Technophobia among Female Undergraduate Students: A Challenge to Attainment of the MDGs in Nigeria

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Research Article

ABSTRACT

Aim: To determine whether technophobia exists among female undergraduate students of Imo State University and find out the effects and ways of overcoming technophobia.
Study design: Descriptive survey study.
Place and Duration of Study: Imo State University, Owerri in the Southeast zone of Nigeria, duration of about one academic session, between September 2009 and May 2010.
Methodology: Two hundred female undergraduate students (100 Science students and 100 arts students) were randomly selected for the study. Three research questions and one null hypothesis served as guide to the study. A questionnaire designed by the researchers was used to illicit responses from the subjects. Mean scores, standard deviation and t-test were used for analyzing the data collected.
Results: The findings showed that technophobia exists among female undergraduates, and this can pose a serious threat to attainment of Millennium Development Goal 3. This study also revealed that technophobia does not affect the students' choice of course but affects their academic performance and knowledge base negatively. Technophobia can however be prevented by early exposure of females to computer use, possessing personal computers, providing computer facilities in school, and lecturers giving computer-based assignments/projects.
Conclusion: A check on technophobia may enhance gender equality and women empowerment in this era of ICT.

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ABBREVIATIONS

MDGs: Millennium Development Goal(s)

1. INTRODUCTION

This paper aimed at investigating the existence of technophobia in a group of people whose exposure to computer and ICT in general is unavoidable – University students. To say that university students' future is linked to how they can master and harness the advantages of computers and Information Technology in general is an understatement. The process of learning (lectures, tutorials, completing assignments and conducting research) is becoming more intertwined and dependent on computer technology. Thus, computers are now prevalent on university campuses, businesses, secondary schools, and many of our homes.

According to Lazarus and Folkman (1984), the interaction between humans and computer can result in negative effects. These negative effects were described using various labels: computer anxiety, negative attitude towards computers, computer phobia and computer avoidance. Hudiburg (1996) and Abd-Hamid et al. (2003) added that techno-stress is labeled by other researchers as technophobia, cyber phobia, and computer stress. Techno-stress is explained as a maladaptive reaction caused by the inability to handle new computer technology in a healthy way. Rosen and Weil (1997) added to this definition by including the negative effect on the attitude, thinking or behaviour caused directly or indirectly by technology. Thus the term technophobia can be defined as fear/dislike of advanced technology or complex devices especially computers. It is the negative global attitude about computers and their operation or their societal impact. In this study, technophobia is used interchangeably with computer phobia.

Anderson (1996) listed several factors that have been identified by researchers to be correlated with computer anxiety: locus of control, playfulness, sex, mathematics anxiety, age, experience and hassle. Brosnon's (1998) list includes gender, level of experience, computer attitude, educational level, knowledge of computers, external locus of control, and attitudes toward mathematics as correlates to computer anxiety and avoidance. However, not all of these factors have yielded consistent results.

Two studies by Noran (1998) and Nor Azan et al. (2000) as cited by Abd-Hamid et al. (2003) found that female students reported a higher level of computer anxiety. A Meta analysis by Chua et al. (1999) also confirmed this sex difference. Todman's longitudinal study (2000) found that the gap of male and female scores widened between 1992 and 1998. The study carried out by Abd-Hamid et al. (2003) using undergraduate students in Malaysia showed that differences between sexes are significant. Male students reported a lower level of computer phobia compared to female students.

The crucial role of culture/environmental factors in education has highlighted by anthropologist Margaret Mead as cited by Maduka (1980) as the functioning of every part of the human body molded by culture with which the individual has been reared. Nigeria, for

example, is a case of high population density, limited resources and general gender inequality (Eboh, 2000). This gender discrimination against women is translated into Nigerian educational system. As observed by Okeke (2002), more women than men are illiterates, and more women than men are scientifically illiterates. Emphasizing on science education, Okeke stressed that the science classes / laboratories tend to be cold for girls, coupled with social pressures and hidden curriculum that disadvantage girls. Hence, opportunities for psychological satisfaction and fulfillment of potentials are generally limiting, repressive and rigid especially to the poor masses and female folk in Nigeria (Nwosu and Kalu, 1980). In a more recent on internet using patterns of Nigerian Teacher-Trainees, Achounye and Olele (2009) found that more female students (39%) are personally connected than their male counterparts (16%); but that more male folks (83%) surf the internet themselves than the females (53%) is an indicator of male dominance in skills which is more important than mere possessing connection. By this finding, Achounye and Olele expressed worry over the persistence of gender barriers, which have since been identified (Achuonye, 2006; Onwuegbuna and Onwuegbuna, 2006) to hinder females in science and technology.

The Millennium Development Goals (MDGs) are objectives agreed upon at the Millennium Summit in September 2000 for reduction of poverty and enhancing gender equity and human development. There were eight goals in all, with 18 targets and forty-eight indicators. These goals have been accepted as the international reference standard for measuring development progress and for checking improvements in the human condition in developing countries. The eight goals are as follows:-

Goal 1: Eradicate extreme poverty and hunger
Goal 2: Achieve Universal Primary Education
Goal 3: Promote gender equality and empower women
Goal 4: Reduce child mortality
Goal 5: Improve maternal health
Goal 6: Combat HIV/AIDS, Malaria and other diseases
Goal 7: Ensure Environmental Sustainability
Goal 8: Develop a global partnership for development.

Goal 3 addresses the issue of eliminating gender disparity and empowering women. From the literature already reviewed, if technophobia occurs amongst females it could hinder the attainment of this goal.

This paper therefore investigated the existence of technophobia among female undergraduates and the possible ways of overcoming them.

2. METHODOLOGY

The population of the study consisted of all female undergraduate students in Imo State University, Owerri in the Southeast zone of Nigeria. A sample of 200 students was selected from the university (100 students from science departments and 100 from Arts) by random sampling. All participation was voluntary and no time limit was imposed for task completion.

The instrument used was a structured questionnaire designed by the researchers. It had 2 sections: A and B. Section A gathered data on demographic variables example sex, institution, course etc while Section B elicited response on computer usage, effects of level of interaction with computer and ways to avoid developing technophobia. The items in

Section B used a 4-point rating scale of strongly Agree 4 points, Agree 3 points, Disagree 2 points and strongly disagree 1 point.

Two hundred copies of questionnaire were made and distributed to the female students (100 to science students, and another 100 to Arts students). Out of the 200 questionnaires distributed, only 182 were returned (88 sciences, 94 Arts).

2.1 Research Questions

The present study aimed at determining whether technophobia exist among female undergraduate students of Imo State University, the effects and ways of overcoming technophobia. The following research questions served as guide.

i. Does technophobia exist among female undergraduate students in Imo State University?
ii. What are the effects of technophobia on the female undergraduate students of Imo State?
iii. In what ways can technophobia be prevented?

2.2 Null Hypothesis

Ho_1: There is no significant difference between the technophobic level of female science undergraduate students and female arts undergraduate students.

2.3 Validity and Reliability of Instrument

The researchers-developed questionnaire was given to four experts in Educational Technology and Measurement and Evaluation to ascertain both the content and face validity. The researchers based on these inputs made corrections, to produce the final draft used for this study.

With a test-retest using female undergraduates from Rivers State University of Education, Port Harcourt in the South-South Zone of Nigeria, the reliability of the instrument was determined. The correlation coefficient of 0.71 was obtained using Pearson Product Moment correlation.

2.4 Data Analysis

The data collected were analyzed using mean, standard deviation and t-test. The mean scores were used to provide answers to the Research questions while the standard deviation and t-test were used to test the hypothesis.

3. FINDINGS

Research Question 1: Do technophobia exist among female undergraduate students of Imo State University?

Table 1. Data showing computer experiences of female undergraduate students.

S/N	Items	X̄	Decision
1	I enjoy working with the computer	2.77	Significant
2	I enjoy using new media that are in vogue, e.g. MP3 player, portable DVD, CD ROM etc.	2.0	Not Significant
3	I access internet for better understanding of concepts taught in class	1.90	Not Significant
4	Apart from using the hand set (GSM phone) for calls, I use it to access the internet for browsing	2.46	Not Significant
5	I have undergone at least word processing course in computer and can use the computer	3.02	Significant
6	I enjoy computer games	2.77	Significant
7	I use microwave oven whenever it is available	2.70	Significant
8	I Use ATM (Automated Teller Machine (whenever I go to the bank	2.78	Significant
9	I use other computer programs e.g. Excel, coral draw etc	1.59	Not significant
10	I access my e-mail box regularly	1.76	Not significant
	Grand Mean	2.38	Not significant

From table 1 above, the mean scores for female students for items 1, 5, 6, 7, and 8 were significant. This shows that female undergraduate students enjoy working with the computer, have undergone at least word processing course, enjoy computer games, and use technology like microwave when available and ATM. Their responses to items 2, 3, 4, 9 and 10 were not significant. This shows that these female undergraduates do not enjoy using new media, do not access internet for better understanding of concepts taught in class, use their GSM phones for just calls, do not use other computer programs apart from word processing and do not access their e-mail boxes regularly. The grand mean of 2.38 shows a negative attitude towards computer usage therefore showing that female undergraduates in Imo State University are technophobic.

Research Question 2: What are the effects of technophobia on the female undergraduate students of Imo State University, Owerri?

Table 2. The effects of technophobia on female undergraduate students of Imo State University, Owerri

S/N	Question Item	X̄	Decision
11i	My level of interaction with computer affected my choice of course in the University	2.34	Not Significant
11ii	My level of interaction with computer militates against my academic performance	3.22	Significant
11iii	My level of interaction with computer does not made me as knowledgeable as I should be	3.91	Significant

Table 2 above shows that with a mean score of 2.34 for item 11i, the female undergraduate students' level of interaction did not affect their choice of course. Rather with mean scores of 3.22 and 3.19 for items 11ii and 11iii respectively, technophobia affects their academic performance and knowledge base. This means that while technophobia does not affect the student's choice of course, it affects their academic performance and knowledge base.

Research Question 3: In what ways can technophobia be prevented?

Table 3. Strategies for preventing technophobia

S/N	Question Items	$\overline{X}$	Decision
12	My love for and interaction with computer and new technology will increase	3.03	Significant
I	if I have an early exposure to computer		
Ii	I own a computer	2.88	Significant
iii	Am given more opportunities for reaching computer facilities at school	2.82	Significant
iv	Am given computer-based home work or projects at school	3.15	significant

From the Table 3 above, the students' love for computer will improve if they are exposed to computer early in life ($\overline{X}$ = 3.03), own computers ($\overline{X}$=2.88), have computer facilities at school ($\overline{X}$ = 2.82) and if they are given computer based homework or project at school ($\overline{X}$=3.15).

Null Hypothesis 1: There is no significant difference between the technophobic level of female science undergraduate students and female arts undergraduate students.

Table 4. Technophobic level of female science undergraduate students and the female arts undergraduate students

Area of study	Total no of responses	Mean score/item	Standard deviation	t-tabulated	Calculated	Decision
Science	88	2.41	1.04	2.23	0	Accept
Arts	94	2.40	1.07			

From the Table 4 above, the standard deviation between the science and arts students varied very slightly by 0.03, the calculated t-score was zero being lower than the tabulated score; the null hypothesis was therefore accepted. This means that there is no significant difference between the technophobic level of the female science undergraduates and the female arts undergraduate students.

4. DISCUSSION

The findings of this study reveal that technophobia exists among female undergraduate students of Imo State University, Owerri. While some studies like those carried out by Achuonye and Olele (2009), and King et al. (2002) showed that females have higher computer anxiety than males, some other studies like that of Anthony, Clarke, and Anderson (2000) showed that there is no significant difference between gender and computer anxiety.

In the light of these mixed results within the studies of relationship between gender and computer anxiety. Todman and Day (2006) considered the role of psychological gender and its effects on computer anxiety. Their studies indicated that psychological gender rather than biological gender had more impact on computer anxiety or computer phobia. In developing countries like Nigeria, psychological gender has much impact on females while biological gender has less effect.

Technophobia among female students as indicated in this study, if allowed to remain, will become a clog in the wheel of progress of empowering women and promoting gender equity in Nigeria. The world is already in an ICT era, anything that hinders females from free access to computer poses serious threat to the realization of MDG 3 in Nigeria.

This study also revealed that technophobia does not affect the students' choice of course but affects their academic performance and knowledge base negatively. In this era, the computer and other related technology offer a lot of information to learners at all levels of which does not exempt female students. The World Wide Web offers immediate global access for the dissemination and retrieval of research information in education all over the world including Nigeria.

Furthermore, the study revealed that technophobia among female students could be prevented if these students are exposed to the use of computer earlier in life, may be from primary school. Though the study by Achuonye and Olele (2009) revealed that possessing personal computer and internet access did make females surf internet more than their male counterpart, this present study showed that owning computer, having computer facilities at school and teachers giving computer-based assignments are the other ways of preventing technophobia.

The study also indicated that the technophobic level of female science and arts undergraduate students does not differ. Although this goes to confirm the earlier finding that technophobia does not affect students' choice of course in university, it is at variance with the findings of Abd Hamid et al. (2003) that science students have the lowest level of computer phobia, followed by social science and then arts students.

5. RECOMMENDATIONS

In the light of the above findings, the following recommendations are imperative:

☺ Government, NGOs and other stakeholders in education should mount campaign and advocacy programmes in our institutions at all levels, starting from primary to tertiary schools. This should aim at empowering mainly the female folks.

☺ Government should provide more computer facilities and other new technologies in schools to enable students become acquainted with computer and its related materials.

☺ Teachers/lecturers should give computer-based assignments or projects to students even at primary level to enable students, particularly the female counterparts, become conversant with computers as early as possible.

6. CONCLUSION

This paper examined the existence and effect of technophobia among female students in Nigeria. It indicated that:

- technophobia exists among female undergraduate students in the Imo State University.
- technophobia will hinder the effective participation of females in the ICT world.
- to achieve the Nigerian Millennium Development Goal 3, which is to promote gender equality and empower women, issues like technophobia among female students should be addressed.
- technophobia can be overcome by exposing students to computers early in life, providing them with computer and its facilities and giving assignments and or projects that require the assistance of computers.

REFERENCES

Abd-Hamid, H.S., Yong, K.T., Chua, B.S. (2003). Computer phobia among students in three streams of study in a public University in Sabah. Khalid, H.M., Lim, T.Y., Lee, N.K. (Eds), Proceedings of SEAMEC, Kuching 101.

Achuonye, K.A., Olele, C.N. (2009). Internet using patterns of Nigerian teacher-trainees: implications for teacher education in Nigeria. Journal of the Science Teachers Association of Nigeria, 44(1 & 2), 103.

Achuonye, K.A. (2006). Human factor considerations for limiting gender barriers in our classrooms. Int. J. Afr. Women Educationist, 2(1), 102.

Anderson, A.A. (1996). Predictors of computer anxiety and performance in information systems. Computers in Human Behavior, 12, 61.

Anthony, L.M., Clark, M.C., Anderson, S.J. (2000). Technophobia and personality subtypes in a sample of South African University, (16). 31.

Chua, S.L., Chen, D.T., Wong, F.L. (1999). Computer anxiety and its correlates: Multi-trait multi-method Matrix. Computers in Human Behavior, 15, 609.

Eboh, M.P. (2000). Philosophical criticisms: Anthology of gender issues. Port Harcourt: Pearl publishers.

Federal Government of Nigeria (2006). Millennium Development Goals (MDGs) Information Kit, Abuja, Nigeria: Hammer Head Publishers

Lazarus, R.S., Folkman, S. (1984). Stress, Appraisal, and Coping. New York: Springer.

Maduka, K.N. (1980). The individual and National development: A personality perspective in E.C Amucheazi (ed.), Readings in social science issues in National Development. Enugu: Fourth Dimension Publishing Co. Ltd, 259.

Nwosu, H., Kalu, O.U. (1980). The study of African culture in O.U Kalu (ed.), Readings in African Humanities- African cultural development. Enugu Fourth dimension publishing Co. Ltd, 3.

Okeke, E.A.C. (2002). Gender and Science, Technology and mathematics. A paper presented at the annual conference of Institute of education University of Uyo, 13-16th March.

Onwuegbuna, S.N., Onwuegbuna, J.O. (2006). Factors hindering effective participation of women in technical and vocational education programme in Nigeria. Multidisciplinary J. Res. Dev., 7(1), 54.

King, J., Bond, T., Blandford, S. (2002). An Investigation of Computer anxiety by gender and grade. Computers in Human Behaviour, 18(1), 856.

Rosen, L.D, Sears, D.C., Weil, M.M. (1987). Computer phobia, Behaviour Research Methods, Instruments and Computers, 19, 167.

Rosen, L.D., Sears, D.C., Weil, M.M. (1997). Techno stress; Coping with technology @ work @Home @play. New York: J. Wiley.

Todman, J., Day, K. (2006). Computer anxiety: The role of Psychological gender. Computers in Human Behavior, 22(5), 856.

Todman, J. (2000). Gender Differences in Computer anxiety among University entrants since 1992, Computers and Education, 34, 27.

Ursavas, O.F., Karal, H. (2009). Assessing Pre-service Teachers' Computer phobia levels in terms of gender and experience, Turkish Sample. Int. J. Behavioral, Cognitive, Educational and Psychol. Sci., 1(1), 71.

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