



## IS THE BELIEF THAT HUMAN NATURE IS GOOD OR EVIL RELATED TO THE STANCE ON THE POSSIBLE SOCIAL INFLUENCE OF ROBOTS? (The Stance on the Social Influence of Robots)

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**Abstract:** One of the topics focused on by robotic technology manufacturers is to integrate robots into many social environments, especially in the workplace. To achieve this integration, the human side of the human-robot interaction must be understood carefully. Thus, an individual level examination of how people look at the world through a cultural lens may help to understand the interaction with robots that are supposed to become part of society. In this study, psychology students were reached through an online survey. The results support a positive relationship between respondents' perception that human nature is evil and negative attitude towards robots' social influence. However, according to the results of the hierarchical regression analysis, the hopelessness of respondents does not affect this relationship. To adapt these technologies to the workplace, and to ensure efficiency, the organization may need to learn about the cultural lenses that its employees use to see the world in general.

**Keywords:** Evilness, goodness, human nature, robots, social influence

## İNSAN DOĐASININ İYİ VEYA KÖTÜ OLDUĐUNA DAİR İNANÇ ROBOTLARIN OLASI SOSYAL ETKİSİNE DAİR BAKIŐ AÇISIYLA İLİŐKİLİ Mİ? (Robotların Sosyal Etkisine Dair Bakıő Açıőı)

**Öz:** Robotik teknoloji üreticilerinin odaklandıĐı konulardan bir tanesi yakın gelecekte baŐta iŐyerleri olmak üzere birçok sosyal çevreye robotları entegre etmektir. Bu entegrasyonun saĐlanabilmesi için insan-robot etkileŐiminin insan tarafı dikkatle anlaŐılmalıdır. İnsanların nasıl bir kültürel lensle dünyaya baktıklarının bireysel seviyede incelenmesi toplumun bir parçası haline geleceĐi tahmin edilen robotlarla etkileŐimin daha yakından anlaŐılmasına yardımcı olabilir. Bu çalışmada, psikoloji öĐrencilerine çevrimiçi anket yoluyla ulaŐılmıştır. Sonuçlar katılımcıların insanın doğasının kötü olduĐuna dair algısıyla robotların sosyal etkisine dair negatif tutumu arasında pozitif bir iliŐki olduĐunu desteklemektedir; ancak hiyerarŐik regresyon analizi sonucuna göre katılımcıların umutsuzluĐunun bu iliŐki üzerinde bir etkisi görülememiŐtir. Bu teknolojileri iŐyerine adapte etmek ve verimi saĐlayabilmek için örgütün genel olarak çalışanlarının nasıl bir kültürel lensle dünyaya baktıklarını öĐrenmesi yardımcı olabilir.

**Anahtar Kelimeler:** Kötülük, iyilik, insan doğası, robotlar, sosyal etki

## 1. INTRODUCTION

The technological developments in the field of robotics cause positive and negative expectations regarding that robots will be in the same environment with people soon while performing various kinds of tasks. Although people may get rid of routine, dangerous, difficult and boring jobs; and they also may expect unemployment, the possibility of misuse of this technology and a damage to social dynamics. Taking these concerns into consideration, researchers, designers, producers, and related organizations carry out studies to eliminate negative expectations and maximize positive ones.

The relationship of human life with technology has been getting deeper in the last century, and people, especially the ones in work life, have become increasingly affected by this relationship. Some of our tendencies have made this process more complicated. People tend to anthropomorphize (Aggarwal & McGill, 2007; Heider & Simmel, 1944; Jipson & Gelman, 2007). This tendency may affect individuals' perspectives about everything that resembles human beings, from objects to objects, and that is associated with neurological (Saver & Rabin, 1997) and psychological factors (Boyer, 2003). Based on small social clues, humans may behave as if robots were social entities. This situation is defined as the media equation (Reeves & Nass, 1997) and has become a common topic in human-robot interaction (Kahn Jr., Gary, & Shen, 2013).

Our perception may vary considerably when there are robots that have human body form and can communicate like human beings. Studies show that as robots are more similar to human beings, individuals give them various human-specific attributions (Hegel, Muhl, Wrede, Hielscher-Fastabend, & Sagerer, 2009), and give social answers (Bartneck, Van Der Hoek, Mubin, & Al Mahmud, 2007; Kahn Jr. et al., 2013). A robot in the environment may increase the social facilitation of the person (Riether, Hegel, Wrede, & Horstmann, 2012). As the autonomy level of the robots increases, the degree of perceived social being of robot increases (Scheutz, Schermerhorn, Kramer, & Anderson, 2007). In various scenarios, people think that robots have intentions while exhibiting a behavior (de Graaf, 2016; Powers, 2011). People may expect robots to make moral decisions (Malle, Scheutz, Arnold, Voiklis, & Cusimano, 2015) and think that robots should have responsibilities about their actions (Kahn Jr et al., 2012) and blame robots (Malle et al., 2015). Also, they can establish emotional bonds with robots (Singer, 2009).

As a caregiver in a nursing home, as a receptionist in a hotel, as a police officer on the street, and for similar tasks, they may interact with people and their role in society may increase (Lin, Abney, & Bekey, 2011). Robots serving in the public environment may interact with people in three ways: interaction with the user of the robot, interaction with bystander due to being in the same environment as the robot, and interaction with robots in the operative environment (Salvini, Laschi, & Dario, 2010). The societies whose dynamics have changed since the Industrial Revolution may be affected by a new change soon, with the increase in the production of more sophisticated robots. It is expected that a new interaction process may start in society as the robots move out of the industrial environments and move into the environments where people continue their daily lives. With the development of communication skills of robots, it is obvious that this interaction may attract more attention in the future. Therefore, whether we work together or become a user, or want to be the third person in the same environment but who is not related to the robot; we may experience the direct or indirect effects of a relationship with these robots. Furthermore, there are very few studies on human-robot interaction in developing countries and societies with different cultures. Therefore, to understand human-robot interaction, similar research is required in all societies. In this study, these questions will be tried to be answered at the individual level in Turkish culture where Islam is widespread. Thus, it will be emphasized that the cultural structure must also be understood to adapt the robots to the workplaces' social environment.

## 2. HUMAN NATURE

The arguments that human nature is good or evil have been discussed in the past by various philosophers. While Chinese philosopher Menius believed that human nature was good (Van Norden, 1998), Hobbes thought it was evil (Schwitzgebel, 2007). Rousseau, on the other hand, argued that it is

building tools that worsen human nature (Schwitzgebel, 2007). Besides, many names in the field of psychology have participated in this discussion. One of the pioneers of humanistic psychologists, Rogers (1982) and Maslow (1968), emphasized that human nature is fundamentally good, while Freud (1912) and May (1982) pointed out the opposite. Fromm (1964/2011) believed that human nature is basically both good and evil. In the perspective of pessimism, human nature is considered as fundamentally evil. In other words, the potential of man is bad; he does evil at the first opportunity when he cannot suppress his instincts (Perrett, 2002). This perspective may come from dispositional-pessimism, called a personality dimension, which affects people's choices and the results of these choices (Clark, Kim, Poulton, & Milne, 2006; Heinonen, Rääkkönen, & Keltikangas-Järvinen, 2005).

Attitudes are one of the concepts that are frequently used in psychology; because it is thought that it may be easier to estimate behaviors if the attitudes are measured well. However, regarding attitudes' dependence on the situation and time, it has led researchers to seek concepts that are changing more slowly and predicting behavior more reliably. Thus, the idea of values was introduced (Hills, 2002). Furthermore, Kluckhohn and Strodtbeck (1961) suggested that all societies have common problems to solve, but how these problems are solved vary according to the values of cultures. One of the problems is what human nature is (good, evil or mixture). Kluckhohn and Strodtbeck's research on groups from different cultures in a small region suggests that the view of human nature may change from culture to culture as good, evil, and mixed. The studies support that North Americans and Japanese generally see human nature as good (Althern & Bennett, 2011; Yamakage, 2006). If we are attributing human features into anthropomorphized technologies, we may see the reflections of our perspective on these technologies in general. For example, if we see human nature as evil, can we see the same evil in the robot nature (although they are programmable machines)? In other words, people may be expected to have an idea about the nature of human beings and this may affect people's attitudes towards robots.

The ideas of today's societies about the nature of robots may be influenced by robot characters reflected in films (Lin et al., 2011; Złotowski, Proudfoot, Yogeewaran, & Bartneck, 2014). In the Western world, robots are more likely to gain consciousness and seek vengeance on human beings, while they are presented to people as evil beings (Złotowski et al., 2014); In Japan, robots are presented as symbols of development (Bartneck, Nomura, Kanda, Suzuki, & Kato, 2005). Naturally, the mental image of the people living in these countries may vary according to the culture in which the robots are presented (Bartneck et al., 2005). Besides, religious elements may be effective in this situation. In Christianity there are no souls of lifeless beings; but in Buddhism, Shinto, and Confucianism all have a spirit. For example, in cultures where Buddhism is believed, a positive approach may be shown to robots because of their spirit (Yamamoto, 1983).

### 3. ROBOTS' SOCIAL INFLUENCE

Relationships have an important place in human life; however, people may relate not only to other people but also to non-human beings (de Graaf, 2016). It may be necessary for robots to interact with people due to the nature of their presence in the environment (Feil-Seifer & Matarić, 2011). The rules that exist in interpersonal relations are also transferred to robots (Marino & Tamburrini, 2006). This may help people to make more meaningful relationships (de Graaf, 2016). These interactions show that robots may create a social influence on society. Normally, social influence is called an individual's cognition, attitude and behavior to be influenced by someone in the environment (Beilmann, 2015; Cialdini, 2009). People may have different views on the social influence of robots. So in the future, not only the relationship of robots with people but also the relationship of people with other people may change. Because technology shapes and is shaped by the context (de Graaf, 2016). In one study, while people accept robots to work in some jobs, they do not want the robots to take place in the environments where they may be perceived as a model by children (Enz, Diruf, Spielhagen, Zoll, & Vargas, 2011). Will it be possible to achieve social trust that keeps people and robots together (Neller, 2008) and develop cooperation? For example, in a study, Japanese participants have more negative attitudes towards the impact of robots on society than the ones from the US, and this is attributed to the Japanese familiarity with robots and seeing negative aspects of the situation (Bartneck et al., 2005).

Besides, one of the main concerns is who will undertake the responsibilities of the errors made by robots (Malle, 2015). Is it the user, the manufacturer, the designer or the one who controls it? This problem becomes more complex for learning robots (Matthias, 2004). Robot ethics answer ethical questions about the design, use of robots and how to treat robots (Malle, 2015); however, robot ethics is not paid much attention in robot design and production process (Enz et al., 2011). The fact that there is no consensus about this issue in society can lead people to think and act more cautiously about the social influence of robots on society.

#### 4. THE HYPOTHESES

There are two important objectives in intercultural psychology. One of them is to find the differences between the behavior of people from different cultures and the other is the common characteristic of people from different cultures (Hills, 2002). Besides, culture may vary from country to country and may vary from region to region within the same political boundaries (Baskerville, 2003). Moreover, even among individuals, different cultures may be observed in the same region (Erez & Gati, 2004; McCoy, Galletta, & King, 2005). This enables the effect of culture to be explained not only at the national level but also at the individual level. Thus, culture-technology fit (the degree of harmony between technology and the individual's cultural characteristics) may also be examined in an individual sense rather than in organizational terms (Lee, Choi, Kim, & Hong, 2014). Therefore, the effect of culture in this study will be examined at the individual level. For this purpose, in this study, it will be examined whether the cultural effect on the perception about the nature of human being (good or evil) affects the perspective of individuals about robots. That is, people see robots in the form of human bodies in the media in general (Złotowski et al., 2014) and humans attribute human characteristics to robots. Thus, people may see robots as good or bad (or mixed) based on this attribution and may evaluate them accordingly. Besides, if the perspective of the young generation, the employees of the future, is examined, it can be an important step in understanding what kind of challenges may arise in the future of the adaptation of robotics to organizations in working life. In light of this logic, the following hypotheses are suggested:

**Hypothesis 1:** The higher the perception that human nature is evil, the higher the negative attitude towards the social influence of robots is.

Persons with a pessimistic character reduce their expectations from the future and negative expectations affect their choices (Clark et al., 2006; Heinonen et al., 2005). People with this feature also may have negative expectations about human nature (Perrett, 2002). Since individuals give robots human-specific attributions (Hegel et al., 2009), the following hypothesis may be suggested:

**Hypothesis 2:** There is a moderation effect of hopelessness on the relationship between the perception of human nature is evil and the negative attitude towards robots' social influence.

#### 5. METHOD

##### 5.1. Sample

A total of 171 undergraduate psychology students were reached via an online questionnaire from the same university in Istanbul, Turkey. The online survey, which lasted approximately 5 minutes, was sent to the students via mail groups. Three points were added to the course averages for participation. Of the participants, 152 were women, 19 were men and the mean age of participants was 21 (SD = 2.5).

##### 5.2. Measures

*Cultural Perspectives Questionnaire:* To measure the perception of individuals about the nature of people, 6-item nature of human nature scale which is one of the subscales of Cultural Perspectives Questionnaire-CPQ4 developed by Maznevski and Distefano (1995) was used. This scale was developed

by using the theoretical background of Kluckhohn and Strodtbeck (1961). The scale adapted to Turkish by Basim (1998) and the Cronbach's alpha value of this sub-dimension was found to be .94. The scale is scored on the 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree) and the high score indicates the perception that human nature is evil. In the present study, this alpha value was .84. As a result of confirmatory factor analysis (CFA), acceptable goodness of fit indices were observed,  $\chi^2 / df = 1.188$ , CFI = 0.99, GFI = 0.99, RMSEA = 0.033 and SRMR = 0.026.

*Negative Attitudes towards Robots Scale:* It measures the attitude of individuals towards the social influence of robots, regardless of how the robots work and appear. In this study, Negative Attitudes towards Social Influence of Robots (NAR-influence) which is one of the three sub-dimensions of Negative Attitudes towards Robots Scale (NARS) developed by Nomura and colleagues (2006) was used. This sub-scale has 6 items. Erebak and Turgut (2018) adapted to Turkish and found its Cronbach's alpha value as .83. In the current study, the scale was scored on a 6-point Likert-type (1 = strongly disagree, 6 = strongly agree) and the Cronbach's alpha was found as .88. The results of the confirmatory factor analysis (CFA) of this sub-scale indicate that there are acceptable goodness of fit indices,  $\chi^2 / df = 0.796$ , CFI = 0.99, GFI = 0.99, RMSEA = 0.001 and SRMR = 0.02.

*Beck Hopelessness Scale:* This scale, developed by Beck, Weissman, Lester, and Trexler (1974), measures the degree of pessimism about the future. Seber, Dilbaz, Kaptanoglu, and Tekin (1993) adapted this scale to Turkish. In this study, we used hope ( $\alpha = .70$ ) sub-scale of the three-factor model in which Durak and Palabıyıkoglu (1994) tested the validity and reliability of the non-clinical samples. 7 items in this sub-dimension were scored on a 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree). These 7 items were positive, so they were reverse coded to obtain information about pessimism. A high score indicates hopelessness, while a low score indicates no hopelessness. In the present study, the Cronbach's alpha value was .88. The CFA results show acceptable goodness of fit indices,  $\chi^2 / df = 1.622$ , CFI = 0.99, GFI = 0.97, RMSEA = 0.06 and SRMR = 0.032.

## 6. RESULTS

To test the hypotheses, Pearson product-moment correlation coefficients between variables were examined. The results support hypothesis 1 (see Table 1). The moderate positive correlation shows that the NAR-influence has increased with the increase in the perception that human nature is evil. Besides, a weak positive correlation was found between the perception of human nature's evilness and hopelessness. Similarly, there was a weak correlation between the hopelessness of individuals and the NAR-influence.

**Table 1.** The Correlations among Variables

	1	2	3
1 Human Nature	-	.307**	.244**
2 NAR-Influence		-	.194*
3 Hopelessness			-

\*\* . Correlation is significant at the .01 level (2-tailed), \* . Correlation is significant at the .05 level (2-tailed).

To test the second hypothesis, a hierarchical regression analysis was applied. Before this analysis, human nature and hopelessness were centralized to reduce unnecessary collinearity. This means that the variables are set to 0 and the standard deviations are equal to the original. In the first model, NAR-influence was regressed on human nature and hopelessness. In the second model, the product of human nature and hopelessness was added. The results do not support hypothesis 2. Thus, hopelessness has no moderation effect on the relationship between human nature and NAR-influence (see Table 2).

**Table 2.** Moderation Effect Results from Hierarchical Regression Analyses

	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
(Constant)	3.750	0.091		3.746	0.093	
Human Nature	0.346	0.094	0.276***	0.344	0.095	0.275***
Hopelessness	0.158	0.094	0.126	0.161	0.096	0.129
Human Nature X Hopelessness				0.013	0.080	0.012
$R^2$			0.109			0.110
$F$ for Change in $R^2$			10.318			0.025
$\Delta R^2$			0.109***			0.000

*Dependent variable:* NAR-Influence. \*\*\*. Correlation is significant at the .001 level (2-tailed).

## 7. DISCUSSION

The pace of development of robotic technology indicates that the prevalence of robots in people's environments will increase soon. Therefore, there can be an interaction between people and robots in many platforms, especially in workplaces. For these interactions to take place most effectively, it is essential to understand how people will be involved in a psychological/cognitive infrastructure. The better we can learn this structure, the more we can identify and eliminate the factors that may cause failure in this interaction. In this study conducted in line with this idea, it has been suggested that there is a relationship between perception of human nature as good or evil and attitude towards the social influence of robots and there is a moderation effect of the pessimism of the individual on this relationship.

The prediction that negative attitudes towards human nature and NAR-influence come from the assumption that both variables have similar psychological backgrounds. In specific, it is assumed that negative attitudes towards human nature are generalized to robots because people assign human-specific characteristics to robots in human body form. In particular, people tend to have anthropomorphism, to assign human-specific characteristics to robots in human body form, and to present robots as human-like machines (Hegel et al., 2009), and so the mental image of robots may cause people to develop attitudes about the human nature to be in robots.

While there was a weak relationship between pessimism and the perception of human nature is evil and NAR-influence; there was no effect of pessimism on the relationship between these two variables. Thus, the relationship was not affected by this personality trait of individuals. The fact that pessimism does not influence this relationship may strengthen the argument that the issue may need more focus on environmental factors such as culture. On a cultural basis, if individuals' perspective on human nature is better understood, predictions about individuals' perspective on robots may be obtained.

People have a more positive attitude towards people who are familiar with them. Such "mere effect" (Zajonc, 1968) may reveal in human-robot relations. That is, individuals' attitudes may become more positive as a result of robots taking place in social environments and people may become more familiar with these beings. If the interactions that robots will have in possible social environments are developed in a way that people can easily get familiar with, the advantages of human-centered technology may be utilized in the process of adapting technology to the organization (Erebak & Turgut, 2018). To do this, it is necessary to remove these robots from laboratory environments and test their usability in the social context (Salter, Dautenhahn, & Te Boekhorst, 2004). Besides, before they are released to the social context, it may be necessary for the authorities and persons to meet in a common

denominator to find clearer answers to some questions in general. In which social environments robots should take place, how to determine the behavior of robots against people, how to prevent the possibility of robots to harm people, and many other questions should be answered. The proliferation of studies on robot ethics can contribute to this situation (Enz et al., 2011). Studies on this subject indicate that various discussions should be made. For example, although we know that in case of extraordinary circumstances, a bridge may collapse or some drugs have serious side effects to some people; however, no one blames construction or pharmaceutical companies for their production (Müller, 2016). Perhaps the same situation may also apply to the possible harmful behavior of robots in social environments. Moreover, Bryson (2010) states that we should change our perspective on robots and not consider them except that they are beings serving us. People already have a concern that they will lose their jobs against robots (Lin et al., 2011; Nagenborg, Capurro, Weber, & Pingel, 2008), which may be an example of the direct social influence of robots if this happens. Besides, it may be a kind of scam that robots catch social cues from our body language or words and behave according to it (Wallach & Allen, 2008). As a result, we may get more concrete ideas about the social influence of robots as these types of concerns are eliminated.

Regarding the functions of robots, performing basic tasks, workplaces are their primary environment. Hence, these are one of the places where human-robot interactions are most intense. An efficient human-robot interaction may improve the performance of the organization, ensure that employees are collaborating with robots, and are not adversely affected by this interaction process. To adapt these technologies to the workplace, and to ensure efficiency, the organization may need to learn about what kind of cultural lens its employees look at the world in general. Thus, it may be easier to get over some challenges in the process of adopting robots to organizations (Erebak & Turgut, 2019).

## **8. CONCLUSION**

In the near future, it is expected that the visibility of robots in many social environments will increase. Therefore, many members of society, primarily employees, may be directly or indirectly affected by the existence of these robots. To be prepared for these interactions, it may be necessary to examine the psychological and cognitive factors that may affect people in this interaction and to develop robots in such a way that they adapt to this. Although the main limitation of the study is the low number of male respondents in the sample; this study contributed to the understanding importance of the cultural context in which robots will be put into service by supporting the idea that the perception of the human evilness is related negative attitude towards the social influence of robots. Thus, it addresses cultural solutions such as an educational system that is more optimistic about human nature and the future, in general, to interact with robots more beneficially.

## REFERENCES

- Aggarwal, P., & McGill, A. L. (2007). Is that car smiling at me? Schema congruity as a basis for evaluating anthropomorphized products. *Journal of Consumer Research*, 34(4), 468-479.
- Althern, G., & Bennett, J. (2011). *American Ways: A Cultural Guide to the United States of America*. Hachette UK.
- Bartneck, C., Nomura, T., Kanda, T., Suzuki, T., & Kato, K. (2005). *Cultural differences in attitudes towards robots*. Paper presented at the Proc. Symposium on robot companions (SSAISB 2005 convention).
- Bartneck, C., Van Der Hoek, M., Mubin, O., & Al Mahmud, A. (2007). "Daisy, daisy, give me your answer do!" switching off a robot. Paper presented at the Human-Robot Interaction (HRI), 2007 2nd ACM/IEEE International Conference on.
- Basım, H. N. (1998). *Yönetim ve Örgütlenme Süreçlerinde Ulusal Kültür Etkisi: İşletme Yöneticilerinin Kültürel Görüş Açıları Üzerine Uygulamalı Bir Araştırma*. (Unpublished Doctoral Dissertation), Gazi University, Ankara.
- Baskerville, R. F. (2003). Hofstede never studied culture. *Accounting, Organizations & Society*, 28(1), 1-14.
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: the hopelessness scale. *Journal of Consulting Clinical Psychology & Psychotherapy*, 42(6), 861-865.
- Beilmann, M., & Lilleoja, L. (2015). Social trust and value similarity: The relationship between social trust and human values in Europe. *Studies of Transition States and Societies*, 7(2), 19-30.
- Boyer, P. (2003). Religious thought and behaviour as by-products of brain function. *Trends in Cognitive Sciences*, 7(3), 119-124.
- Bryson, J. J. (2010). Robots should be slaves. *Close Engagements with Artificial Companions: Key Social, Psychological, Ethical Design Issues*, 63-74.
- Cialdini, R. B. (2009). *Influence: Science and Practice* (Vol. 4): Pearson education Boston, MA.
- Clark, J., Kim, B., Poulton, R., & Milne, B. J. (2006). The role of low expectations in health and education investment and hazardous consumption. *Canadian Journal of Economics*, 39(4), 1151-1172.
- de Graaf, M. M. A. (2016). An Ethical Evaluation of Human–Robot Relationships. *International Journal of Social Robotics*, 8(4), 589-598. doi:10.1007/s12369-016-0368-5
- Durak, A., & Palabıyıkoglu, R. (1994). Beck umutsuzluk ölçęği geçerlilik çalışması. *Kriz Dergisi*, 2, 311-319.
- Enz, S., Diruf, M., Spielhagen, C., Zoll, C., & Vargas, P. A. (2011). The Social Role of Robots in the Future—Explorative Measurement of Hopes and Fears. *International Journal of Social Robotics*, 3(3), 263-271. doi:10.1007/s12369-011-0094-y
- Erebak, S., & Turgut, T. (2019). Caregivers' attitudes toward potential robot coworkers in elder care. *Cognition, Technology & Work*, 21(2), 327-336.
- Erebak, S., & Turgut, T. (2018). Negative Attitudes toward Robots Scale: Validity and reliability of Turkish version. *Toros Üniversitesi İİSBF Sosyal Bilimler Dergisi*, 5(9), 407-418.
- Erebak, S., & Turgut, T. (2018). Robots as our new coworkers: The influence of anthropomorphism on employees' preference of levels of automation. *İş'te Davranış Dergisi*, 3(1), 17-30 . doi: 10.25203/idd.352463
- Erez, M., & Gati, E. (2004). A dynamic, multi-level model of culture: from the micro level of the individual to the macro level of a global culture. *Applied Psychology*, 53(4), 583-598.
- Feil-Seifer, D., & Matarić, M. J. (2011). Socially assistive robotics. *IEEE Robotics & Automation Magazine*, 18(1), 24-31.
- Freud, S. (2012). Totem and Taboo. doi:10.4324/9780203164709
- Fromm, E. (2011). *The heart of man: Its genius for good and evil*. Lantern Books. (Original work published 1964)



- Hegel, F., Muhl, C., Wrede, B., Hielscher-Fastabend, M., & Sagerer, G. (2009). Understanding social robots. In *Advances in Computer-Human Interactions, 2009. ACHI'09. Second International Conferences on* (pp. 169-174): IEEE.
- Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *The American Journal of Psychology*, 57(2), 243-259.
- Heinonen, K., Rääkkönen, K., & Keltikangas-Järvinen, L. (2005). Self-esteem in early and late adolescence predicts dispositional optimism–pessimism in adulthood: A 21-year longitudinal study. *Personality & Individual Differences*, 39(3), 511-521.
- Hills, M. D. (2002). Kluckhohn and Strodtbeck's Values Orientation Theory. *Online Readings in Psychology and Culture*, 4(4). doi:10.9707/2307-0919.1040
- Jipson, J. L., & Gelman, S. A. (2007). Robots and rodents: Children's inferences about living and nonliving kinds. *Child Development*, 78(6), 1675-1688.
- Kahn Jr, P. H., Gary, H. E., & Shen, S. (2013). Children's social relationships with current and near-future robots. *Child Development Perspectives*, 7(1), 32-37.
- Kahn Jr, P. H., Kanda, T., Ishiguro, H., Gill, B. T., Ruckert, J. H., Shen, S., . . . Severson, R. L. (2012). *Do people hold a humanoid robot morally accountable for the harm it causes?* Paper presented at the Proceedings of the seventh annual ACM/IEEE international conference on Human-Robot Interaction.
- Kluckhohn, F. R., & Strodtbeck, F. L. (1961). *Variations in value orientations*. Evanston, IL Row, Peterson.
- Lee, I., Choi, B., Kim, J., & Hong, S.-J. (2014). Culture-technology fit: effects of cultural characteristics on the post-adoption beliefs of mobile internet users. *International Journal of Electronic Commerce*, 11(4), 11-51. doi:10.2753/jec1086-4415110401
- Lin, P., Abney, K., & Bekey, G. (2011). Robot ethics: Mapping the issues for a mechanized world. *Artificial Intelligence*, 175(5-6), 942-949. doi:10.1016/j.artint.2010.11.026
- Malle. (2015). Integrating robot ethics and machine morality: the study and design of moral competence in robots. *Ethics and Information Technology*, 18(4), 243-256. doi:10.1007/s10676-015-9367-8
- Malle, Scheutz, M., Arnold, T., Voiklis, J., & Cusimano, C. (2015). *Sacrifice one for the good of many?: People apply different moral norms to human and robot agents*. Paper presented at the Proceedings of the tenth annual ACM/IEEE international conference on human-robot interaction.
- Marino, D., & Tamburrini, G. (2006). Learning robots and human responsibility. *International Review of Information Ethics*, 6(12), 46-51.
- Maslow, A. (1968). *Toward a psychology of being*. Princeton, NJ: D. VanNostrand Company. In: Inc.
- Matthias, A. (2004). The responsibility gap: Ascribing responsibility for the actions of learning automata. *Ethics Information Technology*, 6(3), 175-183.
- May, R. (1982). The problem of evil: An open letter to Carl Rogers. *Journal of Humanistic Psychology*, 22(3), 10-21.
- Maznevski, M., & DiStefano, J. (1995). Measuring culture in international management-the cultural perspectives questionnaire, work in progress paper presented at Academy of International Business Annual meeting.
- McCoy, S., Galletta, D. F., & King, W. R. (2005). Integrating national culture into IS research: The need for current individual level measures. *Communications of the Association for Information Systems*, 15(1), 12.
- Müller, V. C. (2016). Autonomous Killer Robots Are Probably Good News. In *Drones and Responsibility* (pp. 77-91): Routledge.
- Nagenborg, M., Capurro, R., Weber, J., & Pingel, C. (2008). Ethical regulations on robotics in Europe. *Ai & Society*, 22(3), 349-366.
- Neller, K. (2008). Explaining social trust: what makes people trust their fellow citizens. *Social capital in Europe: similarity of countries diversity of people*, 103-133.
- Nomura, T., Suzuki, T., Kanda, T., & Kato, K. (2006). Measurement of negative attitudes toward robots. *Interaction Studies*, 7(3), 437-454.

- Perrett, R. W. (2002). Evil and human nature. *The Monist*, 85(2), 304-319.
- Powers, T. M. (2011). Incremental machine ethics. *IEEE Robotics & Automation Magazine*, 18(1), 51-58.
- Reeves, B., & Nass, C. (1997). *The Media equation: how people treat computers, television, and new media*: Cambridge University Press.
- Riether, N., Hegel, F., Wrede, B., & Horstmann, G. (2012). *Social facilitation with social robots?* Paper presented at the Proceedings of the seventh annual ACM/IEEE international conference on Human-Robot Interaction.
- Rogers, C. R. (1982). Reply to Rollo May's letter to Carl Rogers. *Journal of Humanistic Psychology*, 22(4), 85-89.
- Salter, T., Dautenhahn, K., & Te Boekhorst, R. (2004). *Robots moving out of the laboratory-detecting interaction levels and human contact in noisy school environments*. Paper presented at the Procs 13th IEEE Int Workshop on Robot and Human Interactive Communication, RO-MAN.
- Salvini, P., Laschi, C., & Dario, P. (2010). Design for Acceptability: Improving Robots' Coexistence in Human Society. *International Journal of Social Robotics*, 2(4), 451-460. doi:10.1007/s12369-010-0079-2
- Saver, J. L., & Rabin, J. (1997). The neural substrates of religious experience. *Journal of Neuropsychiatry and Clinical Neurosciences*, 9, 498-510.
- Scheutz, M., Schermerhorn, P., Kramer, J., & Anderson, D. (2007). First steps toward natural human-like HRI. *Autonomous Robots*, 22(4), 411-423.
- Schwitzgebel, E. (2007). Human nature and moral education in Mencius, Xunzi, Hobbes, and Rousseau. *History of Philosophy Quarterly*, 24(2), 147-168.
- Seber, G., Dilbaz, N., Kaptanoğlu, C., & Tekin, D. (1993). Umutsuzluk ölçeği: Geçerlilik ve güvenilirliği. *Kriz Dergisi*, 1(3), 139-142.
- Singer, P. W. (2009). *Wired for war: The robotics revolution and conflict in the 21st century*. Penguin.
- Van Norden, B. W. (1998). Menius. In E. Craig (Ed.), *Routledge encyclopedia of philosophy* (Vol. 6, pp. 302-304). London: Routledge.
- Wallach, W., & Allen, C. (2008). *Moral machines: Teaching robots right from wrong*. Oxford University Press.
- Yamakage, M. (2006). The essence of Shinto: Japan's spiritual heart. In P. D. Leeuw & A. Rankin (Eds.). Tokyo: Kodansha International.
- Yamamoto, S. (1983). Why the Japanese has no allergy to robots. *L'esprit d'aujourd'hui (Gendai no Esupuri)*, 187, 136-143.
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, 9(2p2), 1-28.
- Złotowski, J., Proudfoot, D., Yogeewaran, K., & Bartneck, C. (2014). Anthropomorphism: Opportunities and Challenges in Human-Robot Interaction. *International Journal of Social Robotics*, 7(3), 347-360. doi:10.1007/s12369-014-0267-6

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