Digital Screen Time to the Learners' Well-Being and Behavioral Change

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Abstract

Digital screen time exposure and its relation to well-being and behavioral change is one of the many concerns that learners, parents, and educational institutions are facing nowadays.

The research sought to investigate status of digital screen time exposure and management; and the extent of its relationship to the learners' well-being in terms of self-esteem and socialization, as well as behavioral change with regards to short-temperedness and enthusiasm in learning. Descriptive method using purposive sampling technique was utilized in this study to gather the necessary data from one hundred and one (101) intermediate learners from United Evangelical Church School in Santa Cruz, Laguna.

Learners exposure to television, handheld devices, and laptop/computer is at modest manner. Learners also have high level of self-control and moderate extent in terms of parental guidance. With regards with socialization and self-esteem, learners are at moderate extent. In addition, learners' short-temperedness is at moderate extent while enthusiasm in learning is at great extent. Findings indicated that learners' digital screen time mostly bears significant relationship to their well-being and behavioral change, but not to some extent. Therefore, the null hypotheses stating "digital screen time exposure has no significant relationship on the learners' well-being and behavioral change" and "digital screen time management has no significant relationship on the learners' well-being and behavioral change" are both partially rejected.

The study concluded that digital screen time exposure and management shows partial significant relationship to the learners' well-being and behavioral change. Therefore, the following recommendations were formulated: Parents should consider checking the browser's history of their children's gadgets; Learners must also be aware of the bad effects of too much exposure to gadgets. On the other hand, parents should reinforce proper guidance for the learners; Teachers must play crucial role in building their learners' self-esteem by motivating them. Activities online or face to face that can also promote socialization is highly recommended to be utilized; Parents and teachers should monitor the learners' behavioral patterns and make them feel that their emotions are valid; Educational institutions should strictly follow the given recommendations of professionals and expert with regards to the learners' digital screen time limit. In addition, private schools conducting online class should strictly adhered to DepEd Memorandum DM-CI-2020-00162. Educational institutions should also offer parents' orientation to help them assist their children with their digital screen time and to develop better screen time management. Future researchers must include other relevant variables to give more depth to this topic.

Keywords: Digital Screen time; Parental Guidance; Self-Control; Well-Being; Behavioral Change

1. INTRODUCTION

The world has never experienced the extent and intensity of the COVID-19 pandemic, worse is that a prolonged battle against the virus may lead to some unnecessary effects to the learners' well-being and behavioral change. Educational institutions had suddenly shift from the traditional face-to-face instructions to online virtual platform to ensure its learners welfare; however, this made the learners more exposed to their digital devices.

In respond to the surge of gadget exposure, World Health Organization (2020) proposed rules for how much "screen time" children should be allowed, indicating that children under the age of five should not be permitted more than one hour of screen time each day, and preferably less. WHO is much harsher when it comes to young ones under the age of one year: no screen time at all.

The Department of Health is concerned about the learners' well-being and explained that too much screen time might cause health problems such as tiredness, headaches, loss of enthusiasm, and avoidance/procrastination to the learners.

Furthermore, digital screen time is not just a global issue but a local concern also in the Philippines. Schools have already started online classes in 2020, and students feel secure from the Covid-19 virus since they are learning at home, resulting in a large number of Filipino youngsters engaging in virtual learning, which is a method of teaching that involves video dialogues.

Even before the pandemic lockdowns digital screen time exposure has been a national concern and now it became even more of a problem. Education is necessary for change because it must be adaptable to the ever-changing requirements of society. Teachers and students in the Philippines' educational system were obliged to make severe changes in order to adjust to the new normal as a result of the COVID-19 pandemic.

We are currently living in a modern society where electronics and their use will be expected. Screen time will always be a component of the educational system, even if the pandemic is over. During the shift from the conventional age of education to the new normal education, problems and ideas develop.

The Department of Education (DepEd), Undersecretary for Curriculum and Instruction, Diosdado San Antonio published Memorandum DM-CI-2020-00162, which provides potential techniques for implementing remote learning delivery modalities (DLDM) during the school year (SY) 2020-2021. Online Distance Learning is one of the learning delivery modalities for formal education.

1.1 Statement of the Problem

The purpose of this study is to determine the relationship of digital screen time to the learners' well-being and behavioral change.

Specifically, it sought answers to the following questions:

1. What is the status of the digital screen time exposure as to:

    1.1. television;

    1.2. handheld devices (cellphone/tablet); and

    1.3. laptop/computer?

2. What is the status of the digital screen time management in terms of:

    2.1. self-control; and

    2.2. parental guidance?

3. What is the level of the learners' well-being relative to:

    3.1. socialization; and

    3.2. self-esteem?

4. What is the extent of the learners' behavioral change with regards to:

    4.1. short-temperedness; and

    4.2. enthusiasm in learning?

5. Do the digital screen time exposure have a significant relationship to the learners' well-being and behavioral change?

6. Do the digital screen time management have a significant relationship to the learners' well-being and behavioral change?

2. METHODOLOGY

2.1. Research Design

The descriptive method of research is utilized in this study to serve its purpose which is to determine the relationship of digital screen time to the learners' well-being and behavioral change. Fox et al. (2007) defined descriptive research as to that "aimed at casting light on current issues or problems through a process of data collection that enables them to describe the situation more completely than was possible without employing this method. An important characteristic of descriptive research relates to the fact that while descriptive research can employ a number of variables, only one variable is required to conduct a descriptive study. Three main purposes of descriptive studies can be explained as describing, explaining and validating research findings.

Quantitative research design is also utilized in this study. Quantitative researchers aim to create a general understanding of behavior and other phenomena across different settings and populations (Hoy et al., 2015). Quantitative studies are often fast, focused, scientific and relatable.

The speed and efficiency of the quantitative method are attractive to many researchers. Data computing equipment makes it possible to process and analyze data quickly, even with large sample sizes. Surveys, polls, statistical analysis software and weather thermometers are all examples of instruments used to collect and measure quantitative data (Allen, 2017).

2.2. Research Locale

This study selected United Evangelical Church School learners, specifically Grade four (4) to Grade six (6) learners; with a total number of one hundred and one (101) intermediate learners as respondents. The researcher also limited the study to United Evangelical Church School at Santa Cruz, Laguna wherein the said school is conducting online classes since school year 2020- 2021 up to the present.

This study made used of the purposive sampling in choosing the respondents. Sharma (2017) said purposive sampling, also known as judgmental, selective or subjective sampling, reflects a group of sampling techniques that rely on the judgement of the researcher when it comes to selecting the units that are to be studied.

2.3. Research Instrument

The questionnaire was divided into two parts and made use of the Likert- Scale format. Likert Scale was named after Dr. Rensis Likert, a sociologist at the University of Michigan, who developed the technique. His original report entitled "A Technique for the Measurement of Attitudes" was published in the Archives of Psychology in 1932. His goal was to develop a means of measuring psychological attitudes in a "scientific" way. Specifically, he sought a method that would produce attitude measures that could reasonably be interpreted as measurements on a proper metric scale

The first part of the questionnaire asked for the demographic data of the respondents such as the name (optional), gender, age, and grade level. The second part of the questionnaire is composed of questions that elicited the respondents' screen time exposure to television, handheld devices, and laptop/computer; screen time management in terms of self-control and parental guidance; well-being in terms of socialization and self-esteem; and behavioral change in terms of short-temperedness and enthusiasm.

Screen time exposure and Screen time management questions were adapted from the SCREEN-Q questionnaire used by Klakk et al.(2020). SCREENS-Q aimed to measure children's screen media usage (time and content) and specific screen-media behavior. Socialization questionnaire were adapted from the questionnaire used by You et al., (2016) on his study "Development of the preference for online social interaction scale for Chinese adolescents." Self-esteem questionnaire was adapted from Rosenberg's Self-Esteem Scale (1965) studied by Gnambs et al (2018). Short-temperedness questionnaire was derived from "Questionnaire on Anger" used by Miers et al (2007). And lastly, enthusiasm's questions are derived from Motivated Strategies for Learning Questionnaire of Pintrich (1991) which is adapted and validated by Jackson (2018). The questionnaire was translated into Google form for online gathering of data.

3. RESULTS AND DISCUSSION

Students nowadays are more exposed to digital devices not just leisure but also for academic purposes.

However, digital screen time exposure may affect learners' well-being and behavioral change. In this study, the status of digital screen time exposure was described as to television, handheld devices such as cellphone or tablet, and laptop or computer which was determined by the weighted mean and standard deviation.

Table 1. Learners' Status of Digital Screen Time Exposure as to Television

STATEMENT	Mean	SD	Remarks
I watch television for more than 3 hours every weekday.	2.18	1.10	Seldom
I watch television for more than 3 hours every weekend.	2.70	1.32	Sometimes
I use television for educational purposes.	2.66	1.10	Sometimes
I watch television for entertainment: such as watching movies.	3.65	1.16	Often
I keep the television turned on even I'm not paying attention to it.	2.15	1.42	Seldom
Grand Mean	**2.67**		**Moderate Extent**

Learners from the intermediate level perceived status of digital screen time exposure was moderate extent supported by the mean (M=2.67). This means that the learners spent time watching television reasonably. Kamaku (2021) reinstated that with the growth of the television industry in our media today, there are many programs for teenagers. As a result, they have a plethora of options, including music shows, soap operas, horror films, and cartoons. This is in contrary to the current study findings which revealed that learners have only average to low television exposure.

Table 2. Learners' Status of Digital Screen Time Exposure as to Television Handheld Devices (Cellphone/Tablet)

STATEMENT	Mean	SD	Remarks
I used to check on my phone/ tablet every time.	3.77	1.22	Often
I used my phone/tablet for more than 5 hours every weekday.	2.98	1.41	Sometimes
I use my phone/tablet for more than 5 hours every weekend.	3.39	1.44	Sometimes
I find it difficult to enjoy my day without using my cellphone/tablet even once.	2.81	1.28	Sometimes
I use my phone even when I'm using a laptop or television.	2.39	1.40	Seldom
Grand Mean	**3.07**		**Moderate Extent**

The result above shows that as to handheld devices (cellphone/tablet), learners from the intermediate level perceived that the status of digital screen time exposure was moderate extent supported by the (M=3.07). This means that the learners spent time using handheld devices (cellphone/tablet) with moderation.
It is supported by a study of Munezawa et al. (2011), which concluded that learners nowadays are more likely to use handheld devices because they are the most accessible technologies at all times and in all places. Cell phones are used by even young children. Intermediate learners are supervised by parents, that's why they are not so exposed to gadgets.

Table 3. Learners' Status of Digital Screen Time Exposure as to Laptop/Computer

STATEMENT	Mean	SD	Remarks
I use my laptop/computer every weekday for educational purposes.	4.34	0.97	Always
I use my laptop/computer every weekend for entertainment: such as playing games.	3.21	1.33	Sometimes
My daily usage of a laptop/computer every weekday is more than 4 hours	3.24	1.49	Sometimes
My daily usage of a laptop/computer every weekend is more than 4 hours.	2.84	1.47	Sometimes
I use my laptop along with my other gadgets simultaneously.	2.27	1.33	Seldom
Grand Mean	**3.18**		**Moderate Extent**

The result above shows that as to laptop/computer, learners from the intermediate level perceived that the status of digital screen time exposure was moderate extent supported by the (M=3.18). This means that intermediate learners spent time using laptop/computer with restraint. More likely, Shringi et al (2022) added that laptops in the workplace has significantly increased due to the shift of work from home set up and online learning for children. In addition, Agung (2022) stated that in this pandemic period, online learning is not limited to ensuring the completeness of technology and internet networks, as well as adopting an emergency curriculum and promoting students' mental, emotional, and psychological well-being

Table 4. Learners' Status of Digital Screen Time Management in Terms of Self-control

STATEMENT	Mean	SD	Remarks
If given a choice, I will spend my time on screen-based activities.	3.41	1.23	Often
I desire to use screen media every day	2.91	1.16	Sometimes
As much as possible, I use gadgets and my screen time for school purposes.	3.80	0.99	Often
I use gadgets during weekends, and my free time for leisure.	3.85	1.11	Often
I limit my use of gadgets when I feel it is too much.	3.78	1.21	Often
Grand Mean	**3.55**		**Great Extent**

The result above shows that as to self-control, learners from the intermediate level perceived that the status of digital screen time management was great extent supported by the (M=3.55). This means that intermediate learners can maintain self-control when it comes to utilizing technology appropriately. In accordance to Stavrova et al. (2020) that self-control is a key motivator of choice, but it may also affect their meaning of choice which making it appear less suggestive of preference. During the epidemic, professional associations should revise their screen time guidelines to help families reduce or feel guilty about excessive screen usage.

Table 5. Learners' Status of Digital Screen Time Management in Terms of Parental Guidance

STATEMENT	Mean	SD	Remarks
I must always ask for permission before using gadgets.	3.04	1.49	Sometimes
There are fixed boundaries for how much time I may use gadgets.	3.46	1.20	Often
There are fixed boundaries for when I may use gadgets during the day.	3.34	1.30	Sometimes
There are fixed boundaries for what games I am allowed to play.	3.29	1.49	Sometimes
There are fixed boundaries for what genre of movie, YouTube clips, TV shows, and entertainment programs I may watch.	3.73	1.29	Often
Grand Mean	**3.39**		**Moderate Extent**

Table 5 shows that in terms of parental guidance, learners from the intermediate level perceived that the status of digital screen time management was moderate extent supported by the (M=3.39). This means that intermediate learners have a moderate guidance or interference of their parents with their gadget usage.

Table 6. Level of the Learners' Well-Being Relative to Self-esteem

STATEMENT	Mean	SD	Remarks
I must always ask for permission before using gadgets.	3.04	1.49	Sometimes
There are fixed boundaries for how much time I may use gadgets.	3.46	1.20	Often
There are fixed boundaries for when I may use gadgets during the day.	3.34	1.30	Sometimes
There are fixed boundaries for what games I am allowed to play.	3.29	1.49	Sometimes
There are fixed boundaries for what genre of movie, YouTube clips, TV shows, and entertainment programs I may watch.	3.73	1.29	Often
Grand Mean	**3.39**		**Moderate Extent**

Table 6 shows that in terms of self-esteem, learners from the intermediate level perceived that the level of their well-being was moderate extent supported by the mean (M=3.32). This means that intermediate learners have a moderate self-esteem for their age bracket as they fairly agreed on having a positive self-outlook

Table 7. Level of the Learners' Well-Being Relative to Socialization

STATEMENT	Mean	SD	Remarks
I spend much time communicating with people online every day.	3.52	1.14	Agree
I prefer seeking help online rather than face-to-face if there are any difficulties or problems in my life.	2.58	1.28	Disagree
I prefer to play digital games online with friends rather than play games face-to-face	2.73	1.33	Fairly Agree
I feel more comfortable communicating with others online than during face-to-face interaction.	2.83	1.44	Fairly Agree
I prefer online social interaction over face-to-face communication.	2.60	1.34	Fairly Agree
Grand Mean	**2.86**		**Moderate Extent**

Table 7 shows that in terms of socialization, learners from the intermediate level perceived that the level of their well-being was moderate extent supported by the mean (M=2.86). This meant that intermediate learners are average on socializing whether it's face to face or online.

Table 8. Extent of the Learners' Behavioral Change with Regards to Short-Temperedness

STATEMENT	Mean	SD	Remarks
I often find myself arguing with the people who are closest to me.	2.84	1.35	Fairly Agree
People irritate me when they don't behave the way they should or when someone acts like they don't use their common sense.	2.99	1.24	Fairly Agree
I've been so angry at times I couldn't remember things I said or did.	3.04	1.27	Fairly Agree
I've gotten so angry at times that I've become physically violent, hitting other people or breaking things.	2.11	1.23	Disagree
It's challenging to take frustration so badly that I cannot put it out of my mind.	3.06	1.26	Fairly Agree
Grand Mean	**2.81**		**Moderate Extent**

Table 8 suggests that learners at the intermediate level thought the magnitude of their behavioral change was moderate extent, as corroborated by the mean (M=2.81). This suggested that intermediate learners' short-temperedness exhibited just a minor change in their conduct.

Table 9. Extent of the Learners' Behavioral Change with Regards to Enthusiasm in Learning

STATEMENT	Mean	SD	Remarks
I prefer course material that motivates me to learn new things.	3.92	0.98	Agree
Getting a good grade in the class is the most satisfying thing for me right now.	4.47	0.77	Strongly Agree
When I take tests, I think of the consequences of failing.	3.59	1.26	Agree
I want to do well in this class to show my ability to my family and friends.	4.28	0.95	Strongly Agree
I think I will be able to use what I learn in the lessons taught.	4.32	0.85	Strongly Agree
Grand Mean	**4.11**		**Great Extent**

Table 9 above shows that with regards to enthusiasm in learning, learners from the intermediate level perceived that the extent of their behavioral change was great extent supported by the mean score (M=4.11). This means that intermediate learners, regardless of the educational medium, still have a burning desire to learn. According to Carson et al. (2016), the amount of time children and teenagers spend in front of screens such televisions, computers, tablets, gaming consoles, and cellphones is increasing. Increased screen use in youngsters has been linked to undesirable behavioral patterns and low self-esteem.

Table 10. Significant Relationship between Learners' Digital Screen Time Exposure and Learners' Well-being and Behavioral Change

Variable		r-value	Degree of Correlation	p-value	Analysis
Television Exposure	Self-esteem	0.219	Weak	0.028	Significant
	Socialization	0.345	Weak	0.000	Significant
	Short-temperedness	0.319	Weak	0.001	Significant
	Enthusiasm in Learning	0.244	Weak	0.014	Significant
Handheld Devices Exposure	Self-esteem	0.023	Negligible	0.820	Not Significant
	Socialization	0.545	Moderate	0.000	Significant
	Short-temperedness	0.437	Moderate	0.000	Significant
	Enthusiasm in Learning	0.031	Negligible	0.755	Not Significant
Television Exposure	Self-esteem	0.061	Negligible	0.545	Not Significant
	Socialization	0.397	Weak	0.000	Significant
	Short-temperedness	0.379	Weak	0.000	Significant
	Enthusiasm in Learning	-0.072	Negligible	0.475	Not Significant

It can be seen from the table above that television exposure has weak yet significant correlation to learners' well-being relative to self-esteem and socialization as indicated by the obtained r-values (0.219, 0.345) and p-values (0.028, 0.000) respectively which were both lower than the 0.05 level of significance. On the same note, television exposure also has weak yet significant correlation to learners' behavioral change with regards to short-temperedness and enthusiasm in learning as denoted by the r-values (0.319, 0.244) p-values (0.001, 0.014) respectively which were both lower than the 0.05 level of significance. These meant that the intermediate respondents' exposure to digital devices has a significant relationship to their well-being and behavioral change. Moreover, learners' exposure to handheld devices showed negligible and not significant correlation to their well-being as to self-esteem and their behavioral change as to enthusiasm in learning evident by the r-values (0.023, 0.031) and p-values (0.820, 0.755) correspondingly which were both higher than the 0.05 level of significance. On the contrary, learners' exposure to handheld devices exhibited a moderately significant relationship to their well-being as to socialization and their behavioral change as to short-temperedness as suggested by the r-values (0.545, 0.437) and p-values (0.000, 0.000) sequentially which were both lower than 0.05 level of significance. These further explained that intermediate respondents' self-esteem and enthusiasm in learning shows no relation to their exposure to handheld devices while their socialization and short-temperedness might be influenced by it.

Similar to handheld devices, learners' exposure to laptops/computers also showed negligible and not significant correlation to their well-being as to self-esteem and their behavioral change as to enthusiasm in learning evident by the r-values (0.061, -0.072) and p-values (0.545, 0.475) correspondingly which were both higher than the 0.05 level of significance. However, learners' exposure to laptops/computers revealed weak but significant relationship to their well-being as to socialization and their behavioral change as to short-temperedness as implied by the r-values (0.397, 0.379) and p-values (0.000, 0.000) respectively which were both lower than 0.05 level of significance. These further explicate that respondents' self-esteem and enthusiasm in learning were not determined by how expose they were to laptops/computer nevertheless their socialization and short-temperedness may be defined by the manner of their exposure to these digital devices.

Table 11. Significant Relationship between Learners' Digital Screen Time Management and Learners' Well-being and Behavioral Change

	Variable	r-value	Degree of Correlation	p-value	Analysis
Self-Control	Self-esteem	0.366	Weak	0.000	Significant
	Socialization	0.320	Weak	0.001	Significant
	Short-temperedness	0.340	Weak	0.001	Significant
	Enthusiasm in Learning	0.226	Weak	0.023	Significant
Parental Guidance	Self-esteem	0.385	Weak	0.000	Significant
	Socialization	-0.076	Negligible	0.450	Not Significant
	Short-temperedness	-0.199	Negligible	0.047	Significant
	Enthusiasm in Learning	0.357	Weak	0.000	Significant

As seen from the table above that digital screen time management as to self-control has weak, yet significant correlation to learners' well-being relative to self-esteem and socialization as indicated by the obtained r-values (0.366, 0.320) and p-values (0.000, 0.001) respectively which were both lower than the 0.05 level of significance. On the same note, self-control also has weak and significant correlation to learners' behavioral change with regards to short-temperedness and enthusiasm in learning as denoted by the r-values (0.340, 0.226) p-values (0.001, 0.023) respectively which were both lower than the 0.05 level of significance. These meant that intermediate respondents' self-control has significant relationship to their well-being and behavioral change.

In addition, intermediate learners' screen time management as to parental guidance has weak yet significant correlation to their well-being as to self-esteem and behavioral change as to enthusiasm in learning evident by the r-values (0.385, 0.357) and p-values (0.000, 0.000) correspondingly which were both lower than the 0.05 level of significance. In contrary, intermediate learners' parental guidance exhibited negligible correlation and not significant relationship to their well-being as to socialization suggested by the r-value (-0.076) and p-value (0.450) which is higher than 0.05 level of significance. On the other hand, their parental guidance as to short-temperedness is interpreted as negligible, yet there is a significant relationship supported by the r-value (-0.199) and p-value (0.047) which is lower than 0.05 level of significance. These further explained that intermediate respondents' well-being as to self-esteem and behavioral change in terms of short temperedness and enthusiasm in learning shows significant relationship to their screen time management with regards to parental guidance while socialization and their parental guidance is not related at all.

4. CONCLUSIONS

Digital screen time exposure of the intermediate learners as to television revealed a significant relationship to their well-being and behavioral change. Handheld devices and laptop/computer exposure show also a significant relationship to the learners, yet not significantly related to their self-esteem and enthusiasm in learning. Therefore, the null hypothesis which stated that "digital screen time exposure has no significant relationship on the learners' well-being and behavioral change" was partially rejected since some of the given variables are significantly related while others are not.

Digital screen time exposure and screen time management of the learners show a significant relationship to their well-being and behavioral change except on their socialization. Therefore, the null hypothesis which stated that "digital screen time management has no significant relationship on the learners' well-being and behavioral

change" was partially rejected since significant relationship appears on some of the variables, but not significantly related with the others.

5. RECOMMENDATIONS

Based on the findings and conclusions formulated in this study, the following recommendations were proposed:

1. Parents should consider checking the browser's history of their children's gadgets so that they are aware of what sites their children are accessing.
2. Learners must also be aware of the bad effects of too much exposure to gadgets. On the other hand, parents should reinforce proper guidance for the learners.
3. Teachers must play crucial role in building their learners' self-esteem by motivating them. Activities online or face to face that can also promote socialization is highly recommended to be utilized.
4. Parents and teachers should monitor the learners' behavioral patterns and make them feel that their emotions are valid.
5. Educational institutions should strictly follow the given recommendations of professionals and expert with regards to the learners' digital screen time limit. In addition, private schools conducting online class should strictly adhered to DepEd Memorandum DM-CI-2020-00162.
6. Educational institutions should also offer parents' orientation to help them assist their children with their digital screen time and to develop better screen time management.
7. Future researchers must include other relevant variables to give more depth to this topic. They are also encouraged to include more respondents such as public schools' learners who are conducting online classes.

References

Agung, I., Capnary, M. C., Zuhdi, W., Sofyatiningrum, E., Hidayati, S., Ahmad, I., & Iskandar, M. L. (2022). Impact Of Learning From Home On Mental Emotional Conditions, Psychological Wellbeing, And Student Learning Outcomes: A Case Study. Journal of Management Information & Decision Sciences, 25.

Allen, M., (2017). Quantitative Research. SAGE Encyclopedia. ISBN:9781483381435

Carson V, Hunter S, Kuzik N, Gray CE, Poitras VJ, Chaput J-P, et al. (2016)Systematic review of sedentary behaviour and health indicators in school-aged children and youth: an update. Appl Physiol Nutr Metab.;41:S240–65.

DepEd Memorandum DM-CI-2020-00162

Fox, W. & Bayat, M.S. (2007) "A Guide to Managing Research" Juta Publications, p.45

Gnambs, T., Scharl, A., & Schroeders, U. (2018). The structure of the Rosenberg self-esteem scale. Zeitschrift für Psychologie.

Hoy, W. K., & Adams, C. M. (2015). Quantitative research in education: A primer. Sage Publications.

Jackson, C. R. (2018). Validating and adapting the motivated strategies for learning questionnaire (MSLQ) for STEM courses at an HBCU. Aera Open, 4(4), 2332858418809346.

Kamaku, M. N. (2021). Effect of Television Viewing on Students' Unrest in Secondary Schools in Kiambu County, Kenya (Doctoral dissertation, JKUAT-COHRED).

Klakk et al. (2020). The development of a questionnaire to assess leisure time screen-based media use and its proximal correlates in children (SCREENS-Q).BMC Public Health,664.

Miers, A.C., Rieffe, C., Meerum Terwogt, M., Cowan, R. & Linden, W. (2007). The relation between anger coping strategies, anger mood and somatic complaints in children and adolescents. Journal of Abnormal Child Psychology, 35, 653-664.

Munezawa T., Kaneita Y., Osaki Y., Kanda H., Minowa M., Suzuki S., Higuchi S., Mori J., Yamamoto R., Ohida T. (2011). The association between use of mobile phones after lights out and sleep disturbances among Japanese adolescents: a nationwide cross-sectional survey. Sleep 2011; 34: 1013-1020.

Pintrich, P. R. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ).

Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). Acceptance and commitment therapy. Measures package, 61(52), 18.

Sharma, G. (2017). Pros and cons of different sampling techniques. International journal of applied research, 3(7), 749-752.

Shringi, A., Ahmed, S., & Darius Gnanaraj, S. (2022). A Study on Laptop Ergonomics. In Ergonomics for Improved Productivity (pp. 363-370). Springer, Singapore.

Stavrova, O., Pronk, T., & Kokkoris, M. D. (2020). Finding meaning in self-control: The effect of self-control on the perception of meaning in life. Self and Identity, 19(2), 201-218.

World Health Organization. (2020). Mental health and psychological resilience during the COVID-19 pandemic. https://www.euro.who.int/en/health-topics/healthemergencies/coronaviruscovid19/news/news/2020/3/mental-healthand-psychological-resilienceduring-the-covid-19-pandemic

You, Z., Tian, Y., Kong, F., Zhou, Z., & Zheng, Y. (2016). Development of the preference for online social interaction scale for Chinese adolescents. Social Behavior and Personality: an international journal, 44(6), 1005-1014.