Assessment of Mental Health Implications of Technology-Mediated Instructions among University Students in the Post Covid-19 Era

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Abstract
Technology use in the classroom has significantly changed students' learning and classroom activities particularly in universities nowadays, more importantly, as Covid-19 pandemic ravages the world. It is however not without its own challenges especially mental health implications for learners. This study examined mental health implications of technology mediated instructions among university students. It is a quantitative study and it adopted survey design. Three research questions guided the study and four null hypotheses were tested. A total of 300 university students randomly selected from various faculties in the university participated in the study. A self-designed questionnaire entitled "Assessment of Mental Health Implications of Technology Mediated Instruction (AMHITMIQ)" was employed to collect data for the study. The instrument possessed a reliability coefficient of 0.85 having been subjected to a Test-re-test method of reliability. Mean, Percentage, and Analysis of Variance (ANOVA) statistical tools were used to analyse the data collected. Hypotheses were tested at 0.05 alpha levels of significance. Results revealed that poor internet connections often experienced, negative effect of technological devices on one's sight, topped the list of indices of mental health implications of technology mediated instructions according to the students sampled. Results revealed that there was significant difference in students' views on mental health implications of technology mediated instructions based on age; whereas, for levels of study, exposure to technology and combined family's monthly incomes, there were no significant differences. The study recommended among others that constant checks in the use of technology driven instructions by lecturers in order to accommodate various needs of learners in the classroom and to also ensure they are carried along in the process.

Keywords: Mental Health; Learning Management System; Technology Enhanced Learning; Information and Communication Technology; Technology-Mediated Instructions; University students.

Introduction

Prior to the experience of the coronavirus, also called Covid-19 pandemic globally, technology seems to have permeated the teaching and learning space. It has considerably increased across the globe due to the covid-19 pandemic that has rendered all schools closed. However, the four walls of the school system seem to be the only aspect affected by the pandemic especially in developed and some developing countries like Malaysiadue to ongoing teaching, learning, thesis or dissertation defence, and the likes in the cyberspace. These technology-based media of classroom instructions are not without some psychological, mental and emotional hazards on student users at any level of education. This constitutes the focus of this study.

Technology-Mediated Instructions and Learning Management Systems are common platforms being used in most public Universities in Malaysia and in the online learning guidelines for the Malaysian's Higher Education Institution since 2014. The purpose of this guideline is to ensure that the deployment, usage and services provided by the institutions meet the requirement of the National e-Learning Policy (DePAN), Critical Agenda Project (CAP) e-Learning and Phase of the National Higher Education Strategic Plan (PSPTN).

Various faculties, schools, and departments in public universities have been offering courses that actively make use of TMIs and LMSs in the teaching and learning process at both undergraduate and postgraduate levels. The programmes are designed to ensure that technology especially TMIs and LMSs are utilized in the classrooms at all levels.

The emergence of new technologies has dramatically altered the educational landscape with the integration of Information and Communication Technology (ICT) in Technology Enhanced Learning (TEL) via Learning Management System (LMS). TEL can be classified as any form of online learning via LMS and can be inferred as technology enhanced classrooms and learning with technology (HEA, 2019). The role of technology has changed the way of teaching and learning from conventional to student centred learning in higher education which involves LMS at flexible location and flexible schedule (NETP, Washington, DC.,2017). LMS also promotes students - students and students - educators to have interaction among each other via TEL tools. Students also can perform collaborative learning anywhere and anytime to share their knowledge.

Technology mediated instructions (TMIs) and Learning Management Systems (LMSs) are used in delivering learning content in the university as well as other tertiary or postsecondary institutions. TMIs refers to the totality of instructional approaches that employ the use of technology for the purposes of classroom teaching and learning. TMIs are used mainly to collaborate academically online, upload and download learning contents as well as assignments and also to share knowledge through online discussions.LMS is easily accessible anywhere at one's own time and pace. This research is thus geared towards assessing the impact of these TMI platforms on the students' mental health in the university systems. Usage of TMI is capable of changing the trend of learning that students have been variously exposed to especially in their traditional settings before getting to the university environment which is a totally different situation from where they used to be. Hence, the need to assess their emotional and mental reactions toward use of technology-aided platforms in universities for the purpose of learning (HEA, 2019).

Also, Conijn et al., (2018) suggested LMS gives basic log information. In their study on how this information can be utilized for learning investigation, they discovered students' engagement can be increased by using online learning via LMS. Previous studies have been focused on how long such technologies are being used. Frequently, this is measured in terms of usage of TEL, tools like LMS (Fikes, 2018). Researches have shown that such indicators can be used to measure the behavioural engagements of students. The number of times students access LMSs are measured as well as the times spent by them on the different LMS environments. In this study, focus is on finding out what students' responses are towards themselves and their environments with regards to technology use in the classroom learning. Their mental state during the process of using LMSs as well as anxiety levels and ultimately, the behavioural tendencies manifested by them since exposure to technology-based instructions.

The research carried out by Conijn et al., (2018) suggested that LMS provides basic

log information. In their study on how this information can be utilized for learning investigation, they discovered that students' engagement can be increased by using online learning via LMS platforms. Thus, LMSs are also encouraged by these researchers without considerations for students' mental health or state of mind as incorporation of technology into learning keep increasing by the day. Also, findings obtained from Pearson's (2015) study showed that learners use digital devices in their personal lives and majority uses them in their higher education coursework. It is not deniable that every student has their own learning pattern and learning preference. But in order to adapt the latest trend, the traditional method of teaching and learning should be enhanced with current technological means to promote better learning experience among students.

Technology-mediated instruction receives positive acceptance in universities around the world, the studies on students' emotional and behavioural engagements after using LMSs as well as on mental health implications are still largely unexplored in and outside the Malaysian context. However, this study would largely assist educators in carefully incorporating technologies and various LMSs in their teaching and learning process in order to be able to accommodate the peculiarities of each learner. Findings from this study could provide the needed information on the impact of technology and LMSs on students' mental health, emotional and behavioural engagements outside classroom.

According to Fredricks et al., (2004), behavioural engagements can be classified into three: emotional, cognitive and behavioural engagements. Student engagements therefore represents two critical features: the amount of time and effort students put into their studies and other educationally purposeful activities; and how the institution deploys its resources and organizes the curriculum, other learning opportunities, and support services to induce students to participate in activities that lead to the experience and desired outcomes such as persistence, satisfaction, learning and graduation.

Statement of the Problem

The aim of this research is to investigate university students' mental health issues considering the increase in global use of the various LMSs available for classroom teaching-learning processes. The emotional and behavioural engagement of university students resulting from their use of LMSs are covered in this research. The focus is on undergraduate and postgraduate students in the university who were pursuing various degrees at the time of this study. The use of TMIs and LMSs is commonplace in most of the public Universities in Malaysia and in the online learning guidelines for the Malaysian's Higher Education Institution since 2014. The purpose of this guideline is to ensure that the deployment, usage and services provided by the institutions meet the requirement of the National e-Learning Policy (DePAN), Critical Agenda Project (CAP) e-Learning and Phase of the National Higher Education Strategic Plan (PSPTN). Hence, this study is geared towards determining the mental health issues faced by student-users of technology mediated instruction in the university system, particularly, as it affects their emotional, psychological and mental states which ultimately influences the way they behave. This is the gap the present study is set to fill.

Purpose of the Study

The major purpose of the study is to assess the mental health implications of technology-mediated instructions among adolescent and adult learners in the university environment.

Specifically, the study sought to:
(i) Determine the mental health implications of technology-mediated instructions among male and female university students.
(ii) Determine the individual factors affecting university students' mental health with regards to technology-mediated instructions
(iii) Determine if mental health implications of technology-mediated instructions differ among university students with regards to their respective family's socio-economic statuses.

Research Questions
These research questions were raised to aid the conduct of this study:
1. What are the mental health implications of technology-mediated instructions among male and female university students?
2. What individual factors affect university students' mental health with regards to technology-mediated instructions?
3. Is there any difference in adolescent learners' mental health implications of technology-mediated instructions based on family's socio-economic status.

Research Hypotheses
The following research hypotheses were generated in the null form for testing to further expound the research questions raised:
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1. There is no significant difference in university students' mental health implications of technology-mediated instructions based on age.

2. There is no significant difference in university students' mental health implications of technology-mediated instructions based on level of study.

3. There is no significant difference in university students' mental health implications of technology-mediated instructions based on level exposure to modern technology devices.

4. There is no significant difference in university students' mental health implications of technology-mediated instructions based on family's socio-economic status.

Methodology
This is a quantitative study and it adopted survey design. Survey was considered more suitable and appropriate considering the nature of the study; that is, one dealing with large number of university students among whom participants were drawn for the study. The university selected was purposively picked because it had more concentration of students from all walks of life, backgrounds and races in Malaysia. Population for the study consisted of all students: diploma, undergraduates and postgraduate students in the government-owned university in Johor Bahru, Malaysia. A total of 300 participants were randomly selected to participate in the study. Random sampling was adopted in order to ensure a fair representation of all students. Students were selected from faculties of social sciences and humanities, engineering, built environment and science. A self-designed online questionnaire using google forms was used for data collection. The questionnaire was

entitled "Assessment of Mental Health Implications of Technology Mediated Instructions Questionnaire (AMHITMIQ)". The researchers decided to design the questionnaire in order to be able to give careful consideration to the peculiarities of the respondents particularly with regards to the use of technology in the teaching-learning processes and ultimately to avoid all forms of bias. The questionnaire had two sections (A & B), with section A focusing on respondents' demographic information and section B consisting of items on mental health as well as social implications of technology mediated instructions. The instrument was tailored towards a Five-point Likert type format on a continuum of 5-1 scoring. Also, section B of the instrument had 20 items. A total of 100 score was the highest point obtainable, while 20 was the lowest score obtainable; whereas the midpoint was 50. The instrument was subjected to a test-retest method of reliability, and it yielded a coefficient of 0.85, thus, making it reliable for use as instrument for data collection in the study. Additionally, content validity was established through review by a team of experts and researchers in the field of counselling and TEL. Participation was voluntary, thus, respondents who offered to actively participate in the study were selected through their feedbacks to the general official emails forwarded to them through their respective faculties and departments. Sharing was also done on social media groups within the university in order to ensure adequate and wider coverage. Data collected were analysed using the descriptive and inferential statistical tools with the SPSS version 26. While the demographic aspects were analysed with the use of percentage, mean and standard deviation to answer the research questions, the null hypotheses generated were tested with the one-way Analysis of variance (ANOVA) statistical tool. All hypotheses were tested at 0.05 alpha level of significance.

Results

Demographic Data

Table 1

Distribution of respondents by age, level of study, level of exposure to technology and family's combined monthly income

Variable	Frequency	Percentage (%)
Age		
15-25 years	103	34.3
25-35 years	129	43.0
35 years and above	68	22.7
Level of Study		
Diploma	5	1.7
Undergraduates	96	32.0
Masters	111	37.0
Ph.D.	88	29.3
Level of Exposure to Technology		
Low	47	15.7
Moderate	186	62.0
High	67	22.3
Family's Combined Monthly Income		
0-3000	85	28.3
3001-5000	66	22.0
5001-10000	81	27.0
10001-15000	42	14.0
Above 15000	26	8.7

The results in Table 1 showed that university students within the age bracket 25-35 years participated more in the study than those in other age categories. It also indicated that the study had more master's degree students than those on diploma, bachelor's and doctoral degree programmes. Majority of the students had moderate level exposure to technology; while majority of the respondents' monthly household incomes were between 0-10000 ringgit. This implies that majority of the university students were within the lower and middle income groups or classes.

Research Questions 1 & 2: What are the mental health implications of technology-mediated instructions on male and female university students?

Table 2
Mean, Standard Deviation and Rank Order of University Students' Perceptions on Assessment of Mental Health Implications of Technology Mediated Instructions

S/No	As far as I am concerned, technology in the teaching-learning situations affects students' state of mental health because of the following defects:	Mean	SD	Rank
17	poor internet connections disrupt classroom activities	4.62	0.728	1st
6	it often affects one's eyes	4.24	0.952	2nd
13	reduction in cordial physical interpersonal relationships among students	3.92	1.176	3rd
8	misplacement of life priorities when too focused on	3.91	1.156	4th
12	breeds inferiority complexes in students who cannot operate it	3.90	1.104	5th
9	may easily distract learners from the core purpose of its incorporation into classroom activities	3.84	1.214	6th
14	often breeds boredom in students	3.83	1.213	7th
10	capable of making one become exposed to cyber assaults	3.81	1.199	8th
16	limits tutors' explanations during lectures	3.72	1.293	9th
20	learning becomes one-way event directed only by the tutor	3.72	1.309	10th
19	capable of making students lose interest in other important things in life	3.70	1.236	11th
15	often breeds lazy attitudes toward learning in students	3.70	1.318	11th
4	could result to uncontrolled desires for technology-aided devices	3.57	1.266	13th
7	can be dangerous to users' general state of health	3.54	1.238	14th
18	often makes one lose interest in studying harder for better grades	3.52	1.401	15th
3	could lead to uncontrolled cyber addiction	3.44	1.319	16th
11	often makes students develop mood swings	3.37	1.291	17th
1	could make one to become an online harasser	3.26	1.333	18th
2	could lead to time wastage on the internet	3.01	1.294	19th
5	often results in loss of appetites for food	2.87	1.292	20th

The results in Table 2 revealed that all the items had high mean as well as corresponding standard deviation scores, hence, respondents agreed that use of technology in the classroom

teaching-learning processes could sometimes be filled with difficulties that ultimately interfere with the normal functioning of the mental health of any typical university student, regardless of level of one's study or programme in the university system. Specifically, poor internet connections often experienced, negative effect of technological devices on one's sight, disruption of physical interpersonal relationships, misplaced priorities, inferiority complexes due to certain students' inability to operate the technology-driven device used in the classroom were comprised the top ranking items on the Table, i.e. 1st to 5th respectively, whereas, the only item that fell below 3 points had a mean of 2.87 and a corresponding standing deviation of 1.292 which was even well above the average mean score of 2.5 points. In other words, technology mediated instruction often presents some mental health challenges to student users, thus answering the Rq1.

The second research question (RQ2) focuses on the individual factors that affect university students' mental health with regards to technology mediated instructions. These include social-related factors (reduction in cordial physical interpersonal relationships among students; misplacement of life priorities when too focused on; inferiority complexes in those who cannot operate the devices; lazy attitudes to school work as well as desire for better grades in assessments); health and mental health-related factors (i.e. issues of cyber assaults; online harassments; cyber addiction; optical issues; as well as general state of health; other addictions; and loss of appetites); as well as school-related factors (which include poor internet connections; tutor-related issues; limits to what lecturers critically explain in the course of the lectures, among other individual factors from the angle of the university itself). Invariably, all the items had strong mean and standard deviation scores, implying that the incorporation of technology-related devices into the classroom environment presents serious implications for the mental health of student users, either diploma, undergraduate, masters or doctoral students. With reference to RQ 3, answers are explicitly given in the results of the tested null hypotheses. Whereas the results showed no significant difference, the Post-Hoc analysis revealed the significant differences among the five major income groupings.

Hypothesis 1: There is no significant difference in university students' mental health implications of technology-mediated instructions based on age.

Table 3
Analysis of Variance (ANOVA) Results Showing University Students' Responses on Me ntal Health Implications of Technology Mediated Instruction Based on Age

Source	Sum of Squares	df	Mean Square	Cal. f-ratio	Crit. F-ratio	Sig.
Between Groups	2218.044	2	1109.022			
Within Groups	99188.902	297	333.969	*3.321	3.00	0.037
Total	101406.947	299				

*Significant; $p<0.05$

The results of the ANOVA results in Table 3 showed that the F-ratio (3.321) was greater than the critical F-ratio (3.00). Therefore, the null hypothesis which states that there is no

significant difference in university students' mental health implications of technology-mediated instructions based on age was rejected; F (df=2, 297) =3.321, p

Table 4
Duncan Multiple Range Test (DMRT) Comparing Mental Health Implications of Technology Mediated Instruction Means of Respondents' Age Groups

Duncan's Grouping	Mean	N	Group	Respondents' Age Groups
A	69.4118	68	1	35years-above
B	72.7184	103	2	15-25 years
C	76.3101	129	3	25-35 years

The Duncan Multiple Range Test (DMRT) results in Table 4 determined which of the chronological age group mean led to the significant difference noted in the ANOVA results of Table 3. The DMRT results indicated that the mean of group 3 (76.3101) differed significantly compared to those of groups 2 and 1 (i.e. 72.7184 & 69.4118 respectively), which together differed significantly from the means of group 3 (76.3101). Hence, the significant difference observed in the ANOVA results of Table 4 was due to the fact that the means of groups 2 and 1 significantly differed from those of group 3. The significance may have resulted from the age difference between university undergraduates and masters' degree students, who may have differed because of the experiences they (masters' degree students) have had after their undergraduate programmes. However, the difference in the PhD may be because the doctoral students are not too much into classroom activities which require use of technology compared to masters' degree and undergraduate students, whose main activities are classroom based, particularly, those in taught course mode of study than their counterparts in mixed or full research modes.

Hypothesis 2: There is no significant difference in university students' mental health implications of technology-mediated instructions based on level of study.

Table 5
Analysis of Variance (ANOVA) Results Showing University Students' Responses on Mental Health Implications of Technology Mediated Instruction Based on Level of Study (LOS)

Source	Sum of Squares	df	Mean Square	Cal. f-ratio	Crit. F-ratio	Sig.
Between Groups	918.391	3	306.130			
Within Groups	100488.555	296	339.488	0.902	2.60	0.441
Total	101406.947	299				

*Significant; p? 0.05

The Analysis of Variance results in Table 5 indicated that the F-ratio of 0.902 was obtained, while the critical F-ratio was 2.60, whereas, the p-value (0.441) was greater than 0.05. Since the calculated F-ratio was less than the critical f-ratio, and the p-value was greater than 0.05, the null hypothesis which states that there is no significant difference in university students' mental health implications of technology-mediated instructions based on level of study was accepted; F (df=3, 296) =0.902, p ? 0.05.

Hypothesis 3: There is no significant difference in university students' mental health implications of technology-mediated instructions based on level of exposure to technology.

Table 6

Analysis of Variance (ANOVA) Results Showing University Students' Responses on Mental Health Implications of Technology Mediated Instruction Based on Level of Exposure to Technology (LETech)

Source	Sum of Squares	df	Mean Square	Cal. f-ratio	Crit. F-ratio	Sig.
Between Groups	521.823	2	260.911			
Within Groups	100885.124	297	339.681	0.768	3.00	0 .465
Total	101406.947	299				

*Significant; p? 0.05

The ANOVA results in Table 6 indicated that the F-ratio of 0.768 was obtained, while the critical F-ratio was 3.00, whereas, the p-value (0.465) was greater than 0.05. Since the calculated F-ratio was less than the critical f-ratio, and the p-value was greater than 0.05, the null hypothesis which states that there is no significant difference in university students' mental health implications of technology-mediated instructions based on level of exposure to technology was accepted; F (df=2, 297) =0.768, p ? 0.05.

Hypothesis 4: There is no significant difference in university students' mental health implications of technology-mediated instructions based on level of family's combined monthly income.

Table 7

Analysis of Variance (ANOVA) Results Showing University Students' Responses on Mental Health Implications of Technology Mediated Instruction Based on Family's Combined Monthly Income

Source	Sum of Squares	df	Mean Square	Cal. f-ratio	Crit. F-ratio	Sig.
Between Groups	2771.438	4	692.860			
Within Groups	98635.509	295	334.358	2.072	2.60	0.084
Total	101406.947	29 9				

*Significant; p? 0.05

The results in Table 6 showed that the F-ratio of 2.072 was obtained, while the critical F-ratio was 2.60, whereas, the p-value (0.084) was greater than 0.05. Therefore, since the calculated F-ratio was less than the critical f-ratio, and the p-value was also greater than 0.05, the null hypothesis which states that there is no significant difference in university students' mental health implications of technology-mediated instructions based on level of family's combined monthly income was accepted; F (df=3, 296) =0.902, p ? 0.05.

Discussion

The findings of this study indicated that though incorporating technology into classroom instruction is worthwhile, it often presents some mental health challenges to university students, regardless of their levels of study. University students see technology mediated instruction as an approach that is often laden with much challenges particularly with regards to internet connections which disrupts classroom activities. Effects of constant

use of technology on the health is another aspect that is capable of breeding mental health challenges, especially on the sense of sight (eye) for university students. This finding partly lends support to the study of Conijn et al., (2018) in which the authors studied prediction of students' performances in a blended MOOC and suggested that internet connectivity is a factor to be considered if blended MOOC would enhance students' performances. Also, the finding supports the U.S. Department of Education, Office of Educational Technology (2017) which opined that in reimagining technology in education, every aspect of human learning should be carefully considered in order to have a seamless incorporation of technology driven devices into the field of education. This is inclusive of the health hazards often associated with its uses in the classroom teaching and learning process.

The findings of this study further revealed that there is a great need for an overhauling of the use of technology mediated instruction in the university system. This is because students at all levels within the university agreed that the use of technology limits the extent of detailed explanations given by their tutors in the course of teaching. Learning ought to assist students in gaining better self-awareness, including their strengths as well as limitations, and ultimately work within such limits/boundaries, ability to prioritize their desires at all times, be more self-confident, make adequate plans for classroom activities, among others, and ultimately avoid making costly mistakes that could make limit their school performances. However, this becomes difficult to attain where it is impossible for them to tap wholly into the lecturer's experience due to the use of technology, which should otherwise have been used to complement classroom tasks, but has replaced the core tasks to be done by both students and lecturers alike due to inappropriateness in its applications. Thus, psychological trauma, misplacement of school priorities result where these ills persist. This is supportive of the study of Taiwo et al., (2014) in which the researchers concluded that mental and psychological disturbances result where learners have to go through difficult experiences and encounters in the course of their studies in the university, and this ultimately reduces the interest they have in such programmes, which at the long run means a decline in academic performances.

This also corroborates the findings of Daniela et al., (2019) in which the researchers asserted that there was the need to overhaul the entire manners in which technology is being incorporated into education in order to have the objectives and goals achieved at the end. The need for assessment of the present state becomes imperative owing to the various negative impacts technology mediated instruction has caused a number of university students, with little or no remedies done yet to attenuate the current negative trend, of which are mental health issues faced by the teeming student users. There are also no guidelines in place for neophytes who are newly handling technology in the classroom, and for such, lowered self-esteem and ultimately mental health problems become inevitable.

In testing the formulated null hypotheses, the findings of this study revealed that there was significant difference in university students' perception of mental health implications of technology mediated instruction based on age. This may have resulted from the experience gained overtime by masters' degree students than undergraduates. Doctoral

students, majority of whom constituted 35years and above did not experience much significant difference compared to 25-35years and the age groups of 15-25 years. This contrasts with the findings of Dixon (2015) who reported that age does not have any statistically significant impact in determining student engagements in online courses or programmes. Also, the finding contrasts with that of Dunn & Kennedy (2019) who, while researching into technology enhanced learning in higher education, revealed that learners' ages have less influence on motivations, engagement and academic achievements as far as use of technology in the classroom is concerned.

The findings further showed that there was no significant difference in university students' perceptions of mental health implications of technology based on level of study. This may have resulted due to the fact that technology use in the classroom is no longer a new phenomenon as students become more aware and acquainted to its use in the classroom. Furthermore, the findings of this study revealed that there was no significant difference in university students' perceptions of the mental health implications of technology from the point of view of their level of exposure to technology. This may have resulted due largely to the fact that majority of the students attested to being moderate users of technology in terms of their exposure to its use, hence, the reason for no statistically significant difference. In similar instance, the findings further revealed that there was no significant difference in university students' perceptions of mental health implication of technology based on socio-economic grouping which was measured by the combined family's monthly incomes of respondents. The finding may have been so due to the fact that there was not much gap in the various income groups as revealed by the results; and also, it may have been because regardless of one's income level, almost everyone is acquainted with at least a technology device, like handset (android or smart phone devices as well as computers) in contemporary times. This largely corroborates the report of the U.S. Department of Education, Office of Educational Technology (2017) which found the need for reinventing technology in higher education because all income groups are well accustomed to technology use.

Conclusion

Based on the findings of this study, it is hereby concluded that; technology mediated instruction or learning is composed of mental health challenges that university students at all levels have to grapple with. This study considered the mental health implications of technology mediated instruction. There is a statistically significant difference in respondents' perception based on their chronological age groups. Respondents did not significantly differ in their views based on their levels of study (diploma, bachelor' degree, masters' degree or doctoral degree levels), levels of exposure to technology, as well as combined family's monthly incomes (to determine the socio-economic standing of each student). Combined individual factors such as health related issues, social related issues as well as school and lecturer (tutor) related factors are major issues breeding mental health challenges for university students as they engage in the use of technology driven devices for classroom activities as well as the course of their training in the university irrespective of programme being studied by each student.

Recommendations

Based on the findings and conclusion of this study, the following recommendations are made:

i. Adequate checks and balances should be put in place by university authorities to ensure that lecturers and tutors alike make appropriate use of technology in the classroom, and not allow it replace the needed explanations of each concept to students.

ii. Students should be encouraged to do regular or periodic medical check-ups. This is necessary because of the influx of technological devices in the teaching-learning process, so as to be able to nip health hazards related to its use in the bud through regular medical examinations before it escalates.

iii. Students may also be taught some self-monitoring skills to help in keeping track of their activities while engaging in the use of technology in the classroom. This could assist in helping them prioritize their tasks well and do what ought to be done at appropriate times, including eating, sleeping and the likes.

iv. There is the need to incorporate students' activities into the technology mediated instruction in order to adequately carry them along in the teaching learning process, and not make learning boring to them by way of monotonous routines directed only by the lecturer.

v. It is also important to constantly remind lecturers on the need to plan their lectures in manners that learners' interests, situations and levels are adequately cared for.

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