The Effects of Technology Adaptation on Students' Discipline in Public Secondary Schools in Nyamagana District, Tanzania

Theresia Silas
Ministry of Education, Science, and Technology, Tanzania

Prospery M. Mwila
School of Education, Saint Augustine University, Tanzania

ABSTRACT

Technology has been employed to streamline the process of acquiring knowledge and engaging in various endeavours, exemplified by the utilisation of computers. According to Dhiman (2021), there is a prevailing perception that secondary school students exhibit worse manners and earn lower academic outcomes as a result of their excessive use of mobile devices. The unregulated and extensive utilisation of technology has been found to have detrimental consequences on students' self-control and discipline, primarily due to their exposure to various media platforms, television videos, and cell phones, among other technical gadgets. This study was conducted to assess the effects of technology adaptation on students' discipline in public secondary schools in Nyamagana. The theoretical foundation for this study is aligned to Bandura's social learning theory and the Technological Acceptance Model by Davis. The study employed a mixed methods sequential exploratory research design in which data were collected through questionnaires and interviews. The data collected were analysed using both quantitative and qualitative techniques, and the results of the quantitative analysis show a positive and significant relationship between smartphone use and student discipline (β = -228, p, <.001). The results further explain that a 1-unit increase in smartphone use affects student discipline by 23.6%. Moreover, the findings indicate a positive and significant relationship between watching television and the effects on student discipline (β =.315, p<.003). The results are interpreted to mean that a 1-unit increase in watching television affects the behaviours of students by approximately 35%. On the other hand, among social media users there is a positive and significant relationship between social media use and the discipline of students (β =.010, p<.000). Last, the findings for online gaming show that while there was a relationship between online gaming and student discipline, but it was negative and not statistically significant (β = -064, p<.689). This study recommends that policy makers should take into consideration the integration of the effects of using electronic devices on secondary school students' discipline in education policy to simplify the implementation of ways of avoiding those effects. Additionally, the study recommends that teachers should ensure the implementation of the restrictions put on the use of mobile phones in schools, and education should be provided for parents and the general community on the importance of limiting students from spending much time on electronic devices.

Keywords: effects of technology adaptation; discipline; technology adoption; secondary school students; Tanzania

INTRODUCTION

The use of technology is becoming an unavoidable part of peoples' lives, and it will continue to develop over time, resulting in an effect on the way we live, work and communicate (Aloqaili et al., 2019). According to Alghamdi (2017), this age is considered to be the age of science and technology. It is time in which youths grow with technology at their fingertips. The growing domain

of the Internet and social media applications has attracted interest from youths (Carstens et al., 2021). The use of computers, televisions, tablets, free Wi-Fi, gaming systems, and electronic-based toys has become unavoidable because of the increased growth of science and technology in the modern world (Carstens et al., 2021; Alghamdi, 2017). These factors have simplified the implementation of different activities in everyday life. For example, Rabiu et al., (2016) noted that mobile phones are the most necessary medium of communication for adolescents. It has virtually affected society's accessibility, security, safety and coordination of business and social activities, while Roy (2019) argued that technology has digitised classrooms through digital learning tools such as computers, iPads, smartphones and smart digital white boards. It has expanded opportunities for course offerings and has increased students' engagement and motivation towards learning. It is impossible to separate humanity from technology since the new generation is growing up and living with it (Roy, 2019). It is therefore inevitable for students in secondary schools to use technology.

Researchers agree that discipline is a significant human behavioural element without which an organisation cannot work well towards achieving its goals (Simba et al., 2016). Discipline is among the vital elements for a successful teaching-learning process. It is a way of shaping the behaviour of a student and a process of helping a child to display acceptable behaviour as a member of the community (Eshetu, 2014). Discipline at school facilitates the achievement of expectations and goals. It plays an important role in helping learners acquire a sense of responsibility and helps eliminate disruptive behaviour amongst learners (Njoroge & Nyabuto, 2014). However, when students reject obeying school rules, indiscipline occurs. A lack of discipline in school causes an ineffective teaching-learning process, which results in poor performance (Eshetu, 2014). Wayson & Pinnell (1994), as cited in Omote et al. (2015), asserted then, that students' indisciplined acts had increased worldwide, leading to great concern among education administrators, teachers and stakeholders. In Cameroon, for example, due to indiscipline, students were found to be uncontrollable and very disrespectful to teachers, administrators, parents, other members of society and themselves. While the exact cause of such indisciplined behaviour had not been identified (Ngwokabuenui, 2015), they displayed various indiscipline behaviours, such as watching and practicing pornography; telling lies; dishonesty; violence; disobedience to teachers, prefects and heads of schools; rapping fellow students; consumption of alcohol; confronting and stabbing teachers in schools; vandalism; lateness to school; cultism; drug abuse; insulting/assaulting; stealing; and rioting.

LITERATURE REVIEW

Theoretical Framework

Social Learning Theory

This study was guided by the theory of social learning (SLT). Historically, the theory of social learning (SLT) was proposed by Bandura in 1975 based on traditional learning theories (Strauch & Al Omar 2014). Bandura believed that direct reinforcement alone could not satisfactorily explain all types of learning (Lyons & Berge, 2012; Nabavi, 2012). Strauch & Al Omar (2014), citing Bandura (1976), argued that Bandura stated that learning would be tiresome if people depended only on the effects of their actions to tell them what to do. It is fortunate that people learn most human behaviour by modelling; that is, by observing what others do, a person develops an idea of how to perform new behaviours, and as time goes, this coded knowledge acts as a guide for action. Bandura therefore added a social element, saying that it is possible for people to learn new information and behaviour by watching others. According to Nabavi (2012), this theory is based on the view that people in general learn from their interactions with others in a social context where people observe the behaviour of others and then develop the same behaviour. According to this theory, after people have observed the behaviour of others, they assimilate and imitate that

behaviour, particularly if those people's observational experiences are positive and/or involve rewards connected to the behaviour observed. Social learning theory asserts that people learn from one another through three principles: observation, imitation and modelling.

Technological Acceptance Theory

The technological acceptance model was developed by Davis in 1989, and this model explains the usage behaviours of new technology. The model has been used to explain the general determinants of acceptance that lead to user behaviours across a broad range of end-user computing technologies and user populations (Lai & Zainal 2015). The basic model included and tested two basic beliefs: perceived usefulness (PU) and perceived ease of use (PEU). Perceived usefulness is defined as the potential user's subjective likelihood that the use of a certain system will improve his/her action, and perceived ease of use refers to the degree to which the potential user expects use of the target system to be effortless. The belief towards a system may be influenced by other factors referred to as external variables in TAM. According to Venkatesh (2003), the final version of the technological acceptance model shows that the attributes of TAM according to Davis were associated with behaviour intention; thus, Venkatesh (2003) added another attribute to the existing determinants, namely, social influence, which can be used in testing the applicability of technological development. The TAM model was developed as the framework for predicting technology adoption; thus, the TAM can analyse factors of adoption intention beyond the perception of convenience and usefulness (Shih & Fang, 2006). Although TAM has received much attention, it has focused on the effects of the perception of technology's usefulness and convenience and adoption intentions. Thus, it is favourable for determining use of novelty technology, such as the single platform that is available for teaching and learning students.

Empirical Literature Review

The use of technology in our daily life is of great advantage because it simplifies the implementation of various activities easily. It can also be used as a source of entertainment. Bal (2013) in the study entitled "The mobile phones usage habits and motivations in the age of technology" as cited in Ince & Kiliç (2016) discussed students use of mobile phones as fashion or status, functionality/socialisation, entertainment/relaxation, mobility and being informed. This indicates that some students use mobile phones just as a fashion, while others use them for socialisation, such as messaging or chatting. Still others use mobile phones for entertainment, such as viewing movies, which today has influenced society. These factors affect students' behaviour positively or negatively (Azeem & Manan, 2020).

Kimbrough et al., (2017), in a study of students' perception of cell phones in the classroom, noted that students spend most of the time texting, browsing the web, sending and receiving email, listening to music and on Facebook. Cohan (2016), in her work on cell phones and college students, added that students are ready to reject plans with friends to remain with their phones. Students and other people can also use mobile phones to play games, watch movies, shop and retrieve or obtain anything they like in the world. Obsessive cell phone use is a problem (Roberts & Williams, 2016), as cited in Kimbrough et al., (2017). These are some of the uses to which some of the students put their mobile phones, and sometimes they stretch into the classroom where more than 95% of students reported having used their phones in the classroom (McCoy, 2013), as cited in (Kimbrough, 2017). Tezci & Içen (2017), studying high school students' social media usage habits, listed the uses of mobile phones, including communication through social media, where students can interact with their teachers easily, create materials and share materials among themselves and between students and their teachers. This shows that mobile phones facilitate learning and make learners active in the process of teaching and learning.

Earlier research shows that in Tanzania, the use of mobile phones has been rapidly growing (Kafyulilo, 2014). In some places, mobile phones have been used in the process of teaching and

learning, as in projects such as Bridge IT. In this kind of project, teachers downloaded videos on mathematics, science and HIV/AIDS education and watched them together with students as part of their regular classroom lessons. This motivated learners and reduced the time spent by teachers for lesson planning. However, the project did not provide a chance for learners to access resources themselves through mobile phones (Joyce-Gibbons et al., 2018). Television, as another technological device of this study's focus, is also used by students. The majority of the students watch television either at home or in other places. Like mobile phones, television can be used for learning and entertainment. However, the majority of people, including students, have used it mainly for enjoyment (Almasi, 2010) through movies and films (Kubrak, 2020). In addition, students have used television to obtain various information, such as commercial information and entertainment (Tarekegn & Endris, 2019). With the introduction of digital and satellite technologies, there have been many programmes on television, such as programmes on education, weather forecasting, news, culture, sports, music and many others of both good quality and appropriate content (Santrock, 2005), as cited in Tarekegn & Endris (2019).

Cyber bullying is another use to which students put their phones, and it is spread all over the world. Burton & Leoschut (2013), as cited in Joyce-Gibbons et al. (2018), asserted that "20.9% of South African students participating in their study had experienced some form of cyber bullying or online violence" (p. 76) and added that the figure seemed to be growing quickly. Porter et al. (2016) mentioned that pornography circulates through mobile phones and is widespread. This use of mobile phones distracts students' discipline. In a study conducted by Divan et al., (2010) on cell phone use and behavioural problems in young children that analysed a separate group of mothers and children from the Danish National Birth Cohort (DNBC), researchers found that "exposure to cell phones is increasingly becoming prevalent among children at younger ages" (p. 1) and added that the use of smartphones, similar to media platforms, had spread widely among adolescents and adults. Despite the merits of using smartphones and other cell phones, such as simplifying communication and searching for information from the Internet, much exposure of children to the use of smartphones has been reported to have negative effects.

Mustafaoğlu et al., (2018), in their study on the negative effects of digital technology usage on children's development and health in the US, noted that both children and adolescents today grow exposed to traditional and modern technology. The use of traditional technology such as television and its content had negative effects on children's development and health, while the use of modern technology such as smartphones had health risks for children, including developmental problems, musculoskeletal problems, physical inactivity, obesity, and inadequate sleep quality. These factors negatively affected the discipline of children. Agarwal & Dhanasekaran (2012), in their study on the harmful effects of media on children and adolescents, reported that a national survey in the US found that children aged 8 to 18 years had an average media usage time of 7 hours and 38 minutes every day. The same trend, although on a lower scale, was also found in India, where children spent two hours of their time on television every day. Exposure of children to media has been found to have negative impacts on their physical, psychological and social development, particularly violence and aggression; nutrition, obesity, and eating disorders; substance use; and early participation in sexual affairs. The discipline behaviour that develops in children as a result of exposure to media affects even their school life, such as poor attendance at school and low academic performance. These behaviours express indiscipline in school-going children and adolescents.

According to Nyongesa et al., (2019 p. 63), the media platform "technologies now include blogs, wikis, media (audio, photo, video, text) sharing tools, networking platforms (including Facebook, WhatsApp), and virtual worlds." These technologies are very useful but detrimental to students and other children. Students should be protected from inappropriate content to avoid harming them. Teachers and parents should monitor what students share, and stop unnecessary use of mobile devices and television. As noted by Nyongesa et al., (2010) and Manipod (2020), students should

be guided on what content they should watch or read. Again, students should be allowed limited time to use media platforms, mobile devices and television. Parents must monitor the time students use technology. Parents can use some of their time with their children doing outdoor recreational activities on a regular basis to be equipped to face the real world and avoid the negative aspects of technology from affecting their children (Alghamdi, 2017).

METHODOLOGY

This study was guided by a mixed method exploratory sequential research design. The study was conducted in Nyamagana District. Nyamagana District is one of the districts that make up the Mwanza region, Tanzania. The district lies between latitudes 2^0 31' 0' south and longitudes 32^0 53' 59' east. With reference to its borders, to the north, the district is bordered by Ilemela District, to the east by Magu District, to the south by Misungwi District and to the west by Lake Victoria. The district has 18 administrative wards, 19 villages and 931 hamlets. Based on the nature of education, the area has 80 public primary schools, 31 public secondary schools, one university and three branches of universities.

The target population for the study and the sample along with the sampling techniques used are shown in Table 1 below.

Table 1: Target population and sample size matrix

Category	Target population	Sample size	Percentage	Sampling techniques
Class Teachers	20	10	8.4	Purposive
Sec. School Students	8675	99	83.2	Simple
Deputy School Heads	5	5	4.2	random
Discipline Teachers	5	5	4.2	Purposive
				Purposive
Total	8705	119	100.0	

In this study, semi structured interviews and questionnaires were employed for data collection, however the focus of the reporting on findings in this article is limited to the quantitative method.

The demographic data for the secondary school respondents is shown in Table 2 below. 49.5 percent of the students were female public secondary school students and 50.5 percent were male public secondary school students. Additionally, respondents between 17 and 18 years accounted for 38.4 percent, followed by those between 15 and 16 years at 31.3 percent. Students between 13 and 14 years accounted for 18.2 percent, while those between 19 and 20 years accounted for 12 percent. This indicates that the majority of the respondents were above 14 years old (81.8 percent). This implies that respondents were of the appropriate age to provide the needed information for the study. The respondents were public secondary school students at different levels of secondary education, where 24.24 percent were Form I students, 25.25 percent were Form II students, 25.25 percent were Form III students and 25.25 percent were Form IV students. The majority of the respondents were Form III to IV students (75.75 percent), and were of the appropriate level of education with good experience of secondary education to be able to provide the needed information for the study.

Table 2: Secondary School Students' Demographic Information (n-99)

Characteristic	Category	Frequency	Percentage
Gender	Male	50	50.50
	Female	49	49.50
	Total	**99**	**100.00**
Age (years)	13-14 years	18	18.20
	15- 16 years	31	31.30
	17- 18 years	38	38.40
	19- 20 years	12	12.10
	Total	**99**	**100.00**
Educational Level	Form I	24	24.25
	Form II	25	25.25
	Form III	25	25.25
	Form IV	25	25.25
	Total	**90**	**100.00**

FINDINGS

The response rate for the participants involved in the study was 100% among the deputy head of school, class teachers, students and discipline teachers. This study therefore succeeded in gathering all the necessary data needed to answer the research questions. This study considered the response rate sufficient for making inferences and drawing conclusions from the data collected from respondents because all respondents participated fully in the study. The response rate data is shown in Table 3 below.

Table 3: Response Rate

No	Categories	Sample	Respondents	Percentage
1	Deputy Heads of Schools	5	5	100
2	Discipline Teachers	5	5	100
3	Class Teachers	10	10	100
4	Secondary School Students	99	99	100
	Total	**119**	**119**	

Testing Sample Adequacy for Exploratory Factor Analysis

Exploratory factor analysis (EFA) is a scientific procedure in SPSS that is used to confirm whether the indicator statements given to respondents fit within their specified variables (Conway & Huffcutt 2003).

Table 4: Exploratory Factor Analysis

CODE	Types of Technologies Used by Students in Public Secondary Schools	Loading
TU1	The students prefer to use smartphone	.976
TU2	They mostly like to spend their time watching television	.947
TU3	Recently, students also spend time in social media	.920
TU4	In other situation students like to play games very much	.977
TU5	Sometime when they have access, they use internet services	.976
TU6	Most of them use all technologies mention in the above	.790
TU7	I don't use any of the above technological aspects	.539

The data in Table 4 above illustrated the results of the EFA with VARIMAX rotation to confirm whether they all fit within the specified constructs. EFA sets an automatic default requirement of a

factor. A benchmark of 0.60 was set in SPSS for the inclusion of indicators in their expected factor, Osborne 2015). The initial EFA results showed that all the indicators merged well within their factors. Additionally, Kaiser Meyer Okline KMO and Bartlett's Test of Sphericity were checked with EFA. KMO is a measure of sampling adequacy, and a confirmation of the indicators in the constructs was performed.

Table 5: *KMO and Bartlett's Test*

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		.754
Bartlett's Test of Sphericity	Approx. Chi-Square	3883.104
	df	15
	Sig.	.000

The results in Table 5 above show that the KMO value was 754 and Bertler's Test of Sphericity with Approx. Chi Square was 3883.104, which was significant at .000. The results showed acceptable sampling adequacy as per O'Brien & Scott (2012) on EFA and sampling criteria. They suggested that KMO above 50% (0.50) with a Sig. value of .000 is deemed adequate factor loading; hence, the study can proceed for further parametric analysis.

The factors were therefore combined using the transform command in SPSS. This procedure enabled the study to merge the statement and each variable of the questionnaire to form one construct ready for test validity, reliability and autocorrelation. Tests of linearity were conducted, the results of which are shown in Table 6 below. The results show that the overall correlation between technology adoption and students' discipline was 0.01, which depicts a positive and significant relationship. The results specifically show that smartphone use is positively correlated with students' discipline (r (109)>.088, p<.000). In the same vein, the results for Watching Television (r (109)> 107, p<.002), also shows a positive and significant correlation with student discipline. On the other hand, social media use (r (109)>.600, p<.000), indicated a positive and significant correlation with students' discipline. Moreover, the results show that Internet Services (r (109)>377, p<.000, has a positive and significant relationship with student discipline. Last, Online Gaming (r (109)> -.089, p<.103), is not statistically significant for student discipline.

Table 6: *Linearity Tests*

		Students Discipline	Smartphone	Television	Social Media	Internet Service	Gaming
Students Discipline	Pearson (r)	1					
	Sig. (2-tailed)						
	N	58					
Smartphone	Pearson (r)	.088	1				
	Sig. (2-tailed)	.005					
	N	58	109				
Television	Pearson (r)	.158	.107	1			
	Sig. (2-tailed)	.237	.002				
	N	58	109	109			
Social Media	Pearson (r)	.049	-.212*	.600**	1		
	Sig. (2-tailed)	.714	.027	.000			
	N	58	109	109	109		
Internet Service	Pearson (r)	-.178	-.187	.108	.377**	1	
	Sig. (2-tailed)	.182	.052	.264	.000		
	N	58	109	109	109	109	
Gaming	Pearson (r)	.034	.101	.404**	.235*	-.089	1
	Sig. (2-tailed)	.797	.294	.000	.014	.103	
	N	109	109	109	109	109	109

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7: *Model Summary[b]*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.787[a]	.714	.688	3.128	1.666

The data in Table 7 above shows the results for the model of five independent variables/predictors (smartphone, television, social media, Internet and gaming), which were regressed against one dependent variable, student's discipline. The regression (R) value was .787 with a standardised error of estimate of 3.128. Furthermore, the model summary depicted an R square of 714 and an adjusted R square of .688. The results indicate that the regression Model can be explained by the five indicators by 71.4% adjusted to 68.8%. Additionally, the Durbin Watson test of autocorrelation recorded a value of 1.571, which suggests that no autocorrelation of the residual was violated, hence permitting further reporting of the regression results (Cohen, 2018).

Table 8: *ANOVA[a]*

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8.484	5	1.697	28.334	.000[b]
1	Residual	66.137	52	1.272		
	Total	74.621	57			

The results of the test of ANOVA are shown in Table 8 above. ANOVA was used to identify any interaction effects between variables and within the groups, hence providing confirmation for further analysis (Kumar, 2013). One-way ANOVA was run to relate the mean of technology adoption and students' discipline. The F Test of 28.334 confirmed the relationship between the adoption of technology and students' discipline, which was significant at.000.

Table 9: *Regression Coefficients[a]*

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	4.151	.748		5.546	.000
	Smartphone	.236	.156	-.228	-1.510	.001
	Television	.350	.232	.315	1.509	.003
1	Social Media	.209	.182	.010	.050	.000
	Internet Service	.391	.117	-.257	-1.638	.002
	Gaming	-.254	.134	-.064	-.403	.689

The results in Table 9 above show that the use of smartphones (β = -228, p, <.001), has a positive and significant relationship with students' discipline. The results further explain why a 1-unit increase in smartphone use affects students' discipline by 23.6%. Moreover, the findings show that the use of television (β =.315, p<.003), has a positive and significant relationship with student discipline. The results are interpreted to mean that a 1-unit increase in watching television affects the behaviours of students by approximately 35%. On the other hand, Social Media Use (β =.010, p<.000), has a positive and significant relationship with discipline of students. The results further show that a 1-unit increase in social media use affects discipline of students by approximately 20.9%. Further regression results show that Internet Services (β = -257, p<.002), has a positive

and significant relationship with student behaviour. The results also show that a 1-unit increase in Internet use affects student discipline for approximately 39.1% of the respondents. Last, online gaming (β = -064, p<.689), has a negative and statistically insignificant relationship with student discipline.

DISCUSSION OF FINDINGS

Types of Technological Devices Used by Students

The first research objective aimed to assess the technologies used by secondary school students in Nyamagana. The results obtained through the regression coefficient show that there is a positive and significant relationship between smartphone use and students' discipline. Moreover, the findings show that there is a positive and significant relationship between watching television and the effects of student discipline. On the other hand, an increase in social media use affects students' discipline. An increase in Internet use affects students' discipline for approximately 39.1% of the respondents. Last, online gaming has a relationship with student discipline; however, this relationship was negative and not statistically significant. These findings are supported by Abdullah & Rahmans (2017) and Bar-ons (2015), whose studies reported negative effects of media on students' behaviour as developing violence and aggression, drug abuse, low school academic performance and depression. The information also supports Agarwal & Dhanasekaran (2012), who noted that children do not have the abilities of adult reasoning and may perceive TV shows as being realistic, which may shape their behaviours accordingly. This is in line with the views of Tezci & Içens (2017), whose study lists the uses of mobile phones, including communication through social media, where students can interact with their teachers easily, create materials and share materials among themselves and between students and their teachers. This indicates that mobile phones facilitate learning and motivate learners in the process of teaching and learning. All these behavioural practices can be learned or developed as a result of watching people doing them through media platforms. There is support for these views in the tenets of social learning theory (SLT), which guided this study that learning would be tiresome if people depended only on the effects of their actions to tell them what to do, but that people learn most human behaviour by modelling, which means that by observing what other people do, a person develops an idea of how to perform new behaviours, and as time goes, this coded knowledge acts as a guide for action. This implies, according to Bandura, that it is possible for people to learn new information and behaviour by watching others (Strauch & Al Omar 2014, citing Bandura, 1976).

Effects of Technology Usage on Students Discipline

In this research objective, the main concern was the effects of technology on the discipline of students in secondary schools in Nyamagana. This objective concentrated on the negative effects that technology has on student discipline. The results show that social media exposes students to bullying and other forms of violence, hence affecting their discipline. Social media can influence student development of violent behavioural patterns. Constantly watching television causes students to imitate what they have seen in television; hence, it affects their mental development. Uncontrolled use of smartphones also causes school students to develop immoral behaviour, and it was noted that uncontrolled use of smartphones causes students to be involved in early sexual relationships. Some content shown on television is just not suitable for children while the Internet provides access to immoral content to students. Additionally, Internet services encourage cheating among students, and Internet services retard the mental development of students. Games cause students to practice truancy, leading to low academic performance. Finally, gaming platforms make public secondary school students inactive. The findings of this study show that the effects of technology on students' discipline are positive and significant. The effects of technology on students' discipline are also supported by Hwang et al., (2012), as cited in Dhiman (2021), who reported that a study conducted on smartphone users showed that higher use levels of

smartphones resulted in higher depression levels and anxiety in comparison to the normal uses of smartphones. The study conducted by Berger (2013), as cited in Dhiman (2021), also indicated that students who overuse mobile phones seemed to have lower grades, higher anxiety and less happiness than students who had no frequency of using mobile phones. Mustafaoğlu et al., (2018) noted that both children and adolescents have been exposed to traditional and modern technology. The use of traditional technology such as television and its content have negative effects on children's development and health, while the use of modern technology such as smartphones has health risks for children, including developmental problems, musculoskeletal problems, physical inactivity, obesity, and inadequate sleep quality. Agarwal & Dhanasekaran (2012) found that children aged 8 to 18 years had an average media usage time of 7 hours and 38 minutes every day. The trend was also found in India, where children spent two hours of their time on television every day. Exposure of children to media has been found to have negative impacts on their physical, psychological and social development, particularly violence and aggression; nutrition, obesity, and eating disorders; substance use; and early participation in sexual affairs.

Strategies for Avoiding the Effects of Technology on Students' Discipline

In this objective, the study intended to assess the strategies to be used to avoid the effect of technology on the discipline of students in secondary school. The results show that there is a need to ensure monitoring what students watch and share, in the same vein stopping students from unnecessary use of smartphones and computers, limiting the time for students to use media platforms, smartphones, television and computers, selecting programs for students to watch, parents and students to watch programs together and then discussing the content, and finally protecting students from inappropriate content. The responses included the following to be considered as strategies for enabling students to avoid the effects of using media platforms, television and smartphones: educating students on how to use those electronic devices for positive effects; advising students on the advantages and disadvantages of using media platforms, television and smartphones; monitor students' and limit students' use of media platforms, televisions and smartphones; if possible, prohibit students from owning smartphones at that level of education; selecting programmes for students to watch; parents to ensure that children do not spend much time watching television or being exposed to other electronic devices; students should be given other activities such as homework to ensure that they spend most of the time doing other activities, including studying; and parents have to watch some programmes together with their children and tell them the effects of spending much time on electronic devices and watching harmful programmes for their behavioural discipline and learning. Nyongesa et al., (2019 p. 63) noted that media platform "technologies now include blogs, wikis, media (audio, photo, video, text) sharing tools, networking platforms (including Facebook, WhatsApp), and virtual worlds." These technologies are very useful but detrimental to students. Students should be protected from inappropriate content to avoid harming them. Teachers and parents should monitor what students share and stop unnecessary use of mobile devices and television. They should be guided on what content they should watch or read (Nyongesa et al., 2010 & Manipod, 2020). Again, students should be allowed limited time to use media platforms, mobile devices and television. Parents must monitor the time students use of technology. Parents can use some of their time with their children doing outdoor recreational activities on a regular basis to avoid the negative aspects of technology from affecting their children (Alghamdi, 2017).

CONCLUSION

Technology has been employed to streamline the process of acquiring knowledge and engaging in various endeavours, exemplified by the utilisation of computers. According to Dhiman (2021), there is a prevailing perception that secondary school students exhibit worse manners and earn lower academic outcomes as a result of their excessive use of mobile devices. The unregulated and extensive utilisation of technology has been found to have detrimental consequences on students'

self-control and discipline, primarily due to their exposure to various media platforms, television videos, and mobile phones, among other technical gadgets.

Based on the summary of the study in this section, the study findings reveal different effects of using mobile phones and television on students' discipline in public secondary schools in Nyamagana District. These effects, as discussed include developing the behaviour of substance use; early sexual relationships; violent behavioural discipline; aggressive behavioural discipline such as the use of abusive language; practising truancy leading to low academic performance; limiting students from focusing on academic matters and spending more time on television, which may result in low performance, leading to conflict between students and teachers and between students and their parents.

RECOMMENDATIONS

The study recommends that policy makers should take into consideration the integration of the effects of using electronic devices on secondary school students' discipline in education policy to simplify the implementation of ways of avoiding those effects. Again, the study recommends that educational leaders at the ministerial, regional and district levels should place and continue to insist on banning the use of mobile phones in school and educate parents so that they can limit students use of electronic devices. Additionally, the study recommends that teachers should ensure the implementation of the restrictions put on the use of mobile phones in schools, and education should be provided for parents and the general community on the importance of limiting students from spending much time on electronic devices. Parents should also be educated on the strategies of helping children avoid the effects of using electronic devices. Once again, students should be educated and given advice on safe and advantageous ways of using electronic devices so that they can avoid negative effects and hence maximise learning.

Recommendations for Further Research

The study recommends the following for further research:

A similar study should be conducted in a different district, especially in rural areas within the country, to establish whether similar effects of technological devices are experienced by students in other parts of the country. Another similar study to be conducted in private secondary schools to determine whether students in those schools use electronic devices in a way that results in negative effects on the majority of the students, more so on academic performance.

REFERENCES

Abdullah, M. & Rahman, N. A. (2017). *Effects of TV crime shows on behavioral development of children.* https://www.researchgate.net/publication/313271014 SHS Web of Conferences 33:00077 DOI:10.1051/shsconf/20173300077

Agarwal, V. & Dhanasekaran, S. 2012. Harmful effects of media on children and adolescents *Journal of Indian Association for Child and Adolescent Mental Health,* vol. 4, no. 2, pp. 38-45.

Agyem, J. A., Dickson, A. & Hussein, E. K. (2018*).* Theoretical and conceptual framework: Mandatory ingredients of a quality research*. International Journal of Scientific Research,* vol. 7, no.1, pp. 438-441.

Alghamdi, Y. (2017). *Negative effects of technology on children of today.*
https://www.researchgate.net/publication/318851694
DOI:10.13140/RG.2.2.35724.62089

Almasi, M. (2010). *The effects of television viewing on children's learning in Ilala District.* Thesis.
https://www.researchgate.net/publication/349407384.

Aloqaili, S., Alharthy, R., Alsaudon, S. & Alshaalan, R. (2019). Technology in the workplace.
Research   Paper, https://www.researchgate.net/publication/342106878.

Aurelius, M. (2017).   *Ethical Issues in Qualitative Research*. Sage.

Azeem, M. & Manan, J. A., (2020). *Impacts of movies in different aspects*. Jiya Mughal University
of the Punjab.

Bar-on, M. E. (2015). The effects of television on child health: *Implications and recommendations.*
http://adc.bmj.com/

Bhardwaj, P. (2019). Types of sampling in research. *Journal of the Practice of Cardiovascular
Sciences, vol.* 5, no. 3, pp. 157-163.

Bhattacherjee, A. (2012). *Social science research: Principles, methods and practices.* 2nd edition,
http://scholarcommons.usf.edu/oa_textbooks.

Carstens, K. J., Mallon, J. M., Bataineh, M. & Al-Bataineh, A. (2021). Effects of Technology on
Student Learning. *The Turkish Online Journal of Educational Technology,* vol. 20, no.
1, pp. 105-113.

Charles Nechtem Associates, (2021). The Impact of Technology on Children.
https://www.cerritos.edu/hr/_includes/docs/August_2021_The_Impact_of_Technology_on
_Children_ua.pdf

Cohan, D. (2016). Cell Phones and College Students. *Psychology Today.*
https://www.psychologytoday.com/intl/blog/social-lights/201604/cell-phones-and-college-
students

Conway, J. M., & Huffcutt, A. I. (2003). A review and evaluation of exploratory factor analysis
practices in organizational research. *Organizational Research Methods,* vol. 6, no. 2, pp.
147–168. https://doi.org/10.1177/1094428103251541

Creswell, J.W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approach*.
SAGE.

Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-Methods Research: A Discussion on its
Types, Challenges, and Criticisms. *Journal of Practical Studies in Education*, vol. 2, no.
2, pp. 25-36. https://doi.org/10.46809/jpse.v2i2.20

De Lisle, J., (2011). The benefits and challenges of mixing methods and methodologies: Lessons
learnt from implementing qualitatively led mixed methods research designs in Trinidad
and Tobago. *Caribbean Curriculum,* vol. 18, no. 20, pp. 87–120.

Denzin, N. K. & Lincoln, Y. S. (Eds.) (2011). *The SAGE Handbook of Qualitative Research* (5th Ed.) Thousand Oaks, CA:

Dhiman, B. (2021). Impact of Smartphone: A review on negative effects on students*. Palarch's Journal of Archaeology o*f *Egypt/Egyptology,* vol. 18, no. 4, pp. 5710-5718.

Divan, H. A., Kheifets, L., Obel, C. & Olsen, J. (2010). Cell phone use and behavioral problems in young children. *Journal of Epidemiology and Community Health,* vol. 7, no. 12, pp.1-6.

Egunsola, A. O. E (2014). Influence of Home Environment on Academic Performance of Secondary School Students in Agricultural Science in Adamawa State Nigeria. *Journal of Research & Method in Education,* vol. 4, no. 4, pp. 46-53.

Eshetu, A.A. (2014). Indiscipline problems of high school students: The case of Ethio-Japan Hidasse Secondary School (Addis Ababa, Ethiopia). *Journal of Education and Practice*, vol. 5, no. 37, pp. 23-28.

Flinsi, D. M. (2018). Impact of Technology and Social-Media on Children. *International Journal of Pediatric Nursing,* vol. 4, no. 1, pp. 68-77.

Godwill, E. A. (2014). Science and technology in Africa: The key elements and measures for sustainable development. *Global Journal of Science Frontier Research:* G BioTech & Genetics, vol. 14, no. 2, pp. 65-72.

Gottschalk, F. (2019*).* Impacts of technology use on children: Exploring literature on the brain. *Cognition and well-being.* OECD Education Working Paper No. 195.

Howard, S. K. & Mozejko, A. (2015). Considering the history of digital technologies in education. In M. Henderson & G. Romero (Eds.), Teaching and Digital Technologies: *Big Issues and Critical Questions*, pp. 157-168. Port Melbourne, Australia.

Ince, M. L., and Kilic, K. (2016). "The use of teaching styles in youth sport by the views of coaches and athletes: preliminary findings", in: *2016 AIESEP International Conference.* (Laramie, Wyoming, US: University of Wyoming).

Joyce-Gibbons, A.; Galloway, D., Mollel, A., Mgoma, S., Pima, M., & Deogratias, E. (2018). Mobile phone use in two secondary schools in Tanzania. *Education and Information Technologies*, vol. 23, no. 10.1007/s10639-017-9586-1.

Kafyulilo, A. (2014). Access, use and perceptions of teachers and students towards mobile phones as a tool for teaching and learning in Tanzania. *Education and Information Technologies*, vol. 19, no. 10.1007/s10639-012-9207-y.

Kimbrough, A., Kim, S., Cole, M., Brennan, M., & George, O. (2017). Intermittent Access to Ethanol Drinking Facilitates the Transition to Excessive Drinking After Chronic Intermittent Ethanol Vapor Exposure. Alcoholism: *Clinical and Experimental Research,* vol.41, no. 10, 1111/acer.13434.

Krishnaswani, O. R. (2003). *Methodology of research in social sciences.* Delhi, India. Himalaya Publishing House

Kubrak, T. (2020). Impact of Films: Changes in young people's attitudes after watching a movie. *Behavioral Sciences,* vol.10, no. 86, pp. 1-13, www.mdpi.com/journal/behavsci.

Kumar, C.P. (2013), "The eclectic method-theory and its application to the learning of English", *International Journal of Scientific and Research Publications*, vol. 3, no. 6, pp. 1-4, available at: http://www.ijsrp.org/research-paper-0613/ijsrp-p1844.pdf.

Lai, P C. & Zainal, A.A. (2015). Perceived Risk As An Extension To TAM Model: Consumers' Intention To Use A Single Platform E-Payment. *Australian Journal of Basic and Applied Science*s, vol. 9, pp. 323-331.

Lake Zone School Quality Assurance (2020). Lake Zone school quality assurance secondary school whole school evaluation reports.

Lyons, S., & Berge, Z. (2012). Social Learning Theory. 10.1007/978-1-4419-1428-6_1257.

Manipod, V. (2020). *How to combat the negative effects of social media.* Blog Post, King University. https://online.king.edu/news/how-to-combat-the-negative-effects-of-social-media/

Mbawala, M. B. (2017). *An assessment of the implementation of fee free basic education in Tanzania: A case of Ruangwa District Council, Lindi Region.* Open University of Tanzania. https://repository.out.ac.tz/1925/1/DISSERTATION%20-%20Mama%20Saad%20Dissertation%20final1for%20prag%20checkbefore%20setting.pdf

Mustafaoglu, R., Zirek, E., Yasacı, Z., & Ozdincler, A. (2018). The Negative Effects of Digital Technology Usage on Children's Development and Health. https://www.researchgate.net/publication/325263798_The_Negative_Effects_of_Digital_Technology_Usage_on_Children's_Development_and_Health

Nabavi, R.T. (2012) Bandura's Social Learning Theory & Social Cognitive Learning Theory. *Journal of Personality and Social Psychology*, vol. 1, p. 589.

Ngwokabuenui, P. Y. (2015). Students' Indiscipline: Types, Causes and Possible Solutions: The Case of Secondary Schools in Cameroon. *Journal of Education and Practice*, vol. 6, pp. 64-72.

Njoroge, P. M. & Nyabuto, A. N. (2014). Discipline as a Factor in Academic Performance in Kenya. *Journal of Educational and Social Research*, vol. 4, no.1, pp. 289-307.

Nyongesa, S. C., Kiprop, C. & Chumba, S. (2019). School strategies for managing social media influence on students' discipline in Kenyan secondary schools. *International Journal of Education, Learning and Development* vol. 7, no. 10, pp. 62-77.

O'Brien, D., P. Sharkey Scott. (2012). "Correlation and Regression", in Approaches to Quantitative Research – A Guide for Dissertation Students, Ed, Chen, H, Oak Tree Press.

Omote, M. J., Thinguri, R. W. & Moenga, M. E. (2015). a critical analysis of acts of student indiscipline and management strategies employed by school authorities in public high schools in Kenya. *International Journal of Education and Research,* vol. 3, no. 12, pp. 1-10.

Osborne, J. (2015). Practical Work in Science: Misunderstood and Badly Used? *School Science Review*, vol. 96, pp.16-24.

Ouma, M. A., Simatwa, E. M. W. & Serem, T. D. K. (2013). Management of pupil discipline in Kenya: A Case Study of Kisumu Municipality. *Educational Research,* vol. 4, no. 5, pp. 374-386. http://www.interesjournals.org/ER.

Porter, W., Graham, C., Bodily, R., & Sandberg, D. (2016). A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education. *The Internet and Higher Education,* vol. 28, pp. 17-27. 10.1016/j.iheduc.2015.08.003.

Rabiu, H., Muhammed, A. I., Umaru, Y., & Ahmed, H. T. (2016). Impact Of Mobile Phone Usage On Academic Performance Among Secondary School Students In Taraba State, Nigeria. *European Scientific Journal*, ESJ, vol. 12, no. 1, p. 466.

Roy, A. (2019). Technology in Teaching and Learning*. International Journal for Innovation Education and Research*, vol. 7, no. 4, pp. 414-422. DOI:10.31686/ijier.Vol7.Iss4.1433

Shih, Y.Y. and Fang, K. (2006) Effects of Network Quality Attributes on Customer Adoption Intentions of Internet Banking. *Total Quality Management & Business Excellence*, vol.17, pp. 61-77. https://doi.org/10.1080/14783360500249661

Strauch, C., & Alomar, M. (2014). Critical Analysis of Learning Theories and Ideologies and Their Impact on Learning: " Review Article ".pp. 62-77.

Taherdoost, (2016). Validity and reliability of the research instruments: How to test the validation of a questionnaire/survey in research. *International Journal of Academic Research in Management*, vol. 5, no. 3, pp, 28-36.

Tarekegn, A. & Endris, S., (2019). The Relationship between Hours of Television Watching and Academic Achievement of Secondary School Students: The Case of Some Selected Secondary Schools in Harer City. *International Journal of Education & Literacy Studies,* vol. 7, no. 3, pp. 61-67, http://dx.doi.org/10.7575/aiac.ijels.v.7n.3p.61.

Tezci, E., & Içen, M. (2017). High School Student's Social Media Usage habits. *Online Submission*, *Journal of Education and Practice*, vol. 8, no. 27, pp. 99-108

TNBS, (2012). PHC: *Tanzania Regional Profiles.* https://www.nbs.go.tz/index.php/en/rgional-profiles.

Venkatesh, V.M.D.D. (2003) User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, vol. 27, pp. 425-478.

Vincent, F. (2012). An appraisal of the preschool inspection process: Development and testing of preschool inspection checklist and classroom observation form.   *Master's Dissertation*, University of Dodoma.

Welch, D. (2017). *Behaviour change and theories of practice: Contributions, Limitations and Developments.* at: https://www.researchgate.net/publication/322097815

Yin, R. K. (2011). *Qualitative research from start to finish.* New York: Guilford.

_____