematic performance *2032 SMART-FAMILY*, the telematic theatre webinars and the robotics theatre workshop dedicated to the students of the theatre academies in Italy and Romania. For the campaign, the claim *If I Say Robot?* was chosen to draw attention to one of the main themes of *Tele-Encounters*, namely robotics. Various people who contributed to the project were involved: the cast of *2032 SMART-FAMILY*, some production collaborators and the children and the elderly who had participated in the robot development workshops and as an audience at the June 2022 premiere. They are well known to Everest - Spazio alla Cultura and to the Vimodrone community. Each subject was related to a robot drawn by the children and elders during the robotics workshops in the 3 partner countries: taken in their original version and partly adapted to the poster format, robots born from imagination entered into relations with the people who contributed to the project either as creators of cultural content or as beneficiaries of the actions of the project

itself (see **Figure 1** in the *Annex*). The project promoted the view that culture cannot come from above but must be designed and built together bottom-up with the community. The campaign was disseminated online and offline and is visible on Industria Scenica's social media.

Conclusions

The *Tele-Encounters: Beyond the Human* project and, above all, the *2032 SMART-FAMILY* production involved many people as creators and audiences. With the workshops and the participative communication campaign, the Vimodrone citizens experienced the project as content creators as well as performance consumers. Their thoughts and questions were a valid contribution to the dramaturgical and mise-en-scène choices adopted for the performance realisation that gained in meaning and beauty. The Vimodrone citizens of all ages not only benefited from the activities financed by the Creative Europe programme, but they also became protagonists of the project itself, putting their faces on it, redesigning the future social robots, accepting the challenge of interacting, negotiating and reflecting on extremely delicate and edgy issues such as machine learning, ageing, health.

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ANNEX

Figure 1. Communication campaign poster examples

PART II

THEATRE BEYOND THE HUMAN

A Case Study of Audience Engagement in Telematic Theatre: *2032 SMART-FAMILY*

Marina Hanganu and Mircea Kivu

Contents

A Case Study of Audience Engagement in Telematic Theatre: *2032 SMART-FAMILY*

Marina Hanganu and Mircea Kivu

I. Introduction

This study examines the audience's experience of *2032 SMART-FAMILY*, a telematic theatre performance linking Romania and Italy in real time via Internet videoconferencing. As a subset of telematic art,[38] telematic theatre takes place simultaneously in at least two distinct spaces (physical or virtual) connected using telecommunications technologies. The theatrical action is distributed between spaces, which exchange information in real time. Therefore, telematic theatre differs from both a recorded performance and a live broadcast, as the latter only features a unidirectional transmission without dramaturgical implications (Jamieson, 2008: 34–35; Hanganu, 2022: 36–38).

While the morphology of telematic performance is very diverse (Jamieson, 2008; Chatzichristodoulou, 2010; Sant, 2013; Hanganu, 2022), *2032 SMART-FAMILY* belongs to a hybrid category that mixes the physical stage and the virtual space of the screen. The action takes place on stage in Romania and Italy, with physically present actors interacting from a distance in a telematic setup. In each performance venue, a physically present audience witnesses both the local action and the remote action, the latter projected live on the big screen. There is an additional instance of telematics at play in *2032 SMART-FAMILY*: a puppeteer actress (Smaranda Găbudeanu) controls a telerobot on stage in Romania and so gives life to Ogmios Z42, a fictional social robot. The show is bilingual, in Romanian and Italian, with live subtitles integrated realistically, so the characters can also see them.

[38] The syntagm 'telematic art' was coined by artist Roy Ascott in the 1980s, shortly after researchers Simon Nora and Alain Minc's coinage of the term 'télématique' (French) in 1978 (Shanken, 2003: 50-51;55).

Since ‘audience’ is suggestive of ‘passive’ listening, while ‘spectator’ is of ‘passive’ viewing, both terms have been criticised for failing ‘to capture the rich multisensory and phenomenological complexity of the act’ they seek to describe (Walmsley, 2019: 7). Related terms have been coined in an attempt to more accurately convey the act of engaging with performance, such as ‘audiencing’ (John Fiske) and ‘audiency’ (Bruce McConachie). While acknowledging this terminological critique, this study makes use of the term ‘audience(s)’ to describe the people who attended *2032 SMART-FAMILY*.

In recent years, the concept of engagement has been increasingly deployed in theatre, performance and audience studies, with Ben Walmsley proclaiming a paradigm shift in audience research around notions of relationality and affectivity. He defines the ‘engagement shift’ (2021: 300) as audience-centric, highlighting the importance of empirical studies and the necessity for the arts to be in touch with their audiences and thus socially engaged (2019, 2021). Walmsley offers a broad definition of ‘engagement’:

> In summary, then, theoretical definitions coalesce around the notion of engagement as a psychological process which aims to develop intimate, meaningful, converged, and enduring relationships with audiences by involving them in interactive, immersive, and hermeneutic experiences. This in turn emancipates and empowers audiences and generates deep connections by enabling audiences to become an invaluable part of the art-making process. Engagement emerges therefore as both a strategic management process (or a psychological manipulation) and a sociocultural benefit. (Walmsley, 2019: 12)

As Hanganu argued elsewhere (2022: 252), the different forms of engagement could be classified into four broad categories:

a) The extra-aesthetic relation between policymakers, cultural organisations and audiences (made visible via cultural policy, programming, marketing etc.).
b) The way the performance engages in society. What attitude towards reality transpires from the performance?
c) The aesthetic relation between audiences and the performance while experiencing it (the dramaturgical level).
d) The extra-aesthetic way the audience engages in reality as a result of the performance. Did anything change for audience members? What is left after attending the performance?

The four dimensions above are inspired by Walmsley's overview of engagement (2019, 2021) and also by Andy Lavender's concept of 'theatres of engagement' (2016).

Given the structural particularities of telematic theatre, this study focuses on the dramaturgical level (point *c)* above), aiming to understand how the audience in Romania and Italy perceived *2032 SMART-FAMILY*.[39] It is argued that an exploration of audience perception can inform dramaturgical choices in future telematic theatre and not only. Dramaturgy is defined here as the **compositional process** of putting together a performance, not only that of writing a text (Turner and Behrndt, 2008: 4).[40] As Fischer-Lichte et al. show in the introduction to their recently edited collection, *Dramaturgies of Interweaving: Engaging Audiences in an Entangled World*, 'dramaturgies of previous centuries never dealt exclusively with texts' (2022: 1). Furthermore, Ficher-Lichte et al. differentiate between 'the practice of dramaturgy' and 'the concept of dramaturgy' (meaning the theorising of the practice). However, the practitioner-researcher will always see theory 'as imbricated within practice' (Nelson, 2013: 29, 33). This is why this study articulates its empirical findings through the theory of telematic theatre developed by Marina Hanganu as a result of her practice-based research (2022).

II. The Matrices of *2032 SMART-FAMILY*

Inspired by Eugenio Barba's levels of dramaturgy (2010), theories of New Dramaturgy (Trencsényi and Cochrane, 2014), New Media Dramaturgy (Eckersall et al., 2017), 'expanded dramaturgy' (Eckersall, 2006) and

[39] In November 2022, as part of the National Theatre Festival in Romania (FNT, 2022*), 2032 SMART-FAMILY* was live-streamed from the Romanian stage and subtitled in English for an international audience. However, the lack of a structured data collection mechanism from the online audiences means the livestream will not be analysed.

[40] The meaning of the words 'dramaturgy' and 'dramaturg' vary by cultural context. The most common understanding of 'dramaturgy' in the Romanian context is 'playwrighting' or 'body of plays' (meaning texts) (*'dramaturgie'*), while 'the dramaturg' (*'dramaturgul'*) is the playwright. The traditional usage of these terms is similar in Italy. According to Italian theatre-maker Camilla Brison (2023), *'la drammaturgia'* commonly refers to the play (text), while *'il drammaturgo'* is the playwright. Nevertheless, Italian theatre-makers also use *'il dramaturg'* for the dramaturge, namely the person who works closely with the director to arrange the play for the stage. Moreover, in Italy, there is also a wider understanding of dramaturgy as 'the composition of the show' (*'la drammaturgia dello spettacolo'*).

'expanded scenography' (McKinney and Palmer, 2017), Hanganu imagines the structure of telematic performances as a **system of matrices**. The **technological matrix** comprises all the devices and applications that make telematic theatre possible in the first place. The **spacetime matrix** corresponds to the space and time of the performance in their imaginary and actual dimensions – it includes set design but is not limited to it. The **body matrix** describes how the physical bodies of actors and audiences behave within the telematic structure. The **matrix of encounter** is the set of conventions that organise the exchange between audiences and actors. All the matrices are organised by the overarching **narrative matrix**, which refers to the subject, structure, text (if there is one) and the theatrical conventions that fictionalise reality to different degrees.

Bruce McConachie proposes the metaphor of 'spectating as a sandbox play', arguing that the material affordances of the theatrical space and the social surroundings of the performance affect the audience's experience, including their attention and meaning-making process (2013: 187–188). For this reason, we offer an account of the 'telematic sandbox' to which the audience in each country was invited. In Hanganu's terms, the sandbox corresponds to the matrices of the telematic performance.

The narrative matrix

Telematic theatre, with or without robots, is a form of 'cyborg theatre' as defined by Jennifer Parker-Starbuck (2011, 2015). This is because it explores the merge between the human and the machine in an attempt to expand/reevaluate both the aesthetic possibilities of the theatre and the wider impact of technology in society: 'Like a laboratory, the theatre is a space for trying things out, for introducing old ideas anew, for developing what hasn't been able to be articulated in other forms.' (Parker-Starbuck, 2011: 8). In the same cyborgean spirit, the aspiration that the theatre can be a testbed for human-robot interaction is a trait shared by many projects that conjoin robots and 'the stage' (Jochum et al., 2016).

2032 SMART-FAMILY is set in the year 2032, in a world close enough to present-day reality to be recognisable and yet different. In 2032, robots are everywhere: in restaurants, airports, train stations, hotels, theatres, parks,

intersections, offices, counters, factories, hospitals and in people's homes (character Amalia in Hanganu and Trifan, 2022). Laura Mihalcea is a retired Romanian language and literature teacher who lives alone in Romania. Her daughter, Virginia, went to Italy 20 years ago on an Erasmus scholarship. There, she met charismatic Lorenzo Visconti, whom she married and with whom she has a daughter, Amalia. Virginia is now a cardiologist and lives in Italy with her family. The audience discovers the characters' backgrounds gradually, as the realistic scenes alternate with pre-recorded inner monologues and memories.

The play begins with Laura returning home from the hospital after recovering from a heart attack. To her shock, she finds that Virginia has installed a permanent surveillance system. Two robotic video cameras follow her all around, relaying her live image to Italy. Similarly, she can see into her daughter's house via a large video wall. The system also translates their conversations automatically, as Lorenzo and Amalia cannot speak proper Romanian and Laura cannot speak Italian. On top of everything, Laura meets her new co-tenant, social robot Ogmios Z42, who is in charge of her medical care and supervision. Throughout the performance, after a rough start, Laura grows accustomed to Ogmios Z42 to such an extent that it appears almost human to her. Even if Ogmios proves useful and helps Laura in an emergency, Virginia switches the robot off in the final scene. The audience cannot know whether Ogmios will ever be switched on again.

In parallel with the human-robot relationships, the performance follows the human relationships as the family struggle with the consequences of distance and the inexorable knowledge that Laura will only grow older, moving closer to her death. On an optimistic note, one can see a family that stays together against all the odds, as not even distance can break the bonds between parents and children. Alternatively, one can consider the negative implications of migration for both the emigrant and the ones who stay behind, as distance can never be bridged fully by technology. While avoiding both enthusiastic and dystopian scenarios of technology use, the performance plays on the divergent perceptions of the characters and ultimately of the audience members.

The play is episodic and modular, made of eight scenes linked by transitions. **Table 12** in the *Annex* provides a summary of the action in each

scene. Even if mostly built on the remote interaction of the actors, some scenes happen only in one country, with the remote audience watching them like a *live film*. The transitions are part of a different plane of reality corresponding to the characters' inner world. Featuring soliloquies and memories, all transitions were audio-video recordings ranging between one and three minutes in length.

The technological matrix

The **technological matrix** of the performance, composed of the devices and applications used, was roughly the same in both countries and was designed with an eye to flexible control possibilities and backup solutions.

The communication between the spaces relied primarily on an audio-video circuit that featured one big projection screen as the main visual interface, two robotic (PTZ) cameras[41] in each space, headset microphones for the actors and the standard sound system of each venue (mixer, sound card, loudspeakers). This circuit was largely visible on stage and realistically integrated into the fictional world of the performance, except for the control devices operated by the technical team. Cameras were controlled locally using a combination of presets and manual movements via a gamepad, but could also be controlled remotely in emergency cases. The video team in each space chose what to project locally and also what camera image to send to the other space. This means that Romania was creating the live video montage for Italy and vice versa. It was also possible to change the selection of the cameras locally in case the wrong image was being sent, which proved a valuable safeguard mechanism.

In each country, a second screen of smaller dimensions served to create a holographic illusion. In Romania, this holoscreen was only used to project transition monologues and memories, which were prerecorded video portraits of the characters, followed by abstract fog videos, all with voice-over and music. On a metaphorical level, the holoscreen represented the character's space of consciousness. In Italy, apart from the metaphorical dimension, the holoscreen was also integrated realistically into the character's

[41] PTZ cameras can be controlled remotely to pan, tilt and zoom.

house, showing, for example, Virginia training in anatomy in virtual space (see **Figures 1** and **2** in the *Annex*).[42]

The biggest technical difference between the two countries consisted in a separate circuit in Romania that allowed for the live control of Ogmios Z42 by actress Smaranda Găbudeanu on three separate levels: facial expression, body movement and voice. Speaking in front of an iPhone with an AI-based motion capture application, Găbudeanu animated the robot's 3D face in real time (see **Figure 3** in the *Annex*). The animated face was shown on the robot's tablet and could simultaneously be projected on any of the two screens in each country (see **Figure 4** in the *Annex*). This strategy was also mentioned in the project application as a way of giving the Italian audience and actors immediate access to an otherwise remote robot. The actress would watch the stage with her naked eyes from the auditorium balcony and simultaneously through the eyes of the robot due to its integrated webcam. The robot could pan and tilt its head, bend and extend its torso and move on wheels and was controlled with a remote featuring sensitive joysticks.[43] Moreover, Găbudeanu lent her voice to the robot via a microphone with an added metallic effect that made her sound robotic. She also learned to play with the voice effect, her acting strategies augmenting her techno-performance (e.g., at times, she prolonged vowels, used an unnatural intonation, left sentences in suspension and varied the speed of her speech). The robot's control mechanism was hidden from the audience to give the impression of an autonomous machine with Artificial Intelligence. Nevertheless, the illusion was dismantled when the performance ended, as Găbudeanu appeared on stage for applause, remote controller in hand and moving the robot synchronously (for instance, bowing simultaneously).

The spacetime matrix (spatial differences)

The **set design** had roughly the same functionality in Romania and Italy, but its aesthetic and colour pallet were different. In Italy, the Viscontis' living

[42] See an in-depth account of the video conventions of the performance in Armine Vosganian's essay in this book, *Video Directing in Telematic Theatre: Means and Meaning*.
[43] A more intuitive approach to the robot's control mechanism could have used sensors on the actress's body conveying movement directives to the robot. Nonetheless, the available time and budget of the project dictated this rather counterintuitive type of control.

room was meant to be modern and functional. The futuristic design is probably one reason why Camilla Brison, the director in Italy, chose to integrate the holoscreen into realistic scenes and play with its transparency. In Romania, unlike what one would expect from an elderly lady's house, scenographer Andreea Diana Nistor created a stylish and pictorial living room, with bold colour combinations worthy of an 'artsy' and intellectually sophisticated lady. On one of the walls, there was a world map where Laura had stuck pins to mark her numerous travels. The eclecticism of the space was also underlined by art objects such as statuettes that Laura had brought as souvenirs from her journeys.

In rehearsals, thanks to video director Armine Vosganian, we discovered that **the sets in the two countries had to be mirrored** for optimal video communication across spaces.[44] The mirroring of the two sets enabled the actors to have a more intuitive orientation regarding the remote space and persons. What is more, we were thus trying to simulate eye contact at a distance or at least match the direction of the screen characters' gaze with the physical position of the actors on stage. Even so, it was necessary at times **to trick the perception of the remote audience and actors, as well as that of local audiences**. For instance, in intimate mother-daughter dialogue, actress Aura Călărașu (playing Laura) was actually looking at her armchair and not directly at the camera (see RO film 2022: 39:00-41:10) to give the sensation in Italy that she was looking at her daughter (see IT film 2022: 40:40-43:00). At the same time, for audiences in Romania, she seemed to be looking directly into the camera.

Stage sets aside, the venues in which the performance was held are very different. The *George Ciprian* Theatre in Romania has a proscenium stage with no inclination. The auditorium has 240 seats, yet only 189 seats were available for booking, since the balcony was turned into the command room for the technicians, directors and actress Smaranda Găbudeanu. Moreover, some of the side seats on the ground floor were also blocked because parts of the action happening in the laterals were not fully visible.[45]

[44] The set being modular, it was easy to reorganise the projection screens and the opaque walls, although this caused several stage movement changes in Italy.

[45] Nevertheless, particularly crowded performances made it necessary to allow the audience to sit on the sides as well, while a small number of audience members (theatre staff) were allowed upstairs close to the technical team.

With one single actress and a robot on a traditional stage, there was a need to fill in the approximately 5 X 8 m play area with ample physical actions.

In Italy, the venue of Industria Scenica, called *Everest*, is not a traditional theatre space, but a historical community dance hall equipped with a disco ball that was repurposed creatively for a variety of cultural activities (Industria Scenica, n.d.). The hall features a raised stage made of assembled platforms, with a smaller play area than in Romania. Since the relatively small venue can seat roughly 80 audience members at a time, the audience in Italy was in closer proximity to the actors than the audience in Romania. This led to an overall more intimate staging, with a more film-like type of acting, such as less stage movement and more subdued body expressions.

The spacetime matrix (social time)

Patrice Pavis refers to the 'social time' of the performance as an attribute of the audience's lives (e.g., personal schedule or that of public transportation), as well as of the audience's 'sense of time' and attention span (1998: 411). Similarly, David Wiles writes about the rhythms that make up the social time of the theatre audience: the rhythms of the Earth, the rhythms of the body and the rhythms associated with work or leisure (Wiles, 2019). Theatre programming, as well as audience attendance and reception, all depend on the rhythms of everyday life, which are culturally, historically, economically and geographically determined.

The *George Ciprian* Theatre, located in the medium-sized province city of Buzău, is within easy reach for most local audiences. Normally, performances are scheduled at 19:00 during the working week or 18:00 at weekends, while matinees are dedicated to children and are scheduled at 11:00 or 13:00. The start time of performances is rarely delayed and audiences are fairly punctual. *Everest*, on the other hand, is located in Vimodrone, an autonomous municipality on the outskirts of Milan in Italy. It takes at least 20 minutes to reach Vimodrone by tube from the centre of Milan. Performances in Milan and Vimodrone usually start around 20:00 or even later, as the audience needs time to get to the theatre after work, commuting through a big, crowded city.

Considering that there is a one-hour difference between Romania and Italy, a compromise had to be reached. Five performances were scheduled at 20:00 Romanian time / 19:00 Italian time, one performance at 21:00 Romanian time / 20:00 Italian time and three performances were matinees starting at 11:30 Romanian time / 10:30 Italian time. The matinees were reserved predominantly for children and teenagers brought over by their teachers, but also retired people who preferred to see the performance in the morning. Unfortunately, apart from the matinees, all evening performances started with a delay of at least 15 minutes, as the arrival of the two audiences could not be synchronised. To fill in the time, director Marina Hanganu prepared a series of audio announcements read by a synthetic voice, which were played at intervals of a few minutes.[46] This may not have been the best strategy, though, as audience members may have interpreted these scattered announcements as fake signals for the performance start.

The waiting time, combined with the rather late scheduling, may have affected the audience experience in Romania, although there is no clear indication of this influence in the questionnaire replies. Whereas, in Italy, the difficulty of reaching the location in time may have contributed to reduced audience numbers compared to the original bookings. Negotiating social time is one of the difficulties of transnational telematic performance practice, with direct repercussions on audience attendance/engagement.

Two sides of the same coin

In *2032 SMART-FAMILY*, the audience in Romania and the one in Italy witnessed two different performances that make a whole, like two sides of the same coin. In this type of telematic theatre, one observer situated in one space

[46] The announcements were the following: 1) a warning that the performance may start with a delay; 2) a 5-minute description of the *Tele-Encounters: Beyond the Human* project; 3) a brief description of the audience research being conducted in the project, accompanied by the kind request that the audience complete an online questionnaire after the performance; 4) an explanation that the performance was taking place simultaneously in Romania and Italy, with audiences and actors in both countries interacting live (an identical explanation was also played in Italy).

will never capture the entirety of the performance but will always have **a situated perspective on the action**.

Indeed, audience perception is always situated, including literally within the traditional theatre auditorium, where one audience member might see the action from the balcony, another one from ground level and yet another will have a restricted view of the stage. Moreover, as any performance is perceived subjectively by individuals, it can be argued that there are as many performances as observers (see Freshwater, 2009: 5–11; Reason et al., 2022: The paradox of 'collectivity'). However, in a traditional theatre setting, all audience members witness a unified theatrical action, although from slightly different spatial positions and subjective viewpoints. Unified action is also possible within a telematic setting. For instance, a telematic performance whose action takes place exclusively online (e.g., on Zoom or in virtual reality) creates a single virtual space for the audiences and performers – 'a third space' or 'a telepresence stage' (Packer, n.d.; Sermon et al., 2022). Unless a branching structure similar to that of video games is employed, audience members perceive exactly the same theatrical action irrespective of their geographical position. Conversely, *2032 SMART-FAMILY* does not bring together audiences and actors in a shared virtual space. The parallelism of the distributed theatrical action means that one observer cannot possibly perceive all that is happening at once on two separate stages. This is also the case for the directors themselves, who relied on the performance recordings and each other's accounts to get a full(er) picture of the remote action. As Hanganu argued elsewhere (2022: 152), technology can truncate or augment the physical reality it mediates. This means that the audience in one space will (tele)perceive a more or less distorted version of the remote space, mixed with the unique attributes of their local physical space.

This special quality of the dramaturgy allowed directors Marina Hanganu and Camilla Brison to have a certain degree of independence. The transition sequences are a case in point. Even if the transition videos were the same (their identical timing was important for synchronising the two actions), the way they were integrated on stage differed in Romania and Italy. During most transitions in Romania, the audience was immersed in darkness, as Laura was preparing the stage unobtrusively for the next scene and Ogmios was slowly returning to his power deck as a leitmotif

for the passing of time. Whereas in Italy, the holoscreen videos were accompanied by live character tableaux. The audience in Romania could not see any of the actions happening in Italy during transitions, as the main screen always went black. For this reason, Amalia's leaving for Shanghai during Ogmios's monologue was not visible. In the case of the audience in Italy, there was usually nothing to be seen on stage in Romania during transitions. The only exception was right before the game scene when the audience would hear a pre-recorded audio sequence of Laura and Ogmios inventing the *Lord of the Rings* game (see RO film 2022: 1:09:32-1:11:54; see IT film 2022: 1:11:23-1:13:35). In this transition, the game cards were projected on the holoscreen in Italy, but not in Romania. Moreover, Amalia (played by Francesca Fatichenti) comes on stage and appears to be training for the virtual game. This time, the audience in Italy could see the stage in Romania, where Ogmios Z42 was lit by a bright spot and made movements to accompany the audio-only narrative.

In transitions, Hanganu wished to create an immersive atmosphere, so the soundtrack music of the monologues and the darkness were supposed to enhance the mood expressed transiently by the characters. On the other hand, Brison often took a counterpoint approach, with dramaturgical layers such as words, music, stage action and video conveying different information. While most pre-recorded transitions were identical, Lorenzo's soliloquy had different soundtracks in Romania and Italy to accompany the same words (both composed by Romanian musician Andrei Petrache). Lorenzo's musical theme in Italy is similar to Jean Michel Jarre's electronic music and has a mysterious and rather dark Sci-Fi tonality (see IT film 2022: 46:07-46:49). In Romania, the same soliloquy is accompanied by an uplifting guitar tune (see RO film 2022: 44:13-44:54). A different musical score was also used after the fibrillation scene, right before the final scene. As Laura takes Ogmios's inert hand seeking comfort in her moment of crisis, the lights go down in both countries. In Romania, one can hear Laura's musical theme, which is a melancholic piano tune, as director Marina Hanganu wanted the audience to linger a while in the emotional state induced by the hand-grasping. After the first representation of the performance (the one that was also filmed in Italy), Camilla Brison decided to use Ogmios's theme instead, made of robotic

sounds and an ominous, anxiety-inducing score. This helped emphasise Virginia's state of panic about her mother.

Even the ending of the performance was different in the two countries, as can be seen in the two video recordings. In Romania, the performance ended with a virtual hug between mother and daughter. Laura and Virginia face each other on the main screen, their backs to the physical audience. Virginia starts to cry and asks her mother never to leave her alone. Laura is also moved to tears and tries to comfort Virginia. As they both approach the screen, arms stretched, their image disappears on the other side as their bodies cover the central cameras. The virtual hug is impossible. The stage goes dark in Romania, actress Aura Călărașu exits, and then the lights are brought up for applause. In Italy, after the impossible hug and Laura's disappearance, Virginia has a moment of disorientation, looking around. Then a spot makes Lorenzo visible, watering his plant behind the translucent holoscreen. Virginia goes to him, they look at each other, she takes out the sprinkler from his hand and then the stage goes dark (Brison, 2023). This whole sequence was invisible to Romanian audiences.[47]

The way the performance was built to enhance two different yet parallel perspectives on the same story, the mother's (in Romania) and the daughter's (in Italy), is one of the most intriguing aspects of *2032 SMART-FAMILY*.[48] The spatially distributed theatrical action, combined with the fragmented form of the play, gave freedom to each director to make distinct choices and therefore affect the audience in different ways.

III. Researching Telematic Theatre Audiences

The experience of remote audiences has been more commonly addressed in the context of live-streamed performance (see Barker, 2013; Sullivan, 2020; Levordashka et al., 2022) and, following the COVID-19 pandemic, in telematic performances with online-only audiences (see Weitkamp et al., 2022).

[47] The first representation of the performance (the one that was filmed) had a slightly different ending than the one described here. Nevertheless, it was still different from the one in Romania. Initially, the separate ending was necessary, as the Italy venue could not be fully darkened. Later, Brison decided to keep the ending to offer a dramaturgical exit to the character of Lorenzo.

[48] See also the interview with director Camilla Brison in this book.

So far, few empirical studies have explored the audience experience in telematic performances that mix the on-screen and physical stage actions, at least to our knowledge. We will focus next on three studies analysing a hybrid telematic performance format akin to that of *2032 SMART-FAMILY*.

As part of an EU-funded research project (Vconect, n.d.), Wang et al. (2016) analysed an interactive telematic performance featuring one actor, one co-present audience and one remote live audience. They compared the experience of the two audience groups based on galvanic skin response, observational data from videos of the event and audience interviews. They concluded that the overall response was similar for the two audiences, yet they observed that 'remoteness still has some effects on audience experience during connected performances' (Wang et al., 2016: 41). They hypothesised that some elements of the performance (e.g., theatrical smoke and actor-audience interaction) were more engaging for the proximal audience due to physical contact.

Within the same project, another comparative analysis was conducted of the differences in perception between co-present and remote audiences (Geelhoed et al., 2017). A detailed section is dedicated to a telematic adaptation of an existent staging of Shakespeare's *The Tempest* by Miracle Theatre, UK (*Distributed Tempest*, 2014). Actors and audiences were distributed across two locations, one pertaining to Prospero's 'Lair' while the other representing 'The Island'. Similarly to *2032 SMART-FAMILY*, physically-present audiences could watch both on-stage (proximal) actors and on-screen (remote) actors captured by PTZ cameras and relayed as live video projections (see a detailed description in Williams et al., 2015).[49] The researchers employed statistical tests to analyse the questionnaires completed by audiences and found no significant differences between the two locations, not even when considering audience members who switched spaces during the interval (as the two venues were nearby). Interestingly, the study introduces two metrics to describe the audience experience, namely *intensity* and *cohesion*:

[49] The use of PTZ cameras in *The Tempest*, as described by the research team, was a source of inspiration for using PTZ cameras in *2032 SMART-FAMILY*.

> Intensity relates to how intensively co-present and remote *aspects* of a performance are rated by an audience. Cohesion, relates to how a performance as a *whole*, the combination of co-present and remote aspects, affects an audience. Cohesion was operationalised as how (strongly) aspects of the performance were correlated. (Geelhoed et al., 2017: 5594)

Results show that the remote aspects of the performance were perceived as less intense than the co-present aspects, even if the overall performance was deemed cohesive, more cohesive than a purely live-streamed or recorded version of another performance, *Waiting for Godot*.[50]

In the previous *Tele-Encounters* project, Marina Hanganu (2019a: 93–118) did a qualitative and quantitative analysis of the audience's response to *The Planet of Lost Dreams* (2018). The telematic theatre performance connected actors and audiences distributed across two venues, one in Romania and the other in Spain. It was revealed that audiences felt closer in terms of emotional engagement to the main local character in each space (migrant mother in Spain versus left-behind daughter in Romania). This was accompanied by a tendency to take sides with the perspective they were viewing locally. For example, since the performance has an open ending, audiences were asked what they thought the daughter should do. The audience in Spain predominantly replied that the girl should come to Spain and join her mother, while this was the least popular view with Romanian audiences (2019a: 108–109). The study conjectured that there might be a 'site-specific bias' in telematic performance provided that the story also supports sympathy with the characters. Moreover, in line with the findings of the *Distributed Tempest* discussed above, the factors influencing the audience's sympathy for the characters were first the story and then their physical presence, with telepresence ranking as the least important factor (2019a: 104–105). An encouraging finding of the analysis was the equal attention given to the screen action and the stage action by approximately 70% of audience respondents in each country. Their attention was mainly influenced by the story and the acting (2019a: 110–113).

[50] It could be argued that comparing metrics from two totally different performances (different in content and format) is subject to so many lurking variables that no significant conclusions can be drawn.

While the learnings of *The Planet of Lost Dreams* were taken into account when staging *2032 SMART-FAMILY*, the current audience study focuses on totally different parameters that are more akin to the intensity and cohesion paradigm proposed by the *Distributed Tempest* researchers.

IV. Methodology

Data collection

The sampling method for this study was based on voluntary response via an online survey using Google Forms. The questionnaire was aimed strictly at **audience members aged 14+**, namely high school students and adults (this condition was written on the questionnaire), and all questions were the same irrespective of the respondents' age. The questionnaire was applied to audiences attending *2032 SMART-FAMILY* in November and December 2022 in Romania and Italy, so the study refers to only 9 performances out of the total 10.

The study population consists of the 1506 persons attending the 9 performances in Romania (based on the number of reserved seats in the online booking system) and 167 persons attending the same performances in Italy (according to the reservations list held by Industria Scenica), so a total of 1673 people.[51] The questionnaire was completed by 87 people in Romania and 47 people in Italy, so a total of 134 respondents. Considering that the selection of the respondents was voluntary and thus non-probabilistic (so it could be called a convenience sample), we cannot tell how representative the sample is of the population (i.e. all audience members aged 14+).

In Romania, a QR code linked to the online questionnaire was printed and handed to the audience with the performance programme notes. Some printed copies of the survey were also available in the performance venue, but no one requested them. Before the performance started, audiences in Romania were informed of the post-show questionnaire by a synthetic voice recording.

[51] However, the number of children under 14 who attended the performance is unknown, as well as the number of audience members who reserved seats and eventually did not attend the performance (attendance was free of charge in both countries). This means that the population size was, in reality, lower than 1673 people but in the absence of data we will use the number of booked seats.

In Italy, the questionnaire link was sent to the audience via email immediately after the performance. However, the actual moment of the questionnaire's completion was beyond the control of the project team in both countries. Some audience members filled it in immediately after the performance, while potentially still in the venue (as the timestamp in Google Forms shows), while others took days or even weeks or months to complete it. In both Romania and Italy, audiences were sent email reminders to complete the questionnaire. Replies continued to be registered until the 23rd of January 2023 and the questionnaire was closed on the 28th of January.

Designed by Marina Hanganu based on her theory of the building blocks of telematic theatre (2022), the audience questionnaire included both quantitative (closed-ended) and qualitative (open-ended) questions:

1. a profiling section (country of residence, nationality, migration status, age, gender)
2. an assessment of the modes of engagement with the performance (emotional, reflective, technological wonder, visual wonder)
3. an assessment of the dimensions of telepresence
4. an open-reply section containing four optional questions about the most engaging moment of the performance, the most disengaging moment and the reasons for feeling engaged or disengaged.

Sections 2, 3 and 4 correspond to what Au et al. call the 'audience experience' domain of self-report measurements, whereas the open-ended questions also have a strong component of 'evaluative judgement' regarding the quality of the performance (2022: Experience; Evaluating judgement).

Audience engagement was assessed in sections 2 and 3 via 9 items using a 5-point rating scale response format. Four items measured the **modes of engagement** (section 2), while five measured the dimensions of **telepresence** (the audience's relationship to the remote space – section 3). Rather unconventionally, the labelled scales were numbered from 0 to 4 to describe the relevance or intensity of the statement that was being rated: 0 – not at all; 1 – very little/somewhat; 2 – sometimes yes/sometimes no; 3 – to a large extent; 4 – very much. In the analysis phase, the 0 to 4 scale was converted into a 1 to 5 scale – this did not affect the results, but favoured calculation. Consequently, a score of 1 is equivalent to no relevance/intensity assigned to the statement, while a score of 5 is the maximum

relevance/intensity. The data thus obtained were treated as interval data and analysed via parametric tests.

Apart from the four open-ended questions, all questionnaire items were mandatory. Since the survey was conducted via Google Forms, all respondents without exception completed all the closed items – otherwise, the form could not have been submitted technically.

Limitations

Since the questionnaire completion was voluntary, the sample is inevitably marked by self-selection bias (Bethlehem, 2010). For example, in the case of online reviews of commercial products, it has been shown that the people who had the worst and the best experiences are usually the most likely to complete voluntary surveys (Bhole and Hanna, 2017: 109). Judging by the largely favourable results, it is likely that the questionnaire was completed by audience members who were rather enthusiastic about the performance. While recognising self-selection bias as a potential threat, we argue that the study *was* meant to study extremes, namely (peaks of) engagement and disengagement. If respondents were primarily highly engaged and/or highly disengaged audience members (who perhaps wished to have been engaged), their insights are likely to be more relevant to understanding engagement than those of potentially lukewarm or indifferent audiences. At the same time, it is possible that other highly engaged members of the audience did not complete the questionnaire for some reason. Since indifference is a form of disengagement, the study may not account for this type of experience (if any).

Only 80 participants replied to the optional questions (and some only partly), which adds to the non-response bias in the study. Moreover, it has been shown that self-report surveys can be marred by response style biases such as extreme response style, midpoint response style, acquiescence response style or carelessness (Wetzel et al., 2016).

We contend that self-report measurements for audience participants can hardly avoid the types of biases discussed above. Even if random sampling were applied, audience members cannot be constrained to take part in a survey. Likewise, introducing incentives for audience members to

complete a questionnaire could lead to further bias in their responses, such as the tendency to give more favourable replies.

The online format of the questionnaire may have excluded people with lower digital skills, such as the elderly. While audiences in Romania were informed of the possibility to fill in the questionnaire on paper, they may have forgotten about it by the end of the performance. Another drawback was that the printed version was not kept in sight and the audience was told to request it from volunteers, which could have further decreased the likelihood of completion.

Considering that the *2032 SMART-FAMILY* questionnaire was filled in at various times after attending the performance, potentially weeks or even a couple of months later, it is also possible that mutations occurred in the memory of the respondents. While this can be deemed a limitation since the experience was no longer fresh, the passing of time could also have favoured a more distilled impression, with belated respondents focusing on the more lasting aspects of their experience.

The questionnaire was initially written in English and then translated into Romanian and Italian. The audience replied in Romanian and Italian and their answers were translated into English for analysis. This approach carries its limitations given that each metric can be understood differently according to the particular cultural and linguistic context of Romania and Italy (Au et al., 2022: Lack of external validity: language or culture). Nevertheless, we would argue that the threat to the external validity of the study is attenuated by the similarities between Romanian and Italian as Latin languages, combined with the cultural and geographical proximity and ongoing cultural exchange between the two countries (also as a result of migration).

Modes of engagement[52]

According to Marina Hanganu's intuitive model for an audience-oriented dramaturgy (2022: 250–270), six main modes of engagement can be present

[52] The word 'mode' as used in this context means 'a way of operating, living, or behaving' and should not be confused with the meaning of 'mode' in statistics, which is also employed in this essay to describe 'the number or value that appears the most often in a particular set of numbers or values' (*Cambridge Dictionary*, n.d.)

simultaneously in telematic theatre, often in different combinations and to different degrees. This model rests on the insights of other researchers (amongst others, Bruce McConachie and Erin Hurley) and well-trodden discussions surrounding audience reception in the theatre.

The **empathetic mode** defines the emotional response to the performance as a result of the audience's 'reading' of the characters' minds or even the minds of other audience members (McConachie, 2013: 192–193). As Bruce McConachie argues, empathy is not an emotion, but an unconscious social ability that enables us to simulate other people's emotions and actions (2008: 65–66, 72). This investigation of the other's mind can then trigger conscious emotions (feelings) and evaluation responses of sympathy or antipathy towards the characters (2008: 76, 95–96, 99–100). The **polemic mode** refers to a reflective type of engagement in the performance that manifests itself as a conflict of ideas. The **sensorial mode** implies a focus on the sensorial dimension of the performance (bodily sensations, visuals, sounds, tactile elements etc.). The **ludic mode** is associated with a game structure in which the audience members are either gamers or watchers. The **creative mode** involves the audience as producers of ideas and/or materials that feed into the structure of the performance and is therefore reserved for participatory performances (e.g., brainstorming with the audience). Lastly, **technological wonder** is an aesthetic emotion that has to do with amazement in the face of what technology can do.

The modes are not mutually exclusive and often melt into a cohesive experience. For example, one cannot separate emotion from reason: '(…) a modest level of emotional engagement is necessary to sustain all rational attention in the playhouse' (McConachie, 2008: 3). Nevertheless, not all performances will elicit technological wonder, nor will they necessarily involve the ludic or the creative – these are predominantly **structural modes** that will always depend on the dramaturgy of each performance. Conversely, the empathetic, the polemic (better renamed as 'the reflective') and the sensorial should always be expected to be part of the theatrical experience at some level – these could be considered **organic modes** related to humans' being in the world.

The above theory of the modes of engagement informed the design of the questionnaire applied to *2032 SMART-FAMILY* audiences. Since the

performance was built on the coordinates of emotional engagement, reflection, technological wonder and visual wonder, these were also the modes measured. Considering that *2032 SMART-FAMILY* featured no audience participation, in the sense that the audience could not formally influence the stage action, the creative mode was not assessed in the questionnaire. Moreover, the ludic mode was not included either since it was structurally present only in Scene 6, when the family members played together from a distance, and thus cannot be generalised to the whole performance.

Note also the different names of the metrics assessed compared to the modes of engagement initially proposed by Hanganu. Instead of aiming to assess 'empathy', the study tried to identify instances of 'emotion', which could be triggered by empathy with the characters but not only. Moreover, the 'polemic' element was reinterpreted as 'reflection'. This was an attempt to make the questions easier to understand by audiences of different ages and also to reduce the potential bias associated with the negative connotation of the word 'polemic'. Moreover, it is also a step towards Hanganu's refinement of her initial theory to refer to the broader categories of emotion and reflection.

In this study, intensity is ascribed separately to each mode of engagement – the higher the mean score, the more intense the experience is deemed to have been at the particular level of engagement assessed.

Telepresence

Technically speaking, any mediated bidirectional relationship (exchange) between distant bodies, spaces and objects is an instance of telepresence (Hanganu, 2019a: 63). The sensation of 'being there' (*sense of presence*) accompanies this distant relationship to different degrees. As Hanganu suggested elsewhere (2019a, 2019b, 2022), a dissociation between the structural understanding of telepresence (as a *telematic link*) and the *sense of presence* (as a varying *effect* and *component* of telepresence) may help clarify some of the conceptual blur surrounding the word.

Telepresence was initially defined much more narrowly by AI researcher Marvin Minsky to refer only to sensory feedback for the

teleoperators of robots (1980). Closely akin to Minsky's idea of telepresence, the technical concept of 'tele-perception' is detailed in an article by NASA researchers (Quek and Jain, 1988) with reference to creating semi-automated telerobotic devices that would enable cooperation between the human (teleoperator) and the machine. Perceptual tasks would thus be divided between the human and the computer, reciprocally enhancing each other's sensing/sensory apparatus. The remote control of Ogmios Z42 by actress Smaranda Găbudeanu was the closest in spirit to the initial definitions of telepresence and tele-perception, as her sensory apparatus was coupled with that of the robot. Unfortunately, the robot did not have any sensors that could help the actress's perceptual tasks. As Găbudeanu herself mentions in her interview in this book, the control of the robot was rather counter-intuitive, de-coupled from her normal perceptual mechanisms. Future performances employing telerobots would benefit from exploring more deeply the initial ideas surrounding telepresence and tele-perception, striving to achieve that seamless coupling between organism and machine that 1980s researchers dreamed about.

In an artistic context, Oliver Grau also mentions 'teleperception' as a trait of telepresence enabling users to feel present in 'the simulated, virtual image space (the point to which attempts in art history have led thus far to achieve virtual reality)' (2000: 239). The image space of *2032 SMART-FAMILY* had a direct correspondent in the physical space at the other end – it was not a 'virtual reality' in the technical sense of a computer-generated simulation, although it was a *theatrical* simulation. Thus, teleperception in *2032 SMART-FAMILY* and the broader field of telematic performance should rather be understood as **the capacity to *feel* at a distance by means of telepresence** (Hanganu, 2022: 211).

For the purpose of this research, the experience of telepresence (regarded as a multi-layered construct) was broken down into five measurable components:

- **spatial continuity** between the two stages representing the characters' homes; it was hypothesised that the less fragmented the overall space of the theatrical action was perceived, the more likely one was to feel present at the other end or feel that remote people/objects were present in one's own space;

- the **mental representation** of the remote space (teleperception): the way the furniture was arranged and the spatial relationship between objects, entrances and exits;
- feeling present in the remote space (**personal transportation**), as in 'presence as transportation' – '"You are there," in which the user is transported to another place' (Lombard and Ditton, 1997)
- feeling that the actors from the remote space were present in one's own space (**actors' transportation**), as in 'presence as transportation' – '"It is here," in which another place and the objects within it are transported to the user' (Lombard and Ditton, 1997)
- the **sense of disconnection** from the action in the remote space.

The first four dimensions are associated with a sense of *connection*, while the sense of *disconnection* acts as a conceptual counterweight. Within this study, the intensity of the experience of telepresence is associated with high scores for connection-related components and low scores for disconnection.

V. Results

Respondent profiling

All respondents who attended the performance in Romania reside in Romania and, except for one person who stated she is an Italian national, all respondents are Romanian nationals. Only 3 persons in Romania identify themselves as migrants (either immigrants or emigrants), while 3 people preferred not to disclose their status[53]. Similarly, all respondents in Italy reside in Italy, yet their nationalities are slightly more diverse, with 3 respondents stating they have Romanian, Israeli and another (undefined) nationality. Out of the total of 47 respondents in Italy, 7 persons identify as a migrant (immigrant or emigrant).

[53] Nevertheless, the same person who reported being an Italian national stated she is not a migrant.

Table 1. The respondents' country of residence, nationality and migration status

	Respondents in Romania	**Respondents in Italy**
Country of residence		
Romania	87	0
Italy	0	47
Nationality		
Romanian	86	1
Italian	1	44
Israeli	0	1
other	0	1
Immigrant/emigrant?		
Yes	3	7
No	81	40
Prefers not to say	3	0

Since the sample is quite small, for reasons of statistical validity, we divided the respondents into four large groups: aged under 18, aged 18-34, aged 35-49 and aged over 50. As can be seen in **Table 2**, the number of respondents in the adult age groups (over 18) is very similar in Romania and Italy, partly because of the broad age categories employed. However, the salient difference resides in the under-18 age group, which is absent in Italy but forms the large majority of the respondents in Romania (approximately 45% of the sample). The composition of the sample in Italy is more balanced between the adult age groups compared to Romania, with the 35-49 age group holding a small majority (approximately 40%). This is also the second-largest age group in Romania, as approximately 25% of the respondents are aged 35-49. At the level of the whole sample, Romania and Italy combined, the largest age group is 35-49 (approximately 31%), followed closely by the under-18 group (approximately 29%). The over-50 group represents approximately 21% of the whole sample, while the 18-34 makes up approximately 19%. The respondents' median age is 18 in Romania, while in Italy it is 38, which leads to a median age of 36 at the level of the whole sample (see **Table 3**).

Table 2. The respondents' age (no. of persons and percentages)

	Romania		Italy		Total	
Age group	**No. of respondents**	**% in RO**	**No. of respondents**	**% in IT**	**No. of respondents**	**Total %**
under 18	39	44.8%	0	0%	39	29.1%
18-34	11	12.6%	15	31.9%	26	19.4%
35-49	22	25.3%	19	40.4%	41	30.6%
50 and over	15	17.2%	13	27.7%	28	20.9%

Table 3. Mean age, median age, most frequent age (mode)

	Romania	Italy	Total
Mean age	31.5	42.9	35.5
Median age	18	38	36
Mode	17	36	17

There are significantly more female than male respondents in both countries. The difference between these groups is much bigger in Romania, where approximately 76% of the respondents are female compared to only 22% who identify as male and 2% who chose not to disclose their gender. In Italy, the gender composition of the sample is more balanced, with 57% female respondents and 43% male respondents. At the level of the whole sample, approximately 69% of the respondents are female, 29% are male and 2% prefer not to say.

Table 4. The respondents' gender (no. of persons and percentages)

	Romania		Italy		Total	
Gender	**No. of respondents**	**% in RO**	**No. of respondents**	**% in IT**	**No. of respondents**	**Total %**
Female	66	75.9%	27	57.4%	93	69.4%
Male	19	21.8%	20	42.6%	39	29.1%
n/a	2	2.3%	0	0%	2	1.5%

Modes of engagement

The audience in both countries was asked to respond to the following question: *'Overall, what was your experience of the performance? Please mark the degree of relevance/intensity for each statement on a scale from 0 – not at all to 4 – very much.'* They rated four statements corresponding to different modes of engagement: emotional involvement, reflection, tech wonder and visual wonder.

Table 5. Modes of engagement

Questionnaire item	**Corresponding mode of engagement**
I was emotionally involved in the performance.	Emotion
The performance made me reflect on the themes of the story (e.g., migration, old age, loneliness, the future, technology etc.).	Reflection
I was fascinated by the technology involved.	Tech wonder
The visuals shown on the two screens had an impact on me (e.g., the robot's animated face, the holographic illusion, the game scene illustration, the video effects).	Visual wonder

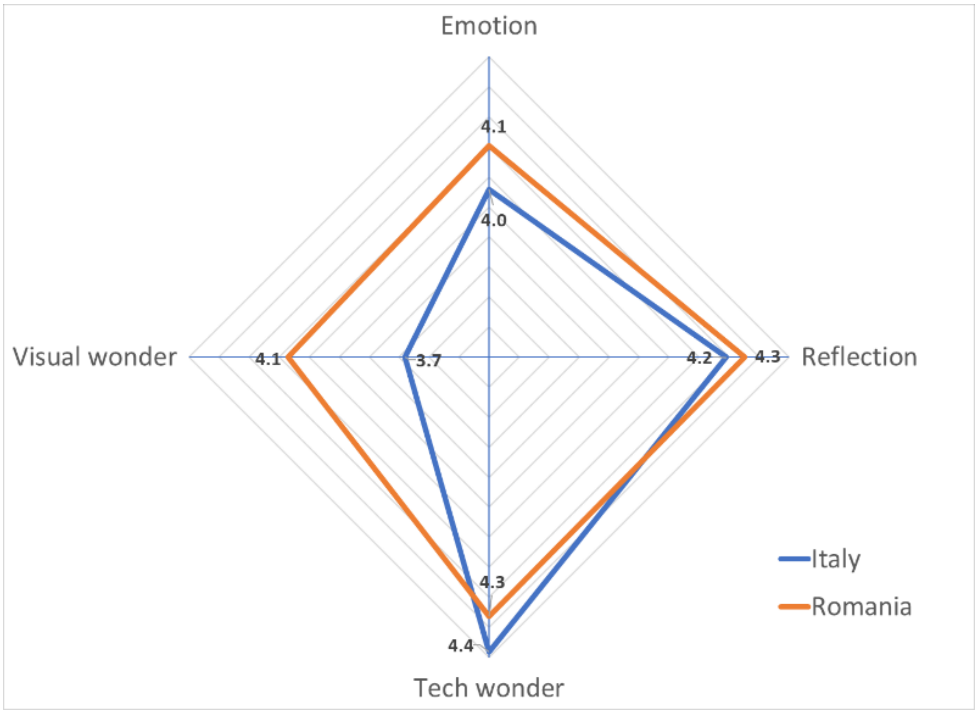
The mean score registered for each mode of engagement per country and also at the level of the whole sample can be read in **Table 6**. The audience in both countries was almost equally engaged on all levels, with an average high score of approximately **4 – to a large extent** for most parameters. When considering Romania and Italy combined, the most prevalent mode of engagement was the reflective, followed by tech wonder, emotion and visual wonder, respectively. However, the differences between the scores attained by each mode of engagement are not significant.

A comparative analysis reveals that in general, audiences in Romania gave slightly higher ratings compared to those in Italy, except for the reflective dimension, which achieved a higher score in Italy (see **Table 6** and **Graph 1**). Nevertheless, according to the ANOVA test, the only significant difference between the mean scores in the two countries concerns **the sense of visual wonder**, with the audience in Romania experiencing visual wonder more intensely than the audience in Italy.

Table 6. Mean score per mode of engagement

	Romania	Italy	Total
emotion	4.10	3.96	4.05
reflection	4.26	4.38	4.31
tech wonder	4.25	4.19	4.23
visual wonder	4.07	3.68	3.93
Scores: 1-not at all, 2-very little/somewhat, 3-sometimes yes, sometimes no, 4-to a large extent, 5-very much			

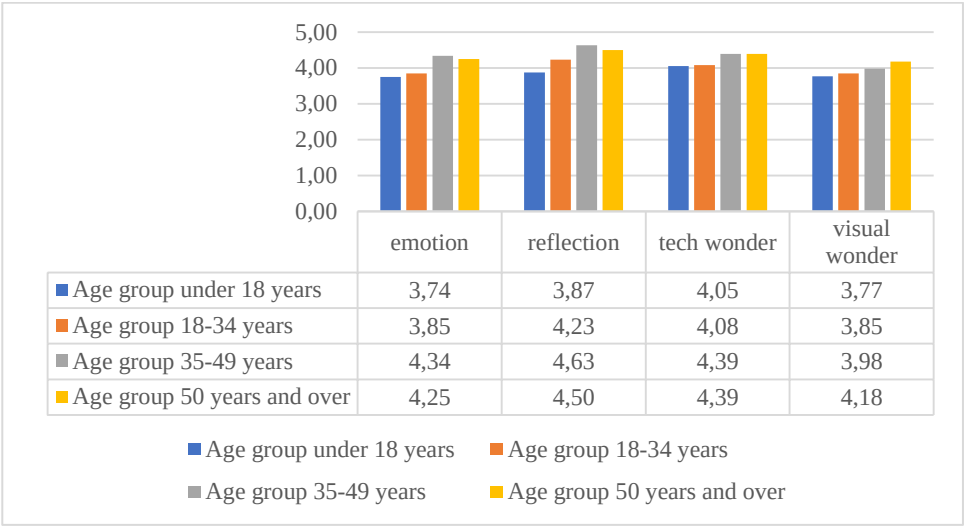
Graph 1. Modes of engagement



When considering the whole sample, more mature audiences (aged 35 and above) tended to perceive the performance more intensely than those aged 18-34 and under 18 (see **Graph 2**). In fact, **teenagers were the least engaged group within all categories measured**, although their overall levels of engagement were also high (between 3.74 and 4.05). In general, older people tended to rate higher than younger people on all four types of engagement. This observation is more evident for **emotion** and **reflection**,

considering that Pearson correlation coefficients between age and engagement are significant: $r(132) = .246$, $p = .004$ for emotion and $r(132) = .283$, $p = .001$ for reflection.

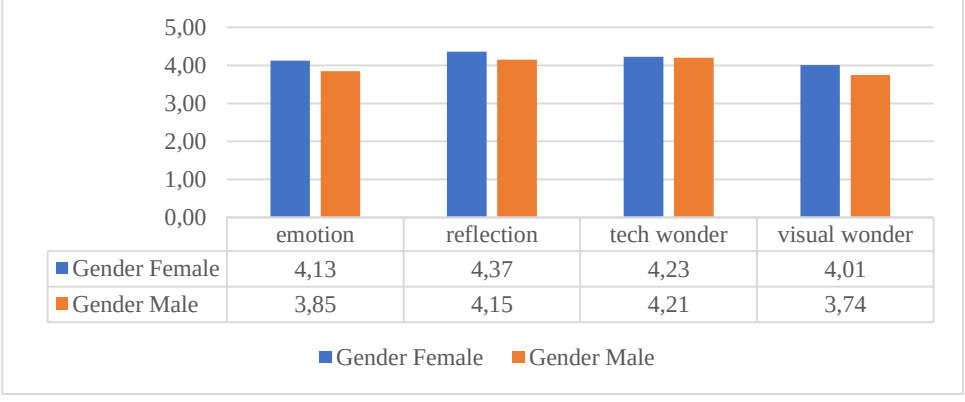
Graph 2. Mean per mode of engagement by age group



	emotion	reflection	tech wonder	visual wonder
Age group under 18 years	3,74	3,87	4,05	3,77
Age group 18-34 years	3,85	4,23	4,08	3,85
Age group 35-49 years	4,34	4,63	4,39	3,98
Age group 50 years and over	4,25	4,50	4,39	4,18

Women tended to perceive the performance with slightly greater intensity compared to men at all levels, but the differences are not statistically relevant (see **Graph 3**).

Graph 3. Mean per mode of engagement by gender



	emotion	reflection	tech wonder	visual wonder
Gender Female	4,13	4,37	4,23	4,01
Gender Male	3,85	4,15	4,21	3,74

Pearson's correlation was computed to assess the relationship between all the modes of engagement taken in pairs (see **Table 7**). **A strong positive correlation was found between all variables**, meaning that respondents who rated one of them highly also rated the others highly. The strongest correlations are those between **tech wonder and visual wonder**, $r(132) = .674$, $p < 0.01$, **emotion and reflection**, $r(132) = .656$, $p < 0.01$ and **reflection and tech wonder**, $r(132) = .630$, $p < 0.01$.

Table 7. Modes of engagement - Pearson correlation coefficient (r), N=134

		Emotion	**Reflection**	**Tech wonder**	**Visual wonder**
Emotion	*r*	1	.656**	.550**	.562**
	p		.000	.000	.000
Reflection	*r*	.656**	1	.630**	.616**
	p	.000		.000	.000
Tech wonder	*r*	.550**	.630**	1	.674**
	p	.000	.000		.000
Visual wonder	*r*	.562**	.616**	.674**	1
	p	.000	.000	.000	
**Correlation is significant at the 0.01 level (2-tailed).					

Telepresence

To understand how telepresence was perceived, the audience in both countries was asked to rate five statements grouped under the following question*: 'How would you describe your relationship to the remote space that you were seeing on screen? Please mark the degree of relevance of each statement on a scale from 0 – not at all to 4 – very much.'* The statements were associated with the different dimensions of telepresence (see **Table 8**).

Table 8. Dimensions of telepresence

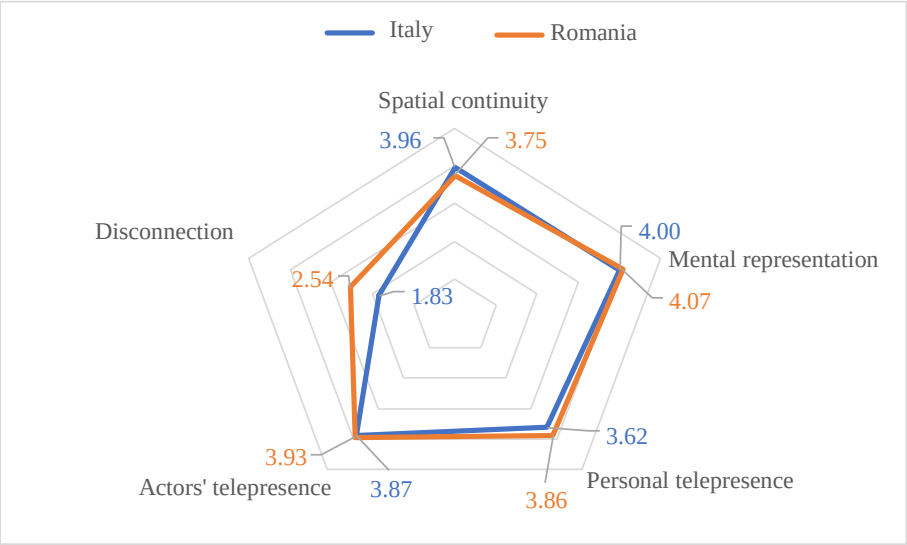
Questionnaire item	Dimension of telepresence
The remote space was a continuation of the physical space.	Spatial continuity
I could form a mental representation of the remote physical space (the way the furniture was arranged, the spatial relationship between objects, entrances and exits).	Mental representation
I felt present in the remote space.	Personal transportation
I felt the remote actors were present in my space.	Actors' transportation
I felt disconnected from the action in the remote space.	Disconnection

At the level of the whole sample, the mean scores are almost equally high (close to **4 – to a large extent**) for spatial continuity, mental representation, personal transportation and actors' transportation, therefore all these elements were experienced as relevant/intense by the audience. No significant differences were found between Romania and Italy. Consistent with the high ratings of the other parameters, the sense of disconnection was rated very low by both sets of audiences, with a mean score of 2.29 at the level of the whole sample (close to **2 – very little**). Nevertheless, the ANOVA test revealed a statistically significant difference between the two countries, with audiences in Romania feeling more disconnected from the remote action compared to audiences in Italy.

Table 9. Mean for telepresence

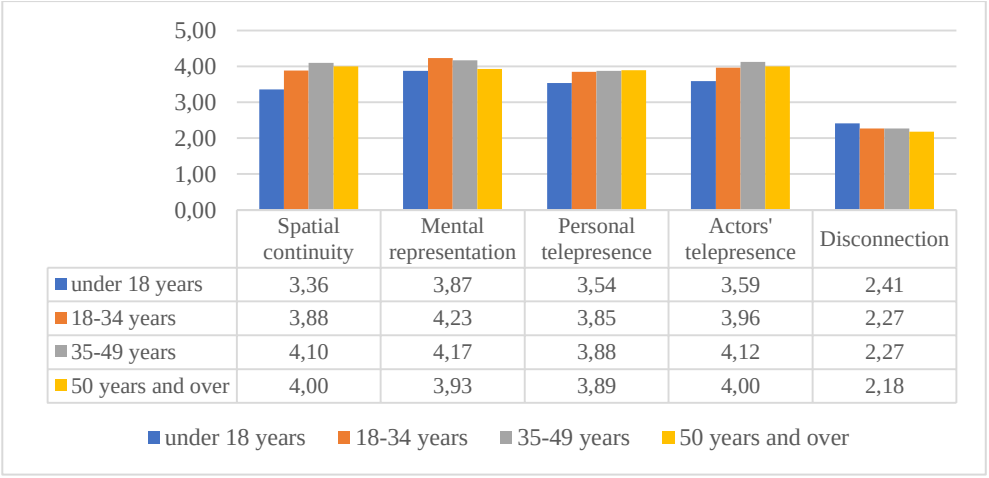
	Italy	Romania	Total
Spatial continuity	3.96	3.75	3.82
Mental representation	4.00	4.07	4.04
Personal transportation	3.62	3.86	3.78
Actors' transportation	3.87	3.93	3.91
Disconnection	1.83	2.54	2.29

Graph 4. Telepresence dimensions by country



Looking at the telepresence dimensions by age group, it was found that **more mature audiences (aged over 18) had a slightly more intense experience of telepresence compared to those aged under 18**. However, the Pearson correlation coefficient is statistically relevant only for the relation between age and **spatial continuity**: $r(132) = .229$, $p = .008$.

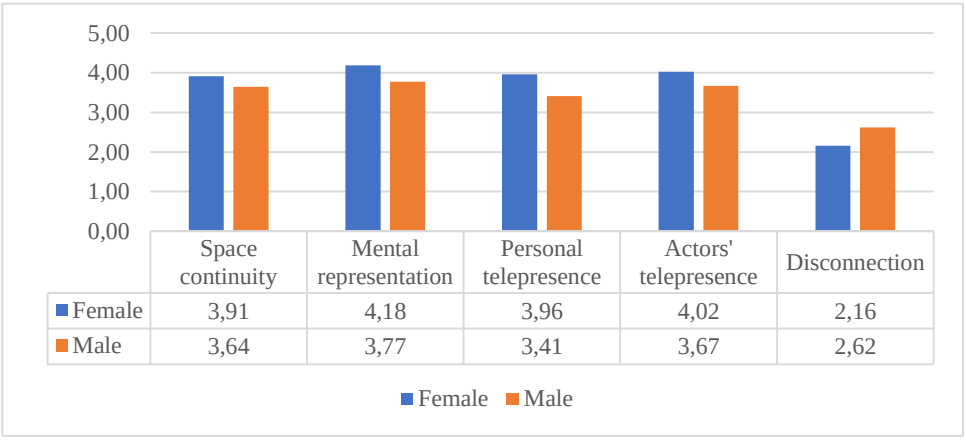
Graph 5. Telepresence dimensions by age group



	Spatial continuity	Mental representation	Personal telepresence	Actors' telepresence	Disconnection
under 18 years	3,36	3,87	3,54	3,59	2,41
18-34 years	3,88	4,23	3,85	3,96	2,27
35-49 years	4,10	4,17	3,88	4,12	2,27
50 years and over	4,00	3,93	3,89	4,00	2,18

When considering the whole sample, **women had a more intense experience of telepresence compared to men**, scoring high at all connection-related dimensions and having **a lower sense of disconnection from the remote action**. The difference between genders is statistically significant for mental representation, personal transportation, actors' transportation and the sense of disconnection, but does not pass the ANOVA significance test for spatial continuity.

Graph 6. Mean per telepresence dimension by gender



	Space continuity	Mental representation	Personal telepresence	Actors' telepresence	Disconnection
Female	3,91	4,18	3,96	4,02	2,16
Male	3,64	3,77	3,41	3,67	2,62

Pearson's correlation was computed to assess the relationship between all the dimensions of telepresence taken in pairs. A strong positive correlation was found between all variables except for the sense of disconnection, which is not correlated with any other variable. The respondents who rated one of the connection-related dimensions of telepresence highly also rated the others highly. With $r(132) > 0.8$, $p < 0.01$, **personal transportation** was found to be very strongly correlated to both **mental representation** and the **actors' transportation**.

Table 10. Telepresence dimensions – Pearson correlation coefficient (r), N=134

		Spatial continuity	Mental representation	Personal transportation	Actors' transportation	Disconnection
Spatial continuity	*r*	1	.729**	.740**	.731**	.149
	p		.000	.000	.000	.085
Mental representation	*r*	.729**	1	.808**	.688**	.183*
	p	.000		.000	.000	.034
Personal transportation	*r*	.740**	.808**	1	.801**	.161
	p	.000	.000		.000	.063
Actors' transportation	*r*	.731**	.688**	.801**	1	.153
	p	.000	.000	.000		.077
Disconnection	*r*	.149	.183*	.161	.153	1
	p	.085	.034	.063	.077	
** Correlation is significant at the 0.01 level (2-tailed).						

Moments of engagement and disengagement (qualitative analysis)

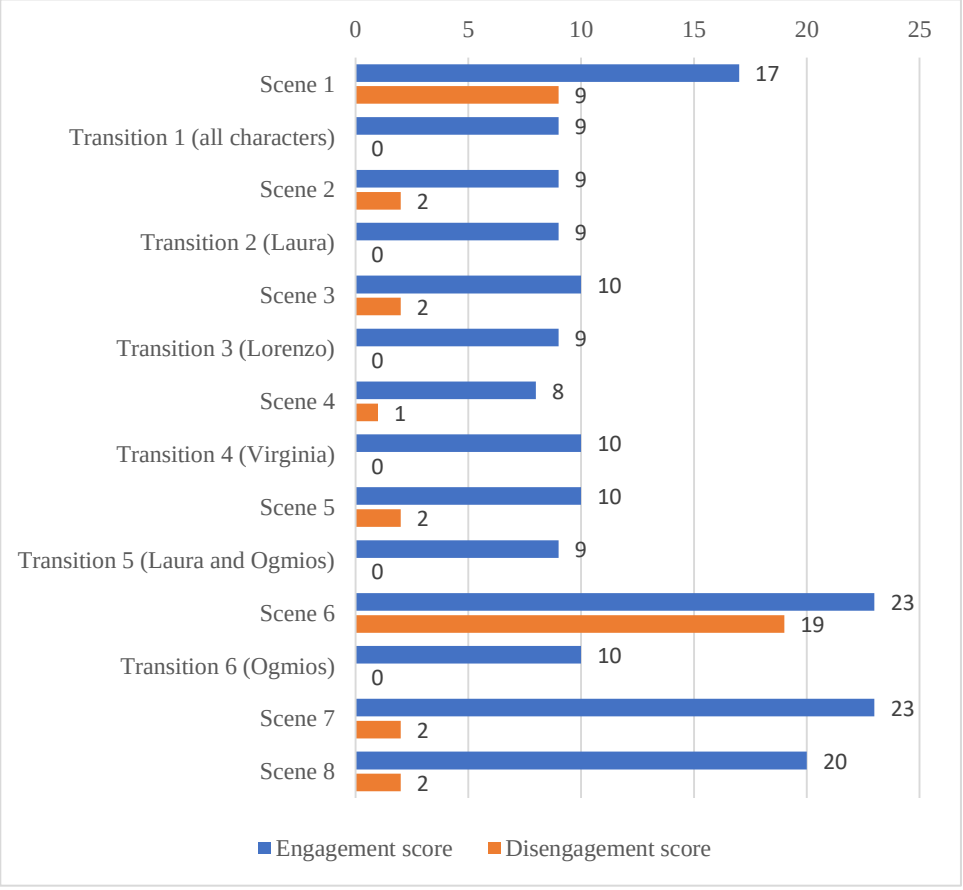
The four optional questions of the survey aimed to identify the specific moments of engagement and disengagement and the reasons for feeling engaged or disengaged. The exact wording of each question and the number of responses received for each are detailed in **Table 11**.

Table 11. Open-ended questions

Question	**No. of respondents**
Please briefly describe the moment when you felt the most engaged in the performance.	80
Please explain briefly what made you feel engaged in that particular moment in the performance.	72
Please describe the moment when you felt the least engaged in the performance.	69
Please explain briefly what made you feel disengaged from the performance in that particular moment.	60

The replies were coded with scene numbers based on the specific moments mentioned by respondents (see *Annex* – **Table 12**. *Play Structure*). The number of mentions per scene was then converted into an engagement score and a disengagement score (see **Graph 7)**. Replies from Romania and Italy were considered together without making any cross-country comparisons.

Graph 7. Engagement vs disengagement by scene



In some cases, the responses were deemed 'unspecific'. For example, there were two scenes in which Virginia mentioned her hardship as a migrant: the mother-daughter dialogue in Scene 6 during the blackout and her transition monologue after Scene 4. Similarly, *'the mother-daughter*

relationship', 'the dialogues between mother and daughter' or *'the long-distance moments of intimacy between mother and daughter'* could refer to Scene 6, when the mother-daughter exchange reached an emotional peak, but also to any other emotional dialogue between the two characters (e.g., in Scene 3, Scene 8 or transition memories).

In other situations, however, the replies could clearly be identified as referring to several scenes, either because the person mentioned moments pertaining to each or offered an encompassing description. For instance, one person in Italy mentioned feeling disengaged during *'the bits set in Romania'*, which were easily identified as Scene 2 (a big part of it), Scene 5 and Scene 7. In these instances, the reply was added to the engagement or disengagement score of each of the scenes referenced. Similarly, totalising replies such as '[I was engaged] *throughout the whole performance'* were counted in the engagement score of each scene. Another two totalising replies referring to the transitions were also counted in the engagement score of all transition scenes.

Five answers related to disengagement seem to have resulted from misunderstanding the question, considering the explanation given:

- *'During the argument between daughter (Nova) and father (Lollo) in the presence of the grandmother (Laura)'* (Scene 2), explained by *'The father's tones (Lollo)'* – seems to refer to not liking the character's reaction rather than feeling disengaged.
- *'When she doesn't want to let her daughter go on a trip to…'* (Scene 3), explained by *'Her stubbornness about not letting her go as a form of punishment??*' – seems to refer to not agreeing with the character rather than feeling disengaged.
- *'The ending'* (Scene 8), explained by *'The fact that we need to take care of people we love.'* – seems to refer to engagement.
- *'The conflicting relationship between the daughter and the granddaughter, helped by the grandmother's mediation'* (Scene 3), explained by *'As a grandfather myself, it felt like a bit of real life that I've already experienced.'* – seems to refer to engagement
- *'When they play "The Lord of the Rings"'* (Scene 6), explained by *'that it was such an intimate and private moment'* – seems to refer to engagement.

Nevertheless, without a way of clarifying the respondents' intent, the answers were added to the disengagement score of each scene.

When asked about moments of engagement, 7 respondents stated that all scenes were engaging, 7 were unspecific and 58 gave no reply to this question. When asked about moments of disengagement, 18 mentioned that no scene was disengaging, 5 were unspecific and 72 gave no reply to this question.

Reasons for engagement

When analysing the reasons for feeling engaged, the following main categories emerge:

- emotional charge: empathy/identification, human relationships (36 answers)
- human-robot and human-technology relationships (13 answers)
- robot capabilities/appearance (6 answers)
- reflective dimension: what it means to be human, the robot's humanness, what the future will look like (3 answers)
- reflections on the performance as an artistic product: technology integration (telematic format, visuals), quality of acting, story, subject, message (14 answers)

Many replies could fit into more than one category, but we have focused on the prevalent elements. The most invoked reasons were by far those related to the emotional charge of the scenes and particularly to identifying or empathising with the characters.

While engagement levels were steady throughout the performance for part of the audience (who gave totalising replies), there were four peaks associated with Scene 1, Scene 6, Scene 7 and Scene 8, with Scenes 6 and 7 attaining the highest score. The motivations for considering each of these scenes as the most engaging are listed below.

Scene 1:

- Robot capabilities/appearance:

'The robot appearing.'

'When I noticed that the robot could move.'
'When Ogmios showed up.'
'The way Ogmios was programmed.'
'The moment when Ogmios Z42 started to "play its role".'
'The moment the robot started to move and interact with the actress, initially I thought it was a fixed model, I didn't expect it to be so active.'

- Identification/empathy/emotional content:

'The depth of the feelings the story evoked, the feeling that I could be the main character.'
'For a moment I identified myself with the character Laura, I thought in the future, would I...? There wasn't any [moment of disengagement]. For me, it was a very interesting performance, I identified with the character, being a person with cardiac problems. With my son a student in automation, in a few more years I may even unexpectedly find myself with such a robot at home. No, I didn't lose interest, on the contrary, I stayed connected to the idea even after the performance.'
'In the beginning, when Laura had to accept the robot in her life. Laura's loneliness.'

- Human-technology/human-robot relationship:

'The theme of taking care of a far-away elder – particularly the whole first part, the discovery of "synchronicity" in the distance; the themes of solitude and care come strongly to light in these moments. The grandmother's reactions to technology, while her family back in Italy watch helplessly.'
'At the beginning, when she refuses the robot's help. Her reaction to how much it would have helped her in her daily life.'

- Telematic format/technology integration:

'One of the aspects that made me want to see this performance was the fact that it was telematic. It was the first time I participated in such a performance and I did not regret it.'
'The balance between technology and art.'

Scene 6:

- Identification/empathy/emotional content:

'Laura's moment of loneliness, when the power goes out. The mother's pain.'
'The moment when it was the mother's day and she wanted her family to be home! The emotion.'
'The moment when the family members were interacting in the little game. The authentic feelings that transcended the barrier of the virtual.'
'The birthday party. I've lived what they were going through emotionally and I could feel what the grandmother was feeling.'
'The mother's point of view when she lets her daughter go study in Italy, leaving her behind. I felt her pain. Then her daughter's point of view: always busy, always tired... When the daughter said she had to constantly work harder than the people around her because of the "Romanian" label across her forehead.'
'The emotions and distance between a parent and their child.'
'The dialogue between mother and daughter. The daughter's pain and the mother's loneliness.'
'The mother-daughter phone call on feeling foreign and labelled. Having experienced it first-hand in the field of residential youth care (school-side).'

- The quality of acting:

'The natural quality of actions (the direction) – that's when I felt the actress in Italy was on stage in Buzău.'
'The moment when the power went out and the confessions between Laura and Virginia took place. My interest was held by the actresses' pure emotion and the way they managed to express it so freely.'

- Visuals:

'The graphics of the dice, of the game cards.'

- Human-technology relationship:

'The family game part. The astonishing use of technology in supporting familial cohesion.'

Scene 7:

- Human-robot relationship:

'I was the most drawn in when Laura got sick. The care that the robot took of Laura.'
'I liked most the lines exchanged between Ogmios and Laura when the grandmother was not feeling well: "- Ogmios, will you stay with me?; - I'm always beside you, Laura!". The relationship between human and robot caught my attention.'
'The moment when the mother was sick and the robot was trying to calm her down. When the mother held the robot by the hand.'
'When Laura was in crisis. The robot's reaction.'
'When the robot stayed with Laura when in need.'
'The moment when Mrs Laura took the robot by the hand.'
'When the lady got sick, and her daughter was not answering the phone. The help coming from the robot.'
'The moment when Ogmios saved the old woman. The way the robot immediately jumped to the aid of the one who rejected it at first.'
'The grandmother's loneliness during her breakdown and the robot's attempts at comforting her.'

- Identification/empathy/emotional content:

'The moment of the crisis and the interaction with the robot. The feeling of loneliness, the desire not to be alone.'
'That moment when Laura took the robot by the hand. The absolute fear that made her grow attached to this robot, in the hope that she would no longer feel lonely.'
'When the mother was feeling safe while touching the robot's hand. Probably given my age (81) I fully projected myself into the story.'
'When Laura takes Ogmios' hand. The feeling of deep loneliness.'
'Then when the mother gets ill... it reminded me of when I was told that my mother was dead... terrifying.'
'When the mother gets sick. Loneliness and fear.'

Scene 8:

- Identification/empathy/emotional content:

'The connection with my personal experience.'
'The moment when the daughter realised in the end that she doesn't need a robot and cameras, but her mother.'
'The ending made me feel absorbed by the moment.'
'The ending was the one that touched me the most. Even if I am not abroad, I live far away from my mother who is also alone.'
'The ending scene, a virtual hug between mother and daughter. Emotions (tears) because it mirrors my life, which I live far from my family.'
'The whole play was very unified, but the beginning and the ending were the most emotional.'
'The moment when Virginia was shouting after her mother not to go away, not to disappear from her life. The mother-daughter relationship.'
'I was touched by the open ending. I wanted some more... Is there no way of solving this situation... It's good that you made me reflect... The story and the mother-daughter relationship.'
'The ending scene. Mother-daughter relationship.'
'Virtual hugs.'
'When the mother in Romania got sick. The mother-daughter relationship.'

- The story overall.

Reasons for disengagement

The analysis of the reasons for feeling disengaged revealed the following prevalent themes:

- Dramaturgy (narrative matrix): scene/performance length, redundancy/repetitiveness, level of detail (game; robot definitions), hermetic/unclear action, incongruent scenes/moments, uninteresting action, soap-opera dialogue, action predictability, some themes not strong enough *('I felt less strongly the main character's discomfort in not feeling accepted into Italian society.'* – audience member in Italy)

- Performance style: slow-paced, long silences ('Chekhovian' style, nothing unsettling, shocking or appalling)
- Telematic format: actors not being in the same space; scenes set only in Romania
- Technical issues (RO): no subtitles[54], reduced stage visibility[55]
- Initial confusion

One person who mentioned Scene 6 as the peak of disengagement made an overall statement about the performance:

> *The length of the show: it was positively too long, many parts could have been dropped (e.g., the father's memories, the whole game between the two families, some bits about the travel projections could have been completely removed) without any loss – actually strengthening the emotional side of the tale, that was watered down, if not quelled, by the excessive length. It was hard for the elderly in the audience to follow the whole show through. And I stopped caring, even though the technique was excellent and the theme was really strong. Writing drama should take the attention span of the audience into account.*

While the reported disengagement levels were generally very low throughout the performance, as evidenced in **Graph 7**, there was a clear disengagement peak in Scene 6 and a less prominent one in Scene 1. The reasons for feeling disengaged in Scene 6 and Scene 1 are listed below.

[54] The performance on 10.11.2023 was marred by technical issues which affected only the experience of the audience in Romania. Subtitles could not be shown, the action in Italy was transmitted only from one camera, Ogmios's face could not be shown on the main screen in Scene 2, while the switches between Ogmios's face, the game cards and the video in Scene 6 were done in a very rough manner, by switching windows from the laptop keyboard. The video and the cards could not be shown on a split screen.

[55] When playing to a full house, a few audience members sat on the side seats that were not normally available for booking. Even so, their visibility was only slightly reduced towards the stage margins.

Scene 6:

- The game was too long/detailed/slow-paced:

'Losing oneself in details.'
'The degree of detail of the game.'
'Maybe the rather exaggerated and long game.'
'The moment lasted too long.'
'The scene was too long and repetitive.'
'The moment of the game was a bit too long timewise.'
'Too slow-paced.'

- Uninteresting/boring/redundant action (game):

'It didn't hold my attention.'
'I didn't really like it.'
'The game between the family in Italy and the one in Romania wasn't fun. Watching other people playing is not fun, it feels anachronistic too. The selection of characters (elves etc?) might work on YouTube if a YouTuber is telling the tale. What's the point though? It doesn't add anything to the story.'
'I think that in the last session of the "game", when it was Virginia's turn, I was already a bit bored that the same action was repeating.'

- The game was hard to understand:

'Being ignorant of "The Lord of the Rings", the moment seemed slightly incomprehensible.'
'I haven't read the books, so I didn't quite know what was going on.'
'It isn't a field I'm passionate about and with which I have a certain connection.'

- Telematic format:

'When the family was playing. The fact that the four [characters] were not physically in the same place made me lose interest.'

Scene 1:

- Initial confusion/unclear action:

'I didn't know yet what was going to happen.'
'In the beginning, I didn't understand yet what was happening. It was too quiet in the auditorium and... the actors' fidgeting (preparing the surprise party) made me wonder whether I had wasted my time when choosing to come to the theatre (also having brought around 30 persons with me).'
'The first part, I struggled to empathise with the scene at first. The family scene set in Italy wasn't too clear, I initially thought they were friends: I only realised after a while that they were a family.'
'At first, only because I was still discombobulated though.'

- Uninteresting action:

'It's a beginning like any other when someone comes back home from somewhere and gets a surprise.'
'It didn't seem interesting.'

- Slow-paced and predictable action:

'During the too-long wait for the grandmother to open the present. Too slow-paced; predictability of the whole situation.'

VI. Discussion

Respondent profiling

Respondents in Romania were overall younger than in Italy, with a median age of 18 compared to 38 in Italy. Few respondents mentioned being migrants (either emigrants or immigrants), namely 7 in Italy and 3 in Romania. Significantly more women than men completed the questionnaire in both countries, with women being largely majoritarian in Romania. However, in the absence of overall data on the audience's age, gender and migration status, we cannot tell whether the composition of the sample is representative of the

composition of the audience. Moreover, the biases associated with voluntary response and the online administration of the questionnaire means that some audience categories may have been excluded from this study.

Engagement and disengagement

The results show that the performance was perceived as intense by audiences in both countries, with a mean score of approximately 4 on a scale from 1 to 5 at all engagement levels. Moreover, all modes of engagement showed a strong positive intercorrelation, meaning that a person who gave a high score to one mode also tended to give a high score to the others. The strongest correlations were found (in descending order) between **tech wonder and visual wonder**, **emotion and reflection** and **reflection and tech wonder**. The high correlation between technology and visual wonder is the least surprising (see Hanganu, 2022: 266), considering that the technological elements were the ones that made possible the screen visuals. Notwithstanding this similarity, the syntagm 'visual wonder' (*'The visuals shown on the two screens had an impact on me (e.g., the robot's animated face, the holographic illusion, the game scene illustration, the video effects).'*) referred to a predominantly sensorial impact, while tech wonder (*'I was fascinated by the technology involved.'*) was primarily related to the sense of magic that technology can evoke.

Overall, the audience in Romania reported slightly higher levels of engagement than in Italy, except for the reflective dimension, which was stronger in Italy, though not by a significant margin. A potential cause might be that, compared to scenes where the action was concentrated in Italy, more portions of the action were concentrated in Romania. In these cases, the action was either taking place exclusively in Romania or was focused on Romania even if the scene was interlinked, like in Scene 1. In addition, it can be argued that the situation depicted in Romania was inherently more dramatic. A lonely and ill elderly woman is likely to stimulate the audience's sensibility more than a well-off family of young people who, despite all conflicts, support each other. This **dramaturgical imbalance**, with the robot's presence as an attention 'attractor' included, could be responsible for the slight differences in perception between the two sets of audiences. This seems to point in the

direction identified by *The Distributed Tempest* researchers (Geelhoed et al., 2017), namely that the remote aspects of the performance may have been perceived as slightly less intense than the co-present aspects. One audience member in Italy explicitly referenced *'the bits set in Romania'* as disengaging, explaining that '[I felt disengaged] *Generally whenever technology took over becoming more of a main character than a tool. And when the grandmother lost her relationship with her family in Italy'.*

However, the negligible differences in the audience's experience suggest that the imbalance was not insurmountable and the performance was still perceived as intense to a large extent in Italy. In fact, the telematic format was a reason for engagement for other audience members, who even felt touched by the use of technology to tell a human story:

- [I was engaged by] *'The actors' presence on two stages simultaneously; modern technology integrated into the artistic act.'*
- *'When I saw the Romanian audience and I realised what was being shown was real, in real time, that far away, I was really surprised and moved. It made me feel how much technology links us all together, through any distance.'*
- *'The performance in itself was captivating. The novelty of watching 2 stages in 2 different theatres which were perfectly intertwined, forming a unified whole, fascinated me.'*

The only significant difference in perception between the two countries is that audiences in Romania experienced more **visual wonder** compared to audiences in Italy. This might be due to having the physical robot on stage in Romania, but not in Italy, so perhaps the robot was more an element of 'visual' than 'technological' wonder. After all, Ogmios Z42 was not just a technological object but a 'social actor' (Lombard and Ditton, 1997: 6. Presence as medium as social actor).

However, even in the absence of the physical robot, **its animated face projected on the main screen *affected* the audience in Italy**, as the following statement of engagement demonstrates: [I was engaged] *'When the full-screen robot face started staring at us,'* justified by *'that it was staring at me'.* This suggests that, indeed, as hoped for, projecting the robot's face in Italy did allow for some form of direct/enhanced contact with Ogmios, rendering the robot *present* on the other side. The description of the robot

staring at the audience seems to imply an involuntary bodily response, which some scholars associate with *affect* (Hurley, 2019: 17).

Other differences in engagement were found when looking at the whole sample per age group, with younger audiences (predominantly those under 18) having a slightly less intense experience compared to more mature audiences. This was found to be statistically significant only for **emotion** and **reflection.** One explanation could be that more mature audiences have personal experiences more relevant to the themes of the story such as thinking of or experiencing problems related to old age, illness and caregiving. An analysis of the age of the 36 respondents who invoked emotional impact via identification and empathy in the open-reply section seems to support this view – their median and also average age is approximately 41 years old, while the most frequent age (the statistical *mode*) is 45.

While women tended to give higher ratings at all engagement levels, no significant differences were found in the cross-gender comparison.

The open-reply section revealed that engagement was rather steady throughout the performance for some respondents ('all scenes were engaging', 'no scene was disengaging'). Engagement peaked in the beginning (Scene 1) and in the last three scenes (Scenes 6-8), with clear climaxes in Scenes 6 and 7. Paradoxically, it was Scene 1 and Scene 6 that also scored the highest for disengagement, with Scene 6 being the anti-climax. The predominant reasons for feeling engaged were related to **the audience's emotional connection to the situations portrayed**, while the main reasons for disengagement appear to have been the length and pace of some scenes.

Feeling engaged in Scene 1 was often explained by the robot starting 'to play its role', meaning that the novelty of having a robot on stage was impactful. This type of engagement will likely decrease as ever more advanced robots will enter people's everyday lives, which means that artists will have to be always one step ahead of what is currently available. Working with a mechanical puppet instead of a real AI or a robot with pre-programmed lines (especially not one available commercially) was due to the current limitations of such technologies, deemed unable to convey the nuances and subtleties of human-to-human interaction. A robot delivering lines monotonously and without intentionality was considered boring by the artists. In addition, it would have diminished the character's potential to change

throughout the performance. Despite its relatively simple mechanics, Ogmios Z42 is smarter than the robots available at present. As the play progresses, it learns from the family (especially from Laura) and becomes increasingly human in behaviour. Its trajectory is from a 'dumb machine' to a seemingly sentient creature and a caring friend. So, even at a fictional level, the robot exists in symbiosis with humans, constantly adapting to them through learning. While this is an attribute of real robots as well, it was fictionally enhanced in the performance.

Disengagement from Scene 1 was mainly attributed to the accommodation period until the audience settled into the atmosphere of the performance and understood the theatrical conventions. The rather slow beginning, with Laura doing small and mundane actions until the family in Italy revealed themselves, was boring for some audience members. While an accommodation period seems natural for most theatre performances, the long waiting period before the performance start (necessary to synchronise two audience groups) may have contributed to the action being perceived as too slow at first, at least by Romanian audiences.

Engagement with Scene 6 was justified overwhelmingly through the emotional content of the scene, mainly with reference to the audio-only mother-daughter dialogue while Laura was alone in the dark, during the power outage in the second part of the scene. However, about 7 audience members out of the total 16 who chose this scene referred to the 'game' as engaging (the first part of the scene). Some respondents justified the appeal of the game through an emotional lens, mentioning the use of technology to be together as a family. On the other hand, the game also proved to be the peak disengagement moment in the whole performance for most respondents (19 persons). This is mainly because the game scene was considered too long, repetitive, slow-paced or unclear because of the lack of knowledge about or interest in *The Lord of the Rings* universe. As the age distribution of the disengaged respondents is quite diverse (average age: 37; median age: 38; most frequent age: 17), this cannot be attributed to the age factor, although one would expect younger audiences to resonate more with this format. Perhaps a more condensed or varied game or a more imaginative staging or even all of these combined would have strengthened this otherwise key part of the performance.

Scene 7, when Laura is alone at home and has a fibrillation crisis, also proved to be an engagement peak, with most respondents highlighting the human-robot relationship and Laura's taking the robot by the hand to feel safe. Indeed, dramaturgically, there seem to have been two climaxes that come one after the other in the play, one related to the human-to-human relationship (Scene 6) and the other to the human-robot relationship (Scene 7). The audience response, with some people choosing Scene 6 as the climax, others choosing Scene 7 and one person even highlighting both scenes, appears to prove the two 'DNA-strands', the human and the machinic, that run through the play/performance in the spirit of cyborg theatre (Parker-Starbuck, 2011). When writing the play, Hanganu and Trifan also considered these two scenes to be climactic, with Trifan[56] assigning the climax to Scene 6 and Hanganu to Scene 7. The audience response is therefore consistent with the dramaturgy of the performance.

The denouement, Scene 8, was also considered a peak engagement moment by the respondents, although it was mentioned less frequently than the climax scenes. Almost all arguments referred to the emotional side of the mother-daughter relationship, with the virtual hug explicitly mentioned by some. Nevertheless, while the open ending appealed to some audience members, it was confusing for others:

> *Even if it isn't a moment in itself, the way the play ended* [was disengaging]. *I was expecting a slightly clearer denouement. I was hoping that something more concise* [sic!] *would happen (for Laura to move to Italy, for example). I didn't realise too quickly that the play was over because it ended rather suddenly.* (audience member in RO)

This isolated statement is a matter of personal preference, yet it is partly consistent with what the team in Romania noticed at the end of most performances. After the virtual hug, the scene goes dark in both countries, actress Aura Călărașu exits and then the stage lights up again, but the lights are not brought up yet in the auditorium. During the dark, the audience does not start clapping immediately, but only does so when the technical team claps from the balcony or when they see Ogmios advancing and Smaranda Găbudeanu appearing on stage, controller in hand. This **delay**

[56] See Bianca Trifan's essay in this book, *Devised Theatre Meets Telematic Theatre.*

in clapping could also be attributed to the need to process an emotional ending that caused many audience members to cry, according to the performance team's observations. However, **the intensity of the clapping** was often perceived as quite low by the actresses in Romania and also by the other members of the team located at the balcony.

It is rather unlikely that the scarce applause was caused by not liking the performance. The mainly positive questionnaire replies, the appreciative informal feedback, the warm and engaging post-show discussions, as well as the energy of the audience as perceived by the observing team members – what Caroline Heim (2020) aptly calls 'electric air' – seem to suggest the performance was generally well received. We suspect one reason for the scarce applause may have been the fragmented dramaturgy, with scenes followed by transitions, so the audience may have been wondering whether a transition will follow. After representations in November, Marina Hanganu decided to decrease the lights more gradually to signal the ending more clearly, but this did not seem to make much difference. Another possible explanation for the audience's reaction may have been their **expectation of a closed ending**, in tune with more traditional performances they had attended (the degree of exposure to experimental performance in Buzău is arguably very low).

There was a polarised discussion among the team members about whether to preserve the ambiguity or change the ending. Some of the artists involved believed there was no ending and that a solution had to be found. It was also suggested that Ogmios's monologue be reintroduced. Initially intended to close the play, the monologue was dropped by both Hanganu and Brison right before the premiere. In this monologue, Ogmios describes his[57] relationship with Laura and the family and asserts his desire to be loved and accepted. There are also darker undertones: Ogmios would like to become indispensable to Laura and thus inseparable from her, being able to even anticipate her desires and needs. The text hints at current algorithms that aim

[57] Ogmios Z42 does not have a gender in the performance, which was a deliberate choice. Nevertheless, calling the robot 'it' would make the character seem like a mere object instead of a 'social actor' (Lombard and Ditton, 1997: 6. Presence as medium as social actor). However, since 'robot' is a male noun in Romanian, and given the risks associated with robots reinforcing gender stereotypes (Tzafestas, 2016: 189), we prefer to use the pronoun 'he' when referring to Ogmios.

to predict and influence consumer behaviour based on collected data. Moreover, humans' increasing reliance on technology may lead to unwanted dependence, one of the negative sides of human-machine symbiosis.

Hanganu and Brison initially wanted to send audience members the recorded video monologue post-show, by email. Nevertheless, not all audience members had registered using their email. Upon second thoughts, this idea was also dropped precisely **to increase the reflective dimension of the performance**. More in tune with classical Sci-Fi depictions, Ogmios was defined as a robot on the brink of consciousness who would like to be loved and included in the family. However, this is never explicitly mentioned in the play. While this inner motivation was useful for the actress and helped gradually humanise Ogmios throughout the performance, ambiguity was preserved for the audience. Will Ogmios ever be switched on again? Does he suffer from being switched off? What is going to happen next? Hanganu decided not to change the open ending, as it was meant to stir the audience to envision their preferred future concerning social robots. Since it tries to stimulate critical thinking about the use of technology, this dramaturgical approach could be considered post-digital (see Cramer, 2015).

Telepresence

The configuration of telepresence specific to *2032 SMART-FAMILY* is associated with an intense sense of connection. All dimensions of telepresence related to connection were evaluated highly by audiences in both countries, with mean intensity/relevance scores of around 4 on a scale from 1 to 5. All dimensions of telepresence are strongly intercorrelated, meaning that a person who felt present in the remote space also perceived the remote actors as being transported to the proximal space, felt there was spatial continuity between the two stages and could form a mental representation of the remote space. Personal transportation, which is the equivalent of the sensation of 'being there', shows the strongest correlation with the mental representation of the remote space and also with the sensation that the people on the other side (in this case, the actors) are present in one's own space. Further studying the potential causality between these variables could inform the creation of immersive telematic experiences.

While there are no major differences between Romania and Italy when analysing the connection-related dimensions of telepresence, the score gap becomes significant when looking at the level of disconnection from the remote action. The audience in Romania felt more disconnected from the action in the remote space compared to the audience in Italy. This could be interpreted as an acknowledgement that part of the action was mostly concentrated in Romania and did not require interaction with Italy, which is why audiences in Romania may have felt the connection less strongly. Another factor might be the technical issues experienced on the 10th of November, when the action in Italy could only be streamed from one camera instead of two. This meant that the audience in Romania had a more truncated perspective on the remote action compared to the audience in Italy.

When considering the whole sample, it appears that young people under the age of 18 perceived spatial continuity as slightly less prominent than all the other (more mature) groups. This seems consistent with their lower levels of engagement, which may also be attributed to the family drama component of the performance being less relevant for them (the family drama was mostly played out *in-between* spaces). Similarly, women reported higher levels of telepresence compared to men, like feeling more present in the other space, sensing the remote actors' presence in their own space and being able to form a mental representation of the remote space. Considering that they also scored higher on engagement levels and lower on disconnection compared to men, this also seems to indicate a correlation between the intensity of engagement and the intensity of the experience of telepresence.

VII. Conclusion

This study introduced two sets of metrics that can be useful in describing the experience of telematic theatre audiences, namely the modes of engagement and the dimensions of telepresence. Since the findings can inform the dramaturgy of future telematic performances that employ a hybrid format, we derive the following key points.

Dramaturgical imbalance, understood as an uneven distribution of the theatrical action or attention 'attractors' (e.g., the robot) between the connected sites, can generate differences in perception between audiences

located at each end. Moreover, it can lead to a lower perceived intensity in the space with less on-site action or 'attractors'. Nevertheless, the differences in perception between the two countries may not necessarily be caused by dramaturgical imbalance, especially since these were found to be minor. The caveats formulated by Au et al. are useful, considering that language, culture and personal expertise can influence measurement (Au et al., 2022: Lack of external validity: language or culture; Lack of external validity: expertise).

Related to intercultural influences, the concept of 'dramaturgies of interweaving' could open an interesting avenue for exploring the perception of audiences brought together in a transnational telematic performance: 'Dramaturgies of interweaving can be broadly defined as methods of involving/relating audiences to events that merge—in hitherto unprecedented ways—devices and strategies developed in different intra- and intercultural contexts.' (Fischer-Lichte et al., 2022: 3). However, such an investigation into the culture-specific 'audiencing' practices of Romania and Italy was beyond the means and scope of this study.

2032 SMART-FAMILY scored almost equally high on all modes of engagement, which were all positively correlated. Emotion, reflection, tech wonder and visual wonder were thus part of a cohesive and complex audience experience. All the same, the levels of engagement do not necessarily add up to an overall engagement score as we can imagine other performances may address only specific modes. Is a reflection-prone performance automatically less engaging than a performance appealing mostly to the emotional dimension? Or maybe vice versa, as Brecht would have us think? Or does tech wonder alone offer an inferior experience compared to a performance that stimulates reflection or emotion? Since the correlations we found are context-specific and do not imply causation, more research is needed to establish how the constellation of the modes of engagement might function in different contexts, for a wide variety of performances.

Telepresence was defined as a construct comprising spatial continuity, the sense of one's own remote presence, the sense of another's remote presence, the mental representation of the remote space and the sense of disconnection from the remote action. A strong positive correlation was found between all variables except for the sense of disconnection. It would be interesting to test whether increasing teleperception would result in an

enhanced sense of presence. Such a form of telepresence would not necessarily be inferior to another one relying less on the sense of 'being there'.

As a genre arguably stretching the audience's perception beyond traditional forms of spectating/audiencing/participating, telematic theatre (and not only) would benefit from more elaborate empirical studies of audience engagement. The current study may be deemed a still crude attempt at gaining more insight into the (still) mysterious workings of what it means to be a telematic theatre audience. Any conclusions should be taken with caution and rather as a stimulus for further research. While more robust audience research methods are needed, the modes of engagement and the telepresence dimensions discussed can be useful tools for telematic theatre practitioners and theorists. The findings of this study concur with what one would intuitively expect of a telematic theatre performance designed on the coordinates of empathy/identification with the characters, reflection, technological wonder and visual wonder. Even the peaks of engagement mentioned by audiences point towards the intended climax(es) of the play. Consequently, the audience experience as assessed in this study corresponds to the dramaturgy of the performance.

In the end, one may wonder what the audience of *2032 SMART-FAMILY* gained from the experience. The performance was meant to offer a probable scenario for future human-robot interaction while exploring family separation through migration. This objective seems to have been attained, at least for part of the audience. As one respondent mentions in her feedback: *'I consider this theatre play to have been like a life lesson. A magic mirror that shows us the future.'* For some, the mirror revealed a Sci-Fi reverie with no clear timeframe, as they thought about *'The possibility that in the future, a robot could answer all questions'*. For others still, the mirror showed a very personal reflection: *'I thought in the future, would I...?'*

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ANNEX

Table 12. Play Structure

Scene	**Title** (not included in the performance)	**Core action**
Start of play	Teenage Memory	Fog video with no music, just a recorded voice-over with an echo plus reverb effect. A short fragment of a dialogue between teenage Virginia and Laura. Virginia tells Laura she wants to study medicine abroad and emigrate, as she can no longer stand Romania. Laura tries to make her realise that she needs a plan.
Scene 1	The Intruder (remote interaction scene)	Laura gets home from the hospital. Virginia, Amalia and Lorenzo are waiting for her in Italy, hoping to surprise her pleasantly. Robot Ogmios Z42 is unveiled and switched on. Laura does not react well to the surveillance system, nor to Ogmios Z42.
Transition 1	Robots	Video portraits of all the actors with recorded voice-over and music soundtrack. The audience hears the character's thoughts related to what has just happened in Scene 1, namely Laura's reaction to Ogmios.
Scene 2	Big Brother (remote interaction, followed by Romania-only action)	The following morning after Scene 1. Laura gets into conflict with Ogmios as the robot tries to impose a strict regime on her (no smoking, less coffee, healthy eating). More than half of the stage action is located in Romania only.
Transition 2	Laura's soliloquy and memory	Soliloquy: video portrait of Laura with voice-over and music soundtrack. She tries to convince herself that it's better that Virginia married an Italian and stayed in Italy. However, she admits to being sad. Memory: fog video with no music, just a recorded voice-over with an echo plus reverb effect. Phone call between Virginia and Laura. Virginia tells her mother that she and Lorenzo are getting married.
Scene 3	Like Girls (mostly remote interaction scene)	The 1st of March, about 2 weeks later. Amalia tries to persuade her mother (Virginia) to let her go to an international video games competition in Shanghai and enlists her grandmother's support. Laura manages to persuade her daughter to consider Amalia's proposal. Ogmios Z42 reveals his

		storytelling skills, which makes him more agreeable to Laura.
Transition 3	Lorenzo's soliloquy and memory	Soliloquy: video portrait of Lorenzo with voice-over and music soundtrack. He tries to repress his jealousy of Laura and Virginia's close relationship. Memory: fog video with no music, just a recorded voice-over with an echo plus reverb effect. Virginia tells Lorenzo she is pregnant.
Scene 4	Adult Life (Italy-only action)	Lorenzo tries to persuade Virginia to uninstall the video surveillance system. Their argument reignites a background conflict related to Virginia spending a lot on the robot. Eventually, they make peace, as Lorenzo decides not to push forward with his plea.
Transition 4	Virginia's soliloquy and memory	Soliloquy: video portrait of Virginia with voice-over and music soundtrack. Virginia's thoughts oscillate between her regret at not having known her father and the (more or less subtle) discrimination she suffers as a migrant in Italy. Memory: fog video with no music, just a recorded voice-over with an echo plus reverb effect. Laura tells teenage Virginia that her father was a violent drunkard.
Scene 5	My Friend, the Robot (Romania-only action)	Laura and Ogmios are alone. As Ogmios tries to understand Laura's feelings and inner world, the lonely Laura opens up towards the robot. The two grow close.
Transition 5	Brainstorming	In Romania: audio-only transition. In Italy: game cards video with voice-over recording. Dialogue between Laura and Ogmios as they invent a dungeons and dragons game based on *The Lord of the Rings*. Ogmios tries to understand the meaning of human death.
Scene 6	Roleplay (remote interaction scene, except for an approximately one-minute blackout moment in which the local action cannot be seen nor heard remotely)	It is Laura's birthday. The family play together the game inspired by *The Lord of the Rings*. Ogmios is the game master. A power blackout in Romania leaves Laura in the dark, for the first time in months cut off from her family in Italy. This generates a moment of crisis. Half of the scene takes place in the dark (in Romania), with Virginia and Laura arguing on the phone (voice-only interaction). Mother and daughter reproach each other for being unhappy, lonely and misunderstood.

Transition 6	Loneliness (Ogmios)	Ogmios's soliloquy. Video portrait of Ogmios's face with different expressions, with a voice-over recording and music soundtrack. Ogmios tries to understand Laura's behaviour, which the audience can easily interpret as depression. Ogmios gives a hint of consciousness, as the audience learns he also experiences something akin to depression. In Italy, the audience can see Amalia leave for Shanghai, luggage in hand. However, the audience in Romania could not see her, as the screen was black.
Scene 7	Emergency (Romania-only action)	Laura's mood is brightened by an invitation from her former students. However, the emotion, combined with the past few days of depression and health neglect, lead her to a fibrillation episode. Alone at home, with Virginia not answering the phone, Laura trusts the robot's medical advice. Panic-stricken, she grasps the robot's hand, asking him not to leave her alone.
Transition 7	-	No voice-over, only a music soundtrack to mark the passing of time.
Scene 8	Epilogue	Laura and Virginia are sleeping on the living room sofa, each one in her space. As Laura moves, both Ogmios and Virginia become alert. Annoyed and jealous of the robot, Virginia switches Ogmios off. Laura tries to resurrect him but to no avail. Laura is upset with Virginia for not having been there for her. The scene (and play) ends with Virginia asking her mother not to ever leave her alone.

Figure 1. Holoscreen transition in IT. Photo: Alice Longoni.

Figure 2. Realistic use of the holoscreen in IT. Photo: Alice Longoni

Figure 3. Smaranda Găbudeanu in front of the mocap iPhone. Photo: Vlad Dumitrescu.

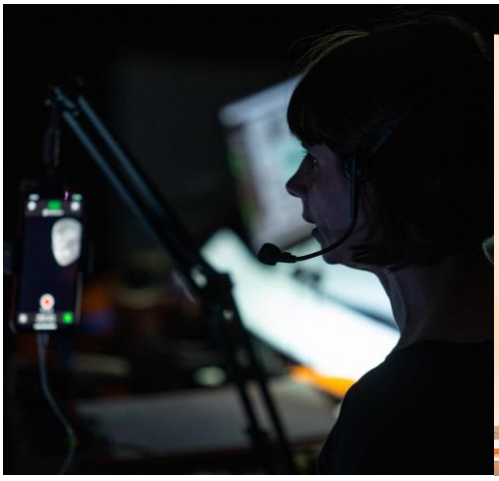

Figure 4. Ogmios's face projected in IT. Photo: Alice Longoni.

Devised Theatre Meets Telematic Theatre

Bianca Trifan

Contents

Devised Theatre Meets Telematic Theatre

Bianca Trifan

As a playwright, I have worked in numerous artistic contexts. I had my first collaborative writing experience during my Master's in Playwrighting studies, in the context of research for the dissertation. I continued my research in devised theatre and developed collaborative work methods, especially for teenagers and students[58]. The writing method applied in the *Tele-Encounters: Beyond the Human* project was a completely new one, but based on past research and discoveries. In this paper, I will present a brief introduction to devised theatre, the key dramaturgical elements and concepts used in the collaborative working process and a detailed description of the playwriting process for the telematic performance *2032 SMART-FAMILY*.

I. A short introduction to Devising Theatre

Firstly, the definition of the verb *devise* is 'to invent a plan, system, object, etc., usually cleverly or using imagination' (*Cambridge Advanced Learner's Dictionary*, 2008: 386). In theatre, this term is used to define a new type of theatre and the working method approached within it. Artists work equally to create an original stage production. The responsibility for the dramatic text and the final artistic product rests on the shoulders of the collective. Through the collaborative working method, the team designs a show that represents the vision of all participating members. The final form of the performance, in this case, is contoured during the rehearsals. Collective creation differs from one group of artists to another. Everyone sets their own set of rules and builds their own working principle, which makes it quite difficult to analyse from only one point of view. Alan Filewod emphasizes the following:

[58] I wrote the PhD thesis *Devised/Collaborative Theatre. Educational Methods and* Practices, subsequently published in two books (see Trifan, 2020, 2021).

> Collective creation is a form which may be analyzed in three aspects: *process*, that is, the process of theatrical development; *politics*, looking at the political and ideological relationship of the subjective experience of the creators and the objective reality of the subject matter; and *poetics*, which questions the dual nature of the play in performance as a work of art in itself, and as the culmination of a particular way of working and all that implies. (Filewod, 2008: 1)

Monica Prendergast (2009) also observes that devised theatre is on the border between theatre and other performing arts. This type of theatre emphasizes the creative process, which is an exploration of a theme or themes through improvisation, documentation and rehearsal. Therefore, this type of theatre is not derived from the written dramatic text, but from a theme that is to generate dramatic material.

Unlike other theatrical movements, devised theatre does not have a clear history. In the course of my research, I was able to establish several precursors and influences that inspired the work process of devising companies and artists in the present.

Commedia dell'Arte appeared in the 16th century on the territory of Italy. The actors of the troupes travelled all over the country to give theatre performances. Usually, the stage was a temporary one, and the performances were given outdoors, in the centre of cities or squares. Two characteristic features of *Commedia dell'Arte* are improvisation and type characters ('masks').

In his work, *The Theatre and Its Double,* **Antonin Artaud**[59] wrote about *The Theatre of Cruelty*, a theatre that is no longer under the tyranny of the word. Through his writings and practice, Artaud paved the way for the 'author's work', different from the practice of directing (in the sense in which the director is the interpreter of a text) and closer to performance. The concept of the director, as well as that of the author of the show in the case of Artaud and the directors who will work based on his principles, is thus defined more and more according to the perception of the spectator.

[59] Antonin Artaud was *a French writer, poet, dramatist, visual artist, essayist, actor and theatre director*. He is widely recognized as a major figure of the European avant-garde.

German director **Erwin Piscator**[60] felt the need to develop a new method of creating texts and working with playwrights. He developed his writing skills, becoming a pioneer of collaborative dramaturgy, also influenced by Dada artists. An innovation of this was the concept of the *dramaturgical collective*. An idea taken from the Austrian director Max Reinhardt and expanded to create his working method. Thus, the author, the director, the actors and the literary secretaries collaborated to conceive a text. Even when they used written texts, they were analysed and restructured collectively.

The Living Theatre belongs to the category of avant-garde theatre companies, founded in New York in 1947 by Judith Malina and Julian Beck. Malina's approach, from a directorial point of view, was to use improvisation and remove the director's authority. Their technique was inspired by the improvisation of jazz singers, establishing a special relationship with the audience:

> When a jazz musician plays his music, he enters into personal contact with the public; when he goes home after he has played, one who talks to him knows that there is no difference between the way he is now and the way he was on stage. This type of relationship with the audience creates in him great relaxation. The Connection represented a very important advance for us in this respect; from then on, the actors began to play themselves. (Biner, 1972: 48)

Eugenio Barba[61] believes that a play must be a source of inspiration and that the director must not follow it letter by letter. In his book, *On Directing and Dramaturgy: Burning the House* (2010), he states that in his work process, he seeks multiple layers of understanding. Barba analyses three types of dramaturgy which entail not only the story or the text but also what the artists want to make visible to the spectator. *Organic dramaturgy* represents the composition of rhythm and dynamism with a sensory effect on

[60] Erwin Piscator was a German theatre director and producer. Along with Bertolt Brecht, he was the foremost exponent of epic theatre, a form that emphasizes the socio-political content of drama, rather than its emotional manipulation of the audience or the production's formal beauty.

[61] Eugenio Barba is an Italian author and theatre director based in Denmark. He is the founder of the Odin Theatre and the International School of Theatre Anthropology, both located in Holstebro, Denmark.

the viewer. *Narrative dramaturgy* interweaves characters and facts, giving the viewer information about the meaning of what they are looking at. *Evocative dramaturgy* represents the moment when the artists evoke the memory of some lived events in the viewer. During rehearsals, the director must also consider the audience, but remain honest and fair with the actors they are working with. Barba constructs the show for four types of viewers. The spectator who is like a child and believes everything they see; the viewer who imagines that they do not understand, but who reacts emotionally to the information received; the spectator called the *director's alter ego* (well documented, who has read the text before, knows the characters); the spectator who does not see the show as a fictitious world of the ephemeral and equates the performance on stage with reality.

Augusto Boal[62] worked in different parts of the world and developed the technique of the *Theatre of the Oppressed* (Boal, 2008). Boal develops the principle that theatre, like language, can be learned by anyone as long as the learning methods are provided. He designs a series of exercises, games and techniques that help the actor and the viewer to understand the social reality and intervene in its change. In the *Theatre of the Oppressed*, there is no place for a passive spectator. What Boal proposes through the aesthetics of this type of theatre is to change the spectator into an actor capable of transforming the dramatic action.

Jacques Lecoq[63] is known for the importance of physical training and improvisation practised in his school, *L'École Internationale de Théâtre*. Lecoq's work method is challenging the actors' imagination and creativity to free them from the 'tyranny of the text' in creating their scenarios. His version of improvisation includes physical exercise, neutral masks, the study of poetry, music and colour in terms of physical movement. Lecoq encourages students to develop three main skills: *game* (the ability to be playful, the ability to play), *complicity* (the ability to be together, to work together), and *availability* (the ability to be open). Also, Jacques Lecoq introduced the

[62] *Augusto Boal* was a Brazilian theatre practitioner, drama theorist, and political activist. Boal wanted to contribute to diminishing injustice and defending Human Rights.

[63] Jacques Lecoq was a French stage actor and acting movement coach. He was known as the only noteworthy movement instructor and theatre pedagogue with a professional background in sports and sports rehabilitation in the twentieth century.

concept of the *Seven Levels of Tension*[64] in the exercises with the actors to help them transition between the emotions they have to play on stage.

Joan Littlewood[65] campaigned for the collaborative working process. In her autobiography, she states:

> My objective in life has not changed; it is to work with other artists - actors, writers, designers, composers - and in collaboration with them, and by means of argument, experiment and research, to help to keep the English theatre alive and contemporary. I do not believe in the supremacy of the director, designer, actor or even of the writer. It is through collaboration that this knockabout art of theatre survives and kicks. (Littlewood, 2016)

Ariane Mnouchkine[66] studied at *L'École Internationale de Théâtre* of Jacques Lecoq, and in 1964 she founded *Théâtre du Soleil* company**.** She sought to tell a story about people in a theatrical way through the performances she created. She believes that the mask is the heart of theatrical pedagogy. The company's shows can take months to build as the actors outline and practice their movements and physical strength for the role they are about to play. Mnouchkine encourages the actors to observe what their peers do well, filter the information themselves, and then use it on stage. She tells the performers to be **in the present**, not just present because the theatre is an art of the present.

Currently, there are numerous companies of devised theatre, especially in Great Britain. Over the years, these artists have developed their methods of collaborative work and presented numerous devised performances to the public. But what is even more interesting to note is the fact that more and more collaborative work methods (inspired by devised theatre) are beginning to be used by theatre artists in the creative process even if they do not claim to be a devised theatre company (for example, texts written by

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64 Exhausted or catatonic; Laid back**;** Neutral or the 'Economic'; Alert or Curious (farce); Suspense or the Reactive**;** Passionate (opera); Tragic**.**

65 Joan Littlewood was an English theatre director who trained at the Royal Academy of Dramatic Art and is best known for her work in developing the Theatre Workshop.

66 Ariane Mnouchkine is a French stage director. She holds a Chair of Artistic Creation at the Collège de France, an Honorary Degree in Performing Arts from the University of Rome III, awarded in 2005 and an Honorary Doctor of Letters from Oxford University, awarded 18 June 2008.

several playwrights[67], actors being actively involved in changing the lines and having an input in staging the show).

II. Basic theatre concepts for collaborative writing

As a playwright, but also as a pedagogue, I tried to find a common language either with the artists I worked with or with the students. During my experiences, I realized that many times, although my colleagues and I used the same theatrical concepts or terms, we had different definitions of those concepts. Following the doctoral research, I managed to organize and define a series of essential theatrical concepts and terms both for theatrical artists (actors, directors, scenographers, playwrights), but also for theatrical pedagogues. In the following pages, I will briefly present these terms, which were also the basis of the construction of the play *2032 SMART-FAMILY*.

Improvisation is the key working element of many devised theatre companies. The word **improvisation** is used in countless contexts. We encounter aspects of improvisation in everyday life as well: we have to constantly adapt to the situations that happen around us. The more unpredictable the situations, the more spontaneously and concisely we must respond to them. Elements of theatrical improvisation can be seen in children when they play. American professor Robert Landy defines it as follows:

> Improvisation is an unscripted, unrehearsed, spontaneous set of actions in response to minimal directions from a leader, usually including statements of whom one is, where one is, and what one is doing there. (Landy, 1982: 5–6)

When improvising, actors must not forget that they are invited to make a choice that is surprising and that allows their partner to react. The role-playing game is also used to create character attitudes and characteristics. Also, to discover new reactions that the character can have in

[67] For example, the *EU COLLECTIVE PLAYS!* Creative Europe-funded project, where playwrights from different countries collaborated to create a narrative structure which was organic but at the same time incorporated different perspectives, styles, languages and idioms. In this dimension, the final play's draft was entrusted to one playwright who never tried to homologate the different styles but, on the contrary, tried to highlight their contrasts by creating a collective narrative structure which resembles a cubist painting. (EU Collective Plays, n.d.)

different situations, the actor experiences the same exercise from several perspectives. When improvising to build a text, the group starts from different points: the moment of the plot; the appearance of a character; from a dialogue heard in a real-life situation. For example, during the rehearsals for the telematic show *2032 SMART-FAMILY*, we improvised a scene where the mother gets to meet the Italian boyfriend of her daughter for the first time or a scene where the Romanian girl meets the Italian boy at a party. We used these improvisations for actors to explore and to better understand the relationships between the characters, but also, this being a telematic show, to create real connections between them (we did these improvisations while both teams were in Romania).

The premise can be defined as the essence, the central message of what the artist wants to convey to the audience through the performance or written piece. A good premise is important to build strong characters, build strong conflicts, help reveal the world, the psychology and physiology of the characters, and outline the ending of the play. The premise of the telematic play *2032 SMART-FAMILY* is how technology (webcams, projection screens, the social robot) affects the everyday life of humans (relationships, communication, medical aid).

Action in the theatre means movement, it cannot result from itself. Each action generates another (what we call the principle of cause and effect). If we were to define the conflict, the simplest definition would be that conflict means 'attack' and 'counterattack'. Egri Lajos, in *The Art of Dramatic Writing* (1960), defines four types of conflict: **static conflict, jumpy conflict, slowly rising conflict and foreshadowing conflict.** In *2032 SMART-FAMILY*, we used slowly rising conflicts (the theatrical tension is built up through the play in order to create a bigger conflict between the mother and the daughter) or foreshadowing conflicts (situations with theatrical tension that is building up the bigger conflict, for example, the situations where the mother tells the daughter that she doesn't need the robot, that she needs to come and get it back).

A good **point of attack** is where something vital is at stake (necessity is what causes the character to make a decision and set a chain of events in motion). This may represent a point where a decision has been made or a decision is being prepared. The **turning poin**t is a moment of decision that will greatly influence the character's life by changing it. In the case of the

2032 SMART-FAMILY play, the point of attack happens before the action, when the mother has a heart attack. The turning point also happens before, when the daughter decides to buy a social robot for her ill mother.

A **crisis** represents a situation in which a decisive change is approaching. Immediately after the crisis comes the **climax**, which is a build-up of tension of the crisis (between the crisis and the climax, the conflict increases). The climax of the *2032 SMART-FAMILY* play is in the scene when the mother and the daughter are speaking on the phone, in the darkness because of a power outage in Romania, and they are telling each other what they are really feeling and how their lives truly are.

The character is the 'fundamental material' that is used to build a theatre performance or a theatre play. That is why it needs to be outlined as best as possible during the collaborative process. At first, the character can only represent an identity with certain traits to help the improvisation unfold. A character reveals themselves through conflict and starts with a decision that is made because of the premise. This is what forces the character to change and evolve. At the same time, it is important to give the character strong enough attributes to be able to resolve the conflict. As support for building the character, I use a tridimensional character 'bone structure' developed by Egri Lajos (a structure in which important elements about the character are noted from three perspectives: physiological, social and psychological). I will present this 'bone structure' in more detail along with its use and applicability in the next chapter.

The two main **dramatic structures** are:

- the division of plays into five acts: act I – Exposition (discovery of place, time, main conflict and characters); act II – The rising action (action leading to the climax, the appearance of obstacles); act III – Climax (Maximum Suspense, the turning point of the play); act IV – The action begins to decrease (The story is coming to an end, secrets are revealed); act V – Resolution (the conflict finds its resolution) (Horace – *Ars Poetica*)
- the division of plays into three acts: act I – *Proteas* (the exhibition); act II – *Epitasis* (complication, increase in conflict, development of action); act III – Catastrophe (the conflict finds its solution, the main

character obtains or does not obtain what they set out to do) (Aristotle - *Poetics*)

Understanding these basic dramatic structures is important because by knowing and understanding them, artists can deconstruct and rebuild new functional structures for the stage. We chose a fragmented structure for the telematic play and divided it into eight scenes with six transitions. We used the transition as a theatrical convention to present the memories and intimate thoughts of the characters.

III. The collaborative writing process of *2032 SMART-FAMILY*

I started the collaborative work for writing the telematic piece together with Marina Hanganu in the spring of 2021. What made our collaboration special was the fact that, first of all, our entire work process took place online (living in different cities, we communicated through the Zoom platform and we used shared documents in Google Drive where we uploaded materials and comments on them) and, secondly, for me, it was the first time I wrote a telematic play. Before presenting the collaborative writing process, I think it is important to mention some key elements of a telematic theatre play. First of all, a telematic performance means a show that is played simultaneously in two different spaces that are connected with the help of technology. Thus, from a dramaturgical point of view, new challenges appear: the narrative connection of two fictional spaces so that the audience can understand the story; the need for the relationships between the characters to be believable and the for the creation of situations, actions, conflicts and characters that help the actors who, besides the fact that they are in two different spaces, also come from different cultural spaces. Another element that was crucial for me as a playwright was **telepresence**:

> In a theatre context, I will define telepresence as a real-time relationship enabled by spaces, which can take the form of visual action (any visual information transmitted from one space to another, such as video, text, emoticons and still images), auditory action (not only the actor's words but all auditory information transmitted between spaces) and physical action (robot-enabled). (Hanganu, 2019: 63)

After analysing objectively, the whole collaborative writing process of the telematic play *2032 SMART-FAMILY* can be divided into the following stages: **the research stage; the brainstorming stage; the stage of building the characters; the stage of outlining a potential dramatic structure; the actual stage of writing the play; the stage of rehearsals and rewrites**. As a brief conclusion on the whole working process, I can say that each stage influenced the next one like a domino. Thus, after consulting all the documentation materials, we noticed that we need to understand the functions and limitations of the robot very clearly and that we need to be careful how we build the characters, the relationship between them and the narrative thread so as not to create clichéd or biased situations. The fact that we discussed and wrote down even the smallest details during the brainstorming stage made our collaborative writing process a lot easier because we had some supporting elements that we could consult whenever needed. Creating the character scheme before the story helped us build a series of complex characters with a clear background, emotions, desires and dreams that are able to create powerful conflicts, but also a story with which the audience can empathize. The choice to outline a dramatic structure of the play helped a lot in the collaborative writing process because it represented the common basis on which Marina and I built each scene, and thus we managed to create a coherent whole, without having any 'holes in the story' or contradictory situations. And in order to reach the final version of the text, the key to the entire work process, whether the writing process or the work process from the rehearsals, was communication. No change to the text was made without having a solid argument or without testing different potential variants (here I mean especially in the case of rehearsals).

In the following pages, I will present each stage separately and I will exemplify the collaborative work process through materials created along the way.

The research stage. In this stage, we consulted materials with a focus on three directions: the phenomenon of migration, robots and roboethics[68],

[68] The term 'roboethics' was coined by Gianmarco Veruggio and Fiorella Operto in 2002. It describes the human ethics of designing, manufacturing and using robots (Veruggio and Operto, 2008: 1504).

and the use of technology and robots in art. Likewise, we read other dramatic texts as inspiration for a potential dramatic structure. This is a summary of the materials that helped or influenced us during the creative process of collaborative writing:

The phenomenon of migration:

- the *Teleleu* project (Stancu and Bumbuț, n.d.)
- the Romanian novel *Bitter Cherries* by Liliana Nechita (2014)
- all the interviews from both *Tele-Encounters* projects (Vlădoiu and Kivu, 2021).

Robots and roboethics:

Publications:

- *Understanding Social Robots* (Hegel et al., 2009)
- *Roboethics: Social and Ethical Implications of Robotics* (Veruggio and Operto, 2008)
- *Smart Environments and Social Robots for Age-Friendly Integrated Care Services* (Anghel et al., 2020)
- *The Uncanny Valley* (Mori, 2012 [1970])
- *Using Theatre to Study Interaction with Care Robots* (Jochum et al., 2016)
- *The Psychosocial Effects of a Companion Robot: A Randomized Controlled Trial* (Robinson et al., 2013)
- *Unfair and Deceptive Robots* (Hartzog, 2015)
- *Extending Legal Protection to Social Robots: The Effects of Anthropomorphism, Empathy, and Violent Behavior Towards Robotic Objects* (Darling, 2012)
- *Nudging for good: robots and the ethical appropriateness of nurturing empathy and charitable behaviour* (Borenstein and Arkin, 2017)
- *Intelligent Robotic Perception System* (Premebida et al., 2018)
- Knowledge Representation for Culturally Competent Personal Robots: Requirements, Design Principles, Implementation, and Assessment (Bruno et al., 2019)

Other sources:

- Bibliography about robots and SF (*Social Robot Futures*, n.d.)
- ARI robot (PAL Robotics, n.d.)
- Documentaries: *The Age of Artificial Intelligence: A Documentary*; *In the Age of AI*

The use of technology and robots in art:

- Isaac Asimov's *Robot Series*
- *Speculative Artificial Intelligence – Exp. #2 (conversation)* by Birk Schmithüsen
- The film *Robot & Frank* directed by Jack Schrier
- Rimini Protokoll – *Uncanny Valley*
- Gob Squad – *My Square Lady*
- Seinendan Theater Company: Android-Human Theater *Sayonara* and Robot-Human Theater *I, Worker*
- Telematic theatre show: *The Planet of Lost Dreams*
- *Immersive Telepresence in Theatre* project
- Theatre plays: *Attempts on Her Life* and *Fewer Emergencies* by Martin Crimp and *Amsterdam* by Maya Arad Yasur

The brainstorming stage. In this stage, after reading and watching various materials in the research stage, we had an online meeting where we talked about our notes and put on paper some questions and ideas to help us develop a story for the play and also to create the characters. These were our notes at the end of the meeting:

TARGET AUDIENCES:

- Intergenerational audience = family-oriented performance: seniors & children & grandchildren. The play needs to speak to today's seniors – they need to recognise their everyday needs and problems.
- Migrants - the play needs to address the needs of the present-day diaspora (with a focus on Italy, Milan area).

IDEAS FOR SITUATIONS AND CHARACTERS:

- The elderly lady comes back home from the hospital (heart problems) and meets the robot. How does the mother learn to use the robot? The robot's functions are introduced to the lady. The lady starts to discover the robot's functions - humorously (e.g., she wakes up and is reminded to check her weight: robot control). The elderly lady and her daughter: private moment (elderly lady proud or disappointed by daughter). The elderly lady and her granddaughter: private moment (trying to connect but not quite succeeding). Granddaughter and robot – the robot takes her by surprise in an inappropriate moment and is asked to lie. Daughter and robot (Where is her mother? Is she ok? Spying on mother via the robot. Daughter jealous of the robot who is being personalised by mother to behave the way her daughter did when she was little). Robot customisation throughout the play? E.g., mother starts with a neutral robot, also genderless, and gradually transforms it into her daughter. Daughter and her Italian husband (marital problems). Crisis moment when the robot is of help or malfunctions.
- The robot controls the mother's life – the mother rebels against the robot. Mother was a teacher and now teaches the robot - in doing so, she discovers things about herself and learns to see the world in a new way. It might be more interesting for the robot NOT to have general artificial intelligence, but to be full of limitations - this scenario is not very common in films and literature. Comical situation: the family members give the robot contradictory instructions and imbue it with their own code of ethics.
- Conflict of loyalty for the daughter. Dissatisfaction with being a 'family mother' (like in *Fewer Emergencies* by Martin Crimp)

WAYS OF PRESENTING MULTIPLE SCENARIOS:

- Like in *Amsterdam* or *Attempts on Her Life* by Martin Crimp. For example, when meeting the robot the actors speak in the past tense and third person as if trying to remember an episode. In this example, the scene between the lady and the robot happens in one space, while the actors in the other space comment on the action. The commentators also take on roles as the elderly lady's family. A

challenge will be to get in and out of character so fast and to make it obvious to the audience. A solution might be to use a different language for comments. The roles can also be differentiated by camera angle/distance from the camera (e.g. actors in Italy watch the scene from RO taking distance from the cameras) and/or light changes. There can also be one single narrator: the robot.

- The audience can vote for a branch of the story.

KEY QUESTIONS:

- General: What do we want to achieve with this play? What is the premise? Make people ask themselves questions relevant to their future: Are robots suited to take care of them and their elderly? Under what circumstances? Where does responsibility for elderly care lie? With humans and/or robots? The questions do not concern only those parents whose children have emigrated, but all of us. The transnational family is just an extremity on the spectrum of caregiving within the family. To expose ageism in society and even in technology manufacturing. Imagine life in a transnational and mixed-ethnic family beyond stereotypes. We should NOT blame the children who emigrate and leave their parents behind. Who does the caregiving? Why mostly female? Make the audience question the ethics of this. Would robots be a liberation for women? When is the play set? How will Europe evolve concerning multiculturalism, migration, and ultra-nationalism? How will gender relationships evolve? How will technology evolve?
- About characters: Why does she need the robot? How did they get the robot? Was the lady ok with the idea of a social robot for her from the beginning? Who teaches the lady how to use the robot? Why did the daughter emigrate? When did she emigrate? Did she graduate from university? What were her jobs in Italy to begin with? Has she risen through the ranks? What is her job now? How did she meet her Italian husband? What is the relationship between her mother and her husband, daughter, and parents-in-law?
- About the robot: How many languages does it speak? For what tasks was it built? What are its limits? How does it find/collect information

about the lady? Medical abilities? How does it contact the family in Italy? Who can be contacted? Who is responsible if the robot breaks down/has an error? How does the robot communicate with the old lady?

SITUATION IDEAS:

- First scene: the unboxing of the robot (What is this? How do I use this? How does it work? etc.)
- Malfunction of the robot.
- The old lady gets too friendly with the robot.
- The old lady wants to break the robot.
- Potential conflict between the daughter and her husband because of money (for the robot and its maintenance).

Also, at this stage, we had another meeting with the scenographer, Andreea-Diana Nistor, and we brainstormed design possibilities for the two stage sets meant to represent the characters' homes.

The stage of building the characters. In this stage, we used the 'bone structure' of a tridimensional character presented by Egri Lajos in his book. We made four tables for every character using the following information:

- Physiological: gender; age; weight; hair colour; eye colour; skin colour; appearance: good-looking, over- or underweight, clean, neat, pleasant, untidy. The shape of the head, face, and limbs; defects: deformities, abnormalities, birthmarks. Diseases; heredity
- Social: class: lower, middle, upper. (add STATUS: do they act low-status, high-status, equal status with humans/robots? And which humans/robots? How does their attitude change depending on those they interact with?); occupation; Where and how many hours do they work; suitability for work; attitude towards other people (friends, family, colleagues etc.); education level; aptitudes; favourite subjects; poorest subjects; marks; home life: parents living, earning power, orphan, parents separated or divorced, parents' habits, parents' mental development, parents' vices, neglect, character's marital status; religion; race; nationality; hobbies/what they like: books, newspapers, magazines

- Psychological: moral standards; ambitions; temperament: choleric, easy-going, pessimistic, optimistic; attitude toward life: resigned, militant, defeatist; complexes: obsessions, inhibitions, superstitions, phobias; extrovert, introvert, ambivert; skills: talents, spoken languages, etc.; qualities: imagination, judgment, taste, poise, IQ; background.

We created five characters: Laura Mihalcea – the elderly lady who has a heart attack and lives in Romania, Virginia Visconti – her daughter, who went to Italy to study Medicine, stayed there and now has her own family, Lorenzo Visconti – Virginia's loving Italian husband, who is a high school teacher, Amalia Visconti – their teenage daughter, who is passionate about video gaming, Ogmios – the robot that was bought by Virginia and her family to take care of Laura. It is important to mention that we created Ogmios by taking inspiration from the results of workshops with children and seniors (they took place in Romania, Italy and Spain).

Table 1 in the *Annex* shows an example of a completed file for a tridimensional character (Virginia Visconti, the emigrant daughter).

The stage of outlining a potential dramatic structure. In this stage, we had a lot of written materials: ideas, potential situations or/and dramatic conflicts, questions about characters or situations and five complex characters. We decided for each of us to write a potential dramatic structure and after that, we had an online meeting to discuss and combine our ideas into a dramatic structure that could be the base for the collaborative writing process. We came up with an idea of a main structure divided into five episodes or acts with some potential actions and situations.

MAIN STRUCTURE:

Introduction (while the audience is coming): a story about how we made the play/show

Episode 1/Act 1: Meet the robot

Potential situations: Unboxing the robot (The elderly lady comes back home from the hospital (heart problems) and meets the robot)
Meeting the family - introducing the important info about family members. First reactions about the robot. The robot is neutral (more like a machine).

Episode 2/Act 2: Family

Potential situations: Discovering the relationships – between Virginia and Laura – and all the problems regarding her missing father, Virginia doesn't understand Nova, Laura gets closer to Nova with the help of the robot, Lorenzo is trying to have a better relationship with his daughter but doesn't understand her passion for video games, more relationships to explore: Laura – Lorenzo, the relationships with Lorenzo's parents. The robot getting closer to Laura: discovering her passions, her taste in music and movies, Laura dressing him up (buying special clothes from the online store). Activities: board games, games, and dinner nights together with the help of the robot.

Episode 3/Act 3: Conflicts

Potential situations: Conflicts about the robot: Laura doesn't want it, Lorenzo is against this type of technology, Nova is ok with it, and Virginia wants it for the sake of her mother's health. Conflicts about money. Conflicts about generations. Conflicts about passions and ways of thinking. Conflicts about time management. Conflicts about the robot organising/controlling the mother's life. Conflicts about emotions and understanding emotions (the robot not being able to understand human emotions or the robot understanding more than the humans in certain situations).

Episode 4/Act 4: Resolving the conflicts or not

Potential situations: The robot evolves and begins to be more human-like (adapting its thinking and personality to fit Laura's life). Maybe they start to listen to each other and start to understand each other with the help of the robot.

Episode 5/Act 5: Conclusions

Potential situations: short monologues about their experience: Robot – an objective perspective about this family; Laura – about her family and the robot; Virginia – inner conflict for the daughter is the loyalty conflict related to taking care of her mother herself vs delegating that caregiving to a robot; Lorenzo – about his relationship with robots; Amalia – about her grandmother and her dreams.

Between the scenes: information that we obtain from the questionnaires.

Other potential situations: malfunctions of the robot; the robot needs help from Laura; introducing some background stories; Laura's scrapbook and her memories of her journeys; health information (needs further research); The Big Disconnection: maybe Laura plots to get disconnected from her daughter's house with the robot's help. She succeeds. Virginia panics when she cannot monitor her mother for half a day. Laura and the robot plan a trip.

Potential scenes:

Scene 1: meeting the robot (first reactions, initialisation session)

Scene 2: robot takes over the elderly lady's health management

Grandmother-daughter-granddaughter scene (e.g., grandmother-granddaughter scene and one mother-daughter scene): Amalia threatens her mother that she will go to Romania to live with her grandmother… or in another country; what are you going to do with her future? (connected to her mother's migration as well); Nova is a global citizen ('I have friends from all over the world') while Virginia is caught between worlds; conflict about Amalia's future; her mother doesn't let her enter an international video game competition.

A scene with all the characters (family celebration – the elderly lady's birthday? or holiday?) – robot as master of ceremonies; game.

Husband-wife scene – reignited money conflict (perhaps they've already had this discussion and thought they had settled matters, but one single remark sparks the conflict again), attempts at reconciliation; adaptation problems for Virginia?

Robot-elderly lady scene (closeness – the scrapbook with photos from her trips; realizes her frailty/problems).

Robot-elderly lady scene (crisis)

A scene with all: future plans (ending) – maybe planning a trip together (for Christmas), maybe in RO (maybe Sighișoara) – while the mother is still alive (implied).

Ideas for transitions between the scenes: characters comment on what happened in the first scene and also some information on the world of the future (there are robots everywhere); pre-recorded off-stage monologues/soliloquies; pre-recorded off-stage dialogue (e.g., arguing);

people's opinions of robots (from questionnaires); monologues delivered by the characters directly to audiences.

THROUGHLINE:

Elderly lady's perspective: After a heart attack leaves her with a permanent medical condition and an intense feeling of loneliness, an elderly lady tries to adjust to a new life routine full of restrictions with the help of a social robot and her telepresent family.

Migrant daughter's perspective: After a heart attack leaves her mother with a permanent medical condition, a middle-aged Romanian doctor living in Italy tries to take care of her Italian family and her ageing mother with the help of technology, while also keeping up with her demanding job.

The actual stage of writing the play. We had another meeting with the scenographer, and she presented us with some ideas for the spaces. We decided on this option: the big projection screen that will connect the two families permanently should be in the centre of each space (Romania and Italy), and on the sides, in each space, there will be a screen on which thoughts, ideas, the inner world of the characters will be projected. Also, we decided to have one camera in the centre and one on the side, and the common room where all the technology is and where the family could meet is the living room. Having all this information and the previously sketched structure of the play, we started to write. In the first phase, we both started by writing the first scene. We met online to read and combine the two versions. Then, we gave ourselves tasks to think about or challenges such as writing a monologue about care. Writing for this scene, we realized that we needed more information about Laura's illness and her treatment, so we did a little research and talked with a cardiologist to create an accurate treatment scheme for her. We rewrote the first scene together during an online meeting, modifying the text live in the Google Drive document. But after this whole process of writing the first scene, we realized that if we do the same for the other scenes, we won't manage to finish the play in time, so we tried a new approach: we proposed that each of us write a scene from the structure created in the previous stage. Periodically, we met online to read and modify together what we wrote, but at the same time, we gave each other feedback directly on the

texts in Google Drive. It was an interesting work process. Marina's questions and feedback always helped me keep a clear narrative line and realize in which situations the action became boring. I believe that what also helped us find a common artistic voice was the fact that we both kept a critical eye and tried to be as objective as possible with each other while, at the same time, remaining faithful to the same narrative thread. Another observation relevant to our collaborative work process is that, although we are two different people and have different artistic backgrounds, the fact that we built some well-rounded characters from the very beginning helped us to not 'change' their voices during the scenes, ensuring that they had a fluidity, the same personality throughout all the play. At the end of this collaborative writing process, we created a chronological table in which we put all the important information from before the action that takes place on stage, but also with information about actions in the play along with important notes to follow during rehearsals (I was also Marina's assistant director). **Table 2** in the *Annex* shows a detailed account of the play chronology.

The stage of rehearsals and rewrites. It is essential to mention that before starting this stage, two online workshops had taken place with students from the National University of Theatre and Film *I.L. Caragiale* (Bucharest) and Civica Scuola di Teatri Paolo Grassi (Milan). During these workshops, theatre students from various specializations (directing, acting, dramaturgy, scenography, puppets and marionettes) read the telematic play, asked us questions, discussed various scenes and offered us feedback (they also completed an online questionnaire). After these workshops, we made some changes. Then, the actors and the director from Italy came to Romania to work together, in the same place, for a week. We read the text, we discussed it, and we used improvisations to better understand some situations. All the actors involved in the project came up with questions and ideas that helped us make certain changes. After that, we continued the rehearsals using the large screens in the centre of the stage and connecting through the Internet. The editing and rewriting process lasted throughout the rehearsals. For example, we decided to completely abandon the last scene from the original text, we changed the titles of the scenes and changed the order of some transitions. Also, during the rehearsals, we were able to better observe the limits that

technology imposes, and we made changes so that it would be easy for the actors on stage. For example, the actress Smaranda Găbudeanu controlled the face of the robot with the help of a facial tracking program, manipulated the robot's movements with the help of a remote control and she was also its voice, all in real-time. She needed clear instructions about how to speak and how to control the movements of the robot to interact with Laura on the stage, and also with the family from Italy.

This whole collaborative writing process developed organically throughout the work period. I was lucky enough to work with a wonderful team that did not give up when encountering difficulties and I am very happy that I had the opportunity to work with so many talented people (artists and the technical team) from whom I learned a lot throughout this experience.

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ANNEX

Table 1. Character file for Virginia Visconti

Virginia Visconti	
Physiological	
Gender	F
Age	35-45
Appearance: good-looking, over- or underweight, clean, neat, pleasant, untidy. The shape of the head, face, and limbs.	professional (casual), tidy; wears 'ie' and/or 'opinci' (collection) - connection to the motherland
Height, weight, hair colour, eye colour, skin colour. Defects: deformities, abnormalities, birthmarks. Diseases. Heredity.	n/a
Social	
Class: lower, middle, upper. (add STATUS: do they act low-status, high-status, equal status with humans/robots? And which humans/robots? How does their attitude change depending on those they interact with?)	upper middle class
Occupation	cardiologist, researcher
Where and how many hours	Centro Cardiologico Monzino; full schedule daily; very busy
The conditions in which they work	head of the department
Suitability for work	very suitable
Attitude towards other people (friends, family, colleagues etc.)	empathetic, but not very engaged in the life of RO migrants; not many friends; not overly communicative; straightforward; introvert; socially misfit
Education level	doctorate
Aptitudes	diligent, hard-working, precise, perfectionist, responsible, extremely intelligent, operates DaVinci (?) open to novelty/innovation, intellectual curiosity
Favourite subjects	sciences (biology, chemistry)

Poorest subjects	Romanian language and literature (her mother was her teacher)
Marks	Average; only studying for what she liked; she skipped classes (her mother's...); in university, she rose through the ranks (perfect student)
Home life: parents living, earning power, orphan, parents separated or divorced, parents' habits, parents' mental development, parents' vices, neglect. Characters' marital status.	She knows nothing of her father. Her mother refused to tell her. She doesn't recall her father. None of them knows what happened to him except that he emigrated soon after divorce. (Boom: daughter accuses the mother of being alone, of not being able to 'keep a man next to her' - then her mother tells her the truth...)
Religion	Catholic (converted when she got married upon his parents' insistence)
Race	Caucasian
Nationality	double (RO-IT)
Hobbies/what they like: books, newspapers, magazines	scientific publications (no fiction), physical exercise (rigorous schedule, she wakes up very early in the morning, goes jogging etc.), healthy lifestyle; but obsessed with work (workaholic); passion for games: chess and/or board games (the thing that connects the transnational family; e.g. a gaming session from a distance reuniting the whole family; like a ritual that started when they brought in the robot; the robot as participant and/or game master)
Psychological	
Moral standards	into (robo)ethics; fair play
Ambitions	to heal as many people as possible; to discover a cure for heart disease
Temperament: choleric, easygoing, pessimistic, optimistic.	phlegmatic-melancholic
Attitude toward life: resigned, militant, defeatist.	militant, brave
Complexes: obsessions, inhibitions, superstitions, phobias	germophobe; no superstitions; an obsession for a healthy lifestyle (for the whole family, including the robot! – urges the mother to clean the robot regularly; the mother tells her that the robot was meant to help her, not vice versa!)
Extrovert, introvert, ambivert	introvert
Skills: talents, spoken languages, etc.	very good memory (including visual memory); RO, IT, EN, FR (conferences)
Qualities: imagination, judgment, taste, poise, IQ	scientific imagination/creativity; very high IQ, but lower emotional intelligence (EQ) – reacts rationally

	rather than emotionally, as opposed to her mother, who is very rash, impulsive, and emotional in her reactions
Background:	She struggled to achieve her current status. Her mother did not have enough money to support her in Italy. The Erasmus money was not enough. She sometimes starved. Her tutors were biased. She and her husband have worked hard to achieve their current social status. They built her house. She is very determined to succeed because she did everything as a result of hard work.

Table 2. Play Chronology (initial version)

Date	Backstory	Comments
1959	Laura is born on the 10th of April. Sign: Aries.	
1977	Laura goes to university to study philology.	
1982	Laura graduates from university and gets hired as a Romanian teacher at the *B.P. Hasdeu* High School in Buzău.	
1984	Laura gets married to a colleague.	Laura falls madly in love with her colleague, who is charming, smart, open-minded. At first, they are a happy family, they enjoy every moment together. He is very attentive, caring and loving. They both want a baby, but they can't have her for 6 years.
1990	Virginia is born in August. Sign: Leo. Lorenzo is born in September. Sign: Libra.	Shortly after Laura became pregnant, her mother-in-law dies, her husband changes completely, he starts having problems with alcohol. He was fired from his job at the high school because he was drunk in class and became violent with his students. Laura still loves him and tries her best to help him.
1991	Laura gets a divorce and a restriction order against her husband.	Immediately after Virginia's birth, things calm down, but only for a very short time. Laura's husband beats her more and more often and worse, Laura realizes that he is a threat to Virginia as well. That's why she gathers her courage, leaves her husband and goes to her parents. Her parents did not

		agree with this decision at first, but when they saw the traces of the beatings on their daughter's body, they supported her and helped Laura raise Virginia.
1992	Laura's ex-husband dies of alcohol intoxication.	
2000	Laura starts travelling abroad with little Virginia.	Laura always liked seeing the world, meeting new people, so she decided to travel with her daughter: to show her the world, to broaden her horizons, but also to spend time together. The relationship between the two is very close, Virginia sees Laura as a good friend.
2007	Virginia is 17 and tells her mother that she wants to study abroad (flashback TRANSITION 3)	In 2007, Romania joined the EU.
2009	Virginia enrols at the 'Carol Davila' Faculty of Medicine in Bucharest	
2011	At the end of her 2nd year in university, Virginia gets an Erasmus scholarship and leaves for Italy. She remains in Italy.	
2011-2015	Virginia studies for a medical degree in Italy, Milan.	
2012	At a student party, Virginia meets Lorenzo, who is a physical education student.	
2013	Lorenzo graduates from university and enrols on an MA in sports.	
2015	Virginia graduates from university and marries Lorenzo.	
2015	Lorenzo graduates from his MA course in sports and starts teaching at a local high school.	
2016	Amalia is born in May. Sign: Taurus.	

2016-2017	5 months' leave for Virginia	
2017-2024	Virginia is a resident doctor in Milan (cardiovascular surgery).	
2024-present (2032)	Virginia is a cardiovascular surgeon at a renowned hospital in Milan.	
2025	Laura retires at almost 66. She's worked in the same high school all her life.	
19 January 2032	On Monday night in January (the 3rd of the month), Laura has a heart attack.	Improvise heart attack moment & improvise the moment her family in IT finds out about the heart attack
20 January 2032	Virginia arrives in Romania.	
21 January 2032	Virginia buys the robot and the video installation.	
21 January 2032	Virginia tells Lorenzo about her investment only after she makes it. Lorenzo is against it. They argue. Virginia says 'ok, I'll return it'. Lorenzo agrees with buying the robot.	Improvise phone argument, because it has direct relevance for SCENE 4.
23 January 2032	The robot and the installation are installed in Laura's home.	
25 January 2032	On Sunday, Virginia goes back to Italy.	Improvise farewell moment, when Virginia leaves her mother in the hospital
27 January 2032	On Tuesday, after 7 days in the hospital, Laura is released. It is morning when she gets home.	She must have had complications to have been kept in the hospital for 7 days. Or maybe they did further investigations.
	START OF THE PLAY	
27 January 2032	SCENE 1 - THE INTRUDER	The scene starts around 9:00 RO time/8:00 IT time. Immediate circumstances: (RO) at 08:30 RO time, Laura is released from the hospital, takes a taxi and gets home. (IT) Laura lets Virginia know she is out of the hospital. The family wakes up and makes the final arrangements to welcome Laura.

	TRANSITION 1	Characters' thoughts after scene 1 (let's say, at night, before they fall asleep). Maybe improvise the first evening 'together': Virginia tells Laura to keep a diet and Laura agrees. After this discussion, Laura retired to her room and smoked.
28 January 2032	SCENE 2 - BIG BROTHER	The scene starts around 8:00 RO time/7:00 IT time. Immediate circumstances: (RO) Laura woke up and refreshed herself before going into the living room, where she knows she might meet her family and definitely the robot. (IT) Virginia woke up preoccupied by the difficult operation she has to do. Maybe she had breakfast or maybe not. Lorenzo has already had breakfast. Amalia lingers in bed. School starts at 8:00 IT time.
approx. 3 weeks later (17 February 2032)	TRANSITION 2	Laura's sense of claustrophobia and permanent surveillance. Discuss Laura and Ogmios' relationship during the 3 weeks between scene 2 and transition 2.
2 weeks later (1 March 2032)	SCENE 3 - LIKE GIRLS	The scene starts around 18:00 RO time/17:00 IT time. Immediate circumstances: (RO) Laura hoped the parcel would reach Italy before everyone went out, but this didn't happen. She tried to think of something else, but she decided to stay home just in case she received a parcel with a mărțișor from her IT family. Everyone should have been home around 16:00-16:30 IT time/17:99-17:30 RO time, but they are not. She has grown very impatient and thinks of calling Virginia. However, she refrains from doing so; (IT) Virginia has had a full day and stayed overtime for a complicated surgery. Lorenzo has a training day with his football team. Amalia got the news 3h ago and went to celebrate with some of her colleagues. One of them could not be present, so they speak on the phone. Improvise the moment when Amalia gets the news.
2007	TRANSITION 3	TO BE DECIDED: WHAT TRIGGERED VIRGINIA?

2 weeks later (12 March 2032)	SCENE 4 - ADULT LIFE	Time: (IT) around 16:30 on Friday. Virginia came back from the hospital earlier (1 h ago) and started preparing for the Congress she has on Monday. She had a quick snack while working, but she's somewhat hungry. Lolo went to the market immediately after his classes. Laura also went out to the market around 16:00 RO time. The robot told Virginia about her mother going out or perhaps Laura left a written note on the blackboard. Where is the robot in this scene?
	TRANSITION 4	Characters' thoughts after scene 4.
2 weeks later (3 April 2032)	SCENE 5 - MY FRIEND, THE ROBOT	Time: Saturday evening, 20:00 RO time. Laura has been alone the whole day - she kept on reading. Her family left on Friday afternoon to a mountain resort. Discuss Laura's day alone.
	the same weekend as in Scene 5 (extra-text)	Laura and Ogmios invent the game during the same weekend. Establish what Laura's input is in the creation of the game. Does she prompt the robot to come up with a game based on 'Lord of the Rings' and this is Ogmios' proposal? In that case, Laura contributes to Ogmios' costume.
1 week later (10 April 2032)	SCENE 6 - ROLEPLAY	Saturday. Laura's birthday. Improvise/discuss Laura's day with the actors. She received her present from IT (wine and what else?). They had a festive dinner together at 20:00 RO time/19:00 IT time and started playing the game 1 h ago. Now it's around 22:00 RO time/21:00 IT time.
lasts around 7 days (17 April 2032)	TRANSITION 6	These cover about 7 days in the characters' lives starting at the end of Scene 6. Improvise or at least discuss Laura's actions after Scene 6 and her behaviour throughout the whole depression period. And also how Virginia (and maybe also Lorenzo and Amalia) are affected by Laura's depression. At the end of this transition, we see that Laura recovers and gets out of her room. Lorenzo and Amalia leave for Shanghai during spring break.

the next week, on a Thursday morning, 11:00 RO/10:00 IT (22 April 2032)	SCENE 7 - EMERGENCY	Time: around 11:00 RO/10:00 IT. Immediate circumstances: Virginia is at the hospital, Lorenzo and Amalia are in Shanghai and Laura is alone with Ogmios. One hour ago, Laura was phoned by one of her students who invited her to a class reunion (it's been 30 years since her students graduated from high school).
same day as in the previous scene, late at night (22 April 2032)	SCENE 8 - EPILOGUE	Around 02:00 am RO/ 01:00 am IT. Virginia has persuaded Laura to sleep in the living room so that they can be together. Laura went to bed around 10:00 RO time, while Virginia went to bed about 2 h later, around 11:00 IT. They are alone at home because Lolo and Amalia are in Shanghai.
the monologues refer to events happening throughout approx. 1 month (until the end of May 2032)	SCENE 8 - EPILOGUE	Approx. 1 month after Laura's crisis (end of May). After Laura's crisis, Virginia and her family decide to travel to New Zealand and they make all the arrangements.
TOTAL DURATION (fictional time):	**mid-January to end of May (approx. 4 months)**	

Video Directing in Telematic Theatre: Means and Meaning

Armine Vosganian

Contents

Video Directing in Telematic Theatre: Means and Meaning

Armine Vosganian

The 2020-2021 pandemic has changed perspectives on the world of theatre and its physics the way we know it. During those months, we thought, at times, that theatre will never come back on stage in front of a large audience, in the 'theatron'.[69] We took into account the beginning of a new era of theatre on screens of many sorts, smartphones, tablets, plasmas, laptops, etc. Now, after the world crisis, we perform on stage again, in front of the audience, but paradigms of telematic theatre and video editing have become more acceptable in the collective conscience of the Romanian public during the pandemic.

This essay will reflect on the development and reception of telematic performance research projects from the perspective of video art and my position in the performances. I will analyse how the video content was constructed and projected and how the emotional meaning transforms according to the means of the video.

Before Sunset/After Sunrise

I had the privilege of acting as a **participant** in the first telematic experience directed by Marina Hanganu, ***Before Sunset/After Sunrise***, a 45-minute telematic participatory performance on smartphones connecting one audience participant and one performer located in different cities across the world (Institutul Cultural Român, 2015). During the MA programme at Central School of Speech and Drama, Marina Hanganu developed an interest in merging spaces.

[69] The *theatron* is the place where the audience sits in a theatre (from Greek: 'a place of seeing') (Barker et al., 2020; Pavis, 1998: 396, 407).

In this performance, the two different geographic locations of the participants, both performer and audience, created the telematic experience through a guided tour and a rough video editing created by Google Hangouts between two smartphone cameras. The performer would walk the streets of Perth, for example, while sharing their point of view through their camera with the audience, the participant in London. The Australian actor would create historical and metaphorical parallels between the streets of Perth and the streets near Bloomsbury Park, where the participant was (Hanganu, 2022: 193). The narrative connections between the two spatial dimensions were inspired by the impact of the sunlight and its effect on people and surfaces. Both the participant and the performer got a glimpse of the urban atmosphere on the other side of the world.

We are all controlled by light and time, but the narrative of this performance was driven by light and time as undivided archetypal symbols. At the beginning of time, there was the word that materialized our Creator. In theatre, the basis of theatre is *logos*, the Greek term that has several meanings such as word, plan, and reason in the cosmic sense (Britannica, 2023). The word and sound were first and they can function in complete darkness to tell a story. In Genesis, the first action of God is setting an intention through sound.[70] And his first intention was to turn on the light because he wanted to reveal the light and life within[71]. In the darkness of the theatre stage, the lighting shapes a new world, therefore life. Unfortunately, lighting design wasn't valued on its own until the 20th century, being strongly connected with the development of technology (Bergman, 1977: 346).

Coming back to the natural lighting of the performance and our main character, the Sun, the visual climax of the experience was the hiatus moment of this character, described in the title. This is the reason why there were two versions of the performance, one of which would end after the participant witnessed the sunset or the sunrise that was recorded live by the performer via Hangouts. The apparently passive audience contributed to the

[70] 'Then God said, "Let there be light!"' (*The Book of Genesis*, n.d.: 1:3).

[71] 'All things came to be through him, and without him nothing came to be. What came to be through him was life, and this life was the light of the human race' (*New American Bible*, n.d.: John (1:3)).

performance through dialogue, letting themselves be guided into the discovery of a map of natural light and urban shadow.

The cinematography of this particular telematic performance is created equally by the participant and the performer because both of them are using the cameras of their smartphones simultaneously. The means were the two smartphones that serve both as the means of communication and of recording images. The sensation was as if the performer could enter the participant's mind and vice versa because they had access to the other's point of view in real-time. The image was continuous on both sides, like a very long take, similar to our daily vision. The participant and the performer are not equally in control because the performer has a predefined script that includes questions and instructions and, in the majority of the movements, the point of view of the participant changes accordingly. If the participant was playful enough, they would shift the control when asking the performer to move the camera in a different direction.

The editing didn't happen in terms of cutting, but of juxtaposition, with which our minds have become very familiar. I daresay it is perceived as natural. At the same time, the two 'shots' are displayed on the screen of the smartphone. The participant sees the point of view of the performer on a larger scale than what they are transmitting, which is small-framed in a corner. This Hangouts formula became a montage in itself. In my opinion, the most powerful visual moment was not the sunset or the sunrise in Perth transmitted to us in London, but different moments of connection through illusion. The performer would ask the participant to face away from the sun and point the camera towards the pavement, to the shadow of their body. The performer did the same thing and, for an instant, it seemed like they were the same person because the shadow of their legs in a park looked so similar. This simultaneity between connection and recording transforms the means into a profound meaning of two complete strangers from opposite sides of the world becoming one. The difference between these two people dissolves under the sovereignty of the Sun. Another interesting instruction was for the participant to synchronize their walk with the steps of the performer in Perth. In this way, along with the dialogue and places they were discovering together, the video-conferencing was a means for them to have a stroll together in these intertwined dimensions that created a fictionalized space (Hanganu, 2022: 160).

This spatial editing was helped not only by the technology but also by imagination because the performer would ask the participant to close their eyes and imagine the beginning of it all. The instruction of closing one's own eyes functions as a fade to black.

Marina was always interested in merging all sorts of spaces, fictionalized or not. Imagined or real. I worked with Marina before on 'classical', physical theatre and Marina constructed her shows in a spatial montage. I performed as an actress in *Marisol* by José Rivera and a dramatization of the *Mother's Tale* by Hans Christian Andersen, both of them far from being fairy tales. In both shows, my character had to move from dimension to dimension, having the audience imagine worlds of angels and demons. My characters would step into different spaces like the enigmatic characters of Maya Deren (Mazur, n.d.) that transcend space and time creating an illusion through montage, continuity of movement, and rhythm. When in film, these transitions are made by cuts, sound, and rhythm. When on stage, the lights, the décor, and the sound can move us forward or backwards. Sometimes we have only the movement of the actor and we count on the understanding and imagination of our audience.

Str. Popa Rusu No. 30

In a performance foreshadowing the *Tele-Encounters* research, my first telematic collaboration as an actress resulted in an immersive telematic one-woman show. There was no actual video involved until the end. The telematic bridge was constructed over the phone. Unlike *Before Sunset/After Sunrise*, this new performance titled *Str. Popa Rusu No. 30*, played a dangerous game. The concept was structured in such a way that the participant could experience the feeling of authenticity during the performance if they agreed to play their part. They were contacted through email by my fictional character who was supposed to be the owner of a building at this real address.

My character would invite this person to a viewing. The actual viewing was performed only by the participant. They weren't filming anything with their smartphone to show me what they found in the basement my character wanted to rent. Marina wanted to create mystery around this owner who lives in New York. I was actually in the basement, hiding in the kitchen. Unlike *Before Sunset/After Sunrise***,** my character became guided by

the participant down childhood memory lane. The participant was invited to describe to the performer what they could see: furniture, toys, and objects of a distant past that revealed family stories.

The production design functioned as an installation intertwining interwar, communist, and post-communist eras through pictures, furniture, elements of clothing, toys, and musical scores. This 'expanded scenography' (McKinney and Palmer, 2017: 4) drives the story, not the text. The participant searches through this labyrinth, almost like a treasure hunt, and changes the course of the dialogue based on their search. The key concepts of expanded scenography, 'relationality, affectivity, and materiality', are well applicable to this performance (Hanganu, 2022: 148). *Str. Popa Rusu No. 30* reminds us of art installations that create a positive context for new relations between objects, performers, and audience, as proposed in Nicholas Bourriaud's *Relational Aesthetics* (2002: 14). I am now referring not only to the production design in the basement but to the entire building. The audience, especially if they lived in Bucharest, came with their own cultural knowledge regarding the Armenian Quarter in which the beautiful house that hosted the performance stands. The urban culture and surroundings contributed to the authenticity of the performance, raising awareness of both political and social issues of the past and present.

In classical theatre space, the actors or performers are performing on stage in the fictionalised space while the audience is in the theatron, and this relation was passed on to cinema. In *Str. Popa Rusu No. 30*, these spaces were inverted from the point of view of theatre and cinema. The motif of film was introduced from the beginning, but only in the characterization of this mysterious owner who is a film student. In the end, the participant would find, in a drawer, my old handy camera that comes to life, thanks to this participant who presses the ON button. They are watching what seems to be the last thing that my character recorded before she left for the US. On the playback screen, they can see a long take, almost like a fast rewind of their tour of the basement, like a point of view of the character and, finally, my face is revealed in a mirror.

The introduction of the video has an emotional value in itself. The medium is not a projector screen or a wall. It's an object that is supposed to be the exact instrument that the character used at a particular moment. The

participant finds my handy-cam in a drawer, like a treasure hunt. The tiny screen reveals the space from the point of view of a different person. This directorial choice seems similar to an augmented reality filter because we hear and see the shadow and the reflection of someone who is not there in the same space we can see with our own eyes. What is definitely different from augmented reality is the pre-recorded video.

The participant can see only what the performer recorded. The character of the performer materialized her dreams and hopes for the future through a long take of details of this room full of objects. The participant has already noticed these objects, but this is the first time in the performance that the attention is drawn to the pages of an atlas. From this handy-cam we hear the voice of the performer, a younger version, who is full of enthusiasm. The character can't wait to migrate to New York, the dreamland. Up until now, the participant has already wondered about the emotional context of the performer, who has lived in New York for some years now and hasn't found her path, career or personal wise. This 2010 digital camera becomes a time machine and a wish box. Before the mobile camera, the handy-cam was our personal video archiver (De Castella, 2012) and this means of recording gave us the sensation that anyone can become a filmmaker through video testimony. Although, the world was already used to the digital recording of all sorts of events meaningful or not (De Castella, 2012), this particular long take seems to have survived as a document, the only video document of this character's inner monologue.

The video used in *Before Sunset/After Sunrise* and *Str. Popa Rusu No.30*, with their means and meaning, can be considered New Media and not cinema, according to Lev Manovich (Manovich, 2001: 49). In *The Language of New Media*, he proposed differentiation criteria according to which all digitalized material is not cinema. Cinema was upstaged by New Media the moment the vivid molecules of film were replaced with numbers and pixels. At the moment, most of the content projected in cinema is made possible with the exclusive help of numbers and algorithms, so I believe that the establishment of new criteria was necessary. The content of these performances belongs to New Media because the audience controls it and co-authors the experience, to some extent.

2032 SMART-FAMILY

The last telematic project I worked on is ***2032 SMART-FAMILY***, also directed by Marina. My role was of video director, not of performer or participant. In a way, I believe this project to be closest to classical theatre of the rest of the telematic projects we've developed because here we have an Italian stage and a passive audience. The telematic bond is not between performer and audience, but strictly between performers, with the support of a technical crew.

The narrative depends heavily on the transmitted video because we have two stages in two different countries, one stage in Buzău, Romania, and the other in Vimodrone, Italy. Romania transmits video signals to Italy and vice versa in real-time through a live edit between two cameras. This whole process is included in the narrative because the two cameras function as surveillance cameras in the fictionalized space. The character in Buzău is an elderly lady who has just had a heart attack and she is being surveilled by video by her daughter who lives in Vimodrone with her husband and her own daughter. Italy transmits video signals as well, to diminish the profound loneliness the older person feels.

The live video signal is shown through a rear projection on a wide screen in the middle of the stage, like a plasma TV as big as the wall. This telematic theatre play raises several questions, for example: can videotelephony replace human presence? As Christian Ferencz-Platz reminds us (2018: 127), this question is an old concern that has been debated in cinema phenomenology, also (Van den Berck, 1948). Can film or video replace human presence? For each country, the characters from 'the other side' are tele-present and tele-absent at the same time (Friesen, 2014). They are always missed, even when on screen (Flusser, 1998: 307). I believe that the longing of the characters on stage is also felt by the audience who is hoping for a physical reunion of the characters from both sides, even if they know it's impossible.

The Romanian audience of ***2032 SMART-FAMILY*** becomes acquainted with the narrative value of the widescreen before Laura, the elder character. We see a different world on the screen, a family of three that is preparing a surprise welcome with party balloons. It's not clear to the audience if what is shown is an expanded scenography that functions as one

with the production design on stage or if the intention is for it to function as a recorded real space which is located far away. With the entrance of Laura who is amazed by this screen and discovers the two cameras that are recording and transmitting to the family in Italy, we understand the convention of the cameras and the mise-en-scène.

The central camera is placed right in front of the widescreen, so its angle is quite similar to a webcam. Laura speaks to the characters projected on the wall and, if positioned in the middle of the stage, facing the screen, she looks the other character in the eye. The issue with this central camera is that it does not capture the fictionalised room. We see the character and the audience in the background shadow. This angle doesn't now give the sense of a room, a home in which a character is living. We needed another angle and we chose a semi-profile that pans and follows the character around. The pan stops when Laura sits on the couch or sofa. This way, the Italian characters and audience can see what surrounds Laura, they see her living room. This angle gives the illusion of a surveilled home and the central angle reminds us of the theatrical convention.

The live montage was happening simultaneously with the panning and tilting of the lens of the cameras and it was subordinated to Laura's movement. We also tried to avoid the dark audience as much as possible, so the central camera was used in specific moments in which the emotional meaning was more important than the realistic look. For example, there was a section of the Game scene in which the characters from the two countries had to be in a position of confrontation, facing each other, so the characters were sitting in the middle of the stage, facing the central camera and the widescreen. There were moments in which we wanted to create the illusion that the characters are in the same room. The widescreen was a metaphor for longing. The illusion was created mainly through the side camera.

The production design in Buzău didn't mirror the one in Vimodrone, so the rule of shot-reverse-shot (Arijon, 2013: 50) didn't apply on the large scale of the sets. We created the shot-reverse-shot by positioning the actors according to the camera and not vice versa, and thus opposite to the cinema approach. In *2032 SMART-FAMILY*, we established the movements of the character and, according to the range of both cameras and set, we established

the pans, tilts, and cuts between these two cameras. The position of the camera is fixed, it never tracks in or out.

The editing was, at times, a classic montage between two cameras in the same setting. On the stage of Buzău, there was one character who was shot from two angles in full shot, medium or close up, according to her approach towards the camera. The live editing was done through basic jumps from one camera to the other when the character was in the same area of interest on both cameras, facing the same direction, right or left. The same treatment is used on the stage in Italy.

Is the process above cinematic or can it be considered filmed theatre? I believe it to be neither. The coordination of these two cameras, especially when happening live, can't be treated as cinema or filmed theatre because it is not controlled fully and there are no takes. Even in filmed theatre, you can have as many takes as you want as a director, if you are not recording it with an audience. Cinema has been confused for filmed theatre for quite a long time, in a derogative way. After the Lumière brothers recorded actual events or friends having fun outdoors, this new art came asking for help from its older brother, theatre. Cinema moved indoors. The uncut wide shots that were viable, have become films on their own. Then, especially when Georges Méliès started playing with film, with wide shots came the special effects. André Bazin argues that his films can be considered some shorter filmed theatre plays with amazingly refined special effects (Bazin, 2005: 78). We mustn't forget that most, up until Neo-Realism, were shot in a studio, and in America the narrative was mostly based on Broadway content. On the other hand, the definitory element in differentiating cinema from theatre in the beginning was sound, or best to say, the lack of it. Theatre relied on dialogue whereas cinema was only visual. Coming back to the 21st century and our 'smart family', the two cameras are creating broadcast content very similar to a film theatre shown on TV because we have a passive audience, the angle and technology of the lighting is theatrical, the actors are performing on a proper stage and, at times, we see close-ups of the main character. There is no resetting a scene and the editing mistakes cannot be undone.

Diving deeper into the function of editing, *2032 SMART-FAMILY* is based on two types of montage. First, we have a cinematic montage between the two cameras and the result of it is shown on the screen in the middle.

Second, there is a spatial montage created between two dimensions. This type of spatial montage through screens on stage or split-screen (Betancourt, 2016: 4) is different than the spatial montage in cinema deepened by Maya Deren in the American avant-garde cinema in which the characters move us through space, not separate placement of bits of screens or compilation within the same frame.

In *2032 SMART-FAMILY*, we have the dimension of the present, the theatrical 'reality' which includes everything that occurs on the set of the stage and what is shown on the widescreen from the other country. This realm is fragmented into chapters by a fade to darkness similar to a cinematic fade to black. After this transition, we enter the dimension of the collective conscience of the characters which is projected onto a vertical screen.

For the vertical content, we used two classical cinematic shots: a frontal full shot and close-up. These two shots were crossfaded with white smoke. The smoke appears in the black background and the characters have a blue tint and noisy edges to stress the digital look as if they are shaping and melting themselves into this darkness in which all things are preserved. At first look, Laura is the main character, but Marina chose to treat all the characters on this screen equally, so the cinematic point of view can change from one character to another according to what we see and hear (Kraucauer, 1960: 234). These frontal close-ups and voiceovers show us that in this darkness, we have equal access to their thoughts and memories. The full shot of a character in distress, for example, in vertigo, can be more powerful to the audience than seeing an actual spinning point of view of the camera (Merleau-Ponty, 1945). We went beyond, adding a counterpoint. The audience sees a full shot of a character playing or holding a baby that is missing. This choice of full shot emphasizes their overwhelm in front of the pivotal events in their life through voiceover and a repetitive pantomime for each character. The close-ups are also frontal and silent. The characters look us in the eye like they were looking at a reflection. The darkness surrounding them is the collective conscience.

On the other hand, the size of this screen takes us away from the cinematic horizontal point of view, so close to our natural perspective. Marina chose that the natural perspective be attributed to the live transmission of the other house in Italy and vice versa and the vertical, selfie smartphone-friendly look is associated with the inner world. Moreover, along with the human

characters, we added an animated extreme close-up of the robot. His facial expressions are the only ones edited in accordance with its voiceover. This monologue is one of the most powerful moments of the play because it represents the humanization of the robot while the humans in this dark background become abstract.

Theatre has been a mirror of society and now videotelephony and spatial montage through screens are daily processes of our world. What narratives of *Before Sunset/After Sunrise, Str. Popa Rusu No. 30* and *2032 SMART-FAMILY* have in common is the geographic distance between the individuals participating in the performances. Loneliness, migration, and the need for connection with the people on 'the other side' drive all of Marina Hanganu's telematic performances. Migration is one of the most painful events in Romanian society and what better way to stress the dynamics of long-distance relationships than through video presence and video-absence?

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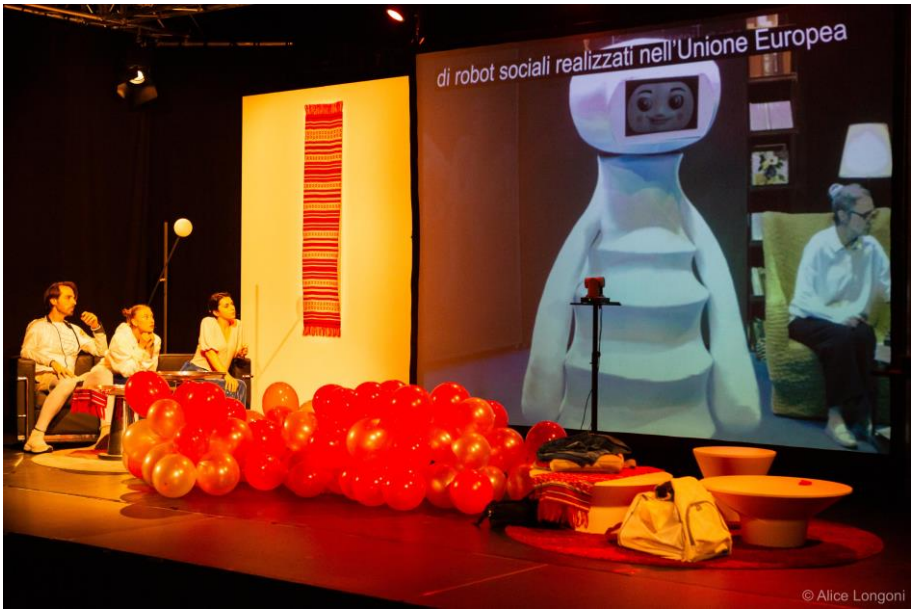
Figure 1. Aura Călărașu and Ogmios in RO. Projection: Francesca Fatichenti and Monica Buzoianu in IT. Photo: Vlad Dumitrescu.

Figure 2. Giovanni Longhin, Francesca Fatichenti and Monica Buzoianu in IT. Projection: Aura Călărașu and Ogmios in RO. Photo: Alice Longoni.



Interview with Camilla Brison

(theatre director)

Interviewer: Marina Hanganu

What is your personal reflection on the story and the themes and ideas it explores? Which were the most powerful theme of the play and the most powerful idea for you personally?

There are two main themes across the narration, or the two narrations, as the story ended up being split into two kind of separate stories. Virginia's main theme and Laura's. What was interesting for me about Virginia was the fact that her identity is not defined by one place but is constantly in-between, separated into many parts. The idea of reconstructing her identity through all the people around her and the places she inhabits (not only Romania and Italy, but also her apartment and the hospital, her past and her present), was the most interesting challenge. It left room to paint a big picture without necessarily trying to give it coherence. The whole play says: this is Virginia; Virginia is here in Italy but also there in Romania, she is like this but also like that. I think this is extremely interesting for our generation, a generation that travels and is shaped by so many experiences, a 'fluid' generation. As for Laura, the most interesting thing is her perception of family. Laura is extremely attached to Virginia as her only family. However, in forced contact with the robot, he becomes her repository of secrets, compassion, amusement, to the point that she asks him for help, the highest form of intimacy one can have with another... living being?

Let's do some directorial imagination exercises. In the scenarios mentioned below, you can make any imaginary changes to the current performance, apart from modifying the play (unless explicitly suggested at the end of each exercise).

a) ***Take out the audience in Italy. The performance is still telematic, but there's only one physically present audience, namely the one in***

Romania. The actors in Italy play only for the Romanian audience (a live televisual audience). What would you change in the current staging? What would be gained and what would be lost by adapting the performance in this way?

The play was designed to be enjoyed in a functional way by both sides, and I focused a lot on making sure that it came across clearly to the Romanian audience, so I would not change much, apart from the pantomime moments included in the transitions, which are the only thing the Romanian audience cannot see.

As for the second question, we happened to play without an audience in Italy. What was lost was the tone of the actors, and, on deeper analysis, the motivation to go on stage. Although there was an audience in Romania, it was not an audience perceived directly by the Italian actors. I think theatre always feeds on the exchange with the audience, and that specific performance was depressing for everyone.

Would any changes to the text make it easier to stage the performance in this new format? If so, what changes?

The performance would be easier to stage in this format anyway, because it reaches the peak of its complexity when it is done simultaneously by both parties. I don't think that changes to the text would make the staging much easier if there were an audience only in Romania.

b) ***Think about staging the same play <u>in the proximal space only</u>, relinquishing the telematic format and abolishing geographical distance. What would such an experiment look like? What would be gained and what would be lost by taking out both geographical distance and videoconferencing?***

The story of *2032 SMART-FAMILY* is a simple one, realistically staged. The realism of the directorial cut also entails the real form of a video conference. In order to have an interesting staging without geographical distance, one would probably have to change codes and use something other than realistic elements to give the feeling of that distance. The directorial work for this format of the play was largely about coordinating the parts and analysing the

text. There are ‘aesthetic’ directorial touches on both sides, but one cannot say that there is one strong aesthetic that stands out from the rest. Our ‘aesthetic medium’ was already technology. The answer to the question ‘how do we convey distance?’, was in the experiment itself: ‘with distance’. Had the answer not been there, we would have used other codes to tell the story of distance. It would, in short, be a purely theatrical work, with more abstract codes. It makes me think of the film *The Wizard of Oz*, which used colour, not yet widespread at the time, for a specific narrative purpose. When the protagonist, Dorothy, finds herself catapulted into a magical universe, the film turns from black and white to colour. Could the arrival in a magical world be told in any other medium? Well, other artistic solutions could have been found. What is certain is that the technical medium chosen corresponded exactly to the narrative needs of the script. So it was with *2032 SMART-FAMILY*.

Would any changes to the text make it easier to stage the performance in this new format? If so, what changes?

I don’t think so, the most interesting challenges in any text lie in the problems. Usually, it is by answering the question ‘how do I solve this issue?’ that the creative moments come to life. Perhaps some changes to the text would facilitate the process, but I would not make this a general rule. Besides, I am not a big fan of text changes. I prefer to ask myself ‘why is it that I am so unhappy with this word that the author put there? Could it be that I am looking at this the wrong way?’.

c) ***Think about staging the same play for an <u>online-only audience</u>. Let’s say the audiences and actors are all connected on Zoom. The performance is still telematic and it still happens in different spaces simultaneously, but there’s no physically present audience in the actors’ spaces. What would such an experiment look like? For example, would you still stage the performance using a theatre set or rather move the action to site-specific locations (e.g., a house, an apartment etc.)? What would be gained and what would be lost by adapting the performance in this way? Would any changes to the***

text make it easier to stage the performance in this new format? If so, what changes?

In this case, I would not use a theatre stage. As said before, the stage only comes to life, in my opinion, in the simultaneous presence of the audience and actors. A flat, or a totally realistic place would certainly be more interesting as locations. There would be two 'Big Brothers' looming over the actors in such cases. One is the family on the other side, the other is the audience watching them without them being able to see it or their reactions. In this case, I think I would only follow the basic concept of the text while allowing the actors to bring their own input through the way they interact with a real house, so as to leave room for improvisation. I think this experiment would bring more life to the play.

What are the strengths of the play (text) in your view?

It is a universal text. It doesn't really matter whether there are horses and carriages or robots and time machines. If the text is about human beings, the audience empathises. And this text is about a family, their difficulty in communicating, and love. Anyone in any era can empathise with these themes.

What are the weaknesses of the play (text) in your view?

Some of the dialogue was hard to swallow and, with regard to the Italian plot, the characters of Amalia and Lorenzo are sometimes on the sidelines in an issue concerning Laura and Virginia. I would have liked more space for Lorenzo in particular.

How did technology influence your directorial work?

When we started working, we had no great technological means. A projector of the wrong format and no instructions on how to use the cameras. Technology was a problem that slowed us down a lot for a good part of the rehearsals until we understood how we should structure the whole rehearsal process. On the other hand, communication with Romania remained crucial, so we had to mediate between problems and needs. We now know how such work should be structured from the beginning.

Did the venue in which the performance took place (its dimensions, location in Vimodrone and other site-specific particularities) influence any decisions you made as director (for instance, in terms of acting, scenography etc.)? If so, in what way?

Yes. One of the main issues was the fact that we could not darken the auditorium, which prevented the simultaneous and mirrored ending in the two countries, this being one of the cornerstones on which we had built the performance. I must say that the 'second ending' invented to get around this problem made more and more sense in my head, so much so that even when the time change would have allowed us to achieve simultaneous darkness, I kept the different ending. In a way, this detail speaks to the fact that the text came to life in two complementary but independent forms in the two countries. We were telling the same story but at the same time two different stories; it was one of the most interesting discoveries made in the process.

The other problem with the space was the size of the stage, which lost a lot of depth because of the necessary distance between the projector and the screen. I have to say that I was very worried at the beginning, but then the actors somehow learnt to live in that small living room and we invented creative solutions to give a little more visual depth to the stage, for example with the armchair where Lorenzo takes care of his plant.

How did the extended space of the telematic performance influence your directorial work?

I would say that the issue were mainly the scenes of interaction between Laura and the family in Italy, and especially the scenes between Virginia and Laura. The big challenge was not so much having two different spaces as the fact that two actresses had two different directors overseeing them on site. Actually, this part of the work, which could have been very tricky, was extremely stimulating. While I was working with Monica Buzoianu on the character in Italy, Marina Hanganu was working with Aura Călărașu in Romania, then we would rehearse the scenes together, then we would give joint notes. *Separate notes and joint notes* was more or less the modus operandi of the whole show, and it was discovered and built up over time.

How did the social time in Italy affect this performance? By social time I mean the rhythms of everyday life (for example, when people usually go to the theatre), but also the social realities in Italy.

Planning the timing of the show was complex from this point of view: in general, audience attendance in Italy is very low, most people do not usually go to the theatre. In addition, our theatre was located outside Milan so the audience needed a good amount of time to reach it. The midweek dates and the time being so close to working hours created several problems with audience attendance.

How did the rehearsal process differ compared to a performance happening in one space?

The rehearsals found their balance after several attempts. For most of the first rehearsal period, character building work was separated between Italy and Romania. Part of the day was then dedicated to working together: either to show colleagues scenes that took place entirely in Romania or Italy or to rehearse the shared scenes together. As it was a work conducted by two directors, we then gave shared feedback, mainly keeping jurisprudence over our respective countries but always discussing each other's choices.

What was it like to work in collaboration with another stage director?

It was a very good experience. Usually, having two directors in the room does not work. However, I have to say that the collaboration with Marina Hanganu was very stimulating from an artistic point of view. Marina gave me great freedom of choice and the team worked in terms of collaboration between both actors and directors. Even disagreements on certain points in the text were always opportunities for artistic investigation. From this point of view, it was a process truly aimed at creation, free of principled arguments about who was right or wrong or the dynamics of artistic selfishness that might have intervened between us.

What was it like to work in collaboration with an interdisciplinary team across two countries?

This was also a good experience, but it meant a lot of work on the part of the coordination team, Marina, myself and the production team. The greatest

satisfaction for me was seeing how everyone gradually became independent in their own task and fell in sync with their counterpart in the other country, even though it took some time. We can say that we reached a level of collective serenity towards the last few rounds.

What was the most challenging aspect of the rehearsal and presentation process?

For Marina and for me, the whole process was extremely tiring because, although each department worked intensively to pull the strings of an artistic display, we needed a machine that worked flawlessly from a technical and time-related point of view. Since we work in theatre, we always have to deal with the human factor, which can 'slow us down' but is also the great source of transformation in every process. That was where the most work had to be done, in finding a balance between 'robotic' rigour and human creativity.

What was the most pleasant aspect of the rehearsal and presentation process?

Being able to work with actors is always a pleasure for me, and having an alter ego director who shares my sentiments was great because it made me feel less alone in what is, in fact, a very lonely job.

You were there at every performance and connected with me on WhatsApp to synchronize the action in real-time. Moreover, you attended the audience discussions. From your personal observation, how did the audience in Italy perceive the performance? Were there any audience reactions that stood out (positively or negatively)?

The audience responded well to the play, even though the performance in Italy was very much affected by the timetable and there were often very few spectators in the auditorium. The thing that stood out the most was that, despite the tremendous technical efforts, what the audience follows is the 'human' aspects of the play. To me, this is a great achievement because it means that the technology, although innovative, does not make the story pretentious. Interesting comments were also made by the school classes: the relationships they focused on the most were between the mother and the teenage daughter and between the teenage daughter and her distant

grandmother. Many similarities emerged: a Romanian boy told us that he has a grandmother in Romania who has no intention of moving to Italy just like Laura[72], but the dynamic is the same also in the case of grandparents who live just outside the city, and who want to maintain their independence and live in their own home. The fact that even such a young audience found the story relatable was a great satisfaction.

What is the potential for the development of this specific form of telematic theatre in your view?

I suppose it is a form of experimentation that will be carried on. However, my skepticism about technology in theatre means that I suspect there will be a lot of specious applications of this kind. The thing I loved about *2032 SMART-FAMILY* is that the technology does not undermine the text, it does not undermine the relationships between the actors, it does not undermine the human aspect of the story. Somehow, human nature 'prevails', and for me, theatre is all about the ritual of people coming together to watch others tell a story. If these base concepts fall apart, if technology replaces one of these two elements, the actor and the spectator, there is no theatre.

Assuming additional funding could be secured to ensure a continued performance run outside of the Tele-Encounters: Beyond the Human framework, do you think this performance could fit into the Italian theatre system (for example, considering parameters such as touring versus repertoire system, actors' availability and theatre programming practices)? If so, under what circumstances could the performance run be extended?

The Italian touring system would certainly make it easier than in Romania to keep such a show on the bill for about ten days, in a theatre that had the means to host it. These means are mainly related to economic resources: the ability and willingness to install a connection specifically for the show, economic availability for the cost of the performances (six technicians and three actors for the Italian part alone per evening are relatively many by our standards).

[72] Laura Mihalcea (character), the left-behind elderly mother in the play (Editor's note).

What do you take with you from this experience?

It was a unique experience that I don't think I will get to repeat in my life: it is rare to harmonize with another director, it is rare to work on international collaborations and it is rare to work on such innovative projects. These three elements, in addition to all the encounters along the way, are the things that make this production unique.

Anything else you'd like to say about 2032 SMART-FAMILY?

Mulțumesc, România! Such a great country with such good theatre creators to work with!

Figure 3. Giovanni Longhin, Francesca Fatichenti and Monica Buzoianu in IT. Photo: Alice Longoni.

Figure 4. Aura Călărașu in RO. Projection: Francesca Fatichenti, Giovanni Longhin and Monica Buzoianu in IT. Photo: Vlad Dumitrescu.

Interview with Monica Buzoianu

(role: Virginia Visconti)

Interviewer: Marina Hanganu

What is your personal reflection on the story and the themes and ideas it explores? Which were the most powerful theme of the play and the most powerful idea for you personally?

In times like ours, in which technology is present and taken for granted, I think it is very important to make a show in which technology is the protagonist. *2032 SMART-FAMILY* gave me the opportunity to represent my relationship with technology. It made me understand how much technology deceives us into thinking that it makes our life, our relationships and our work easier and that it keeps us connected to each other, when in reality, we risk being even more alone.

In this play, there were many important themes such as immigration, identity, old age, but for me, the most powerful theme of the play is the technology (in general) that gives us the illusion that we can control everything… but is it really so?

What was it like to work with a text that kept being edited during rehearsals?

It was great! It gave us the possibility of keeping the initial idea and the scenic relationship alive even if it happened at a distance.

How would you describe your relationship with the robot from an acting point of view?

It was really funny! I knew that behind Ogmios, the robot, there was a person – a great actress – and sometimes I forgot about that.

How would you describe your relationship with the video cameras and the main projection screen where you could see the action in the remote space?

Acting in this show was a negotiation between theatre and cinema. I loved it, but it took a certain kind of effort.

Could you sense the Internet delay while you were performing? If so, did the delay influence your acting in any way?

Yes, it changed the tempo of my acting.

What remote communication channel was the most important for you during the performance? Video, audio or were they equally important?

When the project started, I considered both of them important. After a few weeks of rehearsals, I can say the audio was the most important.

Did you feel present in the remote space while you were performing? In which moments yes (if any) and in which moments no?

Yes. All of the time, because the scenic space had been designed so as to create a unique environment.

How would you describe acting with your telepresent partners compared to acting with your on-stage physically present partners?

It was more difficult. In this case, the technology – the cameras – supported our acting by recording every gesture, every look, but sometimes, if you were not present in the moment, you risked acting alone.

From an acting perspective, at what point(s) in the performance did you feel <u>the most connected</u> with your telepresent partner (Aura)?

Most of the time. Being in different spaces forces us in a way to always listen to each other.

From an acting perspective, at what point(s) in the performance did you feel <u>the least connected</u> with your telepresent partner (Aura)?

Maybe in scene number 2. When Virginia is at the hospital and receives a call from Ogmios. Sometimes I felt I was missing something in the relationship with Aura.

What would you say influenced the sense of connection with your telepresent partner (Aura)?

The connection relied on us listening to each other.

In what way would you say your senses were limited/truncated and in what way were they expanded/enhanced by technology? Did the absence of touch related to your telepresent partners influence you in any way?

The absence of touch influenced me a lot. The need for it made me pay more attention to how I pronounced the words, to my tone of voice and the way I looked into the camera.

This performance was a hybrid between theatre and live film. How did this influence your acting compared to a regular theatre performance or compared to regular acting for the camera?

I think it was a unique experience. Because we had spectators in our theatre and even on the other side of the screen. It was something you can't forget, and it influenced our breath, our presence on the stage and in front of the cameras.

Were you aware of the remote audience throughout the performance? If so, did your awareness of the remote audience influence your acting in any way?

Yes, of course. I felt double the responsibility: towards both the Italian and Romanian audience.

What were the most challenging aspects of the rehearsal process and the performance run?

Learning to break free and trust the technology.

What were the most pleasant aspects of the rehearsal process and the performance run?

When all the technological elements were working.

What do you take with you from this experience?

The emotions, the Italian and the Romanian teams and the fatigue.

Anything else you'd like to say about 2032 SMART-FAMILY?

For me, it was also a (metaphorical) homecoming.

Figure 5. Aura Călărașu and Ogmios in RO. Projection: Francesca Fatichenti in IT. Photo: Vlad Dumitrescu.

Figure 6. Francesca Fatichenti in IT. Projection: Aura Călărașu in RO. Photo: Alice Longoni.

Interview with Aura Călărașu

(role: Laura Mihalcea)

Interviewer: Marina Hanganu

What is your personal reflection on the story and the themes and ideas it explores?

I have always been interested in social theatre. I have always believed that poverty, migration, abuse, marginalization, etc. are sensitive topics present in our current reality, which can and should be explored through theatre. As an actress, being part of these projects gives me an immediate and undisputable feeling of usefulness.

Smaranda once noted after one of our telematic performances that the Italian audience laughed more, while the Romanian one cried more. It seems that the theme of migration and elderly parents left behind resonates differently with different audiences. But old age, the sickness and the loneliness that come with it are universally relatable themes. Of course, we are all touched by them. And the concept of present and future technology potentially becoming a helping hand for elderly people is somewhat comforting. Given my age and the needs of the elders in my family, I found the idea of Ogmios Z42 enchanting.

What was it like to work with a text that kept being edited during rehearsals?

I found it a natural way of working, very appropriate and beneficial to the project.

How would you describe your relationship with the robot and Smaranda, who was controlling it from the balcony, from an acting point of view?

I had the same expectations from Ogmios Z42 as I would from a human partner and I always do from myself: truth, relationship, situation. Gradually, rehearsal by rehearsal, I realized how difficult it is – artistically and technologically – to do what Smaranda does, all the way up on the balcony.

But I didn't lower my expectations. I think it's a productive approach for any type of character, applicable even when one of the actors is puppeteering a robot and the type of theatre is telematic. And I believe that together, Smaranda and I did an honourable job.

How would you describe your relationship with the video cameras and the main projection screen where you could see the action in the remote space?

I made use of them! As much as I could. In order to give my character nuance. Or accentuate her feelings. For the audience in Buzău as well as the Italian one. In the fibrillation scene, for example, I took Laura as close as possible to the cameras in order for her panic to be front and centre on the screen in Italy.

Could you sense the Internet delay while you were performing? If so, did the delay influence your acting in any way?

No, I didn't feel it during the performance. Fortunately. And I am grateful to my colleagues on the project's technical team for it. I really am!

What remote communication channel was the most important for you during the performance? Video, audio or were they equally important?

I would say both in the case of our telepresent partners. As for Ogmios, I remember how important it was for me during the scene that I could hear Smaranda's voice as if it were coming from the robot itself.

You've never been to the Italian space. Could you develop a mental image of this space during rehearsals? Was such a mental image of the remote space necessary for you as an actress?

Initially, I didn't wonder about the space in Italy. Perhaps also because I joined the project later. Except, at one point, I noticed that my Italian colleagues were acting in a different 'key': more discreetly, more film-like, so to speak. In Italy, there were three actors on a small stage addressing a close audience, and in Buzău, the scene and the room were in almost classic style. Different spaces require different acting techniques. In Buzău, we kept working towards a balance even after the premiere, performance by performance.

Did you feel present in the remote space while you were performing? In which moments yes (if any) and in which moments no?

Armine was the one responsible for my presence in the other space. On the other hand, it's up to each director's vision which parts of the actors' performances are displayed in the other space. I think that, as an actor, all you can do is be creative and offer acting material that can be worked with.

How would you describe acting with your telepresent partners compared to acting with your on-stage physically present partners?

We couldn't have coffee and chat after rehearsals. Other than that, I came to the conclusion that we were able to work very, very well that way.

What aspects would you say influenced your sense of connection to the telepresent actors?

Naturally, bonds between people and actors are forged more easily when you are acting in the same language. Monica and the mother-daughter scenes are very important to me. But I think that the specificity of this project, of telematic theatre itself, is the most interesting form of connection. To be an actor, simultaneously present and telepresent in the same performance! But is it really the same performance? To have your presence serve one space and one public, while your telepresence serves another space and public! To have a show that is so dependent on technology and the people specialized in it! It was an uncommon situation to which every actor connected successfully, I think. And which I know we all enjoyed together.

In what way would you say your senses were limited/truncated and in what way were they expanded/enhanced by technology?

I perceived technology as a necessary means for telematic theatre, but it didn't interfere with the way in which I, the actress, developed my character. I think I used my senses and intuition as much as I do for any other play, but while trying to adapt to the specific requirements. The difference was that I had to learn to split the rehearsal time in order to make room for my new stage partner: technology. I could say, as a joke, that telematic theatre teaches you that the world doesn't revolve around the actor, in case you weren't already

aware. Without the technical team's 'touch', without their skills, the show couldn't exist.

This performance was a hybrid between theatre and live film. How did this influence your acting compared to a regular theatre performance or compared to regular acting for the camera?

I think the acting required for telematic theatre is also a hybrid, in a way. When you approach the camera, the Italian audience sees a close-up of you. But you can't act as if it were a movie. Although the proximity to the camera and the 'eye-to-eye' contact with the projection of the Italian partner gives you, as an actress, and the audience, a feeling of intimacy, you can't act in an intimate manner. Because the audience in Buzău must hear you. For them, the voice of the actress on stage isn't amplified by microphones. So, you act in a 'hybrid' way. And there are many other ways in which telematic theatre requires actors to adapt. I found these challenges very interesting.

Were you aware of the remote audience throughout the performance? If so, did your awareness of the remote audience influence your acting in any way?

No, not during the performance. To me, there was only one audience, the one in the Buzău theatre. Theirs was the only 'breath' I could feel. As for the other audience, Monica sent me some feedback after the premiere. It was encouraging.

What were the most challenging aspects of the rehearsal process and performance run? What about the most pleasant aspects?

It's been a while. It has all blended together. I'm left with a good, pleasant feeling. And the certainty that telematic theatre is a useful experience for any actor willing to try new things.

What do you take with you from this experience?

What do I take with me? The enthusiasm, youthfulness and energy of the project team. And certainly a greater sense of benevolent curiosity towards technology. How could I not, once I've played Laura Mihalcea in *2032 SMART-FAMILY?*

Interview with Francesca Fatichenti

(role: Amalia Visconti – Nova)

Interviewer: Marina Hanganu

What is your personal reflection on the story and the themes and ideas it explores? Which were the most powerful theme of the play and the most powerful idea for you personally?

It's a story that talks about today's reality, with boldness and critical thinking. It does so by showing a multicultural world, which is so rarely staged in theatres, a world that blends different identities and explores the complexity of their living together.

For me, the analysis of distance is a great source of inspiration. It's a new kind of distance, the one that we see in *2032 SMART-FAMILY*: the grandmother is both connected and disconnected, she is both near and far away from the Italian family, and this leaves space for the family drama to happen. Also, this work inspired me through the generational conflict between grandmother, mother and daughter. These three, apparently very different and conflictual, share the same inner struggles and reasons for them. It is moving to see each of them accepting their own fate in the end, which brings them apart in the pursuit of what seems to each of them like the nearest thing to happiness that they can get.

What was it like to work with a text that kept being edited during rehearsals?

I joined the rehearsals relatively late, meaning that the text had already been edited to its nearly final version. As far as the 'transitions' are concerned (the bits between one scene and another, mostly recorded), it took me a while to integrate them into my perception of the play as a whole, mainly because, having been recorded, they didn't require any active participation on my part. For me, the challenge was more about having a text that is half in Romanian and half in Italian.

How would you describe your relationship with the robot from an acting point of view?

It was interesting to find a friend in a robot. At the beginning, I was treating it as a device, a machine, but the more we rehearsed, the the more I began to perceive the human factor behind the robot. In the end, I knew we were acting along Smaranda, and I considered her a scene partner. In any case, I felt the relationship on an acoustic level rather than a visual one, and this helped me keep it human.

How would you describe your relationship with the video cameras and the main projection screen where you could see the action in the remote space?

It's a great exercise, to make sure that you are staying inside the frame of the cameras, and at the same time be natural in performing the actions. At the beginning, we tried to prioritize staying within frame, but we eventually found out that the most important thing was to keep the physical space alive, so we ended up giving more importance to the spontaneity of the acting.

Could you sense the Internet delay while you were performing? If so, did the delay influence your acting in any way?

Yes, especially during the first shows. It did influence my acting, because I felt I was waiting for something to happen on the other side, and I somehow had to be more 'active' on this side. As a performer, you'd feel some delay, and I think the audience could feel it too.

I felt that enhancing some traits of my character would help the whole performance pick up the pace. Because Amalia is very young compared to the others and because she's a woman, (and because she drinks Redbull) her heartbeat is faster, her movements are faster, she talks more quickly. I tried to be the one fidgeting around, whilst the adults were more deeply sunk into their problems.

What remote communication channel was the most important for you during the performance? Video, audio or were they equally important?

Audio. Hundred percent. Because the text is the one that keeps us all together. Acting in a language that you don't understand means that you must be hyper-vigilant sound-wise, because you can't lean on the full understanding

of meaning to remember your cue. The voice of the other person becomes something like music: it delivers feelings, to which I responded.

Did you feel present in the remote space while you were performing? In which moments yes (if any) and in which moments no?

From the Italian side, I couldn't hear the reactions of the audience in Romania, whether they were laughing, crying or watching in anticipation. I couldn't even see them. My only way to connect with that audience was by relying on Aura's work, and the way she would act depending on the audience. I felt present especially during Scene 6, where we are all playing Grandma's video game. In that scene, we are all acting directly for the camera, and each one of us has their personal moment. Also, in Scene 6 I could see some heads looking at us, on the other side of the screen. It was exciting.

How would you describe acting with your telepresent partners compared to acting with your on-stage physically present partners?

The differences were many: no physical contact, no audio directly from the person, no way of seeing Aura and the robot other than through the cameras, no chatting outside the theatre, no way to exchange greetings in the same language. Also, normally, we wouldn't look at our actors on stage, but only at the camera, to guarantee that it would seem like we were looking at Aura on the other side. It did feel very distant. In this sense, it means all efforts are directed in one direction: you only interact with the other person in the way the play requires.

From an acting perspective, at what point(s) in the performance did you feel <u>the most connected</u> with your telepresent partner (Aura)?

When we were fighting to win the game in scene 6. It was our moment, outside the limitations of our lines.

From an acting perspective, at what point(s) in the performance did you feel <u>the least connected</u> with your telepresent partner (Aura)?

During the transitions.

What would you say influenced the sense of connection with your telepresent partner (Aura)?

The fact that she was very quick to adjust her acting according to our changes. If I delivered a line differently, she'd instantly pick up on that and respond accordingly.

In what way would you say your senses were limited/truncated and in what way were they expanded/enhanced by technology? Did the absence of touch related to your telepresent partners influence you in any way?

I think the lack of touch didn't make the biggest difference. During COVID-19 we all learned that we can perform at a 'safe distance', without touching, and be okay with that. The most challenging thing for me was that we were bi-dimensional to each other. We couldn't walk around each other, we couldn't adjust our interactions depending on our space. At some point, I risked perceiving Aura as a video recording. Of course this didn't happen, but I'd say that this system makes it more likely to take the other actress for granted and, in the end, to act like a robot yourself.

This performance was a hybrid between theatre and live film. How did this influence your acting compared to a regular theatre performance or compared to regular acting for the camera?

We had to find the balance between the two. I eventually found out that the theatrical aspect was more important to me than the cinematic one, mainly because of the more direct feedback from the live audience. I could draw energy from the theatrical side of the performance and channel it into the cinematic one.

What were the most challenging aspects of the rehearsal process and the performance run?

Waiting for the technical aspects to be ready. The focus was not automatically on us, the actors, because there were more important variables to get under control first.

In the performance run, there was sometimes a gap between Italy and Romania, because our audience was smaller than the one in Buzău. This would affect the energy levels of each acting team (the Italian and the Romanian one).

What were the most pleasant aspects of the rehearsal process and the performance run?

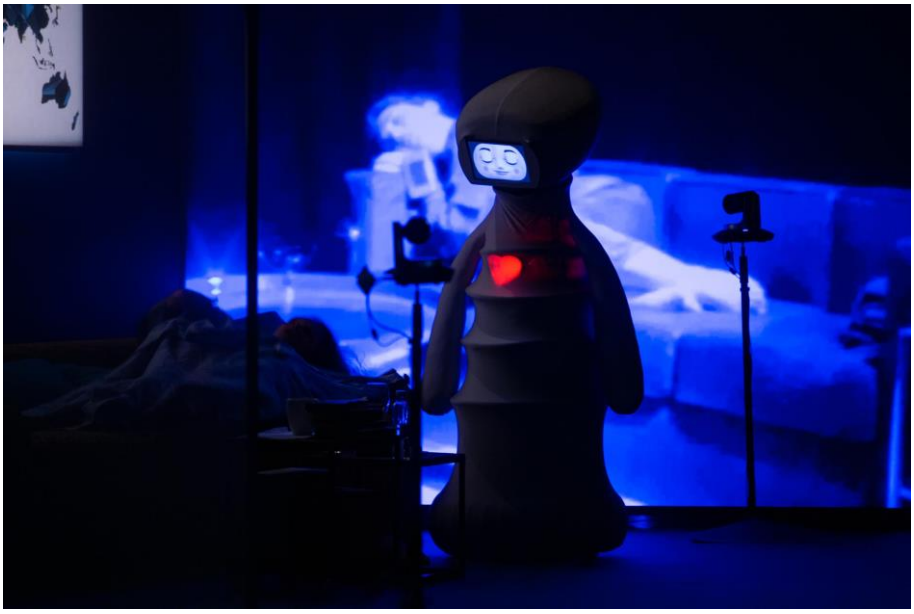
Learning a new language and being surrounded by so many competent people. I was very fascinated by the technical part.

What do you take with you from this experience?

The knowledge that something like this is possible. The hope that we might get to work together again.

Figure 7. Aura Călărașu and Ogmios in RO. Photo: Vlad Dumitrescu.

Figure 8. Beginning of Scene 8, after the crisis. Aula Călărașu and Ogmios in RO. Projection: Monica Buzoianu in IT. Photo: Vlad Dumitrescu.



Interview with Smaranda Găbudeanu

(role: Ogmios Z42)

Interviewer: Marina Hanganu

What is your personal reflection on the story and the themes and ideas it explores? Which were the most powerful theme of the play and the most powerful idea for you personally?

I love how it is in the end all about people, dreams, family relationships, fear of losing, death, loneliness. Technology only highlights themes that are already there, which need to be lived and understood. In the end, it is an oldie but goldie psychological theatre play, with the fourth wall and all. And, well, a robot that creates the conflict.

I think this is the beauty of the play – despite all the technology in it, it doesn't stray from the classical convention, on the contrary, it uses the technology as a pretext to delve even deeper into human relations. With all the post-theatre talk that's happening right now, to do a totally experimental piece in terms of the use of technology and to remain rooted in theatre tradition is quite a remarkable achievement. And a very smart move.

What was it like to play a robot character? What aspects were the most important in terms of acting?

I kept a psychological line of acting, kept asking the classic questions about the 'why', the goal of the character in the scene/play and all. Only that the answers were not in the past, I had no 'emotional memory' to access but the programs of the robot. Marina, the director, worked with me on defining the few modes of Ogmios[73] (the medical program, the entertainment program...) that it would access according to the situation and the character it would be in relation with. And there is also this permanent keenness to learn, to improve, to be better and better at making Laura happy and keeping her sane.

[73] Throughout this interview, Smaranda Găbudeanu refers to Ogmios with masculine pronouns (*he/him/his*) when the robot is seen as a character and with *it* when the robot is seen as an object.

So, I had a clear drive and total availability to read and react to the other actor's behaviour according to my programming. It felt like working in Meisner technique sometimes.

What was the evolution of your character in terms of the story? How did that evolution transpire through your acting?

I had this chance to literally be born and grow on stage. From the robot that was just taken out of the box, like a *tabula rasa* with only the few basic 'factory' programs and protocols, Ogmios starts to be configured and fed with information. Moreover, it starts to learn by itself, collecting data from the surrounding humans and comparing it with the internet database. In the first part of the play, the robot's continuous puzzlement when faced with human inconsistencies and its zeal to make correlations between its data and reality, are a source of humoristic situations, fed by Ogmios' ingenuity. It is very keen to do its job well, but its good intentions clash with a stubborn, moody, vulnerable but proud human. I mentioned pride because it is exactly the lack of pride in Ogmios that gradually wins the sympathy of the audience. The way that his only response to the insults and the resentment of a human that despises technology are some sighs that seem like sadness. Though not out of wounded pride for the insult taken, but for his incapacity to fulfil his task, of being helpful. And his capacity to try again and again, his keenness to make Laura happy by all means and his capacity to absorb from her any bit of information that can make him improve are touching. It is much like in courtship, and we always sympathise with the rejected clumsy lover. And it is also much like the classic (and Hollywoodian) story of a developing friendship between two characters who come from different worlds that are irreconcilable at first.

The audience starts to feel for him and wish he were accepted, while the character becomes more and more complex. His relationships with the other characters also gain nuance, he develops sympathies and jealousies, all connected to the relationship he has with his 'primary user', Laura. He becomes better and better at blending in the family and mimicking human behaviour and is increasingly subtle in detecting emotions and using language. But not that subtle. From time to time some misplaced enthusiasm,

too much keenness to please or some unrequested information he feels due to provide earns him yet another scolding.

In a way, it was easy and enjoyable to play and let the character develop and transform as I had such clear references, a constant drive, and the chance to learn about the game as it unfolded. Ogmios is also like a raisonneur as he learns about the world of the play and the intricate relationships between the characters at the same time as the audience, only that he has a different way of decoding.

What was it like to work with a text that kept being edited during rehearsals?

I'd say I was used to this kind of work, as I've done devised theatre and other forms like sketch comedy where the actors create the text themselves through improv. In this case, it was even easier, as we started with an already written longer text that kept being adjusted and shortened. So, it was being simplified, and at the same time you could use all the info the expanded text gave you. You had an extra text that was already there, in the back of your mind. And, of course, I never mind having my text shortened when it comes to having to learn it by heart.

How would you describe your relationship with the devices that enabled you to control the robot?

It took me a while to get accustomed to them and discover how to make them work for me. They are, in a way, customised. It was a relief, for example, to be able to place the remote controller on the desk instead of keeping it in my hands. Freeing my hands and being able to operate it from the tips of my fingers brought some extra control and pleasure. Also, I placed the remote controller upside down, the other way around than it was intended. That actually makes sense. The 'further' direction from my point of view facing the stage was usually towards me, the robot moving from upstage to downstage. Also, right and left are the other way around (*the court* and *the garden).* To put it simpler, while a gamer's point of view is usually from behind the robot/machine, I am facing it. Of course, not all the time, as the robot has great freedom of movement, but it also follows the theatrical convention to face the audience or to stay in semi-profile whenever possible. On the other hand, some other commands were counterintuitive.

How would you describe your relationship with the robot as a mechanical puppet?

As with any puppet, the robot is not perfect, and it is one's job as a puppeteer to discover its particularities and to work with (or on) them. Sometimes, especially with string puppets, it is the faults themselves that shape a character if the puppeteer knows how to harness them and, rather than try to hide them, enhance them. It also needs to be decided which faults are worth mending and which ones the puppeteer should adapt to.

But, unlike with puppets, I could not mend and improve the robot myself. So, at first, I took it as it was and worked on improving my control skills for a while. But it just wasn't enough. So, at one point (later than I should have), I asked to see the engineer that built it. We worked together on certain aspects (like travel speed or range of movement of the head) and adapted them to the demands of the stage and the play.

I now see this collaboration between the engineer who builds it and the artist that controls it as a mandatory step in the creation of a robot for theatre.

How does acting with a robot compare with acting with a more traditional puppet? Can you name a style of puppeteering that is the closest to this experience?

Someone told me that they enjoyed the subtler movements the most, the way Ogmios listened and reacted to the world around him. At one point I was puzzled by the fact that, unlike with puppets that represent humans or animals – or even spheres or objects but, well, animated – the robot is not supposed to be alive. But I discovered soon enough that for the sake of the play, it cannot be left 'dead' either, it needs to have a 'drive'. In puppetry one option is to find 'the breath' of the puppet, in order to keep it alive the whole time. Ogmios doesn't breathe, but it has an intense ongoing activity of learning from practically everything, of sorting and comparing data. An internal buzz. This makes him active and present even when he has nothing to do. Even in stillness, he is attentive.

But let's say that I would have had this same problem if the character was a robot, but the handling was traditional. The huge difference is made in this case by the lack of physical contact (be it mediated by a string or stick).

Moreover, when you play hand puppets (bi-ba-bo or wayang) from behind the panel, the movement is transmitted from and reverberates in your whole body, it doesn't end at the joint of the hand, elbow or shoulder. With string puppets, there is more of a feeling of conducting, handling, there is a certain degree of dissociation between what the hands do and what the puppet does. But you still have a lot of physical parameters – you need to feel the weight of the puppet, its contact with the floor, or to set a rhythm that you first feel in your own body.

As with the remote controller, the movements you make with your hands are totally dissociated from what the robot actually does. You receive all the information through sight, it is all mediated by a code, more about hand-eye coordination.

This difference taken into consideration, string puppet handling is the closest style to this experience, as it implies a bigger distance between the puppet and the puppet master and a view from above.

How would you describe your relationship with the video cameras and the main projection screen where you could see the action in Italy?

I used one camera as a point of reference and addressed some of the lines to it as a mediator between the robot and the telepresent actors, and also with the remote audience. The camera would work as another actor. Of course, I also had to take both cameras into account when we did the blocking so as to remain in frame.

As for the screen, it was rather a compositional task. As I see it in the real world, the robot would not need to watch the screen, as it has access to all the video cameras and takes his information from there (it might at most simulate an interest just to seem more human-like to the primary user). To make it work for the audience, we needed to create an interaction between the robot and the screen. At this point, there are also some theatrical conventions that apply, as I would only suggest with a half-turn. The distance between the screen and the robot was in most cases too small for it to actually see the whole action, but for the audience, it seemed plausible. For me as an actor, it helped to have in the back of my mind the fact that Ogmios actually knows what's happening in the remote scene and that the movements towards the screen are just 'to pay attention'.

Did the mixer-added voice effect influence your acting? If so, in what way?

Hearing my voice through the speakers with the added effect was both contributing to the feeling I was actually there, in the story, and to a certain dissociation between me and the character. It added a layer of trust in the work, in the plausibility of the character. It wasn't enough, it didn't do the trick all the way, I still needed to explore with my voice, to add my own metallic effect and to find a different register for each of the robots' programs. But it helped in the way a good costume can help an actor to feel more in character and to play more freely.

The delay could be an issue while controlling the robot, but also while communicating with the telepresent actors. Could you sense the Internet delay or remote-controller delay while you were performing? If so, did the delay influence your acting in any way?

The delay was a big issue during rehearsals and at one point I started to work with the robot engineer to see what could actually be done. He reduced it a lot, so that when we got to the premiere, the delay felt 'normal'. There is also this predictability in a set performance that means you know when to initiate a movement, similar to how singers calculate when to breathe before a musical bit so that they enter in time. Also, a little delay in a robot can be integrated into the character, even people react with a certain delay (all, actually, to different degrees). The trick is more about how to integrate into the rhythm of the scene, to tune in with the other characters' rhythms.

During the performance, were you more reliant on the robot's vision via the tablet webcam, on your naked eye or equally reliant on both?

I was reliant on my naked eye most of the time. I would use the robot's camera only in the scenes in which I was closer to the actor, to give my partner proper eye-to-eye contact. It also brought me a sense of closeness and was a way to immerse myself in scenes where the characters were bonding.

You saw the performance space in Romania both from within, mediated by the robot's camera, and from the outside, as you watched the robot move on stage from a birds-eye vantage point. How did this simultaneous

perspective influence your acting in terms of your relationship with the physical space in Romania?

The perspectives were not simultaneous but alternative. Rather, I only chose to look through the eyes of the robot in some particular situations, when it was needed for the connection with the actor on stage, or to check the positioning. I am aware now that another actor might have chosen differently. Maybe the fact that we rehearsed a lot with me next to the stage and moving to the balcony was a true revelation contributed to this choice. All the lines of movements were so much clearer from above and I felt like I was moving pieces on a chessboard, that I didn't really need anything else to orient in space.

You've never been in the performance space in Italy physically. Could you develop a mental image of the remote space during rehearsals? How detailed do you feel this mental image was? Was such a mental image of the other space necessary for you as an actress? If so, in what way?

Yes, I think I had a quite clear perception of the remote space. I didn't bother much thinking of it from the perspective of the remote audience, but rather from onstage. I gave a thought to the fact that the typology of the theatre was different, the audience could empathise with the actors, who were closer to them and almost at the same level compared to our high stage.

It is only now that you ask that I realise what the remote audience's perspective was, that they actually saw the screens from closer and lower than we saw ours and could immerse themselves better than I thought into the scenes filmed from our stage. It is good news for me now, but I'm not sure I would have benefited from it when playing. The space had, in my perception, its coherence in connection with ours.

Did you feel present in the remote space while you were performing? In which moments would you say 'yes' (if any) and in which moments 'no'?

The moment I felt present in the remote space was in scene 4, when we have a projection in Romania of what's happening on the other stage. I could feel my character was there, with the actors, witnessing their interactions. But I think this is more about the remote space being present in our space, more about immersion enabled by technology.

In other instances, I was sometimes aware of my character's presence on their screen, but not in their space. I felt my voice was audible there, but this didn't bring me the feeling of corporeal presence. There is, of course, scene 6, when Ogmios is the game master and his powerful presence is manifested equally in both spaces, and maybe I had some brief moments when I would communicate directly with a telepresent character.

I think that if the opportunity arose for future performances, it would be interesting to explore this and enhance my awareness.

You were both immersed in the performance space (immersed physically via the robot's eyes and psychologically as a character) and (at least) physically distanced from it. Can you elaborate on the balance/juggle between immersion and distance in your acting? Was this somewhat contradictory condition reflected in any way in your bodily sensations and psychological state during the performance?

A certain distance from the actors and the tension on the stage actually did me good. Actors can be very demanding and sometimes emotionally overwhelming, and given the character I was playing and the multitude of tasks I had, I needed a cool head. With all the technical risks involved and the responsibility I had, I think it was important that I was in a 'safe place'. Speaking of this, I'd like to mention the colleagues around me at the technical desk, who were very kind and funny and attentive to my work and what I might need, even if they had their own job to focus on. Of course, at times there was another kind of tension up there, where everyone's focus on the technical devices and the stress when something went wrong could make it hard for me to remain connected to the stage and my partner.

Up there one could really feel like the 'puppet master'. I could influence what was happening on stage with a slight movement of the fingers. This pleasant feeling risked distracting me into losing the tempo of the scene. I had enough tasks to believe at times that it is enough to do them right. I remember that there were many instances when Aura felt alone on the stage, as I forgot to also be fully present in the acting and relationship, I was turning into a technician.

I guess this juggle between immersion and distance, emotional connection and technology, has a lot to do with finding the balance between

relaxation and tension. This also happens in dancing, more visible in contact improvisation – the question of what and when needs to relax in order to keep the body and senses and emotions responsive and what and how much needs to tense in order to keep the integrity of the body and to generate movement or opposition when needed.

What was it like to act with your telepresent partners compared to your on-stage physically present partner?

The comparison is somewhat hard to make, as the relationships between the characters are very different. It is clear that Laura is the most important for Ogmios and is the closest. All of Ogmios' attention and efforts are directed towards her, and the other characters are taken into consideration depending on the hierarchy of the importance they have for Laura. He also has an interest in blending in with the whole family and learning from their interactions, but I cannot imagine how it would be if Laura was the telepresent one.

That being said, acting with the telepresent partners implied a better awareness of what I transmit, of what they actually see from there. More focus on the face mimic and the voice, more clarity in intentions. The attention was rather on myself. With the on-stage partner, it was more about being there with her, having the proper energy, responsiveness, and tuning in. More attention on the other person, on the actress.

Your body was the most constrained by technology compared to all the other bodies in the performance – ironically, in a way, as you are also an accomplished dancer. In what way would you say your senses were limited/truncated and in what way were they expanded/enhanced by technology? Did the absence of touch in relation to the other actors influence you in any way?

Well, I might (hopefully) be a dancer, but I am also a bookworm, so having a world unfold in front of me while not moving much is not unfamiliar. Generating movement and sound in this world that my body was kept away from was fascinating. I think my senses were enhanced in direct relation to my agency and responsibility. I had an expanded awareness of both the fiction we created, of the stage, the audience, and my immediate environment. And

constant feedback on my actions (also by hearing my voice through the speakers).

You know how gamers only play with their hands but are fully engaged with their bodies and emotions. In their case, it is usually about speed and necessary quick reactions that cause an adrenaline rush, but I also had enough tasks to keep alert.

The biggest challenge was indeed to overcome the distance, the lack of touch and proximity with the actress on stage, to be able to connect with her. I think there is much to be done yet in this direction, I cannot say I succeeded fully.

In this performance, the robot was your digital double, but its animated face was another digital double that you could see in multiple places: on your control screen, on the robot's tablet and, in Scenes 2 and 6, on the big projection screen. Did your awareness of the animated face mirroring your facial movements influence you in any way?

The animated face was another thing to work with, almost like another puppet to 'handle'. Apart from the scenes that you mentioned, I remember that I kept asking Camilla, the director from Italy, in which exact moments the robot's face would be shown on their screen. I needed to know in order to enhance my facial expressions and to add certain gestures in key places in between some words. Maybe it is a thing that is worth being done throughout the performance, but this new layer of awareness and control would need more time to be achieved.

I believe it was very difficult for you to multitask while also doing psychological acting. How did you channel your attention during the performance?

We had a long enough rehearsal period but quite a few technical problems to solve on the way. I understood soon enough during the process that the challenges are too big to allow myself to have 'regular' actor problems like forgetting the text or not remembering what the next move is. The tasks were overwhelming at first, but I gradually learned to coordinate while performing them. Some accidents were useful, like when the robot broke during the rehearsals and the only thing it could do was move on wheels through space.

That rehearsal made the blocking very clear for me and the lack of other tasks enabled me to focus on the actress, the words and the emotions. Same as with other situations when I was temporarily left with less tasks – like when the animation was in testing and the robot had no face. It is similar to doing a coordination exercise – you start by moving a hand and only add the other when the first movement has become more or less automatic. This is what eventually happened, some of the things just came to me organically by the time of the premiere.

From an acting perspective, at what point(s) in the performance did you feel <u>the most connected</u> with your on-stage partner? What about with one or more of the telepresent partners?

With my stage partner, I would say in scene 5. It is natural, as it is the scene when our characters are left alone together and start to connect and communicate on deeper levels. It is possible that I am equating the connection between characters with the one between the actors and that we might have had better moments in terms of acting in other scenes.

Monica was the main telepresent partner I would interact with and who it was easy to connect with in scene 2, where we had 'a game' of our own to focus on (me changing the speed of speech according to her gestures) and we were both committed to performing it right. The connection with all the telepresent partners sometimes worked well in scene 6, as all parties were absorbed by the task of creating the atmosphere of, this time, a real game. Here it was Giovanni who would react the most to Ogmios' interventions and to whom I felt the most connected.

What would you say influenced the sense of connection with your on-stage partner? What about with the telepresent partners?

Our connection was exclusively mediated by technology. And while I could hear Aura's voice from her direction, amplified a little by the speakers, she only heard me through the speakers, which were directed towards the audience. There were moments when she felt disconnected as my voice was not as loud as she needed. I think Gabi, the sound technician, brought in a monitor for her at one point, but nevertheless, I could not really know how my voice sounded to her. And I can imagine it feels unsettling not to hear

your stage partner's voice from the place where they or the character are physically. On the other hand, hearing myself through the speakers was both reassuring and tricky, like having a mirror in front of you while acting with a partner. I confess there were moments when I was admiring myself in the mirror.

I think the scenography helped a lot. I remember watching the stage with delight, and the set helped me (and the audience as well, I guess) feel immersed in Laura's living room.

As with the telepresent partners, I guess it was the Internet delay that could influence the connection.

On an emotional level, the fact that Ogmios was on stage all the time and witnessed all the scenes created a sense of connection with all the characters and for me, with all the actors involved.

Were you aware of the remote audience while you were performing? If so, did your awareness of the remote audience influence your acting in any way?

I was trying to be aware of where I was on stage in order to be visible on their screens, but this was more related to our space and the positions of the cameras. I got a glimpse of the remote audience in some moments. I was more aware of the remote audience when talking in Italian, as the lines were addressed to 'their' actors and in their language. In general, I think I was more aware of the actors' awareness of their audience than of the audience itself.

Unlike in a regular performance, you were seeing the proximal audience from above, located between yourself and the stage, while they were not seeing you. How would you describe your sense of the audience's presence compared to a 'normal' performance situation in which you are on stage? Did these particular conditions influence you in any way?

I remember watching with interest from the balcony as the audience entered and took their seats, because I knew I would not see their faces again until the applause. I could feel their presence in the dark during the performance, but they weren't looking at me, Smaranda. I didn't feel their gazes, they were looking at my character, which I was also watching. I could see what they were seeing, only from a slightly different angle. We were together in a way.

I was a receiver, like them, and also the giver. I could have instant feedback, like an echo. What I would send to the stage would be sent back to me, through this somewhat denser air charged with information about the impact of my work. Multiple feedback. And somehow this made me more immersed into the play than I am in a normal situation.

What were the most challenging aspects of the rehearsal process and the performance run?

During the rehearsals, the robot was not actually ready. It was moving slowly and had delays that were too long for me to have proper reactions and for the scenes to function. This was very frustrating both for me and the actress. It also broke from time to time. This limited our range of choices and determined Marina and me to create simple trajectories and movement combinations. I think this turned out to be for the better, as once the robot was moving properly, I could easily do the simple movements and blocking and could focus on enriching and adding reactions and micro-movements.

In the performance run, my challenge was to really connect with the actress (Aura), to be present on the stage. Rather a goal than a challenge. A challenging aspect that sometimes made me worry was that of the text. I needed to know it perfectly and to deliver it without mistake, for unlike a human, a robot is not expected to stutter or make mistakes. If a mistake did occur, we came up with the technique of stopping as if the robot has had an error, making a little pause and then repeating the word correctly in the same tone as before. One needs to be quite cool and refrain from the reflex of correcting themselves on the spot, changing the rhythm.

What were the most pleasant aspects of the rehearsal process and the performance run?

During the rehearsals, it was very important for me that Marina trusted me all the way. And that if something was not going well, she always found a constructive way to say it.

During the performance run, of course, above all, like with any performance, the most pleasant (beyond pleasant) is the feeling when the connection happens and everything and everyone is in tune and the emotions

flow and the audience vibrates. A big bravo to Aura who was like a beating heart connecting all the energies.

I would also like to mention the little pleasures of just seeing Ogmios move smoothly on the stage, saying certain lines that I enjoyed, of dosing some micro-movements and reactions, discovering new interesting things. And, oh, yes, speaking Italian!

The very important aspect that made all the above possible and for which I need to thank Marina again is that everything was clear and set and rehearsed. It is very pleasant to not have insecurities about what you have to do. Except for the performance run we did after a few months' pause (unfortunately, the one that actually got recorded), and despite the technological risks that were always there, I felt very safe and free to feel and explore within the clear frame.

What do you take with you from this experience?

Some humbleness is very important for an actor to get the job done. And have a bottle of water with you at all times.

Anything else you'd like to say about 2032 SMART-FAMILY?

It was quite a ride! I'd love to be part of the sequel.

Interview with Giovanni Longhin

(role: Lorenzo Visconti)

Interviewer: Marina Hanganu

What is your personal reflection on the story and the themes and ideas it explores? Which were the most powerful theme of the play and the most powerful idea for you personally?

I felt very grateful for the chance to embody this character, who had the opportunity to observe from the inside what it means for a family to be separated, with all the consequences that this implies. It's something that we're quite used to hearing about from other people's stories, but to 'live it' through this play was kind of cathartic. I also felt very connected to Lorenzo and his troubles trying to 'save' his family, who was breaking apart; I have two young children now, and I also struggle like Lorenzo in order to spend every weekend in a balanced family environment.

What was it like to work with a text that kept being edited during rehearsals?

This wasn't a big issue: it's kind of normal in artistic creation to continuously improve the composition, in terms of text but also mise-en-scène, props, camera movements and so on.

How would you describe your relationship with the robot from an acting point of view?

It was fundamental to spend the first week of rehearsals with all the cast under the same theatrical roof: I had the chance to establish human contact with Smaranda, who gave voice and soul to Ogmios. After that, it was quite easy to keep the relational channel between us open, even through a screen and a robot! There was also the fact that Smaranda is a brilliant artist, which helped a lot.

How would you describe your relationship with the video cameras and the main projection screen where you could see the action in the remote space?

I was quite scared in the beginning: then the entire crew accepted all the technological 'cages' as rules of the game, and cameras became just a layer over other layers. The mise-en-scène needed to take into account the audience present in Italy as well as the cameras, which were connected to the Romanian cast and the audience in Buzău.

Could you sense the Internet delay while you were performing? If so, did the delay influence your acting in any way?

Again: in the beginning, every new technological input came as a little shock. The delay between movement and voice was something that we needed to accept, then we familiarized ourselves with it. We welcomed every delay, acoustic and internet problem as rules of the game, ingredients of this artistic world. Then, everything went fine.

What remote communication channel was the most important for you during the performance? Video, audio or were they equally important?

Audio, absolutely. The video signal was the unstable one; the audio connection was almost always present, so, day by day, we naturally shifted our attention to what was 'listenable'. Then, the text and our precision toward it became our priority. There was also the matter of the subtitles: this also required sharper focus on the precision of the text.

Did you feel present in the remote space while you were performing? In which moments yes (if any) and in which moments no?

I found it very hard to feel 'present' in the remote space: it was more about 'having faith in it'. During the rehearsing process, constant feedback from the other country became fundamental. We needed to learn how our actions in Italy were present in the Romanian space, in terms of concreteness and impact. Only the feedback from Marina and the technical team in Romania could allow us to develop a perception of our presence in the remote space.

How would you describe acting with your telepresent partners compared to acting with your on-stage physically present partners?

Big question. The technical delay of video and audio inputs made an immense difference when it came to the physicality of acting with a present partner

versus a telepresent one. The ‘rules’ of the theatrical game came to resemble the rules of radio drama, or at least they created a quite unexplored side of post-dramatic stage practices. Dramatic action is quite simple: bodies in a space that try to change each other, using the body, the voice and the psyche as acting tools. Our acting in telepresence was very dependent on voice inputs, sounds, words: as I said, quite similar to the ‘rules’ of radio drama.

From an acting perspective, at what point(s) in the performance did you feel <u>the most connected</u> with your telepresent partner (Aura)?

Aura and I had very few fragments of scenes together, apart from scene 6 (the ‘cosplay’ scene): in that scene, we succeeded in creating genuine familial intimacy, which was very important for the development of this scene. We had great fun with Aura in that scene, and the artistic result proved that it was possible to create one theatrical situation between two stages, in two different countries.

From an acting perspective, at what point(s) in the performance did you feel <u>the least connected</u> with your telepresent partner (Aura)?

In scene two, Aura and I had a very quick exchange of lines, with a very precise mise-en-scène and abrupt emotional changes: in that precise scene, it was quite impossible not to surrender to the ‘technicality’ of acting.

What would you say influenced the sense of connection with your telepresent partner (Aura)?

Aura joined the creative process in medias res: she very soon revealed all her great qualities, in terms of acting and as a professional artist. It was very easy to work with her as a performer, and her generosity and positivity were inspiring for the entire cast.

In what way would you say your senses were limited/truncated and in what way were they expanded/enhanced by technology? Did the absence of touch related to your telepresent partners influence you in any way?

On stage, we were always prepared for anything: technical issues were a constant possibility, there could have been video/audio/internet problems at any moment during the rehearsals and the performance. So, our senses were

very stimulated, and the rehearsing process was enjoyable but also very tiring. Personally, I didn't perceive the absence of touch as a problem: Lorenzo, the character that I played, was not part of the family, so even if we had been on the same stage, Aura and I would have never touched. My colleagues will probably give a different answer to this question.

This performance was a hybrid between theatre and live film. How did this influence your acting compared to a regular theatre performance or compared to regular acting for the camera?

As I already mentioned, I would compare this artistic experience (from the inside) to radio drama; there's a Harold Pinter play, *Victoria Station*, that comes to my mind. It's a dialogue between a taxi driver and his headquarters: the characters communicate only through a walkie-talkie, but they are still able to change each other's life. *2032 SMART-FAMILY* is an attempt in this direction: to create an artistic and theatrical experience, giving the artists involved in it the chance to experiment and influence each other, with new and exciting tools.

Were you aware of the remote audience throughout the performance? If so, did your awareness of the remote audience influence your acting in any way?

We had no perception of the remote audience throughout the performance: we were, as always, very connected with our stage partner and our telepresent partners, and the present audience.

What were the most challenging aspects of the rehearsal process and the performance run?

As we all experienced during lockdown, it's very hard to remain concentrated and 'light-hearted' when you're working remotely. Theatrical rehearsals entail physicality, silences, breathing together: all aspects of this art that were a bit absent in this artistic process. We had to re-learn how to be concrete and generous in the rehearsal process, when to make suggestions and when to simply stay silent and wait. All the technical input required many hours of preparations, focusing, rethinking; during all that time, the acting side of the team needed to keep their lightness and artistic patience.

What were the most pleasant aspects of the rehearsal process and the performance run?

All the human beings involved in the artistic process were lovable. I feel blessed to have had the opportunity to participate in this project. Every person I met in Buzău and Italy was professional and inspiring: we were gently pushed to do our best, in uncharted artistic territory. It was very satisfying to meet the audience after the performances: from the inside, the whole composition of *2032 SMART-FAMILY* was very difficult to perceive. After the show, the feedback from the audience was always warm and interesting: it's very pleasant to create something that warms the spectators' souls and gives the audience itself the chance to talk with the artists and share comments and opinions.

What do you take with you from this experience?

I met new people, whom I hope I will meet again in the context of a new artistic challenge. I improved my artistic knowledge, using my artistic tools in a never-attempted field. I had a taste of Romania, only a small one, but enough to say that a bridge to a new culture has been established in my heart. I experienced the power of the determination of Marina, Camilla, the team of Industria Scenica in Italy (who were brilliant and professional from the first mail I received). I see now clearly how theatre can create strong connections between different cultures, how the blend of cultural interexchange and technology can give life to something beautiful and artistically valuable.

Anything else you'd like to say about 2032 SMART-FAMILY?

I want to say mulțumesc to Monica, Francesca and Elisa, Aura and Coca, Smaranda. Then mulțumesc to Marina, Bianca, Armine, Diana, Cristi, Adrian. Mulțumesc to Camilla, Greta, Marilena, Davide. And mulțumesc to Ermanno, Isnaba, Paola, all the team of Industria Scenica, and people in Vimodrone and in Milano who supported the Italian side of *2032 SMART-FAMILY*. Arrivederci.

Figure 9. Applause. Ogmios, Smaranda Găbudeanu and Aura Călărașu in RO. Projection: Francesca Fatichenti, Monica Buzoianu and Giovanni Longhin in IT. Photo: Vlad Dumitrescu.

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