International Journal of Innovative Research and Scientific Studies, 8(6) 2025, pages: 1728-1734

IJIRSS
International Journal of Innovative Research & Scientific Studies

ISSN: 2617-6548

URL: www.ijirss.com

The impact of priming on the adoption of robots for personal use

Judit Glavanits

Széchenyi István University, Győr, Hungary.

(*Email: gjudit@ga.sze.hu*)

Abstract

In the 21st century, direct interaction with robots in our daily lives seems inevitable, so the extent to which people accept these devices, especially for personal use, is a not uninteresting question from a research perspective. The widespread adoption of robots in service sectors (e.g. nursing, elderly care, catering), in addition to industrial use, justifies an investigation of the degree of user acceptance of these devices and of the personality traits that may be associated with higher acceptance of robot use. The research sought to answer two questions: (1) whether priming (viewing short, intense videos) influences the level of acceptance of robots in the subjects, and (2) how personality traits such as diverse curiosity, uncertainty intolerance or state anxiety are related to the acceptance of robots. 129 women and men aged 18-27 years participated in the survey in March 2023. In the experimental design, participants completed the Epistemic Curiosity Questionnaire, the IUS-12 (Uncertainty Intolerance Scale) test, the STAIS-5 state anxiety test, and a self-developed test of robot acceptance after playing short videos (one positive, friendly and one negative, threatening) used as a preloading tool. As a result of the experiment, it was found that it was not the prefix of the message (friendly/positive or threatening/negative) that influenced the subjects, but the presentation of the robots in general and the subjective emotion (discomfort, threat, arousal) evoked by what they saw. There is a strong positive correlation with robot acceptability on the epistemic curiosity questionnaire's universal curiosity scale, and an interesting finding that warrants further investigation is that those scoring high on the uncertainty-intolerance scale show a positive correlation with robot acceptability. The experiment supported the hypothesis that men are more supportive than women of the use of robots in everyday life and personal use.

Keywords: Epistemic Curiosity, Influencing, Priming, Robotics, State anxiety.

DOI: 10.53894/ijirss.v8i6.10015
Funding: This study received no specific financial support.
History: Received: 4 July 2025 / **Revised:** 6 August 2025 / **Accepted:** 8 August 2025 / **Published:** 19 September 2025

Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.
Transparency: The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Dean of Széchenyi István University Széchenyi István University Faculty of Law and Political Sciences.
Acknowledgments: The author has reviewed and edited the output and take full responsibility for the content of this publication.
Publisher: Innovative Research Publishing

1. Introduction

The pace of development of robotics in the 21st century makes it inevitable that we will encounter robots in our everyday lives, so the extent to which people accept the devices that are becoming part of their lives is a research question. According to Ford [1] it is expected that the powerful, fast and dexterous robots created by mankind will soon no longer require direct human intervention to operate, and will increasingly outperform humans in a growing number of areas. Human attitudes towards robots have been a hot topic not only in scientific research but also in the arts over the last few decades: science fiction writers have been envisioning the future we live in long before the 21st century, and filmmakers' imaginations are constantly being captured by the idea of what it would be like to live in a society with humanoid robots. Films such as Ex machina, M3GAN, AI - Artificial Intelligence all seek to answer the question of whether humans and robots can live in peace and, above all, in productive cooperation.

Since the use of the term "robot" is not uniform across disciplines, let's turn to a source independent of country and culture for a definition. According to ISO 8373:2012, a robot is "*an actuated mechanism with two or more programmable axes, with a degree of autonomy, moving in its environment, designed to perform a designed task*" (§ 2.6). Actuated mechanisms that do not have a programmable number of axes or that are fully remote-controllable (no degree of autonomy) but otherwise meet the definition of industrial or service robots are called robotic devices (§ 2.6). Industrial robots are "for use in industrial automation applications" (§ 2.9), while a service robot "performs useful tasks for humans or equipment other than in industrial automation applications" (§ 2.10) [2]. In the research described below, we did not distinguish between industrial or service robots, and used the term "robot" throughout the questions.

2. Literature Overview

A study with Japanese participants found that people (at least Japanese respondents) are more positive about adopting a particular type of robot if its behaviour is more predictable and predictable [3]. One popular and widely used robotic device, the vacuum cleaner robots studied in this research have a clearer purpose and function than the pet-type and communication robots, which were the other two study groups. The researchers saw that because vacuum cleaner robots have a single task (cleaning), the associated clarity and predictability could mediate the experience and knowledge of the functions associated with this type of robot, leading to greater social acceptance of the research. In the same vein, pet-type and communication robots are oriented towards abstract tasks, i.e. interaction with humans, regardless of linguistic or non-linguistic applications. The experience with these robots has not necessarily led to a high level of acceptance, and the researchers believe that only a better understanding of their functions will contribute to a wider acceptance of these devices and their applications. The above research is confirmed by another study, which suggests that anthropomorphisation of robots could be the key to a better understanding of their behaviour and functionality, and also to increasing acceptance [4]. Anthropomorphised robots could also be of great importance in the social sector if society is open to new tools. In Japan, for example, a world leader in robotic applications, it has already been shown [5] that communication robots used in nursing homes have had a significant positive impact on the people they care for. Human-robot interactions were video-recorded and it was found that while communication robots reduced psychosocial distress in older adults, non-verbal plush toy-like robots helped to develop positive emotional, verbal, visual and behavioural engagement.

Robots for social purposes are also an interesting area of study in their own right. Social robots are programmable machines that, supported by artificial intelligence software (and typically by large language models), allow them to both give the appearance of autonomous action and to exhibit social skills that facilitate human-robot interaction (Breazeal et al. Although there is a wide range of robotic devices, most of the examples presented in the media are only laboratory prototypes, and commercially available ones still have a number of limitations when it comes to performing complex tasks. Therefore, in the short to medium term, their application is expected to be limited to simpler socio-emotional tasks (regardless of the complexity of the task), and for more complex services they will still typically need to interact with human teams [6]. However, there is evidence of a gradual increase in adoption even in the short term. Turja, et al. [7] conducted a study in 2016 and 2022 among caregivers of the same elderly care home residents, which found that even in such a short period of time there was a positive change in the attitude of the subjects towards robots, highlighting that they were empirically convinced that the robots were well adapted to social norms.

The literature is divided on gender differences. Some research shows no difference between men and women in the acceptance of robots [8] while other research shows that men tend to be more inclined to a higher degree of acceptance than women [9]. The other side of the question is also interesting: whether the gender of the robot itself has an impact on acceptance. Some studies have suggested that for function-specific tasks, whether a robot performs a task with a "gender" that conforms to established social stereotypes may be an important determinant of robot acceptance [6].

Collaboration in the workplace, or the robot as a direct collaborator, is not unknown to industrial robot users. In some jobs, direct and daily contact with robots cannot be avoided, and there is more research available on this. Hybrid human-machine work teams evolve according to human physical and psychological needs, increasing for example safety, comfort and overall ergonomics [10]. The results of a 2017 study showed that the accuracy of the robot in the work environment had a decisive impact on the level of trust in it. The physical appearance of each robot also had a significant impact on perceived efficiency and collaborative performance in the work group. In the same research, industrial robots were associated with higher task flexibility and performance for human workers [11]. The robot waiter in a restaurant is not a utopia (although it is seen in the movie The Passengers), but a very real phenomenon that can mitigate the overall labour shortage in the hospitality industry [12]. However, a Turkish study found that although respondents did not reject the possibility of a robot waiter, there was no enthusiasm for the robot per se, which the researchers explained by the fact that with human waiters, customers expect the emotional surplus of smiles, kindness and sincerity in the interaction [13]. In the

case of robots used in the home environment, it is worth mentioning that a distinction should be made between the use of functional tools in the home and robots providing humanoid or social services. In relation to the latter, the results of ongoing research and research completed in the last few years are of interest. In the case of home care, a study in New Zealand found that patients who used their own robot for patient care in the trial reported largely positive experiences, as well as improved medication efficacy and physical activity [14] however, have shown that users' willingness to cooperate depends largely on how the robot is presented to them and how subjectively they perceive the robot's function as useful [15].

Priming is a technique used in the field of psycholinguistics. It is based on the idea that the relations of lexical organization are manifested in the way that words facilitate the recognition of each other, i.e. the recognition of a word facilitates the recognition of other words related to it within or across modalities [16, 17].

However, the bias is not only observed in a linguistic context. Within the biasing effect, according to the theory of emotional contagion, not only our prior attitudes, but also irrelevant, unconscious influences that trigger emotions can influence our judgments by favouring the evocation of thoughts congruent with the emotional affect. Positive emotion elicitors favour positive thoughts, and the same effect holds for negative emotion elicitors [18]. The bias effect also works for non-conscious events or phenomena [19, 20]. An interesting research finding is that people's risk-seeking behaviour can be stimulated by recalling previous successful decision situations [21].

The assumption of a sex difference within the priming effect is based on a number of studies. In a selected video depicting violent acts (which resembled scenes from a violent video game), it has been scientifically proven that men play more violent video games than women, the reasons for which researchers have summarised as men being less empathetic, more prone to morally justify physical violence, and having a greater need for sensation and aggression in video games than women [22, 23]. For adolescent males (but not females!) who play aggressive video games, one study showed that their exposure to violent games positively predicted their best friend's aggression 1 year later [24].

With reference to the empirical research described below, we should mention the biasing effects of dance, music and humour. Some research has identified six basic components that are related to the psychophysiological and health effects observed in dance: (1) rhythm and music, (2) sociality, (3) technique and fitness, (4) connection and relatedness (self-worth), (5) flow and awareness, (6) aesthetic emotions and imagination (Christensen et al, The positive psychological effects of dance have been confirmed in several studies [25-27] and music has a clear positive effect on people's nervous system and mood [28, 29]. Although the proposition may seem subjective, the selected video also raises the issue of humour as a motivational tool. The subjectivity may be nuanced by the fact that every year before Christmas, Boston Dynamics uploads material to a video-sharing portal that is specifically intended to be funny and entertaining. Research in positive psychology has shown that humour clearly contributes to well-being, subjective satisfaction and stress reduction [30-32].

The basic idea of our research was that subjects who receive a positive message about robots prior to the research questionnaire are more likely to accept the widespread use of robots than those who receive a negative prior impulse on the same topic. Accordingly, in the between-subjects research design, one group viewed a short video classified as pleasant and friendly, while the other group viewed content classified as unpleasant and threatening. Based on the literature, we expected gender differences, with male respondents generally being more accepting of robots than women. In relation to the questionnaire instruments used, we investigated the relationship between personality traits such as diverse curiosity, uncertainty-intolerance or anxiety and robot acceptance.

Hypothesis 1: Positively biased experimenters will be more supportive of the use of robots for personal purposes compared to negatively biased experimenters.

Hypothesis 2: Negative bias has less effect on male respondents than on female respondents.

3. Methodology

129 law students from years 1 and 4 participated in the survey on 23 March 2023 in Győr. The participants were (as expected) aged between 18 and 27 years, 52 males (40.3%) and 77 females (59.7%), reflecting the gender ratio of participants in higher education in law. The proportion of first-year students was 65.1% of the total sample, with a mixed proportion of 1st and 4th year students in each classroom. Group A had 66 students and Group B had 63 students.

Experimental setup: between-subjects (control group) setup, testing different groups in the same situation (comparing groups). The subjects are placed in 2 groups ('A' and 'B' rooms). The experiment is conducted in one group by showing a commercial from Boston Dynamics robotics laboratory, featuring 4 robots dancing to happy music (available at: https://www.youtube.com/watch?v=fn3KWM1kuAw, duration: 2 minutes 54 seconds), while the other group will be shown a video of the military use of the same Boston Dynamics robot (Atlas) (available at: https://www.youtube.com/watch?v=ka0fIAPVjaU, duration: 2 minutes 50 seconds). The experiment consisted of 3 phases: in the first part, the subjects provide their personal data, fill in a questionnaire on trait anxiety and epistemic anxiety, followed by the videos, then their evaluation, state anxiety, uncertainty intolerance and a series of questions on robots. The whole experimental situation took roughly 15-20 minutes.

Before the experiment was conducted, in February 2023, the videos were pre-tested in order to filter out researcher subjectivity and provide measurable data to support the expected impact of the videos. Some of the respondents were reached via electronic means, while the other part consisted of Hungarian and foreign university students who, on the one hand, reflected the age composition of the later experimenters and, on the other hand, had not participated in subsequent and related research and therefore did not bias the later experimental results. The pre-testing received responses from 49 respondents, 81% of whom were female and 19% male, all aged between 18 and 40. 91.8% of the respondents were aged

between 18-25 years, thus matching the age of the later target group for the experiment. According to the results, the first video was clearly labelled as "friendly and cheerful", which was considered to be capable of arousing the viewer's excitement and was typically perceived as positive and pleasant by the respondents.

In general, attitudes towards novelty and homogeneity between the participants in rooms A and B were assessed using the epistemic curiosity questionnaire. The Epistemic Curiosity Questionnaire contains ten items on curiosity in the sense of need to know. It can be further subdivided into two further subscales: universal and specific epistemic curiosity, with five items for each. The former type of curiosity is understood in a general sense, the latter is specific to a particular situation. The statements are judged on a four-point Likert scale in terms of the extent to which the respondent considers the statement to be typical of him/herself [33]. The epistemic curiosity test was used to examine both group homogeneity and the research question whether those who score higher on the subscale of diverse curiosity are more accepting of robots.

In phase 3 of the experiment, respondents completed the STAIS-5 questionnaire on state anxiety and a self-administered questionnaire on the acceptability of using robots for personal and household purposes. The shortened version of Spielberger's STAI questionnaire measures the current level of state anxiety in 5 questions and is therefore suitable for measuring whether Group B's state anxiety is higher than Group A's in response to a threatening video.

After viewing the videos, the IUS-12 (Uncertainty Intolerance Scale) test [34] was administered. Uncertainty intolerance is an exaggerated reaction of a person in negative situations when there is not enough and well-defined information about the outcome of the situation [34].

4. Results

Reliability testing of the self-compiled questions on robot acceptability found that Crombach's α is 0.782, which is a sufficiently high value to establish reliability. The Crombachα indicator is also an appropriate indicator for the present research in that it is only designed to examine a single factor (acceptance of the use of robots). The Cromachα value of the Diverse Curiosity Scale is 0.796, the Cromachα value of the Uncertainty Intolerance Scale is 0.770, the Cromachα value of the Pre-Video Trait Anxiety Scale is 0.796, and the Crombach's value of the Post-Video State Anxiety Scale is 0.885, so all the test instruments used are reliable measures.

An evaluation of the videos during the experiment yielded results that were in line with expectations. The subjects in Room A watching the dancing robots found the material non-threatening, while the subjects in Room B watching the armed robot found the material more threatening. Of relevance to the hypotheses, of the people who watched the armed video, those who gave answer 1 to the threat question (i.e. did not find the video threatening) were both 19-year-old males, and of the 9 people who gave answer 2, 8 were also male. Previous research findings that violent, armed scenes evoke less fearful emotions in men were confirmed in this study. For the very scary response, the gender balance is more even: 5 out of the 13 respondents who marked 5 were men and 9 were women. Compared to the results of the pre-testing, the positive content of the video elicited less of the expected effect in the experimental subjects, but feedback on the positive and negative message was clearly present in the direct responses to the videos.

For groups A and B, homogeneity was found for epistemic curiosity (p all cases> all 0.05), so there was no difference between group members in this respect. The research also sought to answer whether a higher score on the epistemic curiosity questionnaire's subscale of universal curiosity was associated with higher levels of acceptance of robots. The first 4 questions of the questionnaire clearly measure the level of universal curiosity in the Hungarian sample, who are generally characterized by avoiding boredom, and by a desire for a varied stimulus environment, where the focus is on the stimulus and not on its content [34]. When comparing the first 4 items of the EPQ questionnaire with the total respondent score on robot acceptability, it was found that respondents scoring higher on the diverse curiosity scale were also more accepting of using robots ($p< 0.01$ when testing for positive correlation).

In the case of the uncertainty intolerance questionnaire, we were looking to find out whether inhibitory-type uncertainty intolerance is associated with lower levels of acceptance of robots. Those who score higher on this scale are characterised by a sense of uncertainty that inhibits action or experience, and we therefore assumed that their resistance to robots would also be higher. Research on a Hungarian sample has found higher scores for women on the inhibitory uncertainty scale [34] so our hypothesis related to gender differences is also related to the examination of the interaction of these two factors.

The answers to questions 3, 6, 7, 10 and 12 of the uncertainty intolerance questionnaire were compared with the overall score on robot acceptance. Examination of the two composite scores did not show a correlation ($p=0.085$), so our hypothesis was not confirmed. On the other hand, we examined the IUS-12 scale composite score and found a positive correlation with the composite score for robot acceptability ($p=0.01$), suggesting that individuals with uncertainty-intolerance, who overreact to negative situations where they do not have enough and well-defined information about the outcome of the situation, are generally more supportive of robot use. Further investigation of this event and, within that, exploration of the reasons for it, is certainly warranted.

There was a difference between male and female respondents on the use of robots, with male respondents showing a significantly higher acceptance of direct contact with humanoid robots in particular. The following table provides an item-by-item analysis of the level of acceptance, given the high importance of robot applications for future research.

In this study, we investigated whether friendly and threatening biasing had an effect on robot capture responses. According to the correlation test, the results were not significant when directly disaggregated into groups A and B, but when looking at responses to momentary distress (emotions directly triggered by the videos) and robot acceptance statements, a significant ($p< 0.05$) correlation was found for most responses.

If the 10 questions on robot acceptance are considered as a single factor (robot acceptance factor), the effect of videos as biasing factors is clearly detectable (p in all cases< 0.05), however the effect is not the result of group decomposition: independent samples T-test: p=0.894. Those who perceived the videos they saw (regardless of whether they were positive or negative in the experimental design) as threatening or unfriendly were also more dismissive of the questions about the use of robots.

The summary Table 1 presents the main findings of the research:

Table 1.
Summary table on the priming effect.

Robot acceptance factor and AB group decomposition results	rho	-0.047
	df	129
	p-value	0.894
Robot acceptance factor and pleasant/unpleasant perception of the video	rho	-0.305
	df	129
	p-value	<0.01
Robot acceptance factor and intensity of emotions evoked by the video	rho	-0.344
	df	129
	p-value	<0.01
Robot acceptance factor and identification of video as threatening	rho	-0.439
	df	129
	p-value	<0.01
Robots acceptance factor gender difference	rho	-0.292
	df	129
	p-value	<0.0.1

5. Conclusions, Discussion

In the experimental situation we wanted to investigate the effect of priming on the acceptance of robots. Priming in object research consisted of the screening of short videos with pre-confirmed positive and negative content, which was expected to result in a difference in the subsequent subject's attitude towards the test object [18-20]. The humour, dancing and vocabulary ("*Do you love me*?") displayed in the cheerful video suggested a strengthening of the intended effect [16]. Our first hypothesis was that positively biased subjects would be more supportive of using robots for personal purposes compared to negatively biased subjects. The research results showed that although the effect of the videos shown to Group A and B received feedback that was on average similar to the preconceived expectations, the significant relationship was not generated by the nature of the video but by the general emotional state it elicited, i.e., the friendly or threatening effect was only relative, the information shown about the robots and the emotional state it generated alone generated the effect. Hypothesis 1 was not supported by the research results.

According to the second hypothesis, negative bias has less effect on male respondents than on female respondents. The evaluation of the videos and the overall level of acceptance of robots found that male respondents were more accepting of the use of robots than female respondents, thus the second hypothesis was supported by the research.

In line with the literature, the acceptance of robots in the workplace or as a useful "tool", for example in the service sector, is accepted [12, 35] or at least less resisted, while even the younger generation is reluctant to let them into our personal space, especially those who are not comfortable with uncertainty and unpredictable situations. Based on the results and the individual analysis of each item, respondents with inhibitory anxiety are unanimously the most dismissive with the two responses that they would not mind living with a humanoid robot or having to entrust their dog to a humanoid robot. A common feature of the responses is that they contain information about the experimenters' homes, so it seems that while in general, at work or in a restaurant, the use of or interaction with domestic robots is acceptable even for those with inhibitory anxiety, they would not allow them into their homes or personal spaces.

The research results raise the possibility that for the 18-27 age group, the encounter with robots and potentially threatening content may be part of their "daily routine", but at least the previously assumed novelty experience was not significant enough to influence their basic attitudes towards robots. Accordingly, it is possible that the study measured general attitudes towards robots and not the effect of the videos.

Another result of the study to be considered, which may be related to the previous point, and may also be a limitation of the research, is that the short duration of the videos meant that they did not have the expected effect, so a possible repeat study would need to look at the effect of longer duration of the preloading content.

References

[1] M. Ford, *Our future in the age of robots: How will artificial intelligence shape our lives?* Budapest: HVG Kiadó Zrt, 2022.
[2] S. R. Fiorini *et al.*, "Extensions to the core ontology for robotics and automation," *Robotics and Computer-Integrated Manufacturing,* vol. 33, pp. 3-11, 2015. https://doi.org/10.1016/j.rcim.2014.08.004
[3] T. Nomura and M. Tanaka, "Experiences, knowledge of functions, and social acceptance of robots: An exploratory case study focusing on Japan," *AI and Society,* vol. 37, pp. 367-374, 2022. https://doi.org/10.1007/s00146-021-01196-y
[4] L. Xu and F. Yu, "Factors that influence robot acceptance," *Kexue Tongbao/Chinese Science Bulletin,* vol. 65, no. 6, pp. 496-510, 2020.

[5] K. Obayashi, N. Kodate, and S. Masuyama, "Assessing the impact of an original soft communicative robot in a nursing home in Japan: Will softness or conversations bring more smiles to older people?," *International Journal of Social Robotics,* vol. 14, pp. 645-656, 2022. https://doi.org/10.1007/s12369-021-00815-4

[6] S. Forgas-Coll, R. Huertas-Garcia, A. Andriella, and G. Alenyà, "The effects of gender and personality of robot assistants on customers' acceptance of their service," *Service Business,* vol. 16, pp. 359-389, 2022. https://doi.org/10.1007/s11628-022-00492-x

[7] T. Turja, S. Taipale, M. Niemelä, and T. Oinas, "Positive turn in elder-care workers' views toward telecare robots," *International Journal of Social Robotics,* vol. 14, pp. 931-944, 2022. https://doi.org/10.1007/s12369-021-00841-2

[8] L. Bishop, A. Van Maris, S. Dogramadzi, and N. Zook, "Social robots: The influence of human and robot characteristics on acceptance," *Paladyn, Journal of Behavioral Robotics,* vol. 10, no. 1, pp. 346-358, 2019. https://doi.org/10.1515/pjbr-2019-0028

[9] T. Turja and A. Oksanen, "Robot acceptance at work: A multilevel analysis based on 27 EU countries," *International Journal of Social Robotics,* vol. 11, pp. 679-689, 2019. https://doi.org/10.1007/s12369-019-00526-x

[10] A. Richert, M. Shehadeh, S. Müller, S. Schröder, and S. Jeschke, "Robotic workmates: Hybrid human-robot-teams in the industry 4.0," in *International Conference on e-Learning (p. 127). Academic Conferences International Limited*, 2016.

[11] S. L. Müller, S. Schröder, S. Jeschke, and A. Richert, "Design of a robotic workmate," in *International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management (pp. 447-456). Cham: Springer International Publishing*, 2017.

[12] J. M. Garcia-Haro, E. D. Oña, J. Hernandez-Vicen, S. Martinez, and C. Balaguer, "Service robots in catering applications: A review and future challenges," *Electronics,* vol. 10, no. 1, p. 47, 2021. https://doi.org/10.3390/electronics10010047

[13] Z. Çelik and İ. Aydın, "The effect of using robot waiters in restaurants on consumers' behavioral intentions," *Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi,* vol. 23, no. 1, pp. 317-336, 2022. https://doi.org/10.37880/cumuiibf.1013654

[14] E. Broadbent *et al.*, "Using robots at home to support patients with chronic obstructive pulmonary disease: pilot randomized controlled trial," *Journal of Medical Internet Research,* vol. 20, no. 2, p. e8640, 2018. https://doi.org/10.2196/jmir.8640

[15] T. Rantanen, P. Lehto, P. Vuorinen, and K. Coco, "Attitudes towards care robots among Finnish home care personnel–a comparison of two approaches," *Scandinavian Journal of Caring Sciences,* vol. 32, no. 2, pp. 772-782, 2018. https://doi.org/10.1111/scs.12508

[16] C. Pléh and L. Á., *Psycholinguistics*. Budapest: Akadémiai Kiadó, 2015.

[17] C. Pléh, "Lexical priming and word recognition: Relations of lexical organization in psycholinguistics," *Journal of Psycholinguistic Research,* vol. 42, no. 2, p. 123-145, 2013.

[18] C. Pléh, "30 years of Hungarian psychological history research (1990–2020)," *Magyar Pszichológiai Szemle,* vol. 76, no. 1, pp. 191-197, 2021.

[19] R. Ratcliff and G. McKoon, "A retrieval theory of priming in memory," *Psychological Review,* vol. 95, no. 3, pp. 385-408, 1988. https://doi.org/10.1037/0033-295X.95.3.385

[20] E. Tulving and D. L. Schacter, "Priming and human memory systems," *Science,* vol. 247, no. 4940, pp. 301-306, 1990. https://doi.org/10.1126/science.2296719

[21] E. A. Ludvig, C. R. Madan, and M. L. Spetch, "Priming memories of past wins induces risk seeking," *Journal of Experimental Psychology: General,* vol. 144, no. 1, pp. 24-29, 2015. https://doi.org/10.1037/xge0000046

[22] T. Hartmann, I. Möller, and C. Krause, "Factors underlying male and female use of violent video games," *New Media & Society,* vol. 17, no. 11, pp. 1777-1794, 2015. https://doi.org/10.1177/1461444814533067

[23] C.-C. Wang and M.-J. Yang, "Violent game acceptance: The influences of aggression tendency, thrill seeking, and perceived risk," *Journal of Cyber Therapy and Rehabilitation,* vol. 2, no. 2, p. 152-158, 2009.

[24] G. P. Verheijen, W. J. Burk, S. E. Stoltz, Y. H. van den Berg, and A. H. Cillessen, "Friendly fire: Longitudinal effects of exposure to violent video games on aggressive behavior in adolescent friendship dyads," *Aggressive Behavior,* vol. 44, no. 3, pp. 257-267, 2018. https://doi.org/10.1002/ab.21748

[25] A. Grudzińska and P. Izdebski, "The effect of dance therapy on patients with mental and somatic disorders–a review of research," *Medical Rehabilitation,* vol. 22, pp. 32-37, 2018. https://doi.org/10.5604/01.3001.0012.0896

[26] I. Lopez-Nieves and C. E. Jakobsche, "Biomolecular effects of dance and dance/movement therapy: A review," *American Journal of Dance Therapy,* vol. 44, pp. 241-263, 2022. https://doi.org/10.1007/s10465-022-09368-z

[27] A. Ruiz-Muelle and M. M. López-Rodríguez, "Dance for people with Alzheimer's disease: A systematic review," *Current Alzheimer Research,* vol. 16, no. 10, pp. 919-933, 2019. https://doi.org/10.2174/1567205016666190725151614

[28] A. M. Croom, "Music practice and participation for psychological well-being: A review of how music influences positive emotion, engagement, relationships, meaning, and accomplishment," *Musicae Scientiae,* vol. 19, no. 1, pp. 44-64, 2015. https://doi.org/10.1177/1029864914561709

[29] S. Y. Kwok, "Integrating positive psychology and elements of music therapy to alleviate adolescent anxiety," *Research on Social Work Practice,* vol. 29, no. 6, pp. 663-676, 2019. https://doi.org/10.1177/1049731518773423

[30] K. R. Edwards, *The role of humor as a character strength in positive psychology*. Canada: The University of Western Ontario, 2013.

[31] J. M. León-Pérez, F. J. Cantero-Sánchez, Á. Fernández-Canseco, and J. M. León-Rubio, "Effectiveness of a humor-based training for reducing employees' distress," *International Journal of Environmental Research and Public Health,* vol. 18, no. 21, p. 11177, 2021. https://doi.org/10.3390/ijerph182111177

[32] A. Reizer, Y. Munk, and L. K. Frankfurter, "Laughing all the way to the lockdown: On humor, optimism, and well-being during COVID-19," *Personality and Individual Differences,* vol. 184, p. 111164, 2022. https://doi.org/10.1016/j.paid.2021.111164

[33] J. Szabó, G. Révész, I. Juhász, and O. Inhóf, "The validation of epistemic curiosity questionnaire to Hungarian," *Alkalmazott Pszichológia,* vol. 19, no. 3, pp. 103-116, 2019.

[34] N. A. Zsidó, A. Nikolett, I. Orsolya, B. Timea, S. T. Diána, and L. Beatrix, "Hungarian adaptation of the shortened version of the intolerance of uncertainty scale," *Mentálhigiéné és Pszichoszomatika,* vol. 22, no. 1, pp. 103-120, 2021. https://doi.org/10.1556/0406.22.2021.003

[35] A. H. S. Hamdany, L. H. Albak, and R. R. O. Al-Nima, "Wireless waiter robot," *TEST Engineering & Management,* vol. 81, pp. 2486-2494, 2019.

Appendix

Items of the self-administered questionnaire used in the research:

Instruction: 'Please indicate how much you agree with the following statements. Please select a value between 1 and 5".

1) The use of robots is now a necessity
2) People who don't use robots in their household, even though they can afford to, are causing themselves unnecessary problems
3) Household robots pose risks
4) The use of smartphones is nowadays a necessity, an inevitability
5) Robots will take over from humans
6) Robots and artificial intelligence are risky technologies
7) I know that I pay for some services with my data
8) It is unnecessary to use a robot for a task that I can do myself
9) I am aware that smart devices collect a lot of personal data about me
10) I wouldn't mind living at home with a humanoid robot
11) I wouldn't mind if my direct colleague was a humanoid robot
12) I would leave my dog in the care of a human robot while I'm away.
13) I wouldn't mind if the restaurant was served by a humanoid robot.

Reverse items: 3, 5, 6, 8,