

Technophobia: Understanding Computer Anxiety for Teaching and Learning of Computer Studies

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ABSTRACT The use of computers in the institutions of learning has become an integral part of learning. As such the use of technology in imparting knowledge to learners in education fraternity remains one of the most significant tools. This study sought to assess how computer anxiety known technically as technophobia affected student performance and possible remedies for this anxiety. Twenty First Year Students of 2014 conveniently selected participated in the study which employed a qualitative approach. Face-to-face interviews were employed to gather data. The findings revealed that both students and lecturers had negative feelings towards computer usage such that lecturers tended to be less inclined to use computers or technology in the lecture rooms for teaching purposes. The study also established that the anxiety experienced by technophobes should be taken seriously and addressed since it impacted negatively on the teaching and learning situation. The study recommends use of a form to detect or identify early computer anxiety students and then offer counselling to those exhibiting anxiousness towards technology. It also recommended that during curriculum design, lecturers can expand the education on ergonomics to include computer anxiety and its impact to productive learning and work, in order to create awareness and education on how to overcome technophobia.

INTRODUCTION

Present day universities and other institutions of higher learning, globally and in South Africa, have adapted to computer-based tools for teaching and learning (Baturay et al. 2017; Yang et al. 2013). These tools vary from computerised visual-aid presentations to internet based learning management systems, like Blackboard. Following the digital trend, Walter Sisulu University (WSU) has invested in technological infrastructure and equipment in order to equip the university to migrate from the conservatively chalk and talk teaching that relies heavily on paper-based tools. A blackboard teaching management system has been installed and staff and students were trained and are still being trained and encouraged to use it (Ikedinobi 2011). Ac-

ording to the researchers' observations, even with the above endeavours the use of computers as tools for teaching and learning has not become fully pervasive to a point where it could be said WSU is technologically reliant on computers for teaching and learning, in fact the adoption and use thereof has been painstakingly slow. This could be attributed to reasons such as the simple misunderstanding of the purpose and role of the technology, where we hear people say things like, "I am fine with the old systems, so why change?", the level of skill the technology requires, the attitudes to general change and so on. In this paper the researchers examine whether fear of computers literally known as 'technophobia' is a capable culprit. Over the years of teaching the researchers have come to notice that some students and lecturers may have a non-receptive attitude towards computers. This study focuses on understanding the teaching and learning implications of the technophobia of students towards the use of computers. The researchers hope to establish factors that contribute to such attitudes and the implications it has on teaching and learning and

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subsequently come up with working recommendations on how to encourage students and lecturers to overcome/change their attitudes towards the use of computers in order to ensure that teaching and learning occur unimpeded by those attitudes.

It is very easy to attribute poor performance to the students when as lecturers we do not get the expected results. We draw conclusions such as 'students are not keen to learn', or 'are too lazy' or that 'they just don't get it'. In reality the deductions are not that easy and obvious. As lecturers for computer-related subjects, we are constantly looking for ways to better understand how we could improve our teaching practices for the benefit of self and the students we teach. Through researching, we had to do introspection, reflection and learn about the teacher that we are the teacher we want to be and the teacher we ought to be in order to help our students learn better. Through this study, we got to understand the importance of constructive alignment for effective teaching and learning, assessments and evaluation. We have equally been enlightened on our areas of growth as a lecturer, since we started this study. This study focused on students and us as lecturers on what we could do in the classroom to ease the fear of computers and other technologies. It also focused on the students' ways of learning with emphasis on the effective use of computers on students' performance. The endeavors were to help the student learn better and use computer for learning and beyond. Specifically we tried to understand how computer anxiety known technically as technophobia, could affect the student performance and what remedies could be there for that anxiety.

The evolution of society from primitive stage to modern day has seen technological advancement on unparalleled scale (Zilka 2017; Danner and Pessu 2011). The use of computers has become a necessity in the workplace, academia, public and private sectors. Even in South Africa, the Gauteng Department of Education is reported to invest R17 billions to provide students in schools with tablets, Gauteng province taking the lead in what they term "paperless classrooms". Despite widespread use of technology in general and computers in particular, the researchers' experience from more than ten (10) years of teaching computer literacy has revealed that not all students are receptive to computers

and their use thereof. Over the years of teaching the researchers have come to notice that some students may have a non-receptive attitude towards computer studies (Baturay et al. 2017). In all cases, attitudes towards computers are dependent on a number of factors as shall be alluded to by researchers in the literature reviewed. This study focused on the teaching and learning implications of the attitudes of students towards the use of computers and to lesser extent lecturers' attitudes. The researchers hope to learn about factors that may contribute to such attitudes and subsequently come up with recommendations on how to motivate students to change their attitudes towards the use of computers in order to ensure that teaching and learning occurs unimpeded by those attitudes.

Literature Review

Defining Technophobia

Commonly, technophobia is used interchangeably with computer anxiety and is defined in many ways, by different authors. Ha et al. (2011) describe technophobia as the abnormal fear or anxiety about the effects of advanced technology. Deryakulu and Calýsxkan (2012: 212) supportively describe computer anxiety as "an irrational anticipation of fear evoked by the thought of using (or actually using) computers, the effects of which result in avoiding or minimizing computer usage." Computer anxiety is also labelled by researchers with various terms like techno anxiety, computer phobia, technophobia, cyber phobia, computer-stress, technostress, computer aversion, and other similar terms. Likewise, Ademola and Idou (2013) state that computer anxiety is an irrational fear or apprehension felt by an individual when using computers or considering the possibility of computer utilization. In the same line Arigbabu (2006) and Roslan and Mun (2005) describe computer anxiety as the fear of computer. Sivakumaran and Lux (2011) propose that, "An aversion to computers can stem from a lack of basic understanding of how a person can manipulate the technology to suit their purposes." The general consensus being that this antipathy towards technology or computers does not augur well for the sufferer nor does it propel the sufferer to use technology for learning enthusiastically. From

all the above given definitions, the researchers noted that there is an element of fear in the use of computers and other related information and communication technologies (ICTs). This element of fear could lead one to avoid using computers this result in the development of an attitude. Gilakjani (2013: 68) postulate that, "In the educational environment, teachers and students' attitudes play a significant role in the achievement of educational objectives." Worthington and Zhao (2000) in Mafuna and Marongwe (2018) also assert that academic staff members are the key to effective use of computers in the educational system. Given such a scenario, it then puzzles the researchers that 'where does that leave the students who suffer from this anxiety then?'

Causes and Effects of Technophobia

According to Sivakumaran and Lux (2011), most colleges utilise course management systems like Blackboard and Moodle to provide materials and information to students; and turnitin for assignments, rendering handwritten home works outdated. They further argue that the students now do not only have to learn the course content but also have to survive the technological environment which they find themselves in, which can be a daunting task for a technologically intimidated student. So they caution that students new to technology may experience risk factors, such as stress, due to learning in an unfamiliar medium.

Ha et al. (2011) assert that technophobia is affecting one-third of the population, causing health problems and the inability to work efficiently. It is then conceivable that these effects clearly can have adverse implications on students and in certain cases also the teachers that suffer from technophobia. The ubiquitous nature of technology not only in academia but in almost all aspects of life means that a working solution will enable the sufferer the opportunity to benefit from this use of technology without dreading it. Since Ademola and Idou (2013) emphasise that individual who is computer anxious often chooses not to use the computer if there is an option not to use it because of feeling anxious. It is therefore prudent to regard the words of Isaacs and Hollow (2012) that we must never introduce technology for technology's

sake and that common sense must be used when using technology.

Research has looked into causes of computer anxiety with inconclusive and varying suggestions. He and Freeman (2010: 203) investigated if technology confidence was gender related and found that "females feel less confident with computers because they have learned less and practiced less, and feel more anxious about using computers when compared with male counterparts." Though gender relation was not explicitly the determining factor; it seemed that the more glaring implication is that with more confidence and experience the anxiety may be reduced. The same study above also established that age plays a role in the use of ICTs. It was found that old people were not keen to use ICTs for fear of embarrassment and they just felt at unease unlike young people.

Further exploration into computer anxiety research revealed that the changes in technology may have some role in making people to grow anxious. Shu et al. (2011: 924) explain that "computer-based ICTs are advancing unprecedentedly fast, thus imposing a tougher demand for employees to keep up with the ever-growing technology." It may seem inconceivable that in this day and age there will be young students who get into institutions of higher learning like colleges and university with little interaction with computers, but at WSU such students exist in significant numbers (Mafuna and Marongwe 2018).

In this section the researchers presented literature that generally focuses on the use of technology in the educational sector and then proceeded to literature specifically about students' attitudes towards computers and what informs such perceptions surrounding the use of technology.

Use of Technology in the Education Sector

According to O'Sullivan et al. (2017), Yang et al. (2013) and VanDehey and Thorsen (2002), computer technology has grown on an unparalleled scale so much that until recently, access to computers was very limited, but today as a result of multiple grants and significant technology funding from the state governments the availability of equipment no longer poses a problem. From the above authors it is evident that computer equipment are available in most schools

and tertiary, even at the university where the researchers are currently working the students have access to computers. Without access to computers the use of technology and students' attitudes towards its use cannot be discussed.

The use of computers in the institutions of learning has become an integral part of teaching. As such the use of technology in imparting knowledge to learners in the education fraternity remains one of the most significant tools as noted by Mafuna and Marongwe (2018). Van-Dehey and Thorsen (2002: 201) state that, "Technology can save us or sink us in the classroom." Creative applications of technology can restore much of the thrill of exploration by giving even our less skillful students tools to take them where they could not have easily gone before. But we must learn how to pass the 'mathematical mind' to our students without drill and manipulations. We must re-infect them with the excitement of discovery, with the dramatic power of analytical reasoning. We have a lot to learn, but we stand at the door to new era in mathematics education.

Wilson (1995) contends that there is lack of consensus on why and how technology should be integrated into the education sector, what learners must be taught and how to train educators to use technology. Affirmatively, Kaput (1992) suggests that prior to integrating this new electronic media into education, educators need to discern what the difference is about the new technology and what those differences mean in respect of cognition, learning, teaching and education in general (O'Sullivan et al. 2017). Likewise, Kober (1992) argues that such process could yield into better consensus amongst educators as to the role technology should play in mathematics education, as mathematics use computers more than any other subjects (Teo et al. 2007). By extension the same consideration applies to all other subject that intend using computers as a teaching and learning tool. Tech (1996: 7) in a paper titled "opening as the world becomes more complex" argues that students, in the not too distant past, learnt by reading, listening to lectures, writing papers and taking part in discussions. Now however, instructors can take advantage of recent technological developments to increase the depth and efficiency of learning", as also argued by Mafuna and Marongwe (2018).

Tech (1996) is of the view that there is a paradigm shift at all levels of higher education. In

their view, educators are moving from teaching or instructional paradigm to learning paradigm. This view is emphasized by Barr and Tagg (1995: 1) that: "We are beginning to recognize that our dominant paradigm mistakes means for an end. It takes the means or method – called 'instructing' or 'teaching' - and it makes it the college's end or purpose. To say that the purpose is to provide instruction is like saying that General Motors' business is to operate assembly lines... we now see that our mission is not instruction but rather that of producing learning with every student by whatever means that will work best."

While all the above authors agree on the need to use technology as a teaching tool they also agree that the business of higher education is not just about instructing a student only but providing betters of learning, and to that end computers are most integral. Their views are noted with caution as other researchers express their concerns. Trotter (1998: 1-6) enlists problems pertaining to the use of computers in the classroom which include:

The disparity in the levels of computer skills that students in same class have, and which therefore necessitates the need for more individualized lessons;

Having enough terminals for students;

Inability to monitor how students are using computers (Mafuna and Marongwe 2018);

Troubleshooting when a problem with computers occurs.

Cuban (1993) having explored the positive spin offs of using computers to prepare students for society that is technologically driven, also expresses concern that the reliance on technology will corrode the crucial teacher-student relationship, and will interfere with the social climate of the classroom.

While the above focus is mainly teacher and learning practice, these changes also have an affective element as well as such it is worthy to look at how the students and teachers can be affected, especially those that may be anxious about technology. According to Worthington and Zhao (2000) the growing concerns about computer anxiety and or negative attitudes toward computers among teachers and students will prevent reaping the pedagogical, social, and economical benefits of computer technology (O'Sullivan et al. 2017). Worthington and Zhao (2000) in Sivakumaran and Lux (2011: 157) observe that using the lens of existentialism, we

can conceive of computer technology as a challenge to an individual's world view; where she once lived and worked productively in an environment that did not involve the use of computer technology, the introduction of such technology into this environment forces her to revisit and attempt to re-justify her beliefs and assumptions about the world (Baturay et al. 2017).

They argue that some people's attitudes towards computers have to do with what the computer represents to them, "it's symbolic". They argue further that depending on their pre-existing beliefs, interaction with a computer can force people to rethink their world view and their place within it. Consequently, they posit the idea that "the computer encompasses far more than hardware and software, because users filter their understanding of computers through their own beliefs and experiences, which influences the ways they make meaning of and with the computer" (Worthington et al. 2000). This shows the kind of impact and influence beliefs have on the attitudes towards computers. People's attitudes towards computers are somehow inseparable from their beliefs.

Worthington et al. (2000) argue that while the perceptions about computers were different along gender lines two decades ago, the reality of the nature of computers has changed over time. The same authors argue that over time computers have been transformed from "machines that compute into machines that help one manage finance, compose music, write essays, paint pictures, or communicate with a friend" (Worthington et al. 2000). Cuban (1986) points out that despite the advances in computer there are still teachers who resist using computers in the classroom or who use only in ways consistent with their own beliefs about teaching and learning. In support of the same point Mafuna and Marongwe (2018) note that in their study on 'lecturers' acceptance levels of e-learning management system applying extended acceptance technology model'. They established that lecturers resisted and were reluctant to use computers despite having received training on how to use Wise Up and the Blackboard. An example would be a teacher who only uses computer for power point presentation to aid in transmission approach to teaching, and resist using a computer as means of driving student independent learning such as online discussions.

Attitudes of Students towards Use of Computers

Having reviewed literature on use of computer in the educational sector, the researchers now focus on attitudes of students towards using computers. Al-alak and Alnawas (2011), Balash et al. (2011) and Chan (1997) assert that, the study of attitudes towards computers is very significant and that it is also imperative to study the contributing factors to such attitudes. According to the above authors those factors may include background information such as age, sex, computer background and in her case musical background. Chan goes further to emphasize the humanistic issue of computer assisted instruction as interesting and important. In the same vein, Hoffmann (1991) notes that technology has often been criticized of being cold and inhuman, and Faber (1998) suggests that this is also compounded by fear of technology robbing humans of their jobs, values and creativity. The above three authors agree that there are attitudes associated with use of technology, as also established by Mafuna and Marongwe (2018).

Tseng et al. (1997) posit that feelings of anxiety towards the use of computers are quite common and affect about thirty-forty percent of the population. This view is further supported by Rosen et al. (1987) who agree that one-third of all college students experience some type of technophobia. Their argument goes on to say that "this phobia is more than the fear of programming a VCR." They assert that this is a genuine dislike of computers and their use thereof (Mafuna and Marongwe 2018). According to Rosen et al. (1987), students with this phobia could have done by making use of card catalogs in the library or blackboards in the classrooms. DeLoughry (1993) points out that with technological advancement in the library and the classrooms, the implications are such that technophobes are struggling.

In their study, Rosen et al. (1987) established three levels of technophobia, namely anxious technophobe, cognitive technophobe and uncomfortable technophobe:

Anxious Technophobe

This phobia manifests itself in the form of sweaty palms, heart palpitations and headaches during the use of computers.

Cognitive Technophobes

The computer user appears normal (calm and relaxed) outside but inside has negative dispositions for example, “everybody knows how to do this!” or “I’ll hit the wrong button and mess up this machine!”

Uncomfortable User

They may be slightly anxious or use some negative statements, but generally not in need of one-on-one counselling.

The knowledge about these different levels of technophobia and how they manifest increases our level of conscientiousness and empathy for the students whom we might have overlooked, or shunned for thinking they are just lazy to do the work. Having students with technophobia has implication for how we must plan our teaching and learning activities including how we introduce students to computers and computer literacy. It can also have curriculum design implications, where such attitudes can be explicitly addressed so that even students who do not understand the effects computers have on them can begin to understand their condition and begin to remedy the situation.

According to Brown and Vician (1997), computer anxiety has been associated with “decreased use and even worse, avoidance of technology”. They argue that avoidance can seriously impact on students’ academic progress, lower performance in business settings and eventually affect career opportunities. The theory that increasing computer experience will decrease computer anxiety is supported by several researchers, such as Loyd and Gressard (1984), Howard and Smith (1986), Glass and Knight (1988) and Necessary and Parish (1996). Necessary and Parish (1996) have observed that students with little or no experience suffer more computer anxiety than those students with computer experience.

Objectives of the Study

The study sought to:

- ◆ Explore the feelings/effects of technophobia on teaching and learning.
- ◆ Propose suggestions that could be adopted to reduce the effects of technophobia.

METHODOLOGY

The study was rooted in the qualitative approach as it sought to explore the feelings/effects of technophobia on teaching and learning to give an in-depth understanding of computer anxiety and its impact on the academic performance of students. It also followed an instrumental case study design for the purpose of understanding the computer anxiety at this university. An instrumental case study design is effective in answering questions like “Why?”, “How?” and “What?” related to a specific phenomenon under study and more adequate when it offers access to information that is barely accessible to researchers (Mafuna and Marongwe 2018; Al-Adwan et al. 2013). This study was limited to this particular university since only the students and academic staff members of this institution participated in this study.

A snowball sampling technique was used to identify students who were showing signs of technophobia from a group of first year students only and then purposive sampling technique was used to identify lecturers. Data was collected through use of in-depth interviews and focus group interviews in order to understand the feelings since researchers were able to capture the gestures and other body language used by the participants. The aim of using interviews was to get “under the skin” of the students concerned to disclose the opinions and experiences of computer anxiety (Mncube 2009). Individual interviews were conducted to ten students and five lecturers to explore the views and thirty students participated in the focus group interviews and they were divided into three groups of ten, ten each. This was deemed necessary because the issue of feelings is a very sensitive issue that needs careful probing to get ‘under the skin’. Data was presented and analysed according to themes that emerged from the findings.

RESULTS

From the findings themes related to the goal of the study emerged. The themes that emanated from the study are presented below and illustrated by means of quotations from the interview and focus group interview texts. The quotations are presented verbatim. The coding was as follows: Student Individual Interview-**SI 1-10**, Lecturer Interview-**LI 1-5** and lastly Focus Group Interview-**FGI 1-3**.

- ♦ Computer experience/exposure
- ♦ Feelings when using a computer
- ♦ Implications for teaching and learning
- ♦ Suggestions to address the situation

All the participants used in the study were asked to respond to the following question: ‘When, were you first exposed to computer usage?’ In response to this **SII 2**, **SII 5**, **SII 7** responded in a more or less similar way that:

When I came to tertiary here at this university, my former high school was in the middle of the rural and had no access to computers. At home my parents did not and cannot afford to buy a computer or laptop even now.

The focus groups showed mixed responses but the majority echoed what was articulated by students who were interviewed that they had their first encounter with computers when they came to tertiary. **FGI 2** remarked that:

Ma’am some of us come from rural backgrounds where we only heard about computers. Some of the schools where we attended our high school had no computers and those that had computers only a few students were privileged to attend computer classes. Some of our parents don’t even know the importance of computers. Now at least we are at tertiary that is exposing us to computers.

The lecturers were also interviewed on the same question though put differently that: From your knowledge of working with first year students, what can you say about their exposure to computer life? In response **LI 3** articulated that:

We have very few students who are computer literate probably because of our catchment area and our Campus is still very small to attract students from better resourced schools. We struggle with them; they don’t even know how to move a cursor.

It is clear from the texts above that a majority of students at our university have little or no computer experience, as some experience hands-on computing for the first time when they come to university. The tools used above to collect data on first year students showed that our students are exposed to individual and independent use of computers for the first time at tertiary level and have no access to computers at home or in their dwellings.

All participants were asked a question which solicited how students felt when using computers at tertiary for the first time. This question attracted a lot of negative feelings displayed by

students. Both the students and lecturers used in the study reiterated the same. **SII 4** shyly stated that, *“I feel perturbed, uncomfortable, and anxious, in short I have no choice but I don’t enjoy doing and using computers, am very slow and I am not used”*.

In the same line **SII 1** had this to say, *“It seems like everyone would be looking at me, laughing, sometimes I tremble or become shaky when my lecturer is standing behind or next to me. This makes me to be much disorganized and lose focus”*.

The focus groups expressed the same as above though they put it in a jocular manner but from the look of their eyes they were speaking nothing but the truth. **FGI 3** stated that:

Fear, fear and embarrassment are a problem. Sometimes your page just disappears and don’t know how to bring it back, you ask a friend to assist and that friend doesn’t know too. We don’t feel good at all because sometimes your girl/boyfriend is in the same class with you, you ask the lecturer and the lecturer embarrasses you. Some lecturers are not using computers to teach us they simply say go and do this and that.

The lecturers interviewed coincided with the views shared by some students. **LI 5** with a sigh of break expressed that:

You know the problem with some students is that they pretend to know when in actual fact they don’t even know how to save their work, create a folder, move a mouse or type words. They are so shy to ask maybe it’s because of age or fear of being laughed at by fellow students. Some cannot even open a computer, when you look at them they feel at unease, feel so tense and very uncomfortable. They are not confident to use computers and their self-esteem becomes very low.

From the above responses it can be noted that students really struggle and feel uncomfortable to use computers. The fears could be associated with lack of exposure to computer, age as pointed out by the lectures, fear of being laughed at and this may lead them not to seek help, some students raised that there were some lecturers were reluctant to use computers and this doesn’t motivate the students and this may again have several implications on the teaching and learning. This takes us to the next question which was, ‘How does the feeling affect your academic performance?’ **SII 9** explained that:

I don't do my work with confidence; I keep deleting or cancelling my work because I am afraid of making mistakes. Sometimes time won't be enough because of my pace I am too slow because I won't be sure of how to go about it.

Similarly **SH10** stated that. *"Sometimes I don't do the work, I don't finish or I copy from others or ask a friend to do it for me to cover my back"*.

LI2 with a concerned tone expressed that:

We have a problem with some of our students because their performance is compromised since they make so many blunders when presenting their work. Some students can't upload and download assignments using WiseUp, can't detect the problem and, therefore, wait for a friend to do that for them. Some miss deadlines, some don't even submit the work, some are penalized because copy from a friend. Some students lose interest in studying and they withdraw. But we have some students who are very keen to learn and such students are showing a steady progress.

From the above responses it can be drawn that there are several implications for both the teacher and the student. The implications for the students include difficulty in meeting of assignment deadlines, the student feels thrown at the deep end with limited or no skill to rely on, all sorts of mishaps, such as loss of unsaved work, inability to trouble shoot when a problem arises will only increase the anxiety in students, leading to withdrawal or lose of interest in studying. These problems are further compounded by the fact that in the computer lab assistants available for their help are also students with very limited training and knowledge.

Finally all participants used in the study were asked to come up with suggestions that could be adopted and implemented in order to rectify the situation. Several suggestions were brought up. **FGI 1** proposed that:

We need more time to be allocated to computer studies and we need more time to be trained in using WiseUp and not hours in one day. Everything is rushed and they forget that we are struggling to use a computer because we not exposed to computers before. We sweat to use them. We prefer to be taught in smaller groups and some lecturers should be patient with us and should stop embarrassing us, they make it worse for us.

DISCUSSION

It emerged from the study that some students are technophobic because of their background but such students do not want to be known, instead they hide themselves. It therefore, demands lecturers to identify technophobic students by means of devising tools and strategies that will make lecturers aware of such students in their class and make an effort to detect early those students that are suffering from either technophobia or computer anxiety. This finding is in line with what was proposed by Rosen et al. (1987) who suggest the first step as the identification of anxious students early enough to assist and ease the anxiety and the student. Furthermore, the study revealed that some students are technophobic because they too observe that some lecturers are also technophobic and are not willing and competent to use technology. This idea is supported by Mafuna and Marongwe (2018) and Al-alak and Alnawas (2011) who establish in their studies that some lecturers demonstrated a negative attitude that may lead to reluctance to use technology though they were trained by the university on how to use computers to benefit the students. In the same vein Teo et al. (2011) assert that technology is a powerful tool but the extent to implement it depends on the positive attitude of the teacher to use it and influence students to use it too. Since the inception of the LMS in 2008 at WSU most lecturers and students have been taught on how to use the system but according to the monitoring tool BBAT, most of the lecturers are not using the system (Ikedinobi 2011; Mafuna and Marongwe 2018). In support of the above idea scholars like Baturay et al. (2017) observed that teachers were not using computers when the system expected them to do so with understanding. Baturay et al. (2017: 2) affirm that teachers "are often expected to be able to use computers, and more critically, understand how to integrate technology into their teaching with appropriate instructional methods." This observation by Baturay et al. (2017) is in accordance with this current study.

Another key finding of the study was that some students had difficulty in meeting of assignment deadlines, the students felt thrown at the deep end with limited or no skill to rely on. All sorts of mishaps, such as loss of unsaved work, inability to troubleshoot when a problem

arises will only increase the anxiety in students. According to DeLoughry (1993), there are serious ramifications revealed by researchers on computer anxiety in students and people are under the illusion that computer anxiety will go away. Although Rosen et al. (1987) believe that computer anxiety will not go away, however they also contend that there are solutions. This according to the researchers' current study reveals a misconception about technophobia that it can just go but actually it affects students' work which may lead to poor results/ academic performance. Instead lecturers should design easy and manageable tasks on the computer and to demonstrate what and how tasks must be completed, in order to boost the confidence of the students who would otherwise be lost. Rosen et al. (1987) assert that teachers must be acquainted to ways with which they can reduce computer anxiety amongst students. Rosen et al. (1987) maintain that it will take a concerted effort from instructors and teachers to help these individuals overcome their anxiety. From the researchers own experience the teacher can pair the anxious student with the confident/competent student. Furthermore one-on-one tutorials could be beneficial to develop the skill and confidence of the anxious student.

The study's findings revealed that ensuring continued exposure to computer is vital in order to increase computer experience confirming results established by Lyod and Gressard (1984). In support of the same point raised above Baturay et al. (2017) and Rosen et al. (1987) argue that a student will need to relax with and around computers. Moreover that a calm, low stress atmosphere will benefit the learning student. Of paramount importance is the fact that the students (specifically those with prior negative attitude) will need to build confidence in order to change attitude. DeLoughry (1993) and Al-alak and Alnawas (2011) believe that teachers must encourage confidence, growth and exploration so as to keep computer experience enjoyable and fun (Zilka 2017). On the other hand the study established that students who were exposed to computers before enrolling at tertiary had a healthy attitude towards computers and tended to perform better than those using computers for the first time at university, as established also by Chisango and Marongwe (2018).

CONCLUSION

It emerged from the researchers' study that one's background and beliefs do inform one's attitude to new things. As evidenced in earlier discussion, early and long exposures to computers and technology have contributed to the receptive attitude of those who have a healthy attitude towards computers. The study has also proved that these negative feelings towards computer are not isolated to students only but to teachers as well, such that teachers tend to be less inclined to use computers or technology in the classrooms for teaching purposes. The study concluded that this reluctance is caused by several reasons such as appearing inept in front of students or peers; loss of personal interaction while students are working with computers; a perceived inability to protect students from inappropriate information on computers; being replaced by either a computer or a teacher who is more familiar with computers. Regardless it will be detrimental to down play the fear or anxiety experienced by those referred to as technophobes, whether the source of their anxiety is real or imagined, one thing is certain, for the benefit of all, this condition has to be treated with seriousness. Teachers must be proactive in finding ways to mitigate the impact caused by this anxiety for effective learning, as they do with all obstacles to teaching and learning.

RECOMMENDATIONS

Based on the findings of the study the researchers recommend that:

- ◆ As technology becomes more pervasive in our lives it becomes necessary that the teachers that also suffer technophobia should seek help to eliminate this fear so that technology can be used by both teacher and learner to support effective and life-long teaching and learning.
- ◆ Teachers/lecturers should devise a means of early detection of computer anxious students. (The researchers used a form that they designed on their own [see Appendix A] that students can complete on their first day of class so that their computing skills and attitudes can be identified. This idea of a form worked very well for the researchers and they noted change in their students because they identified them early).

- ◆ Students who exhibit anxiousness towards technology should receive counselling.
- ◆ Lecturers should extend hours for computer laboratories, to provide access to those who do not have access at home or outside of classroom time, while awaiting the university's approval of the requisition for additional computer laboratories for the campus for broader student access.
- ◆ The university should provide adequate computer laboratories assistants that are better skilled to deal with student challenges. Closely related to the above is that the university should again provide adequate staff development opportunities for the teachers that want to obtain more skill and confidence with computers and ensuring that all lecturers have constant access to computers/laptops to work freely at their pace in a friendly environment, which may include access after office hours, hence the laptops.
- ◆ Lecturers should pair or group competent/confident students and those that indicate anxiety to computers, so that peer learning and motivation can boost morale, shift attitudes towards computers and also fulfil the transferable skills outcome of being able to work in teams.
- ◆ Curriculum design should allow expansion of the education on ergonomics to include computer anxiety and its impact to productive learning and work, in order to create awareness and education on how to overcome technophobia.

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APPENDIX A: STUDENT INFORMATION FORM

STUDENT INFORMATION

FIELDS MARKED WITH * MUST BE FILLED BY LEARNERS THAT ARE CURRENTLY WORKING

LEARNER DETAILS

First Name

Surname

Current Study year of study

First year of entry at university

Date of birth(day/month/year)

Cell number

E-mail address

Do you study full time or evening

Region of Secondary/high school

Name of the area

Name of school

COMPUTER LITERACY Use a ✓ to choose

Can you use a computer?

 YES NO

If Yes choose programs you can use

 Windows Explorer Microsoft Word Microsoft Excel Microsoft PowerPoint Microsoft Access E-mail Internet Other specify: _____

If you choose a program/s above, which version or year? For example, Microsoft 2007, 2010, 2013, etc

Windows Explorer _____ Microsoft Word _____

Microsoft Excel _____ Microsoft PowerPoint _____

Microsoft Access _____ E-mail _____ Internet _____

Other specify: _____

Mention other computer programs you can use not listed above

Does your high/secondary school have computers?

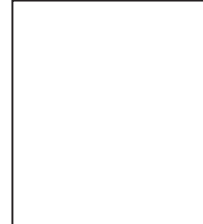
 YES NO

If Yes list the programs you can use and indicate level of competency – BASIC/ INTERMEDIATE/ADVANCE for example, Basic Word

Do you have access to a computer at home/friend?

 YES NO

If Yes which programs do you frequently use Please list all computer diploma/degree/ certificate you have. State where you obtained them. For example, Computer Certificate: Damelin



Mention other academic qualifications
you have other than grade 12 / standard 10

TECHNOLOGY USAGE

Use a ✓ to choose
Cellphone

- I can Add a number to contacts/phonebook
- Read sms Send sms Read mms send mms
- Save messages Delete messages Exchange files using Bluetooth
- Use Internet Check status of sent messages
- Use a calculator in the phone
- Set reminders Set alarm Play radio on the phone
- Take a photo Take a video Connect on facebook
- Send E-mail download applications, use cloud storage
- chat e.g. Whatsapp, skype, upload and download
- Please Specify Other: _____

TV

- I can Search channels Adjust / Change colour
- Change contrast Change brightness
- Windows Connect TV to a DVD / Video player

Radio with CD/DVD player/ DSTV

- I can Search channels Load and play cds
- Search channels Connect speakers

Languages spoken