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The Impact of Dependence on Gadgets on Student Concentration and Academic Performance

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ABSTRACT

Background. One impact that can disrupt students' concentration in studying is gadget dependence. This dependency can have an impact on students' academic achievement, such as decreasing test scores and poor learning quality and achievement. Therefore, schools must better monitor students' use of gadgets during lessons at school and notify students' parents or guardians to supervise or limit students' use of gadgets at home.

Purpose. This research was conducted with the aim of understanding the relationship between the impact of dependence on gadgets on students' learning concentration and academic performance, as well as the extent of the impact of dependence on gadgets on students.

Method. The method used in this research is a quantitative method.This method is a way of collecting numerical data that can be tested. Data was collected through distributing questionnaires addressed to students. Furthermore, the data that has been collected from the results of distributing the questionnaire will be accessible in Excel format which can then be processed using SPSS.

Results. From this research, researchers were able to obtain research results on the impact of dependence on gadgets on students' learning concentration and academic performance, which can indeed have a very big influence on students' focus in learning. However, if the use of gadgets can be utilized properly, the resulting negative impact on students' concentration and academic performance will be less..

Conclusion. Based on the results of this research, it can be concluded that the impact of dependence on gadgets, if used frequently, will have an impact on students' learning concentration. By decreasing student concentration in learning, it can result in fatalities such as decreasing the level of student achievement itself. Therefore, supervision is needed, especially by parents, so that students at home do not always play or use gadgets all the time.

KEYWORDS

Academics, Concentration, Dependence

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INTRODUCTION

Education is very important for every country, especially for developing countries who are working hard to develop their nations(Cronin et al., 2018). Only educated humans will become the most perfect humans who can be built for the progress of the nation(Ding et al., 2021). Education can also be defined as a conscious and planned effort to create a good learning atmosphere and process so that students can actively develop intelligence, noble character, self-management, religion and the skills needed for society, nation and state.(Sarkodie, 2021).

Technology is also needed in today's world of education to organize, implement, assess and facilitate the use of learning tools that provide feedback in learning.

Learning is an interaction with learning resources that causes changes in attitudes and behavior that were previously unknown to become known(Yao et al., 2019). By studying, students' academic level performance can be measured to determine students' success or failure in mastering learning material. The evaluation process, which is a written exam conducted in accordance with learning objectives, is used to measure student learning outcomes(Salazar Miranda et al., 2021). Grades, given by teachers or educators, can be numbers or letters. Learning achievement which is very important for school age children is related to the quality of human resources in the future because they are the next generation who will determine the quality of the country.(Etz et al., 2019).

Every learning activity requires learning concentration. This is stated because learning concentration is the most important component that can help students learn(Yan et al., 2018). If students cannot concentrate during learning, then students will lose themselves and will not get anything from the lesson(Ma et al., 2019). To achieve learning goals, students must remain concentrated before and during the learning process. To be able to understand the material being taught, including concepts, theories, and problems or questions given, students must have concentration during the learning process.(W. Wu et al., 2020).

If students cannot concentrate during the learning process, they will definitely experience difficulty in working on the problems or questions given, which will have an impact on the value of their learning outcomes.(Anderson et al., 2021). In reality, many students suddenly lose focus while studying, either at the beginning of the lesson, in the middle of the lesson, or even at the end of the lesson(Chevance et al., 2020). Apart from that, it will also be difficult for students to know whether students have high, medium, low or even very low learning concentration during learning(Comeau et al., 2019). This concentration is so important in learning, because concentration will also determine success in the student's learning process.

During the learning process, both teachers and students definitely use technological devices such as computers, laptops or gadgets(Prasitlumkum et al., 2021). Gadjet is also known as a smart phone, which is a tool that can do many great things. For example, you can send messages, make voice and video calls, play songs and videos, read digital books (e-books), and so on.(Cassiers & Standaert, 2020). With gadgets, communication becomes easier regardless of distance and time. Students can use their gadgets to access content and learning media via the internet(Harjula et al., 2019). But actually, students mostly use gadgets to play online games and open social media accounts(Khan, 2019). This tendency has detrimental effects, such as lack of concentration, lazy behavior, and decreased learning achievement.

Students who do not concentrate during the learning process will not get good learning results. Likewise, on the other hand, students who can maintain their concentration during learning will get good learning results(Di Lillo et al., 2021). If they do not concentrate during the learning process, they will experience confusion and lack of understanding which can occur in any subject(Akesson & Canavera, 2018). Because students who are dependent on gadgets without supervision can lose their concentration. Learning concentration can be influenced by student skills, interest, attention and motivation during the learning process(Vaughan et al., 2020).

If left untreated, the impact of dependency on using gadgets will lead to poor learning processes and low quality education in Indonesia(Vargemidis et al., 2021). Students will lose many things in the situation such as time, opportunities, and energy. Student learning outcomes are greatly influenced by the intensity of gadget use(Silva-Peña et al., 2023). Students who are used to using gadgets will tend to experience irregular sleep problems and difficulty concentrating while

studying. This depends on the use of the gadget for students, where the use of the gadget can have a positive or negative impact on students' academic achievement depending on how they use it.(Minerva et al., 2024).

The type of method used in this research is a quantitative method. This method is used so that the final results of the data processing can be known clearly and precisely.Based on the explanation of the research above, researchers think that the impact of dependence on gadgets on students' learning concentration and academic performance can indeed have a very big influence on learning. With this dependency, it can make students careless and lack concentration in studying. And researchers also haveAIt is hoped that future researchers will research the impact of dependence on gadgets on learning concentration and student academic performance in more depth and develop research to obtain maximum results.

RESEARCH METHOD

Research design

The method that has been used in this research is the quantitative method, where to obtain research data carried out by the researcher, the researcher distributed an online questionnaire via the Google From application. From the results of the data obtained, it will later be combined and made into one. Furthermore, the data will of course be processed using the SPSS application to compare the results of the respondents' responses. By processing the data results using the SPSS application, researchers can see and compare the data that researchers have submitted regardingThe Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance.

Research procedure

In this research, there are several stages or procedures that researchers have established. When the researcher wants to collect research data, the researcher first creates a questionnaire which is distributed online, so that the researcher can select samples randomly. The questionnaire contains 10 questions each related toThe Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance.The aim of the researcher in investigating this research is so that the researcher can collect, analyze and provide an understanding of the data that has been collected. That way, it will be easier for researchers to test the data being researched regardingThe Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance.

Research Ethics

In writing an article entitledThe Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance,It is very important for researchers to consider ethical or ethical values in carrying out research. Researchers really maintain a balance in conducting research so that they remain consistent and careful in carrying out the research being researched. In this research, the researcher also upholds a commitment he has made, by presenting accurate data related to his research. Apart from that, researchers also try as much as possible to avoid negative things such as plagiarism in their research.

Data Collection and Analysis Techniques

The data collection technique carried out by the researcher aims to identify relationships and become a benchmark for the research study object material. In this research, researchers carried out data collection techniques using quantitative methods and using software in the form of a T-test. For this reason, researchers need to present data in the form of tables or diagrams which will be converted into averages or percentages. Furthermore, the researcher also did not forget to ensure

that the results of the answers given by the respondents were very accurate and reliable by carrying out further testing first. Therefore, researchers must be very careful in collecting processed data.

Table 1

CategoryImpact of Dependence on Gadgets

No	Earning Category	Level of education	Percentage (%)
1	Strongly agree	Student	>90%
2	Agree	Student	25-60%
3	Disagree	Student	10-30%
4	Don't agree	Student	5-10%

Figure 1

Methods of Data Collection and Data Analysis

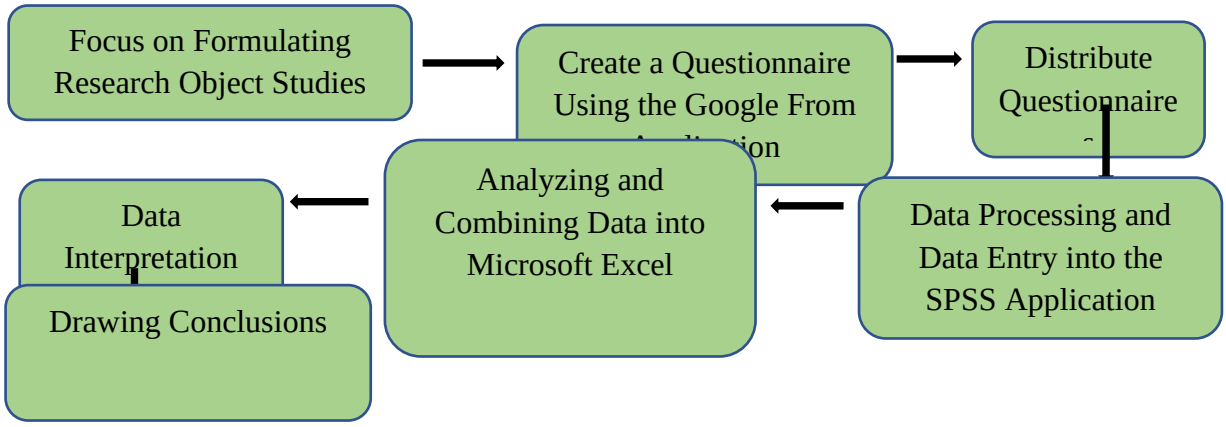

Figure 1 above shows how researchers collect and analyze research data. The results of data acquisition came from respondents' answers to the researcher's questions. Furthermore, in the quantitative research method, the researcher will also test again using the T-test which will be used to enter research data into the SPPS application. The number of questions asked by the researcher was 20 questions, where each question was divided into ten questions with different questions. Only after the questionnaire is distributed can researchers formulate and draw conclusions from the research object.

RESULTS

The Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance

Students who are dependent on gadgets are just one of many other factors that can influence student learning outcomes. The level of intelligence of each student is unique, depending on the level of individual development, and a student can have a higher level of intelligence than his peers. The additional tutoring process is one of the many ways that can be used to improve student academic performance. Tutoring is one of the guidance processes used by many students today to gain understanding, skills, and solve problems that students face while studying. This can have an impact on student learning achievement, even if the student's performance at school is not good.

Table 2

Summary of Percentage Results from Respondents' Answers

No.	Question	Strongly agree	Agree	Disagree	Don't agree
1	Having time limits for using gadgets at school and at home can help improve students' learning concentration and academic performance	65%	35%	0%	0 %
2	Excessive use of gadgets can reduce the quality of student learning concentration	80%	20%	0%	0%
3	The impact of dependence on gadgets can reduce student productivity	55%	45%	0%	0 %
4	Parental supervision is needed for students so that they do not become dependent on gadgets when they are at home	50%	50%	0%	0%
5	I agree that the impact of dependence on gadgets has more negative impacts than positive impacts on students	50%	40%	5%	5%
6	Parents and teachers need to raise awareness among students about the dangers of dependence on gadgets	49%	50%	1%	0%
7	It is necessary to change the school culture that encourages excessive use of gadgets, into a more balanced environment	50%	50%	0%	0%
8	The impact of dependence on gadgets can increase feelings of anxiety and depression in students	45%	48%	5%	3%
9	The impact of dependence on gadgets can reduce interaction between students and parents at home	85%	15%	0%	0%
10	I agree thatThe impact of dependence on gadgets can affect students' overall mental health	75%	20%	5%	0%

The table above is a distribution of questionnaires that have been carried out by researchers. The questionnaire contains 10 related questionsThe Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance.In distributing the questionnaire, the researcher also gave a percentage of each answer that was answered by the respondents. So, from the questions that have been asked by the researcher, the respondents can answer them according to the options that the researcher has provided, namely, strongly agree, agree, disagree and disagree. It can be seen from this question, the first one discusses whether there is a time limit for using gadgets at school or at home which can help improve students' learning concentration and academic performance, and managed to get the highest category with a strongly agree answer of 65%.

For the second question, regarding excessive use of gadgets that can reduce the quality of students' learning concentration, they managed to get the highest category in the strongly agree option at 80%. The third question concernsThe impact of dependence on gadgets can reduce student productivity. The highest result was 55% for the strongly agree option. The fourth question is

aboutThe need for parental supervision of students so that they are not dependent on gadgets when they are at home, got the same results as 50% for the strongly agree and agree options. For question number five, I agree that the impact of dependence on gadgets has more of a negative impact than a positive impact on students, also getting as much as 50% of the strongly agree option.

The sixth question is thatParents and teachers need to raise awareness among students about the dangers of dependence on gadgets, getting a percentage result of 50% in the agree option. The seventh question is aboutIt is necessary to change the school culture that encourages excessive use of gadgets, into a more balanced environment, getting the same results with 50% of the options strongly agree and agree. The eighth question about the impact of dependence on gadgets can increase feelings of anxiety and depression in students, got a result of 48% who agreed. The ninth question, that the impact of dependence on gadgets can reduce interaction between students and parents at home, received a result of 85% strongly agreeing. The last question regardingI agree thatThe impact of dependence on gadgets can affect students' overall mental health, getting results of 75% strongly agreeing.

Table 3

Summary of Percentage Results from Respondents' Answers

No.	Question	Strongly agree	Agree	Disagree	Don't agree
1	The factor of dependence on gadgets can be caused by students who like to play online games or social media	35%	60%	3%	2%
2	Students nowadays feel that if they don't have a gadget it means they are not cool like their other friends	90%	10%	0%	0%
3	Students nowadays spend more time playing with gadgets than studying	70%	18%	9%	3%
4	High dependence on gadgets can cause student learning achievement to decline	60%	40%	0%	0%
5	Balanced use of gadgets can provide benefits to students	50%	50%	0%	0%
6	The right solution is needed so that students can be productive without being too dependent on their gadgets	45%	55%	0%	0%
7	With the existence of gadgets, students currently prefer to read books directly on their gadgets	72%	21%	4%	3%
8	The presence of gadgets can make it easier for students to interact with anyone	59%	33%	4%	4%
9	In fact, not all students who play gadgets always play online games	60%	30%	5%	5%
10	Students currently need gadgets more so that gadget sales in Indonesia are increasing	80%	20%	0%	0%

From the statement in the table above, it can be seen that the number one question asked by researchers regarding the factor of dependence on gadgets can be caused by students who like playing online games or playing social media, managed to get the highest percentage result of 60% agreeing. Next, the second question, which students currently feel that if they don't have a gadget, means they're not cool like their other friends, got a result of 90% of the options strongly agreeing. The third question regarding students currently spending more time playing with gadgets than studying, got 70% of the strongly agree option. The fourth question was that high dependence on gadgets can cause student learning achievement to decline, getting as much as 60% of the strongly agree option.

The fifth question concernsThe use of a balanced gadget can provide benefits to students, getting a percentage gain of 50% in the strongly agree and agree options. On the sixth question thatThe right solution is needed so that students can be productive without being too dependent on their gadgets, getting as much as 55% of the agree option. The seventh question, that with the existence of gadgets, students currently prefer to read books directly on their gadgets, got a result of 72% who strongly agreed. Eighth question withThe presence of gadgets can make it easier for students to interact with anyone, getting the highest results with 59% strongly agreeing. The ninth question, in fact, not all students who play gadgets always play online games, got a result of 60% strongly agreeing. For the last question, students currently need gadgets more so that gadget sales in Indonesia are increasing, getting a percentage result of 80%, strongly agree.

Diagram 1

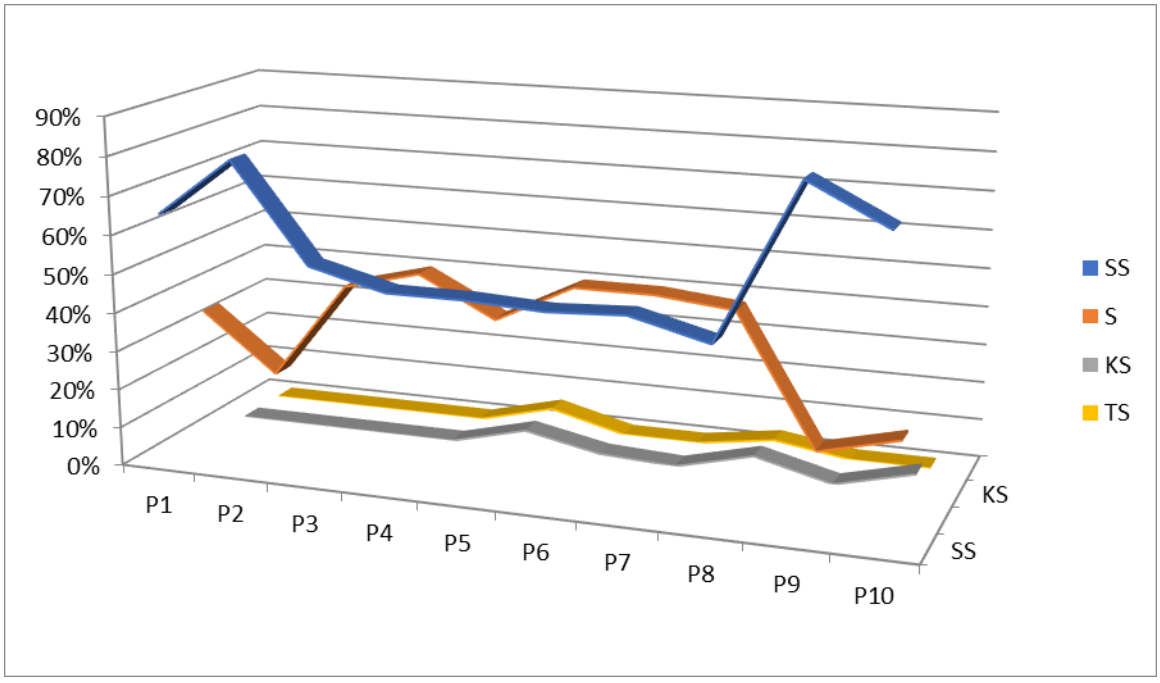

Diagram 2

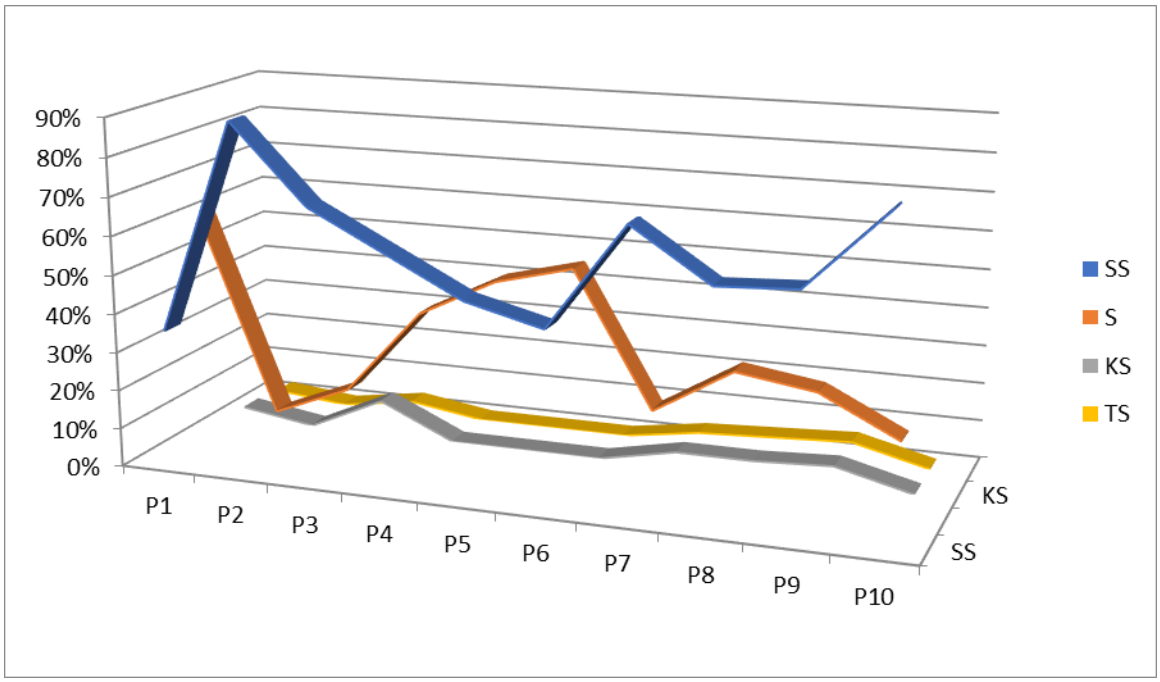

Table 3

*T-test Concerning*The Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE TEST	61.2500	20	15.23457	3.40655
	POST TEST	35,5000	20	15.30910	3.42322

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PRE TEST & POST TEST	20	-.961	,000

Paired Samples Test

		Paired Differences				
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of th Difference Lower	Upper
Pair 1	PRE TEST - POST TEST	25.75000	30.24440	6.76285	11.59519	39.90481

Based on the results of table 3 above, it is a T-test using the SPSS application. From the research results, the researcher can conclude that the T-test in the first output section explains the mean as the average. In the Pre Test the average number produced was equal to61,2500, while the Post Test section generated 35,5000. Based on these results, it can be formulated that there are differences in the results of the respondents' answers. Next, in the Paired Samples Correlations section, you get a correlation of -961, and the sign size is 000. Next, in the Paired Samples Test section, you get a result of 30.24440 in the Std section. Deviation, while in the Std. Error Mean obtained a result of 6.76285. Based on these results, the impact of dependence on gadgets on students' learning concentration and academic performance can indeed have a very big influence on students' learning and learning outcomes.

Table 4

*T-test Concerning*The Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance*

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE TEST	2,0500	20	2.70429	.60470
	POST TEST	1,2500	20	1.86025	.41596

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PRE TEST & POST TEST	20	,782	,000

Paired Samples Test

		Paired Differences				
					95% Confidence Interval of th Difference	
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper
Pair 1	PRE TEST - POST TEST	.80000	1.70448	.38113	.00228	1.59772

Furthermore, in table 4, there are also the results of research using the T-test. It can be seen in the first output section that the Pre Test results were 2.0500, and the Post Test results were 1.2500. In the Paired Samples Correlations section, we obtained a Correlation of 782, with a Sign result of 000. Meanwhile, in the Paired Samples Test section, we obtained a result of 1.70448 in the Std section. Diviation, and Std. The mean error is 38113. Based on the results of this research, it can be seen that each response from the respondents is different in responding to questions from researchers.

DISCUSSION

The Impact of Dependence on Gadgets on Students' Learning Concentration and Academic Performance

Education today uses technology to improve learning. Students can use gadgets during learning hours to help clarify the material discussed(Li et al., 2023). However, please remember that gadget use must comply with regulations and must not interfere with other learning. Students must understand that the use of gadgets does not completely replace direct learning with the teacher, and must understand that the use of gadgets must be adjusted to learning needs and should not be a priority in learning(Hanna et al., 2023).

Gadgets can facilitate communication between students, teachers and other people, help in searching for information, and become a tool to make learning easier(Wang et al., 2023). Most gadgets used by students are smartphones, tablets and computers, which contain applications that help in learning. The role of gadgets in the world of education today is very big for students. In this gadget, there are many educational applications and software that offer interactive learning, such as games, simulations, and learning foreign languages.(Sun et al., 2023). Gadjet can also enable students to easily search quickly for online learning resources, such as learning videos, e-learning platforms, and educational websites.(Kim et al., 2023).

Dependence on gadgets or gadget addiction is a condition that occurs when a person becomes too dependent on gadgets and technology, to the point where this affects their daily life and can make the person suffer from(Tindberg & Tiikkaja, 2023). Causes of gadget addiction in children include lack of supervision from parents, instant gratification that can be obtained from using gadgets, and the habit of interacting without rules(Enari & Enari, 2023). Based on this statement, dependence on gadgets can indeed have a big influence on students, both physically and mentally(Atroszko et al., 2023).

The current use of gadgets is caused by increasingly sophisticated trends that require students to be active in the world of the internet or social media(Huynh et al., 2022). As a result of using gadgets, students become dependent on using gadgets to cover students' boredom due to long lesson times.(Zhou et al., 2022). This can cause students to be unable to concentrate on the lesson material, which can have an impact on students' academic performance. Apart from that, because students are more interested in gadget devices, students rarely talk to their friends. Prolonged use of gadgets during daily activities can disrupt brain growth and health(Narr & Luong, 2023). This can also cause students to find it difficult to speak or express their thoughts.

Basically, using a gadget can have both positive and negative impacts on its use. The positive impact of this gadget is that it is able to obtain information or knowledge that can influence students' thinking patterns and improve students' knowledge abilities.(Butori & Lancelot Miltgen, 2023). With the presence of gadgets nowadays, there are so many benefits and conveniences provided in these gadgets. The reason why students nowadays use gadgets more is because these gadgets are very easy and practical to carry(C. Wu et al., 2023). So whenever and wherever you are, this gadget can be used directly. However, if used frequently, students will become dependent on using this gadget, which will have a negative impact on the students themselves.

There are negative impacts of excessive gadget dependence, such as it can cause vision problems, such as myopia or what is usually called nearsightedness, apart from that, dependence on gadgets can cause gadget addiction, which can disrupt students' health and behavior.(Zhang et al., 2023). In fact, the impact of this dependence on gadgets has more of a negative impact on students. Therefore, the role of parents at home and teachers is needed to provide guidance on using gadgets properly(Colimoro et al., 2023). Parents and teachers are able to explain the impact of excessive use

of gadgets to students in a good way, this aims to make it easy for students to receive the information presented well.

CONCLUSION

A gadget is an electronic device that has many application icons that offer various functions, such as information, social networks, entertainment games, and a place where users can develop everyone's creativity. It all started with the industrial revolution 4.0, which brought advanced technology that made work easier. These tools allow quick access to areas such as information, social, political, educational and others. Gadget users know no age limits because everyone, from toddlers, children, teenagers, to adults, can use devices for various needs.

With advances in technology, students nowadays use gadgets a lot. This can enable students to become dependent on using gadgets. It is possible that excessive use impacts students' academic performance and reduces their interest in learning. Dependence on gadgets can affect students' physical and mental health, academic performance, and social development. To overcome gadget addiction, parents can help their children develop a healthy and balanced relationship with gadgets and not overdo it. Developing a healthy and balanced relationship with technology can prevent addiction to gadgets that have negative impacts.

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