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Fear of Artificial Intelligence on People's Attitudinal & Behavioral Attributes: An Exploratory Analysis of A.I. Phobia*

Jungmin Kim[1]

[1]Branksome Hall Asia, Jeju, South Korea.
Email: jungmink02@gmail.com

Abstract

This research investigates the interplay of this fear with other latent factors that would potentially influence people's attitudes and behavior through empirical analysis. A survey consisting of TRI 2.0 with other questions was given to 341 people in Seoul, Korea, and an independent t-test, a correlation analysis, a multiple regression analysis, and a logistic regression analysis were conducted. A t-test showed that there was no group difference when compared demographic backgrounds; however, the optimism about new technology and A.I. phobic inclination differed by two groups--A.I. acceptance. A correlation analysis revealed that SES and A.I. acceptance were correlated; optimism and innovativeness were strongly correlated; and A.I. phobia and A.I. acceptance were negatively correlated. A multiple regression analysis showed that the amount of time using a high-tech device and the optimism can lessen A.I. phobia. Lastly, a logistic regression analysis showed that the optimism and age are influencing the decision to purchase an A.I. featured product/service.

Keywords : Artificial Intelligence, Technophobia, Technological Readiness Index, Innovation, A.I. Phobia

1 INTRODUCTION

In the era of unprecedented technological advancement, an autonomous technology called artificial intelligence (A.I.) is drawing our attention and casting doubts about whether or not it will change our life for the better. Presenting various opportunities and applications, some A.I. even surpass the capacities of human experts today and will soon optimize themselves to a greater degree (Mannino, Althaus, Erhardt, Gloor, Hutter, & Metzinger, 2015). In fact, handheld smartphones, Amazon's auto recommendation system, Tesla's automatic driving features, and Google's search and translation engines are real-life examples of weak artificial intelligence, and strong artificial intelligence—also called artificial super-intelligence (ASI)—is expected to be smarter than the best human brains in practically every field, including scientific creativity, general wisdom and even social skill (Goertzel, Pennachin, & Geisweiller, 2014). To some, an idea of A.I. advancing to be on par with a human is enough to arouse fear; nonetheless, many are now convinced that A.I. will exceed human capacity sooner or later. Haslam (2006) argued emotion, spontaneity, spirit, and intuition are unique attributes of humans that set apart from machines. But in reality, A.I. is also projected to replace actual human companions in this aging society.

In fact, many people want machines to replace mundane and routine tasks that do not require in-depth thinking process (Ray, Mondada, & Seigwart, 2008), nor do they expect machines to perform tasks that needed capabilities deemed as human qualities: empathy, caring, or independent decision making (Syrdal et al., 2011). Therefore, if A.I. were to evolve and gain the full capacity of self-teaching and self-awareness (Martinez-Miranda and Aldea, 2005; Minsky, 2007), the fear is likely to worsen after all.

The fear of new technology had always been around in human history. Calling it an irrational fear, Brosnan (2002) argued that such fear towards advantageous technology is widespread, both now and in the past. He explained that "technophobia does not involve fears such as job displacement or concerns over the effects of screen radiation, rather a negative affective and attitudinal response to technology." Therefore, the fear of A.I. is perhaps a natural response of humans about the future that has yet to arrive.

Indeed, A.I. is still an uncharted territory in many aspects. For this technology to benefit our society in the best possible ways, one should examine the root of this fear and how this fear affects our perception and decision-making. Only then, can people embrace the revolutionary technology to their life, so it will work for the betterment of our society. However, virtually no research has been conducted to address this fear of A.I. Therefore, this research is designed to uncover the interplay of A.I. phobia with other latent factors that would influence people's behavior and their decision-making patterns through an empirical study.

2 Literature Review

2.1 The Concept of Artificial Intelligence

John McCarthy first coined the term artificial intelligence in a proposal in 1955. The aspects of artificial intelligence he identified were the machines' ability to "use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves" (McCarthy, 2006). In 1950, Alan Turing proposed the 'Turing test' an experiment on a computer's ability to think and exhibit intelligence indistinguishable from that of a human. It was posited that the computer would pass the test if an interrogator fails to distinguish between a person and a computer while exchanging conversation through typed messages. However, some critics argue that the ability to imitate a human does not prove intelligence, and intelligence may be possible without passing the Turing test. (Smith et al., 2006). Despite the shortcomings, the Turing test is significant to the philosophy of Artificial Intelligence as it raises the question regarding what it means to be intelligent. Although the concept of A.I. emerged from a philosophical question of whether or not machines are capable of thinking, it is also used to solve real and practical problems. Voice/image recognition, adaptive spam blocking, and recommendation engine are examples of A.I. employed in the modern days.

2.2 Technological Singularity

Coined by a mathematician Jon von Neuman, the term technological singularity refers to the moment beyond the point where "technological progress will become incomprehensibly rapid and complicated." He went on and argued that "the ever accelerating progress of technology...gives the appearance of approaching some essential singularity in the history of the race beyond which human affairs, as we know them, could not continue (Ulman, 1958)." Vernor Vinge, a science fiction writer who also serves as a professor teaching mathematics and computer science at San Diego State University, elaborated this concept and purported, "we will soon create (an) intelligence greater than our own. When this happens, human history will have reached a kind of singularity, an intellectual transition as impenetrable as the knotted space-time at the center of a black hole, and the world will pass far beyond our understanding (Vinge, 1983)." Simply put, the progress of A.I. will eventually go out of human control, posing a threat to its creators.

Such fear is only made worse when an iconic tech entrepreneur, Elon Musk, warned against the development of A.I. and called it "our (mankind's) greatest existential threat" in an interview at the AeroAstro Centennial Symposium (Sainato, 2015). Also, Stephen Hawking, one of the greatest physicists of the 21st century, argued at an interview with BBC and said, "humans, limited by slow biological evolution, couldn't compete and would be superseded by A.I. (Cellan-Jones, 2014)."

In the Google Deepmind Challenge Match of 2016, A.I. showed that it could surpass human in some cognitive domains. The jaw-dropping victories of AlphaGo that defeated Sedol Lee—one of the most celebrated Go player—was a historic moment. Central to AlphaGo is the Deep Reinforcement Learning (DRL), which is a branch of A.I. that performs an action and uses the reward received for an action it performed as feedback to find the optimal policy (Silver et al., 2016), and many are convinced that DRL is a fraction of what is to come.

2.3 Technophobia

Rosen and Mcguire (1990) define technophobia as "(1) anxiety about present or future interactions with computers or computer-related technology; (2) negative global attitudes about computers, their operation, or their societal impact, and/or (3) specific negative condition or self-critical internal dialogues." As one of the most promising technologies offering the potential to change many aspects of our life, artificial intelligence arouses fear in various domains within our society. About this widespread fear of A.I., a famed cognitive scientist Steven Pinker at Harvard University has warned that fear-mongering can diminish the ability of human brain to distinguish a legitimate threat from a false threat (Clifford, 2018). In the past few decades where a computer has gone through a visible transformation revolutionizing our life, computer phobia has been recognized as a pervasive phenomenon amongst the student population (Selwyn, 2000). Technophobia, which is the negative feeling associated with high anxiety, reduces cognitive resources allocated to perform a task (Kanfer, & Heggestad, 1997). The evidence pointing to an undesirable effect of technophobia on task performance is presented in the study done by Mcilroy, Sadler, & Boojawon(2007) as they discovered that college students who were either highly computer phobic or had low computer self-efficacy were less likely to maximize their use of computer facility, showing a low level of Information Communication Technology (ICT) skill. Now that computer and related technology has become a quintessential part of virtually any job performance, one can reasonably infer how such phobia must have debilitated the students' job capacity or other competencies required to succeed in the workforce. The exact scope of repercussion spawn out of this fear is yet to be enumerated but is costly.

2.4 Uncertainties of Innovation

Fear itself is often rooted in uncertainties. It is why the history of human civilization is filled with stories of how innovations were first greeted by jeer or dismissal. Jalonen (2011) defines innovation as a "process that is fraught with uncertainty." Eight factors that cause uncertainty in change are identified: technological, market, regularity/institutional, social/political, acceptance/legitimacy, managerial, timing, and consequence uncertainties. Unanticipated, indirect and undesirable consequences can cause uncertainty. Jalonen (2011) also argued that the contradiction of necessary skills or knowledge with existing knowledge and threatened values and norms manifest the acceptance/legitimacy uncertainty and the lack of knowledge, ambiguity of information and difficulties in prediction cause uncertainty.

Studies show that uncertainty is associated with cognitive vulnerability. Intolerance of uncertainty and worry in adolescents has a reciprocal relation (Dugas, 2012). Wallis (2009) found that uncertainty provokes fear in both patients and doctors, and the ability to acknowledge and tolerate uncertainty is limited. Grupe and Nitschke (2013) state that uncertainty about a potential threat in the future results in anxiety. Therefore, uncertainty is at the core of fear and anxiety. In this regard, the fear of A.I. is also strongly associated with the uncertainty that it presents.

2.5 The Psychology of Resisting Innovation

Because the prospects of A.I. replacing many things that are now being managed by human hands, the fear of A.I. is identifiable as an act of resisting innovation. A psychological resistance to change is a defensive and adaptive tendency to preserve the status quo (Diamond, 1986). Resistance is often identified with reluctance or (un)readiness, and participating in the change is suggested as a solution to overcome resistance (Piderit, 2000). Zaltman and Wallendorf (1983) defined innovation as an "idea, practice or object that people see as different" and resistance to change as a "conduct that serves to maintain status quo in the face of pressure to alter the status quo."

When a change is imposed on a group of people, they often resist it not necessarily because they don't see the need for the change, but because of the new ways of processing things disturb the psychological stability that they had with the old ones. Ryu (2011) contends that when a change is imposed on a group of people, they experience a psychological imbalance; as a result, they either re-adjust this imbalance or resist it.

Studies dealt with the psychology of resisting innovation had revealed that people have an intrinsic desire for psychological equilibrium (Newcomb, 1953; Osgood & Tannenbaum, 1955; Heider, 1958). A change imposed on people's behavior is likely to disturb this equilibrium, so they are more inclined to resist a change rather than endure the disturbance and readjust, meaning that resistance is a more general response when people are confronted with an innovation (Ram, 1987).

The Psychological Model of Resistance views resistance as a natural response for humans, whereas the Systems Model of Resistance sees that resistance is found because of the discomfort caused by the potential disadvantages of the change that people may experience (Agboola & Salawu, 2011). Sheth(1981) argues that people's resistance to change, or innovation, can be accounted for by two factors: (1) habit toward an existing practice or behavior and (2) perceived risks associated with innovation adoption. One must also consider that accepting a change must be preceded by a decision of discarding an old one. In other words, a cost must be taken into account when introducing an innovation. Gourville (2006) says that people "irrationally overvalue benefits they currently possess"; as a consequence, they undervalue the advantage of adopting an innovation. To sum up the studies above, people's fear of uncertainty that an innovation elicits overrides the benefits that innovation can bring about. As the history of human civilization attests to the fact that any forms of trailblazers nearly always fought through initial resistances, A.I.—the most promising technology that will soon revolutionize our life—is not an exception.

2.6 Factors Associated with Technophobia

Though the fear of technology must be broken down, a series of myth had been perpetuated (Rosen & Macguire, 1990). Lenvin and Gorden (1989) have reported that women are more computer-phobic than men. Weil and Rosen's (1995) findings are consistent with this gender factor because they also found age and gender to be mildly correlated with technophobia when they measured technophobia via anxiety, cognition, and attitude, targeting 3,392 colleges students across 23 countries around the world. Laguna and Babcock (1997) have found that age explains technophobia because older people are more technophobic than younger ones. Having examined five urban schools, Rosen and Weil (1995) had found that age, gender, computer availability, ethnicity and socioeconomic status (SES) could contribute to the development of technophobia. Besides, Weil and Rosen (1995) have reported education as another marker for technophobia as non-students were more technophobic than students enrolled at schools. On the other hand, a study on South African college students by Anthony, Clarke, & Anderson (2000) present findings somewhat inconsistent with the results above. They found that South African students' computer experience and age were negatively correlated with technophobia and no statistically significant correlation between gender and technophobia was found. Additionally, they argued that neuroticism (moody and sensitive disposition) was positively correlated, but students' openness was negatively correlated with technophobia.

Research Questions

- Is there a difference between people who are accepting A.I. and those who aren't?
- What variables are associated with people's response to A.I.?
- What contributes to people's fear of the concept of A.I.?
- What causes people to accept or reject A.I. products/services?

3 Analysis

3.1 Methods

A variety of self-report measures had been developed to assess computer phobia, and two of the most widely used instruments are the Computer Thoughts Survey (CTS), and the Computer Anxiety Rating Scale (CARS) (Mcilroy et al., 2007). The both were developed and validated by Rosen and Weil (1992) across different samples and cultures. The problem of computer phobia may be manifest by high anxiety (CARS) and by low positive cognition(CTS) or by a combination of these. These are the two measures used in the present study along with the Computer Self-Efficacy Scale (CSES) (Durndell, Hagg, & Laithwaite, 2000). Given that self-efficacy has proven to be a robust predictor of behavior in a wide variety of applied settings (Bandura, 1997), its extension to the field of computer attitudes and behaviors has been a natural development. The use of a self-report measure based on self-efficacy that has produced a proliferation of empirical papers (Pervin, 2003) adds another dimension to the overall assessment of computer-related attitudes and behaviors. Moreover, Barbeite and Weiss (2003) found that the two constructs, self-efficacy and anxiety, reflect confidence and aversion, respectively, in a participant's approach to Internet use.

In their study to measure technophobia, Rosen and Weil (1995) used CTS, CARS and CSES, the tools to measure computer-phobia; during the 90s, the computer was the representative technology of the era. Therefore, technophobia could be deemed equivalent to computer-phobia. However, in the modern days, technology has advanced far beyond the boundaries of a computer, so the computer-phobia question is unbefitting for measuring technophobia itself. This research, as a result, employed the updated Technological Readiness Index—published in 2013—which aptly measures psychological constructs pointing to people's attitudes toward technology.

For analysis, the following methods were used. First, to analyze the mean difference between two groups—those who wish to purchase an A.I. product/service and those who aren't[1]—an independent sample t-test was conducted. Second, to understand what variables are associated with the fear of A.I., Pearson's correlation analysis was used. Third, to explore what factors contribute to the fear of A.I., a multiple regression analysis was used. Lastly, to understand what factors contribute to people's choice of accepting or rejecting A.I. featured products/services, a logistic regression analysis was conducted.

3.2 Data

A survey consisting of TRI 2.0, questions asking about their A.I. and demographic information were distributed in downtown Seoul. For convenience, the survey was given out in Google Form. Except for a few question items like the time using tech devices, most of the questions were set to be filled out to minimize missing values. Below is the descriptive statistics of the collected sample.

TABLE 1 Descriptive Statistics

	N	Mean	SD	Min	Max
Gender	341	.48	.50	0	1
Age	341	41.55	11.22	9	79
Education	341	16.18	2.75	2	22
Tech Time.	339	5.63	3.77	1	20
SES	341	5.86	1.76	1	10
Optimism	341	3.66	.73	1	5
Innovativeness	341	2.96	.88	1	5
A.I. Phobia	341	2.59	.83	1	5
Buy A.I.	341	.87	.34	0	1
Valid *N*	339				

Table 1 shows the descriptive statistics of the collected sample. Because women are coded as 1, approximately 48% of this sample are women. The participants' average age is approximately 42, ranging from 9 to 79. Their levels of formal education are weighted as follows: elementary school (6), middle school (9), high school (12), community college (14), bachelor's degree (16), master's (18), doctorate (22)—participants recorded their educational levels by the graduation from each institution. The average years of formal education of this sample are approximately 16. The participants spend an average of 5.6 hours a day, using internet supported devices like smartphone, tablet PC, and others. Their perceived socioeconomic status (SES) is close to 6 in the 10-point scale. Lastly, approximately 87% of the people are willing to purchase an A.I. featured product/services.

3.3 Results

TABLE 2 The Item Reliabilities of Subdomains in TRI 2.0

TRI	Question	CA if deleted	Cronbach's Alpha

[1] The participants were asked to choose from two speakers offering same features, price, and design. The only difference between the two was the one offered A.I. feature and the other did not.

OPT 1	◆	New technologies contribute to a better quality of life.	.82	.87
OPT 2	◆	Technology gives me more freedom of mobility.	.82	
OPT 3	◆	Technology give people more control over their daily lives.	.86	
OPT 4	◆	Technology makes me more productive in my personal life.	.82	
INN1	◆	Other people come to me for advice on new technologies.	.79	.84
INN2	◆	In general, I am among the first in my circle of friends to acquire new technology when it appears.	.81	
INN3	◆	I can usually figure out new high-tech products and services without help from others.	.81	
INN4	◆	I keep up with the latest technological developments in my areas of interest.	.77	
DIS1	◆	When I get technical support from a provider of a high-tech product or service, I sometimes feel as if I am being taken advantage of by someone who knows more than I do.	.64	.68
DIS2	◆	Technical support lines are not helpful because they don't explain things in terms I understand.	.57	
DIS3	◆	Sometimes, I think that technology systems are not designed for use by ordinary people.	.56	
DIS4	◆	There is no such thing as a manual for a high-tech product or service written in plain language.	.69	
INS1	◆	People are too dependent on technology to do things for them.	.69	.73
INS2	◆	Too much technology distracts people to a point that is harmful.	.62	
INS3	◆	Technology lowers the quality of a relationship by reducing personal interaction.	.63	
INS4	◆	I do not feel confident doing business with a place that can only be reached online.	.73	

Table 2 shows the updated Technology Readiness Index (2.0) and four question items in four respective subdomains. As shown above, the reliability index (Cronbach's coefficient alpha) was .87 for the subdomain Optimism (OPT) & the alpha of Innovativeness (INN) was .84. This shows that there is a sufficient amount of covariance in each category; therefore, four items in each—OPT and INN—were merged into two separate variables for analysis. However, reliabilities of both Discomfort (DIS) and Insecurity (INS) fell short of the cutoff reliability point of .8; both of these subcategories were discarded from this analysis.

TABLE 3 A.I. Phobia Measuring Items

A.I. Phobia		Question	CA if deleted	Cronbach's Alpha
AIFEAR1	◆	I fear that A.I. will ultimately replace all humans.	.89	.89
AIFEAR2	◆	I fear that A.I. will attack and harm humans.	.84	
AIFEAR3	◆	I fear that one day, humans will be under the control of A.I.	.83	
AIFEAR4	◆	I fear that A.I. will bring catastrophe such as the end of mankind.	.86	

Because no standardized instrument to measure people fear about artificial intelligence was found, four items were developed as illustrated in **Table 3**. Looking at the high Cronbach's coefficient alpha, the four items measure a single psychological construct; therefore, they were then merged.

TABLE 4 *t*-test people's willingness by purchase an A.I. featured product/service

		Don't Buy. (n = 45)	Buy. (n = 296)	Mean Difference	t	p-value
Gender	Mean	.44	.49	-.04	-.53	.60
	(SD)	(.50)	(.50)			
Age	Mean	39.27	41.90	-2.63	-1.47	.14
	(SD)	(12.25)	(11.04)			
Education	Mean	15.73	16.25	.52	-1.18	.24
	(SD)	(3.32)	(2.65)			
Tech Time	Mean	5.34	5.68	-.34	-.55	.58
	(SD)	(3.31)	(3.84)			

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SES	Mean (SD)	5.76 (1.79)	5.87 (1.75)	-.12	-.41	.68
Optimism	Mean (SD)	3.16 (.82)	3.73 (.68)	-.57	-5.08	**.00**
Innovative	Mean (SD)	2.78 (.94)	2.99 (.87)	.21	-1.48	.14
A.I. Phobia	Mean (SD)	3.13 (.82)	2.51 (.81)	.62	4.83	**.00**

To compare the mean difference of those who are willing to purchase an A.I. featured product/service and those who aren't, a t-test was conducted, and the results are provided in **Table 4**. The statistically significant group mean differences have been found in the participant's optimistic attitude towards new technology and their fear of A.I.

TABLE 5 Pearson's Correlation Analysis of the Possible Variables

	Gender	Age	Education	Tech Time	SES	Buy AI	Optimism	Innovative
Age	-.24***							
Education	-.15**	.40***						
Tech Time	.20***	-.10	.17**					
SES	-.02	.23***	.31***	.06				
Buy AI	.03	.08	.06	.03	.02			
Optimism	-.07	.12*	.25***	.00	.33***	.27***		
Innovative	-.25***	.08	.20***	.00	.16**	.08	.50***	
AI-Fear	.10	.15**	.03	-.13*	-.03	-.25***	-.18**	-.05

* $p < .05$ ** $p < .01$ *** $p < .001$

Having conducted a correlation analysis, people's optimistic attitude toward new technology is positively correlated with their socioeconomic status (r = .33, $p < .001$) and their willingness to purchase an A.I. featured product/service (r = .25, $p < .001$). The optimistic attitude and their innovativeness are strongly correlated (r = .50, $p < .001$) because they are subdomains constructing the same concept—the technological readiness. Furthermore, A.I. phobia is negatively correlated with people's willingness to purchase an A.I. featured product/service (r = -.25, $p < .001$). Based on these findings, the fear of A.I. has been tested against people's willingness to purchase an A.I. featured product/service.

Next, to see how independent variables explain the change of A.I. Phobia, a multiple regression model was fitted. Before examining the regression model, normality, linearity, and homoscedasticity assumptions were checked.

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Fig.1 Histogram & Normal P-P Plot of Standard Residuals

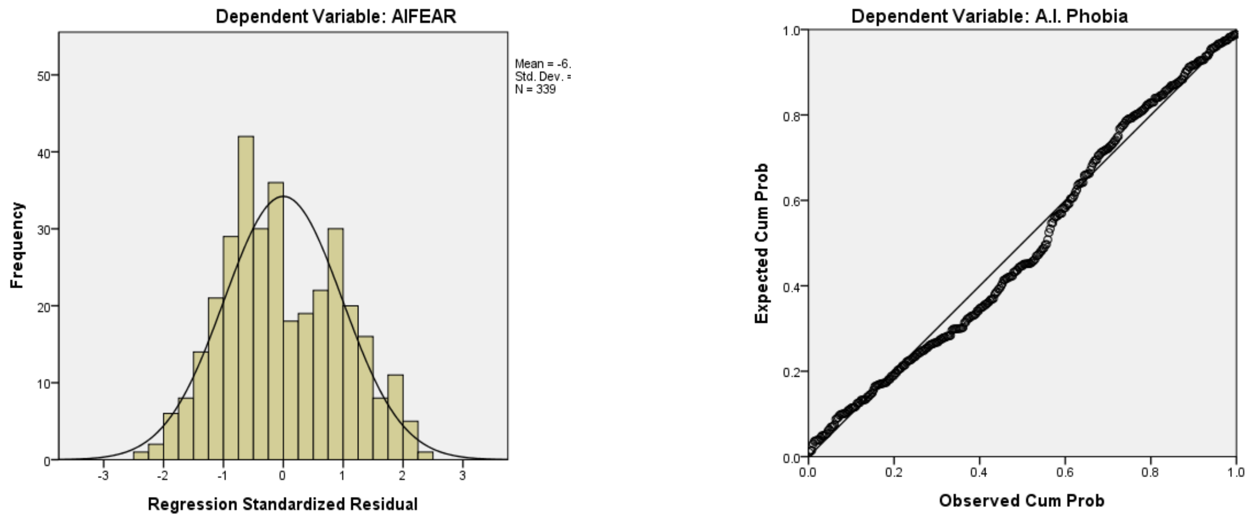
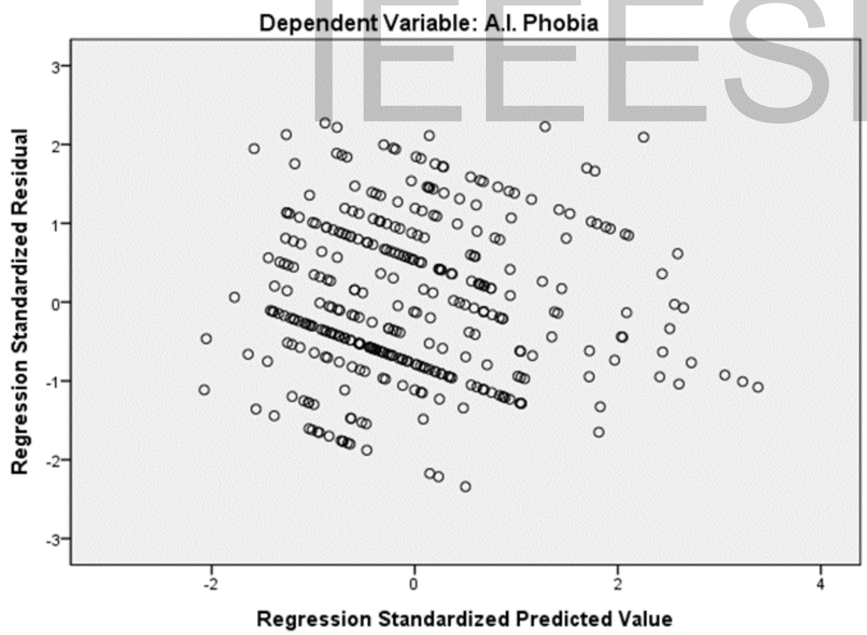


Figure 1 shows the histogram and the normal p-p plot of the standardized residuals. In the plot, the observed values are neatly following the line; therefore, the normality assumption appears to hold without any serious concern (Field, 2009).

Fig. 2 Scatterplot of Standardized Residuals & Standardized Predicted Value



Regression Standardized Predicted Value

Figure 2 is the scatterplot of the standardized residuals and the standardized predicted value, and as illustrated, the homoscedasticity assumption is not violated (Field, 2009).

Fig. 3 Scatterplot of A.I. Phobia & Standardized Residual

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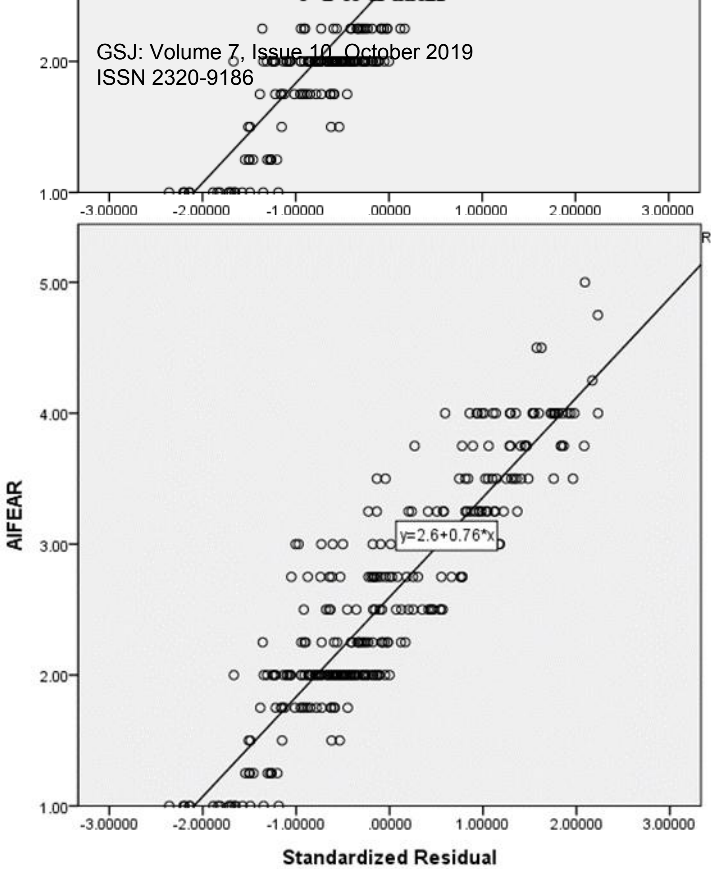

When fitted another scatterplot to predict A.I. Phobia with the standardized residuals, a line could be drawn as illustrated in **Figure 3**; therefore, the linearity assumption was deemed to be satisfied.

Table 6 *Regression analysis of A.I. Phobia*

	Unstandardized Coefficient		Standardized	*t*	*p*-value
	B	Standard Error	Beta		
Constant	2.99	.32		9.26	**.00**
Gender	.36	.09	.22	3.97	**.00**
Age	.02	.00	.22	3.88	**.00**
Education	.02	.02	.05	.84	.40
Tech Time	-.03	.01	-.15	-2.81	**.01**
SES	-.03	.03	-.06	-1.15	.25
Optimism	-.21	.07	-.18	-2.92	**.00**
Innovative	.07	.06	.07	1.16	.25
Buy AI	-.64	.13	-.26	-4.94	**.00**

Dependent Variable: AI-Phobia

**Below is the regression equation*

$$``\hat{Y} = 2.99 + .36(Gender) + .02(Age) + .02\,(Education) - .03\,(Tech\ Time) - .03(SES) - .21\,(Optimism) + .07\,(Innovative) - .64\,(Buy\ A.I.)"$$

When fitting a regression model predicting people's fear of A.I., F-Statistics is 9.18 (8, 330), $p < .001$; therefore, the model's predictability is higher than a model using mean values of the independent variables to predict the fear of A.I. The R^2 value is .182, meaning that approximately 18% of the variance in people's fear of A.I. (dependent variable) is explained by the independent variables included in this regression model.

The intercept shows that the level of A.I. Phobia is approximately 2.99 (out of 5) when all the other variables are held constant. Of people's demographic background, gender and age appear to explain the change in A.I. Phobia. Women are expected to have .36 ($p < .001$) higher A.I. Phobia than men. Also, an increase of age by one year is expected to raise A.I. phobia by .02 ($p < .001$).

The amount of time people use technology appears to lessen A.I. Phobia. When people use technology one hour more on a daily basis, A.I. phobia can decrease by .03 ($p = .01$). Also, when people's optimistic attitude toward new technology increases by one unit, their fear of A.I. can decrease by .21 ($p < .001$). Lastly, those who are willing to buy A.I. featured products/services are expected to have .64 (p < .001) less A.I. Phobia than those who aren't.

Finally, a logistic regression analysis was conducted to see how people's willingness to purchase A.I. featured products/services. The R^2 value was .26, meaning that approximately 26% of the variance in people's willingness to purchase an A.I. featured product/service (dependent variable) is explained by the independent variables included in this logistic regression model. Next, the Omnibus tests of model coefficients—comparing this model against the null hypothesis—showed that this model is a good predictor for the dependent variable, X^2 (df. 8) = 51.15, $p < .001$. Also, the Hosmer and Lemeshow Test again corroborated that the above model is sound, X^2 (8) = 4.88, $p = .77$. The contingency table for Hosmer and Lemeshow Test shows the model's prediction accuracy. As shown in the <Table 7>, the difference between observed and expected values are negligible at best; as a result, we can safely say the predictability of the logistic regression model is in the safe range.

TABLE 7 Contingency Table for Hosmer and Lemeshow Test

Step	Don't Buy = 0		Buy A.I. = 1		Total
	Observed	Expected	Observed	Expected	
1	14	16.08	20	17.92	34
2	9	8.32	25	25.68	34
3	6	5.78	28	28.22	34
4	6	4.29	28	29.71	34
5	3	3.19	31	30.81	34
6	4	2.41	30	31.59	34
7	2	1.69	32	32.31	34
8	0	1.18	34	32.82	34
9	0	.72	34	33.28	34
10	0	.34	33	32.66	33

TABLE 8 Classification Table

	Predicted		
	Don't Buy = 0	Buy = 1	% Correct
Don't Buy = 0	0	44	.0
Buy = 1	0	295	100.0
Overall %			87.0

Table 8 shows how good a model is at predicting the outcome. As illustrated, this model is able to correctly predict 87% of the category—the percentage indicator above 65 is considered sufficient figure above 65% threshold is considered satisfactory.

TABLE 9 Logistic Regression Analysis

	B	S.E.	Wald	df.	*p*-value	Exp(B)
Gender	-.70	.41	2.98	1	.08	.50
Age	.05	.02	5.01	1	**.03**	1.05
Education	-.02	.07	.05	1	.82	.98
Tech. Time	-.01	.05	.06	1	.80	.99
SES	-.26	.12	4.42	1	**.04**	.77
Optimism	1.03	.31	11.29	1	**.00**	2.80
Innovative	-.07	.26	.07	1	.80	.94
A.I. Fear	-1.18	.26	21.29	1	**.00**	.31
Constant	2.27	1.34	2.87	1	.09	9.63

As illustrated in <Table 9>, the odds ratios of the respondents' age and SES were statistically significant. This means that when age increases by one year, the odds of purchasing an A.I. featured product/service increase by 1.05 times, meaning a person one year older than others is 5% more likely to purchase an A.I. featured item. In addition, one should note that people's self-perceived socioeconomic status (SES) was measured in a 10-point scale with 1 being poor and 10 being wealthy. Therefore, if this perceived SES increases by one unit, the odds of purchasing an A.I. featured item is .77, p = .04. Simply put, a person who perceived his/her SES to be one point higher than others is approximately 23% less likely to purchase the A.I. product.

People's optimistic attitude toward new technology seems to explain their A.I. acceptance. Of all the variables, the optimistic attitude shows the largest odds ratio. So when this optimism increases by one unit, the odds of purchasing A.I. featured item increases by 2.80, $p <$ .001, meaning that a person whose optimism about new technology one point higher than others is 180% more likely to purchase an A.I. featured item.

Lastly, people's fear of A.I. is the focus of this analysis, and this fear appears to explain the change of people's A.I. acceptance. If the fear about A.I. increases by one unit, the odds of purchasing an A.I. featured item increases by .31. This means that person whose A.I. fear is one unit higher than others is 69% less likely to purchase an A.I. featured item.

4 Conclusion

4.1 Summary

When separated respondents into two groups, those who are willing to purchase an A.I featured products/services have a higher level of optimism toward new technology and are less A.I. phobic. When it comes to the participant's demographic background, they were quite similar. No group difference was found when compared demographic differences; however, the optimism about new technology and A.I. phobic inclination differed by the groups.

When demographic factors, optimism and innovative attitude toward technology, and the fear of A.I. were correlated, a positive correlation was found between the optimistic attitude and socioeconomic status and their willingness to purchase A.I. product. This may suggest that those who have high SES are more likely to own high-tech devices, so they are more likely to have a positive attitude toward new technology, thus leading to purchase more A.I. products/services than those who have low SES. A strong correlation between two attitudes—optimism and innovativeness—can be accounted for by the fact they are the subdomains constructing the same concept—the technological readiness. Besides, it appeared that A.I. phobic people are less likely to purchase an A.I. featured product/service.

When examined factors contributing to people's fear of A.I., gender and age factors explain the change of A.I. phobia. This finding is consistent with Rosen and Weil's (1995) research. Unlike their research, one should note that SES was not statistically significant in this research. The time people spend using a high-tech device can lessen A.I. phobia to a certain extent. Also, an optimistic attitude toward new technology can mitigate A.I. phobia. Lastly, people's willingness to purchase an A.I. product/service can ameliorate A.I. phobia.

When analyzed what attribute are more or less likely to accept A.I., people with an optimistic attitude toward new technology are most likely to purchase an A.I. product/service amongst all the other factors incorporated in this analysis. An interesting discovery made in this analysis is that, though people fear A.I. as they age, older people are slightly more likely to purchase an A.I. product. Perhaps as people age, they are inclined to test their fear of A.I. by buying and experiencing one.

As people's SES increase, they are less likely to purchase an A.I. featured item. People with higher SES might not feel the need to buy an A.I. product/service with which they are unfamiliar. Lastly, A.I. phobia holds back people from purchasing or accepting an A.I. product/service.

4.2 Discussion

Bernard Cohen (1981), a historian at Harvard University, said that from the sixteenth through the nineteenth century, chemical laboratories had been built underground because scientists were mistrusted or disliked. He added that people feared science for its potential rather than its actual power over nature. The existence of the fear of A.I. is irrefutable; however, the scope of its impact must not be exaggerated. Indeed, we are yet to know where A.I. will take us in the future. But an educated citizen would not hold back simply because of its potential impact that is yet to be proven. Therefore, we must examine the rationality of this fear because we are still in the process of discovering more of its potential.

We must put this doubt to test and never cease to ask ourselves the validity of a warning when it is left unsubstantiated without evidence. More research should be done to understand the nature of this fear so that we can consciously steer ourselves to a better future. Perhaps we must heed the wisdom of an A.I. theorist Eliezer Yudkowsky who said, "By far, the greatest danger of artificial intelligence is that people conclude too early (before) they understand it."

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