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INFLUENCE OF COMPUTER SELF-EFFICACY, PERSONALITY TRAITS, ACHIEVEMENT MOTIVATION, EXPERIENCE AND GENDER ON TECHNOPHOBIA AMONG UNDERGRADUATE IN IBADAN

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ABSTRACT

Technophobia encompasses a fear of all technologies. It can be described as a sense of unease brought on by an encounter with technology. Technophobia can cause cognitive anxiety or physical discomfort in its victims. It is one of the prominent factors that hinders the effective application of technology among students. Technophobic individuals often have trouble adopting and actively using new technologies, instead preferring to use analogue or traditional solutions. The study adopted a correlational research design. 400 participants were randomly selected from four universities (two federal and two private) within Ibadan, Oyo State, Nigeria. The study's objective was to investigate the influence of computer self-efficacy, personality traits, achievement motivation, computer experience, and gender on technophobia among undergraduates. Five reliable instruments were used in the collection of data. Data were analysed using Pearson Product Moment Correlation and multiple regression analysis. It was found that there was a joint influence of computer self-efficacy, personality traits, achievement motivation and computer experience in predicting technophobia, while gender was not. It was therefore recommended that students who have technophobia should be encouraged to develop self-confidence in the use of technology for their schoolwork. The more experience students have on the computer, the lower their technophobia. As such, students should be encouraged to use technology more often to gain more experience and explore different technologies. Students who suffer from technophobia should seek help from counselling psychologists to alleviate their fear of technology.

Keywords: *Technophobia, Computer Self-Efficacy, Personality Traits, Achievement Motivation, Computer Experience*

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INTRODUCTION

Technophobia, often defined as the fear or anxiety toward technology, is a common phenomenon among individuals of all ages. In recent years, the increasing reliance on technology in everyday life in mediating the teaching-learning process has caused a need for people to understand, adjust, adapt and use technology. It has become an essential component of education, the majority of higher education institutions in developing nations struggle to keep up with technological advancements. Students' learning processes have changed because of technology, and it has played a significant role in the newly launched educational reform. According to Morreale et al. (2001), technology is fast altering many aspects of human connection, including our natural condition of body and mind. The educational system must keep pace with advancements in the field of education as well as with societal changes and requirements. The way that people educate and learn has transformed because of technology. The emergence of information and technology has given a new dimension to education, both within and beyond the curriculum. Integrating new technologies into the educational system has changed how instructors educate. It also had a direct impact on how students learned and reasoned (Morreale et al., 2001). The student may have a phobia of using different technologies that may enhance their studies such as computers.

A phobia is an anxiety that emerges from a certain type of behavior; it is not a random, unknown, or uncontrollable disease or condition that one develops, inherits, or contracts. More specifically, when we act uneasily, such as by worrying, fretting, or being concerned, we cause the physiological, psychological, and emotional condition of being anxious (Jim & Marilyn, 2017). An uncomfortable feeling of inner turmoil known as phobia is accompanied by jittery behaviors including pacing back and forth, somatic symptoms, and ruminating. This may lead to resistance to utilizing the technology or even avoiding it completely (Beyond, 2016). A fear of all technology is referred to as technophobia. Technophobia may be further defined as an anxious reaction to coming face-to-face with technology. Technophobia can cause physical discomfort or cognitive distress in those who experience it (Kulwinder, 2016). Additionally, technophobia was described by Bozionelos (2001) as the unpleasant feelings and thoughts that are triggered by real or imagined interactions with computer-based technology. When interacting with computers, it possesses the traits of a quality that increases the likelihood of psychological distress. The phrase "technophobia," as it is most frequently known, refers to the collection of unfavorable feelings and physical reactions occurring when a person uses a computer (Santos & Santana, 2018).

The term "technophobia" refers to a fear of all technology. Technophobia may be further defined as an anxious reaction to coming face-to-face with technology. Technophobia can cause physical discomfort or cognitive distress in those who experience it (Kulwinder, 2016). Additionally, technophobia was described by Bozionelos (2001) as the unpleasant feelings and thoughts that are triggered by real or imagined interactions with computer-based technology. The phrase "technophobia," as it is most frequently known, refers to the collection of unfavorable feelings and physical reactions occurring when a person uses a computer (Santos & Santana, 2018). In addition to the interaction, frustration, confusion, anger, fear, and similar emotions can affect learning, productivity, social interactions, and overall well-being (Saade et al., 2017). Relevant research in the field of information technology has demonstrated that those who are affected frequently have difficulty embracing and actively employing new technologies, instead preferring the usage of analog or traditional solutions (Nycyk, 2020; Rivinen, 2020). While unfavorable feelings against using computers in the classroom might impact learning in general (Conrad & Munro, 2008). Technophobia is defined by Deane et al. (1995), as cited by Bozionelos (2004), as the negative feelings brought on by actual or expected computer involvement. The avoidance of computers and the reduction of essential computer engagement are behavioral aspects of technophobia. Technophobia, according to

Beckers and Schmidt (2001), is a multifaceted concept that includes both positive and negative attitudes about computers as well as feelings of uncertainty, nervousness, apprehension, fear, intimidation, and hesitancy. According to Morreale et al. (2001), technophobia frequently stems from a lack of familiarity with a medium. However, everyone has to learn how to utilize technology since it is becoming more and more essential to our educational system. Studies have revealed that the modernization of schooling has increased technophobia (Morreale et al., 2001). With the influx of so many technological advancements, technophobia may become more prevalent. One of the main barriers to students in Nigeria effectively utilizing technology is technophobia (Morreale et al., 2001). It has become crucial to understand the factors that contribute to technophobia, particularly among undergraduates. This study, therefore, examined the influence of computer self-efficacy (CSE), personality traits, achievement motivation, computer experience, and gender on technophobia among undergraduates.

LITERATURE REVIEW

The world economy has been dominated by technology. Technology is now necessary for almost everything, including education, and as a result, students are using it to further their education. Some students struggle to adjust to using technology in the classroom, which makes them fearful and lowers their academic performance. The use of technology in education has revolutionized the way that lessons are taught and learned. A new dimension has been added to education with the development of information and technology, both inside and beyond the classroom. The influence of modern technology is felt immediately in every facet of the educational system, particularly in the learning process. Teachers' pedagogical approaches have changed because of new technological integration into the educational system. Additionally, directly impacts how students think and learn (Seema & Vipin, 2015).

Bunz (2004) asserts that knowledge of technology, or at the very least, an open mindset towards it, facilitates understanding, which is essential for success in a society which grows increasingly reliant on technology. According to Norman (1990), as referenced in Khasawneh (2015), the problem with technology is that while it makes life easier by adding more capabilities to each gadget, it also makes life more difficult by making the devices more difficult to use and more difficult to learn, which makes users have phobias. An increase in phobia can result in fear, which makes students reluctant to use technology and negatively impacts their decision to accept or reject a particular invention. It can also be the cause of phobia or anxiety. The term "phobia" originates from an emotion that is marked by tense, anxious thoughts and bodily reactions, such as elevated blood pressure, to something or someone that is viewed as threatening (Weiner and Craighead, 2010).

Technophobia is the term used to describe the negative emotions and thoughts triggered by real or perceived encounters with computer-based technology (Bozionelos, 2001). Technophobic people frequently behave negatively and experience physical symptoms while around computers. These behavioral responses include avoiding computer use, criticizing computers, taking extraordinary care with computers, and using computers rarely (Bozionelos, 2001). Dizziness, loss of breath, and sweaty palms are some of the physiological symptoms (Beckers & Schmidt 2001). In computing and information technology, the term "technophobia" refers to the anxiety or nervousness people experience when using or thinking about utilizing computers. According to Chu et al. (2009), it is a word used to describe an emotional fear of negative results like embarrassment or harming information or equipment.

One of the variables of interest is CSE. This has been identified as one of the key determinants for acquiring and using computer knowledge and skills. CSE refers to an individual confidence level or

ability to use computer to perform an assigned task (Shen & Eder, 2009). It was developed from the self-efficacy notion that describes a person's perception of their capacity to do tasks successfully while using computers or other technology and their motivation to utilize technology (Chu et al., 2009). Self-efficacy is the capacity to use one's cognitive resources wisely (Choi, 2005). As coping is a cognitively based skill, it is assumed that those with higher self-efficacy will also have better coping mechanisms (Sideridis, 2005).

A person's personality traits are the unique qualities, schemas, feelings, ideas, and emotions that set them apart from others. This internal element comes from the person and persists throughout life. Additionally, personality refers to certain human traits that make a person stand out in society (Srivastava, 2010). Additionally, the Five-Factor Model (FFM) or Big Five personality traits suggest+ the broad traits of agreeableness, conscientiousness, extraversion, and neuroticism (or its positive pole, emotional stability). Extraversion refers to individual variances in activity, excitement seeking, sociability, social ascendancy, and positive emotionality. Agreeableness reveals individual differences in obedience, empathy, teamwork, and altruism. Conscientiousness refers to individual differences in planning, methodicalness, impulse control, and respect for a higher power, while "neuroticism" refers to individual differences in the tendency to frequently and intensely experience negative emotions like worry, fear, sadness, irritability, and low self-esteem (Morizot, 2014).

Another variable of this research study is achievement motivation on technophobia. Achievement motivation is a tendency to accomplish specific goals. This kind of motivation is associated with planning, effort, emotions of value, and specific goals and methods for achieving them (Barkhori, 2008). The tendency to achieve particular goals is known as achievement motivation. This type of motivation is linked to unique objectives and strategies for accomplishing them, preparation, effort, and emotions of value (Barkhori, 2008). A social desire known as an accomplishment motive includes overcoming obstacles, meeting high standards, competing with others, and surpassing them (Hasanzadeh, 2009). Aydm and Coskun (2011) describe achievement motivation as doing good business or having an emphasis on the activities that are necessary to comply with the highest standards. It is self-motivation to excel in anything one does, including academic work, professional endeavors, and athletic endeavors, among others (Tella, 2007).

Computer experience is another preponderant factor to technophobia. Computer experience is a belief in computer expertise and skills (Albirini, 2004). People must attain essential technological knowledge and abilities as technology becomes more and more prevalent in all facets of our lives (Martin, 2003). According to studies, instructors and students are more likely to utilize computers successfully when they have mastered the necessary knowledge and abilities (Yucel et al., 2010). According to Pelgrum (2001), one of the major obstacles inhibiting the use of computers in schools is a lack of computer expertise and experience.

Studies indicate gender is related to the technophobia of students. Gender is described as a set of traits that separates men from women, specifically in the circumstances of men and women, boys and girls, and the ascribed masculine and feminine traits. Women are more prone to technophobia than males are (Gilbert et al., 2003; Voiskunsky, 2011). Maybe it's because women and men approach learning new technology differently. As a result, males are more motivated to put up additional independent efforts to learn how to operate a new technology or gadget, whereas women place a greater emphasis on possibilities for technical help and specialized training (Wang & Wang, 2010). Additionally, women have consistently been shown to report greater levels of general technophobia than men, suggesting that gender may be a risk factor for developing this phobia (Onyeizugbo, 2010).

OBJECTIVES OF THE STUDY

The study's objectives are to investigate the influence of computer self-efficacy, personality traits, achievement motivation, computer experience, and gender on technophobia among undergraduates.

RESEARCH QUESTIONS

1. What type of relationship exist among computer self-efficacy, personality traits, achievement motivation, computer experience and technophobia among undergraduates?
2. What is the joint influence of computer self-efficacy, personality traits, achievement motivation, computer experience, and gender on technophobia among undergraduates?
3. What is the relative influence of computer self-efficacy, personality traits, achievement motivation, computer experience, and gender on technophobia among undergraduates?
4. What is the significant difference between technophobia of male and female undergraduates?

METHODOLOGY

Design

A correlational research design was used in this study. The justification for adopting this design is hinged on its objectives, which are encapsulated around examining the influence and predictive weights of the variables under investigation. More importantly, it does not involve manipulating variables in the study.

Participants

Four hundred participants were recruited for this study. A multistage random sampling technique was used to select the respondents for this study. The first stage involves the selection of four universities (two federal and two private) within Ibadan, Oyo State, Nigeria. The second stage involve the selection of faculty, (Faculty of Education and Faculty of the Social Sciences) which were purposively selected across the four institutions due to their availability in the universities selected.

The third stage involve the random selection of sixty students from each faculty of the two federal universities, while forty-three students were selected from each faculty of the two private universities. The justification for this selection is that federal universities have more students than private universities in Nigeria. In all, four hundred and twelve (412) questionnaires were administered, while only four hundred (400) questionnaires were retrieved and analyzed.

Ethical approval

Before conducting the research, approval was obtained from the Ministry of Education, Oyo State and the Social Science and Humanities Research Ethic Committee (SSHREC) of the University of Ibadan.

Measures

The study used a structured questionnaire as a tool for data collection to ensure the reliability of the study's outcome. They include:

1. Technophobia scale (TS)
2. Computer self-efficacy scale (CES)
3. Personality scale (PS)
4. Achievement motivation scale (AMS)
5. Computer Experience Scale (CSE)

Technophobia scale: The technophobia scale developed by Bolliger and Halupa (2012) was adapted to measure the technophobia of the respondents. The instrument consists of 18 items. Five-point Likert scale format was employed ranging from 1 = strongly disagree to 5 = strongly agree. Seven of the items are positive items while others are negative items. The internal reliability coefficient of the scale as reported by the author .93. To ensure the reliability of the items, the pilot study of the scale was done, ten of the items were not reliable and were removed. The scale was left with eight items, using Cronbach's alpha analysis, and a reliability coefficient of ∝=.79 was obtained.

Computer Self Efficacy Scale: This scale was adapted from Durndell and Haag (2000). The scale consists of 28 items on a five-point Likert format ranging from 1 = strongly disagree to 5 = strongly agree. All question items related to computer skills were positively worded. The higher the CSE score, the higher the level of confidence in one's ability to use a computer. Scores ranged between 29 and 145. A pilot test was done and one of the items was removed. Twenty- eight items were later adapted, using Cronbach's alpha analysis, and a reliability coefficient of ∝= .93 was obtained.

Personality Test Scale: Personality Test Scale by Ngoka (2015) was adapted to measure respondents' personality traits. The scale consists of 18 items on a five-point Likert format ranging from 1 = disagree strongly to 5 = agree strongly. Cronbach's alpha for the scale was ∝=.76.

Achievement Motivation Scale: The Achievement Motivation Scale developed by Hermans (1970) was adapted to measure respondents' achievement motivation. The scale has 10 revised items placed on a five-point Likert format ranging from 1= strongly disagree to 5= strongly agree. The author reported the reliability of the scale to be .96. A pilot study was carried out using Cronbach's alpha analysis, and a reliability coefficient of ∝.87 was obtained.

Computer Experience Scale: The computer usage scale developed by Rasak (2019) was adapted to measure Undergraduate Computer experience. The scale was placed on a Likert 4-point format ranging from 1 = strongly disagree to 4 = strongly agree. The scale consists of 14. A pilot study of the scale was carried out using Cronbach's alpha analysis, and a reliability coefficient of ∝=.76 was obtained.

Procedure

The researchers administered the instruments to the selected participants in their institutions. Information about the study was provided to all the participants. Informed consent was taken from all participants and were duly informed that the study was mainly for research purposes and that the confidentiality of all their information would be ensured. The period of data collection spans over two weeks. Four hundred and twelve (412) questionnaires were administered, while four hundred (400) questionnaires were analyzed.

Data analysis

Data were analyzed using multiple regression analysis and Pearson Product Moment Correlation (PPMC) at a 0.05 level of significance. Multiple regression was employed to find the joint and relative contribution of the independent variables on the dependent variable, while PPMC was used to establish the pattern of relationship among the variables.

RESULTS

The results, based on the research questions are presented below.

Table 1.
Correlation Matrix Showing Result for Technophobia, Computer Self-Efficacy, Personality trait, Achievement Motivation and Computer Experience

Variables	Mean	St.Dev.	1	2	3	4	5
Technophobia	22.76	4.148	1				
Computer Self-efficacy	99.39	20.70	-0.074	1			
Personality Traits	63.59	12.899	0.134	0.563	1		
Achievement Motivation	36.62	9.65	-0.154	0.499	0.477	1	
Computer experience	45.70	9.89	-0.67	0.611	0.597	0.482	1

Table 1 reveals a negative relationship between technophobia and computer self-efficacy of undergraduates; r = -0.074, p>0.05; a positive relationship between technophobia and personality traits of undergraduates; r = .134, p < 0.005; a negative relationship between technophobia and achievement motivation of undergraduates; r = -.154, p < 0.05; and a negative relationship between technophobia and computer experience of undergraduates; r = 0.067, p>0.05.

The table further reveals that an increase in computer self-efficacy will decrease technophobia, an increase in personality traits will increase technophobia, an increase in achievement motivation will reduce technophobia and an increase in computer experience will decrease technophobia among undergraduates.

Table 2.
Influence Of Independent Variables on The Prediction of Technophobia

R = .329
R Square = .108
Adjusted R Square = .097
Std. Error = 3.94262

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	742.005	5	148.401	9.547	.000
Residual	6124.433	394	15.544		
Total	6866.437	399			

Table 2 shows a joint contribution of the independent variables (computer self-efficacy, personality traits, achievement motivation, computer experience and gender) to the prediction of technophobia. The result yielded a coefficient of multiple regressions R= 0.329, R^2 = 0.108 and adjusted R^2 = 0.097. This suggests that the five independent variables when combined together account for a 9.7% variance in the prediction of technophobia. The remaining percentage unaccounted for is as a result of variables outside the model. Therefore, there is a significant joint contribution of the variables on technophobia $F_{(5, 394)} = 9.547$, p < 0.001.

Table 3.
Relative Effect of The Independent Variables to The Prediction of Technophobia

Model	Unstandardized Coefficients		Standardized Coefficient	T	Sig.
	B	Std. Error	Beta		
Constant	20.537	1.381		14.867	.000
Computer Self-Efficacy	-.039	.013	-.193	-2.913	.004
Personality Trait	.085	.020	.265	4.152	.000
Achievement Motivation	-.099	.025	-.230	3.961	.000
Computer Experience	-.088	.028	-.211	-3.185	.002
Gender	.688	.406	.082	1.696	.091

Table 3 reveals that Personality traits ($\beta = .265$, $t = 4.152$, $p<0.05$); achievement motivation ($\beta = -.230$, $t = 3.961$, $p<0.05$); computer experience ($\beta = -.211$, $t = -3.185$, $p<0.05$); and computer self-efficacy ($\beta = -.193$, $t = -2.913$, $p<0.05$) were predictors of technophobia while gender ($\beta = .082$, $t = 1.696$, $p>0.05$) did not. This implies that personality traits are the most potent factor that will increase technophobia by 26.5%, while achievement motivation, computer experience and computer self-efficacy will reduce technophobia by 23%, 21.1% and 19.3% respectively.

Table 4.
T-test Summary Showing Variance Technophobia based on Gender

Variable	Gender	N	Mean	St.Dev.	Df	t	P	n^2
Technophobia	Male	175	22.26	4.2449	398	-2.159	>0.005	0.25
	Female	225	23.16	4.0375				

Table 4 reveals that there is no significant difference in technophobia of male and female undergraduate, $t = -2.159$, $p>0.005$, $n^2 = 0.25$. Thus, the null hypothesis is accepted.

DISCUSSION

The findings showed that computer self-efficacy had a significant influence on technophobia. This result is consistent with that of Achim and Al-Kassim (2015), who found a link between technophobia and low computer self-efficacy. The finding also supports Halder and Chaudhuri (2011), who found that students in the sciences exhibit lower levels of technophobia and much higher levels of computer efficacy than those in the humanities. This implies that the use of computers by students reduces the fear of using technology devices. It also follows that low computer self-efficacy is a possible source of the nervous sensations a student experiences while using a computer.

Personality traits reveal a negative influence on technophobia. This finding is consistent with Wilson and Dishman's (2015) findings that the Big Five personality traits are among the major contributors

to a person's level of phobia. The findings corroborate Ngoka's (2015) assertion that a student's level of technophobia is influenced by their personality traits, including openness, conscientiousness, extraversion, agreeableness, and neuroticism. Kennedy and Funk (2015) also observed a link between neuroticism and unfavorable views about computers. This may not be unconnected to the fact that the student's personality trait increases the level of phobia exhibited towards the use of technology.

The result of this study revealed that achievement motivation had a significant influence on technophobia. This lends good credence to several studies which have shown positive correlations between achievement motivation and technophobia (e.g., Donnelly, 2009; Mistler-Jackson & Butler-Songer, 2000; Onwuegbuzie et al., 2000; Su, 2016) suggest that high levels of motivation and engagement keep students actively interested in the learning process, which can result in better performance. Students with medium levels of situational fear exhibit the highest levels of motivation. These situations develop as an emotional response to a stressful scenario, which adds to the demand for answers and drives people to do specific activities. The possible explanation for the result may not be unconnected with the fact that achievement motivation decreases phobia towards the use of technology.

Computer experience was found to be a significant influence on technophobia. This finding is consistent with the earlier research findings of Saade et al. (2015) and Saade and Kira (2007) who found a significant relationship between computer experience and technophobia, Tekinarslan (2008) also found that as students' computer experience and understanding grow, their level of technophobia declines. This result is easily explainable bearing in mind that the more computer experience students have, the more the use of technology.

The findings of this study indicate that no significant difference was found between male and female technophobia. Hence, this result aligns with Deffenbacher (1980), who found that while males and females both suffer certain degrees of phobia, females have higher levels of the emotionality component, which results in higher general phobia. This implies that there are no differences in the level of technophobia experienced by both males and females. In contrast, the result disagrees with the findings of Onyeizugbo (2010) and Tekinarslan (2008), who found no connection between gender and technophobia. Additionally, Mohsen & Mansoor (2009), revealed that female students exhibit a higher level of technophobia than male students do. Zeidner (1990) also found that females have higher levels of phobia, mostly due to emotional vulnerability.

CONCLUSION

The findings of this study revealed that personality traits, achievement motivation and gender significantly influence technophobia. It was also found that the independent variables (computer self-efficacy, personality traits, experience, achievement motivation and gender) jointly influenced technophobia among undergraduates. The most potent factors were personality traits, achievement motivation, computer self-efficacy and computer experience. However, gender was not a potent predictor of technophobia. This implies that the increased influence of personality traits will increase the likelihood of undergraduate technophobia while the increased influence of achievement motivation, computer experience and computer self–efficacy will reduce the likelihood of undergraduate technophobia.

Implications of the findings

The implication is that counselling psychologists should help students who have technophobia to develop self-confidence in the use of technology for their schoolwork and to gain more experience in

the use of new technology. The findings of this study encourage students to become computer self-efficacious and computer-experienced, encouraging them to explore different kinds of technologies as this will give them the upper hand when searching for a job. This study also reveals that all the student have experience in the use of computers and all other technological devices useful for their academics and also make use of it.

This study also provides relevant information to the lecturers about the factors determining technophobia among undergraduates and the symptoms that such students will exhibit. The findings of this study also give the policy maker reasons why favorable decisions should be made for the students, such as providing adequate technological equipment and funds for institutions of higher learning for the smooth running of the available technological equipment.

Recommendations

Based on the findings made the following are recommended.

Students with technophobia should be given orientation on the use of technology and be trained to be self-confident in the use of technology effectively. Also, Information technologists should simplify any technology that the students will use and also make it affordable for all students to get one because when individual students have it, it gives them easy access to explore more about it. Students should develop positive attitudes towards the use of technology. The more experience students have on the computer, the lower their technophobia, students should be encouraged to use technology more often for them to gain more experience and explore different technologies. Students who suffer from technophobia should seek help from counselling psychologists to eliminate their fear of technology.

The study investigated the relationship between computer self-efficacy, personality traits, achievement motivation, experience and gender on technophobia among undergraduates in Ibadan, more variables should be considered, and a broader geographical scope can be considered. This study used multiple linear regression, so when considering larger variables, a path analytical examination can be used in future studies.

REFERENCES

Achim, N. & Al-Kassim, A. (2015). Computer usage: The impact of computer anxiety and computer self-efficacy. *Procedia-Social and Behavioral Sciences*, *172*, 701-708.

Albirini, A.A. (2004). Teacher's attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Journal of Computers and Education, 47,* 373-398.

Arani, O. K. (2001). Researching computer self-efficacy. *International Education Journal, 2*(4), 17-25.

Aydm, F., & Coskun, M. (2011). Secondary school students' achievement motivation towards geography lessons. *Archives of Applied Science Research,* 3(2), 121-134.

Barkhori, H. (2008). *The effectiveness of positive thinking skills in groups on achievement motivation and self-esteem* [Unpublished Master thesis]. Islamic Azad University.

Beckers, J.J. & Schmidt, H.G. (2001). The structure of computer anxiety: A six-factor model. *Computers in Human Behavior*, *17*(1), 35-49.

Beyond, B. (2016). Anxiety. *Retrieved form www.beyondblue.org.au/thefacts/anxiety.*

Bolliger, D.U. & Halupa, C. (2012). Student perceptions of satisfaction and anxiety in an online doctoral program. *Distance Education*, *33*(1), 81-98.

Bozionelos, N. (2001). Computer anxiety: Relationship with computer experience and prevalence. *Computers in Human Behavior*, *17*(2), 213-224.

Bunz, U. (2004). The computer-email-web (CEW) fluency scale-development and validation. *International Journal of Human-Computer Interaction*, *17*(4), 479-506.

Choi, N. (2005). Self-efficacy and self-concept as predictors of college students' academic performance. Psychology in the Schools, *42*(2), 197 – 205.

Chu, A., Huber, J., Mastel-Smith, B., & Cesario, S. (2009). Partnering with seniors for Better Health: Computer use and internet health information retrieval among older adults in a low socio-economic community. *Journal of Medical Library Association*, *97*(1), 12–20.

Conrad, A. M., & Munro, D. (2008). Relationships between Computer Self-efficacy, Technology, Attitudes and Anxiety: Development of the Computer Technology Use Scale (CTUS). *Journal of Educational Computing Research, 39*(1), 51-73.

Deane, F., Henderson, R., Barrelle, K., Saliba, A., & Mahar, D. (1995). Construct validity of computer anxiety measured by the computer attitudes scale. In Y. Anzai, K. Ogawa, & H. Mori, *Advances in human factors/ergonomics 20 A symbiosis of human and artefact* (pp. 581-586). Elsevier Science.

Deffenbacher, J. L. (1980). Worry and emotionality in test anxiety. In I. G. Sarason, (Ed.), *Test anxiety: Theory, research, and applications* (pp. 111–124). Erlbaum.

Donnelly, R.C. (2009). Embedding interaction within a blend of learner centric pedagogy and technology. *World Journal on Educational Technology*, *1*(1), 6-29.

Doyle, E., Stamouli, I. & Huggard, M. (2005). Computer Anxiety, Self-Efficacy, Computer Experience: An investigation throughout a computer science degree. In *Proceedings Frontiers in Education 35th Annual Conference*.

Durndell, A. & Haag, Z. (2000). Computer self-efficacy, computer anxiety, attitudes towards the internet and reported experience with the internet, by gender, in an East European sample *Computers in Human Behavior 18*, 521–535.

Gilbert, D., Lee-Kelley, L. & Barton, M. (2003). Technophobia, gender influences and consumer decision-making for technology-related products. European Journal of Innovation Management, *6*(4), 253-263.

Halder, S. & Chaudhuri, S. (2011). Computer self-efficacy and computer anxiety of trainee teachers: Issue of concern. *Proceedings of Episteme*, *4*, 1-7.

Hasanzadeh, R. (2009). *Motivation & emotion.* Arasbaran Publisher*, 87-88.*

Hashim, H. R., & Mustapha, W.N. (2004). Attitudes towards learning about and working with

computers of students at UITM. *The Turkish Online Journal of Educational Technology*, *3*(2), 1303-6521.

Hermans, H.J.M. (1970). A questionnaire measure of achievement motivation. Journal of Applied Psychology, 54(4), 353-63.

Jim, F. & Marilyn, F. (2017). What is anxiety? What causes anxiety? *Retrieved from* *http://www.anxietycemtre.com.*

Kennedy, B. & Funk, C. (2015). Public interest in science and health linked to gender, age and personality. Retrieved from https://www.*Pewresearch.org*.

Kuhlemeier, H., & Hemker, B. (2007). The impact of computer use at home on students' Internet Skill. *Computers & Education*, *49*, 460-480.

Khasawneh, O. (2015). *The impact of technophobia on technology acceptance and the moderating influence of transformational leadership, organizational climate, and emotional intelligence.* Eastern Michigan University.

Kulwinder, S. (2016). Technophobia in Teacher. *Raj Rajeshwari Journal of Psychological & Educational Research, 1*(2), 8-19.

Martin A. (2003). Towards e-Literacy. In A. Martin and H. Rader (Eds.). *Information and IT Literacy: Enabling learning in the 21st Century*. Facet Publishing.

Mistler-Jackson, M. & Butler Songer, N. (2000). Student motivation and internet technology: Are students empowered to learn science? *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *37*(5), 459-479.

Mohsen, R. & Mansoor, T. (2009). Investigating the Relationship among test anxiety, gender, academic achievement, and year of study: A case of Iranian EFL University Students. CCSE. 2, Retrieved from http://www.ccsenet.org.

Morizot, J. (2014). Construct validity of adolescents' self-reported big five personality traits: importance of conceptual breadth and initial validation of a short Measure. *Assessment, 21*, 580-606.

Morreale, S.P., Spitzberg, B.H., & Barge, J.K. (2001). Mediated Communication Competence. In Morreale, et al. (Eds.), *Human Communication; Motivation, knowledge and skills,* (173-201).

Ngoka, V.N. (2015). *Personality types as correlates of test anxiety among university-based and hospital-based nursing students in selected nursing schools in Enugu Urban* [Unpublished Ph.D. Thesis]. University of Nigeria.

Nycyk, M. (2020). Teaching older people computer literacy: The rewards of supporting students' explorations of technology. *Educational Gerontology, 46*(5), 314-315.

Onwuegbuzie, A., Bailey, P., & Daley, C. (2000). Cognitive, affective, personality and demographic predictors of foreign language achievement. *Journal of Educational Research*, *94*, 3-15.

Onyeizugbo, E.U. (2010). Self-efficacy, gender and trait anxiety as moderators of test anxiety. *Electronic Journal of Research in Educational Psychology*, *8*(1), 299-312.

Pelgrum, W.J. (2001). Obstacles to the integration of ICT in education: Results from a worldwide educational assessment. *Journal of Computers & Education, 37*, 163-178.

Rasak H. B. (2019). *Computer awareness level among junior secondary school students in Ijebu North Local Government, Ogun State* [Unpublished Project]. Faculty of Education Olabisi Onabanjo University, Ago-Iwoye.

Rivinen, S. (2020). Media education for older people-views of stakeholders. *Educational Gerontology, 46*(4), 195-206.

Saade, R. G., Kira, D., Mak, T., & Nebebe, F. (2017). *Anxiety and performance in online learning.* Proceedings of the Informing Science and Information Technology Education Conference, Vietnam.

Saade, R.G. & Kira, D. (2007). Mediating the impact of technology usage on perceived ease of use by anxiety. *Computers and Education*, *49*(4), 1189-1204.

Saade, R. S., Nebebe, F., & Kira, D. (2015). *Characterising computer experience and anxieties differences between middle eastern and western students in elearning.* Proceedings of Informing Science & IT Education Conference (InSITE), 353-365.

Santos, T. D., & Santana, V. F. D. (2018). *Computer anxiety and interaction: a systematic review.* Proceedings of the Internet of Accessible Things (1-10).

Seema, D. & Vipin, K. S. (2015). Technophobic attitude among the students of senior secondary level. *An International Peer Reviewed Journal* 2(12), 2790-2796.

Shen, J., & Eder, L.B. (2009). Intentions to use virtual worlds for education. *Journal of Information Systems Education, 20*(2), 225-233.

Sideridis G.D. (2005c). Goal orientations, academic achievement and depression. Evidence in favor of revised goal theory. *Journal of Educational Psychology*, *97*, 366–375.

Srivastava, S. (2010). The Five-factor model describes the structure of social perceptions. *An International Journal for the Advancement of Psychological Theory, 21*(1), 69-75.

Su, C. (2016). The Effects of students' learning anxiety and motivation on the learning achievement in the activity theory based gamified learning environment. *EURASIA Journal of Mathematics, Science and Technology Education*, *13*(5), 1229-1258.

Tekinarslan, E. (2008). Computer anxiety: A cross-cultural comparative study of Dutch and Turkish University Students. *Computers in Human Behavior*, *24*(4), 1572-1584.

Tella, W. (2007). Psychosocial predictors of academic achievement, *Psychology for Everyday Living, 2*(2), 155-169.

Voiskounsky A. (2011). *Preschoolers as video gamers // Lecture Notes in Computer Science. T. 6778 LNCS. C. 287-296.* Retrieved from https://files.eric.ed.gov.

Wainer, J., Dwyer, T., Dutra, R.S., Covic, A., Magalhaes, V.B., Ferreira, L.R.R., Pimenta, V. A. & Claudio, K. (2008). Too much computer and internet use is bad for your grades, especially if you are young and poor: Results from the 2001 Brazilian SAEB. *Computers & Education*, *51*(4), 1417-1429

Wang, H. & Wang, S. (2010). User acceptance of mobile internet based on the Unified Theory of Acceptance and Use of Technology: Investigating the determinants and gender differences. Social Behavior and Personality: An International Journal, *38*(3), 415-426.

Wallace, P., & Clariana, R.B. (2005). Perception versus reality-determining business students computer literacy skills and need for instruction in information concepts and technology. *Journal of Information Technology Education, 4*, 142 – 151.

Weiner, I.B. and Craighead, W.E. (2010). *The Corsini Encyclopedia of Psychology*. John Wiley and Sons.

Wilson, K.E. & Dishman, R.K. (2015). Personality and Individual Differences. *Personality and Physical activity: A systematic review and meta-analysis, 72*, 230-242.

Yucel, C., Acun I, Tarman B. & Mete T. A. (2010). Model to explore Turkish teachers' ICT integration stages. *The Turkish Online Journal of Educational Technology, 9*(4), 1-9.

Zeidner, M. (1990). Does test anxiety bias scholastic aptitude test performance by gender and sociocultural group? *Journal of Personality Assessment*, *55*, 145–160.