The Impact of Teacher Attitude and Mobile Technology on Student Engagement

Natalie Anjelly[1], Rivalyn Cinthia Putry[2], Ananda Fortunisa[3,*]

[1,2,3] *Department of Management, Universitas Bakrie, Indonesia*
Corresponding author. Email: ananda.fortunisa@bakrie.ac.id

Abstract

This research investigates the influence of teacher attitudes and mobile technology interaction on student engagement in the classroom. Student engagement refers to the level of interest, motivation, and commitment that students demonstrate towards their learning and involvement in the educational process. Teacher attitudes refer to the beliefs, perceptions and dispositions that educators hold towards their profession, their students and the educational process. Mobile technology is technology that can be taken wherever the user goes. Using a quantitative approach, data is collected from samples of students who are currently studying or who have graduated through surveys, class observations and additional interviews. Because this research topic has never been conducted before, the researcher is interested in discussing "The Impact of Teacher Attitude and Mobile Technology on Student Engagement". This study underscores the importance of professional development for teachers to adopt a positive attitude and utilize mobile technology professionally. These factors collectively contribute to a more engaging and dynamic educational environment, thereby encouraging and improving better academic outcomes and student satisfaction through teacher attitudes that support mobile integration in education.

Keywords: *Student Engagement, Teacher attitudes, Mobile Technology*

Introduction

In recent decades, the rapid development of technology, including mobile technology such as smartphones and tablets, has permeated various aspects of life, including education. The use of this technology is expected to enhance student engagement in the learning process (Becta, 2004). Student engagement is a crucial factor in educational success, as engaged students tend to have higher motivation to learn and achieve better academic outcomes. Teacher attitudes play a significant role in creating a supportive learning environment. Teachers with a positive attitude towards technology are more likely to use it creatively and innovatively, which in turn can increase student engagement. Teachers' attitudes towards mobile technology can be a determining factor in the successful implementation of this technology in education. If teachers feel comfortable with and recognize the benefits of mobile technology, they are more likely to use it effectively, whereas negative

attitudes can hinder technology adoption and reduce student engagement. Research has shown a positive correlation between teachers' positive attitudes towards technology and increased student engagement. In this digital era, education must adapt to technological changes to remain relevant and effective. Therefore, understanding the impact of teacher attitudes and mobile technology on student engagement is crucial for developing innovative and inclusive teaching strategies.

Furthermore, the integration of mobile technology in education provides numerous interactive tools and resources that can make learning more engaging and personalized. Mobile apps and educational platforms offer a variety of interactive content, such as videos, quizzes, and simulations, that cater to different learning styles and needs. This personalized approach can help students grasp complex concepts more easily and retain information longer. Additionally, mobile technology facilitates collaborative learning by allowing students to connect and interact with their peers and teachers outside the traditional classroom setting. This continuous engagement and access to learning resources can foster a more immersive and supportive educational experience.

However, the successful integration of mobile technology in education also presents challenges. Teachers need adequate training and professional development to effectively incorporate technology into their teaching practices. Without proper support, teachers may struggle to keep up with technological advancements and miss out on the potential benefits for student engagement. Moreover, issues such as digital equity and access to devices and reliable internet connectivity must be addressed to ensure that all students can benefit from mobile technology. Overcoming these challenges requires a coordinated effort from educators, administrators, and policymakers to create an inclusive and equitable learning environment where technology can enhance student engagement and academic success..

Literature Review

Student Engagement

Student engagement refers to the level of interest, motivation, and commitment that students exhibit towards their learning and involvement in the educational process. According to Fredericks (2004), school engagement is the involvement of students in the learning process in academic activities and non-academic activities which can be seen through the behavior, emotions and cognition carried out by students in the school and classroom environment. Reeve (2005) provides a definition of student engagement, namely, the intensity of behavior, emotional quality, and personal effort of active student involvement in learning activities.

According to Fredericks (2004), student engagement encompasses three main dimensions: behavioral, emotional, cognitive engagement. Fredericks (2004) stated that behavioral engagement involves students' participation in academic and extracurricular activities, consistent attendance, effort, and adherence to classroom norms. Emotionally engaged students have positive attitudes towards learning, feel a sense of belonging and attachment to their school, and exhibit enthusiasm and interest in their studies. Cognitive engagement involves a deep investment in learning, where students are motivated to understand complex ideas, tackle challenging tasks, and employ critical thinking and problem-solving skills.

lifelong love of learning (Estévez et al., 2021). Engaged students are also more likely to exhibit lower dropout rates and better overall school performance (Salmela-Aro and Read, 2017). For educators, fostering student engagement involves creating a supportive and stimulating learning environment, utilizing interactive and relevant teaching methods, and building strong relationships with students. By addressing the diverse needs and interests of students, educators can enhance engagement and promote a positive and effective educational experience.

Teacher Attitudes

Teacher attitudes refer to the beliefs, perceptions, and dispositions that educators hold towards their profession, students, and the educational process. These attitudes significantly influence teaching practices, classroom environment, and student outcomes. Positive teacher attitudes, such as enthusiasm, openness to new ideas, and a supportive approach towards students, can create a nurturing and motivating learning environment. Teachers who exhibit a positive attitude are more likely to employ innovative teaching methods, encourage student participation, and build strong, trusting relationships with their students. This, in turn, can enhance student engagement, motivation, and academic achievement.

Conversely, negative teacher attitudes can have detrimental effects on the learning environment and student outcomes. Teachers who are resistant to change, display a lack of enthusiasm, or hold low expectations for their students can create a disengaging and unmotivating atmosphere. This can lead to decreased student engagement, lower academic performance, and increased behavioral issues. Furthermore, teacher attitudes towards technology play a critical role in the successful integration of digital tools in education. Teachers with a positive attitude towards technology are more likely to embrace and effectively utilize these tools to enhance teaching and learning. Therefore, fostering positive teacher attitudes through professional development, support, and a positive school culture is essential for improving educational outcomes and creating a dynamic and engaging learning environment.

Teacher attitudes encompass a range of beliefs and dispositions that significantly influence teaching practices and student outcomes. One key dimension is teachers' attitudes towards their students. Empathy and support from teachers foster a safe and inclusive learning environment, where individual student needs are understood and addressed, encouraging students to reach their full potential. High expectations set by teachers can motivate students to strive for better academic performance, reflecting the teachers' confidence in their abilities. Another dimension involves teachers' commitment to their profession, characterized by dedication and professionalism. Committed teachers are passionate about teaching and continuously seek to enhance their teaching quality through ongoing professional development and adherence to ethical standards.

In addition, teachers' attitudes towards technology play a crucial role in modern education. Teachers who are adaptable and open to technological innovations are more likely to integrate new tools and methods that can boost student engagement and learning outcomes. A positive belief in the benefits of technology leads to effective utilization of digital resources in the classroom. Teachers' attitudes towards teaching methods also matter; those who are creative, innovative, and flexible can tailor their approaches to meet diverse student needs and

learning styles. Furthermore, collaborative attitudes are essential, as they promote teamwork among colleagues and partnerships with parents, enhancing the overall educational experience for students. Understanding and nurturing these dimensions of teacher attitudes are vital for creating a positive, dynamic, and effective learning environment that supports student engagement and achievement.

Mobile Technology

According to Crompton H (2013), mobile technology is technology that can be taken wherever the user goes. It consists of a portable two-way communication device, a computing device and the network technology that connects them. Mobile technology refers to portable devices such as smartphones, tablets, and laptops that provide access to information, communication, and various applications anytime and anywhere.

In the educational context, mobile technology offers numerous tools and resources that can enhance learning experiences (Traxler J, 2007). It enables students to access educational content, participate in interactive lessons, and collaborate with peers and teachers beyond the traditional classroom setting. Mobile technology supports personalized learning by catering to different learning styles and allowing students to learn at their own pace. Applications and platforms available on mobile devices offer interactive and multimedia content, such as videos, quizzes, and simulations, making learning more engaging and effective.

Furthermore, mobile technology promotes continuous learning and flexibility. Students can learn on the go, accessing course materials, assignments, and educational resources from any location. This accessibility helps bridge the gap between formal education and informal learning, providing opportunities for students to expand their knowledge outside the classroom. Mobile technology also facilitates communication and collaboration, enabling real-time interaction between students and teachers, as well as among peers. This enhanced connectivity fosters a more collaborative and supportive learning environment. Overall, mobile technology has the potential to transform education by making it more interactive, accessible, and tailored to individual student needs.
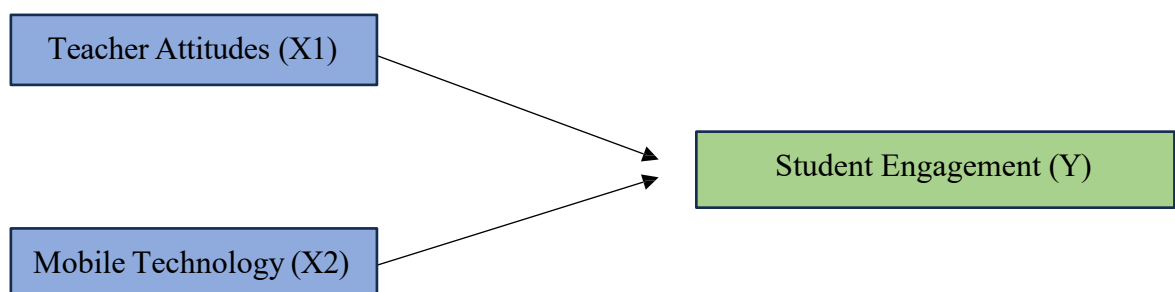
Conceptual Framework

Figure 1. Research Model

Information:

Y = Dependent variable (Student Engagement)

X1 = Independent variable (Teacher Attitudes) X2 = Independent variable (Mobile Technology)

Relationships Between Variables and Hypotheses Relationships Between Variables

a. **Teacher attitude with Student Engagement**

Positive teacher attitudes significantly impact student engagement by creating a supportive and motivating learning environment. Teachers who show enthusiasm, provide support, and set high expectations foster a classroom atmosphere where students feel valued and encouraged to participate actively. This sense of belonging and motivation directly enhances student engagement, as students are more likely to take an active interest in their learning and invest effort in their studies. Additionally, teachers who are open to innovative teaching methods and changes can introduce dynamic and engaging learning experiences, further increasing student involvement and commitment to learning.

b. **Mobile Technology with Student Engagement**

Mobile technology enhances student engagement by offering interactive and multimedia tools that make learning more engaging and accessible. Educational apps, videos, simulations, and games available on mobile devices cater to various learning styles, providing students with diverse and stimulating ways to interact with the material. Moreover, mobile technology supports continuous and personalized learning, allowing students to access educational content and collaborate with peers and teachers anytime and anywhere. This flexibility and adaptability ensure that learning is tailored to individual needs, keeping students engaged by providing relevant and challenging content. The integration of mobile technology in education thus plays a crucial role in fostering a more engaging and effective learning environment.

Hypotheses

A hypothesis is a proposed explanation or prediction for a phenomenon or a relationship between variables that can be tested through scientific research. It is a statement that suggests a possible outcome or a cause-and-effect relationship that researchers aim to validate or refute through experimentation and observation. According to Rogers (1966): "A hypothesis is a single tentative conjecture used to construct a theory or experiment and tested"; Creswell & Creswell (2018): "Hypothesis is a formal statement presenting the expected relationship between the independent variable and the dependent variable"; Abdullah (2015): "Hypothesis is a temporary answer whose truth is to be tested through research."

A hypothesis should be clear, specific, and testable, providing a foundation for further investigation. In research, hypotheses are formulated based on existing theories, prior research, and observations, and they guide the direction of the study by establishing what the researcher expects to find.

Here are some hypotheses regarding the relationship between teacher attitude, mobile technology, and student engagement:

c. H1 : Teachers with a positive attitude towards their profession and their students are more likely to increase student engagement in the learning process.

H2 : Teachers who are open to innovation and new teaching methods will observe an increase in student engagement.

d. H1 : The use of mobile technology in education enhances student engagement by providing interactive tools and multimedia content.

H2 : Personalized learning through mobile technology increases student engagement by tailoring educational materials to individual student needs.

e. H1 : The combination of positive teacher attitudes towards technology and the use of mobile technology in teaching will significantly boost student engagement.

H2 : Students taught by teachers with a positive attitude towards technology and who effectively use mobile technology will exhibit higher levels of engagement compared to students who do not have this experience.

Research Method

This literature review focuses on the impact of teacher attitudes and mobile technology on student engagement. This Literature Study was conducted with the aim of finding related information by reading journals, reports, and books relevant to the research being conducted. This research is based on the method used in survey research. Information will be collected from respondents using a questionnaire. According to Sugiyono (2008) The definition of survey research is data collection using questionnaires/interview instruments to obtain responses from respondents. This research method uses quantitative methods, by collecting data from a case/phenomenon that is raised and additional interviews.

The population in this study were students who were currently studying in university. Questionnaires were distributed using a Google form and then collected and processed using the PLS-SEM analysis method with the help of SmartPLS software. Instrument reliability testing takes the form of validity and reliability tests, data analysis takes the form of evaluation of the measurement model (Outer Model) takes the form of convergent validity, discriminant validity, and composite reliability, evaluation of the structural model (Inner Model). Structural model testing (Inner Model) takes the form of R-Square analysis to obtain research results based on quantitative data used to answer research hypotheses. The total number of respondents in this study was 37 and students are generally selected randomly.

Result and Discussion

A) Instrument Testing

a. Validity test

Validity test is a test tool used to measure whether a questionnaire is valid or not. A questionnaire can be said to be valid if the statements in the questionnaire are able to express something that will be measured in the questionnaire. The validity test in this research was carried out by calculating the correlation between the score of each statement item and the total score. According to (Ghozali, 2013), the basis for taking validity is explained as follows.

- If r count > r table then the question item is considered valid

- If r count < r table then the question item is considered invalid

Table 1. Validity Test

Indicator	Statement	R-Count	R-Tabel	Information
X1.1	I feel that the teacher has good teaching behavior	0,699470001	0,361	Valid
X1.2	Teachers have good teaching professionalism	0,603281132	0,361	Valid
X1.3	I believe that teachers are highly dedicated in helping students achieve academic success	0,723761709	0,361	Valid
X2.1	The use of mobile technology makes it easier for me to search for relevant material	0,653296091	0,361	Valid
X2.2	The use of mobile technology makes learning more efficient	0,75415624	0,361	Valid
X2.3	Mobile technology increases my interaction and involvement during the learning process in class	0,488619549	0,361	Valid
X2.4	I use mobile technology not only for educational purposes	0,610465572	0,361	Valid
X2.5	I feel that the use of mobile technology in the classroom is important	0,82930223	0,361	Valid
X2.6	Mobile technology facilitates better communication between teachers and me	0,412721418	0,361	Valid
X2.7	Mobile technology makes learning more interactive and interesting	0,662334461	0,361	Valid

Y1.1	I am interested in being involved in the learning process and class discussions	0,611319492	0,361	Valid
Y1.2	I am highly motivated to be involved in class participation	0,70292439	0,361	Valid
Y1.3	I always try to show activeness in class	0,696527739	0,361	Valid
Y1.4	I often collaborate with classmates in completing assignments and projects	0,592718943	0,361	Valid

Source: Data is processed using Excel

b. Reliability Test

Reliability measurements in this study were carried out using just one measurement. Measurement only once and then the results are compared with other statements, or measure the correlation between answers and statements. According to (Herfiyanto, 2018) a variable can be said to be reliable if it has a Cronbach's Alpha > 0.60. Meanwhile, according to (Nugroho, 2021) if you get a Cronbach's Alpha < 0.60 then don't use Cronbach's Alpha but use Composite Reliability with a value > 0.70.

Table 2. Reliability Test

Variable	Cronbach's Alpha	Composite Reliability	Information
Teacher Attitudes	0,569	0,774	Reliable
Mobile Technology	0,840	0,878	Reliable
Student Engagement	0,691	0,812	Reliable

Source: Data is processed using Smart PLS

B) Data analysis

a. Outer Model Evaluation

Outer Model evaluation is carried out by testing convergent validity and discriminant validity.

1. Convergent Validity

Convergent validity of the measurement model with the reflective indicator model is assessed based on the correlation between the item score/component score and the construct score calculated using PLS. A reflective measure is said to be high if it correlates more than 0.70 with the construct to be measured. However, for research in the initial stages of developing a measurement scale,

a loading value of 0.5 to 0.60 is considered sufficient (Ghozali, 2012). Describes the amount of correlation between each measurement item (indicator) and its construct.

Table 3. Output Result for Outer Loading

	Teacher Attitudes (X1)	Mobile Technology (X2)	Student Engagement (Y)
X1.1	0,783		
X1.2	0,584		
X1.3	0,813		
X2.1		0,786	
X2.2		0,801	
X2.3		0,618	
X2.4		0,746	
X2.5		0,841	
X2.6		0,539	
X2.7		0,621	
Y1.1			0,654
Y1.2			0,672
Y1.3			0,795
Y1.4			0,757

Source: Data is processed using Smart PLS

According to Chin (1998) in Ghozali (2012), a correlation can be said meets convergent validity if it has a loading value that is greater of 0.5. The output shows that the loading factor provides a value above the recommended value is

0.5. So that the indicators used in this research has met convergent validity.

2. Discriminant Validity

Reflective indicators need to be tested for discriminant validity by comparing the values in the cross loading table. An indicator is declared valid if it has the highest loading factor value to the targeted construct compared to the loading factor value for the construct other.

Table 4. Output Cross Loading

	Teacher Attitudes (X1)	Mobile Technology (X2)	Student Engagement (Y)
X1.1	0,783	0,582	0,608
X1.2	0,584	0,419	0,462
X1.3	0,813	0,642	0,733
X2.1	0,569	0,786	0,512
X2.2	0,675	0,801	0,585
X2.3	0,343	0,618	0,380

X2.4	0,434	0,746	0,411

X2.5	0,720	0,841	0,708
X2.6	0,273	0,539	0,309
X2.7	0,584	0,621	0,539
Y1.1	0,517	0,613	0,654
Y1.2	0,689	0,492	0,672
Y1.3	0,546	0,562	0,795
Y1.4	0,629	0,411	0,757

Source: Data is processed using Smart PLS

3. Composite Reliability (CR), Cronbach Alpha (CA), and Average Variance Extracted (AVE)

    Measures used to check how well the model is measured with the specified indicators. However, the interpretation of Composite Reliability and Cronbach Alpha scores is the same. Composite reliability is a measure used to check how wel" the'model measures against specified indicators. Cronbach alpha is a coefficient used to measure the reliability of a measurement scale. According to (Nugroho, 2021) the reliability of internal consistency in Composite Reliability must be higher than 0.70 (in exploratory research 0.60 – 0.70 is considered acceptable) and according to (Herfiyanto, 2018) if the Cronbach's Alpha value is > 0.60 then the variable is said to be reliable.

    Table 5. Composite Reliability (CR), Cronbach Alpha (CA), dan AVE

Variable	Cronbach's Alpha	Composite Reliability	AVE
Teacher Attitudes	0,569	0,774	0,538
Mobile Technology	0,840	0,878	0,512
Student Engagement	0,691	0,812	0,521

Source: Data is processed using Smart PLS

Based on the table, it is known that almost all indicators are consistent/reliable in measuring latent variables (CA value ≥ 0.6) but the Teacher Attitudes variable has a CA value ≤ 0.6 so according to (Nugroho, 2021) if you get Cronbach's Alpha < 0.60 then don't use Cronbach's Alpha but use Composite Reliability with a value > 0.70 means the Teacher Attitudes variable can be said to be consistent/reliable (CR value ≥ 0.7). Meanwhile, the AVE value was found to be greater than 0.5, this explains that the latent variable is able to explain an average of at least 50% of the variance of the indicators that measure it.

b. Inner Model Evaluation

    Evaluation of the inner model was carried out with the aim of finding out the relationship between each exogenous construct and the endogenous construct that

has been hypothesized in Figure 1. In this section, the process of

specifying the relationships between research variables (structural model) is carried out.

Based on Figure 2, the best PLS model results are obtained where each indicator for each variable has a loading factor value above 0.5 and meets convergent
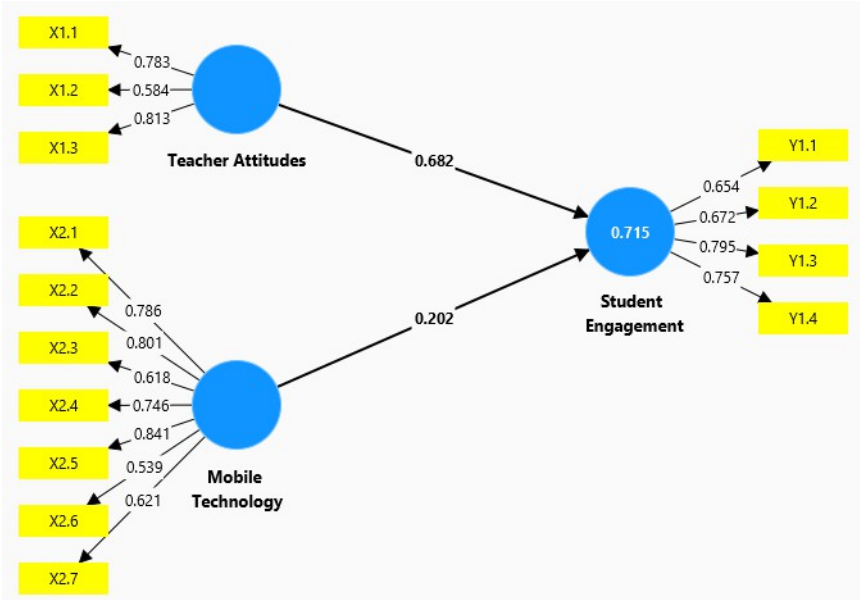
validity.

Figure 2. PLS model

1. R-Square Analysis

   The R-Square (R^2) value shows the level of determination of exogenous variables on endogenous variables. The R^2 value is divided into three, 0.75 (Strong), 0.50 (Moderate), and 0.25 (Weak). The output for the R^2 value using the smartPLS 4.0 computer program is obtained:

   Table 6. R^2 Calculation Output

	R-square	**R-square adjusted**
Student Engagement	0,715	0,698

   Source: Data is processed using Smart PLS

   Based on table 6, the R2 value of the Behavioral Intention variable is 0.715 (Strong)

2. Significance Test

   The significance test on the SEM model with PLS aims to find out the influence of exogenous variables on endogenous variables. Hypothesis testing with The SEM PLS method is carried out by carrying out a bootstrapping process with with the help of the smart PLS 4.0 computer program to obtain an influence relationship exogenous variables to endogenous variables as follows:

   Table 7. Results of Bootstrapping Calculation of Research Data

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (IO/STDEVI)	P Values
Teacher Attitudes Student Engagement	0,682	0,666	0,134	5,096	0,000
Mobile Technology Student Engagement	0,202	0,235	0,149	1,350	0,177

Source: Data is processed using Smart PLS

Before testing the hypothesis, it is known that the T-table values for a confidence level of 95% (α of 5%) and degrees of freedom (df) = n-2 = 37 – 2= 35 is 2,030. Hypothesis testing for each the latent variable relationship is shown as follows:

a. Hypothesis Testing Teacher Attitudes Variable (X1) on Variables Student Engagement (Y)

Based on the output results of Table 7, T statistics for the Teacher Attitudes variable (X1) against the Student Engagement variable (Y) is 5,096 > T-table (2,030). The original sample estimate value shows a positive value of 0,682 which shows that the direction of the relationship between the Teacher Attitudes variable (X1) on the Student Engagement (Y) variable is positive.

b. Hypothesis Testing Mobile Technology Variable (X2) on Variables Student Engagement (Y)

Based on the output results of Table 7, T statistics for the Mobile Technology variable (X2) against the Student Engagement variable (Y) is 1,350 < T-table (2,030) so it's variable latent Mobile Technology (X2) with its indicators has no positive effect on the latent variable Student Engagement

(Y) with its indicators significantly.

Obtained the highest original sample estimate value that influences Student Engagement (Y) is in the Teacher Attitudes variable (X1) of 0,682. This shows that the Teacher Attitudes variable (X1) has a higher influence on Student Engagement (Y). Meanwhile, the Mobile Technology variable (X2) is said to have no positive effect on Student Engagement (Y).

We conducted additional interviews to strengthen the results of the questionnaire data with 2 students

- Interviewee 1: The first interviewee believes that teacher attitudes influence the teaching and learning process in the classroom. For example, a teacher's attitude can influence their interest in being active during class. A positive teacher attitude can further increase activeness when learning. This person felt more comfortable learning from printed materials or direct discussions

rather than using mobile technology. He feels more involved when learning through live interactive methods rather than through mobile technology.

- Interviewee 2: The fifth interviewee agreed that teacher attitudes influence their activity in class, for example lecturers have the right to reprimand students. Teachers who provide constructive and supportive feedback help students understand strengths and areas for improvement. Positive and constructive feedback increases students' self-confidence and makes them more enthusiastic to continue learning. The use of mobile technology often interferes with my concentration during learning process. For example, it is easy to get distracted by notifications and other applications when using mobile devices in class.

- From the results of the interview data we collected, students agreed that teacher attitudes have an influence on student engagement. Overall, these students emphasize the importance of positive and supportive faculty attitudes in increasing student engagement. Additionally, although mobile technology has the potential to support learning, its use must be done carefully so as not to disrupt student concentration and engagement. A more interactive and direct approach remains a preference for some students to support their learning process.

Conclusion

With the overall discussion we can conclude that teacher attitudes and the use of mobile technology have an influence on student involvement in the learning process. Teachers who have a positive, responsive and supportive attitude can increase student motivation and participation. The inclusive and supportive attitude of teachers creates a safe learning environment and encourages students to participate more actively in class activities.

Mobile technology, when used effectively, can be a powerful tool for increasing student engagement. This technology enables more interactive and personalized learning, as well as providing access to a wide range of educational resources.

However, this positive impact can only be achieved if mobile technology is used wisely and well integrated into the curriculum. On the other hand, the use of mobile technology can also disrupt students' concentration during class. Therefore, adequate support and training for teachers in using technology is also an important factor to ensure effective and maximum use in increasing student engagement.

Overall, it turns out that teacher attitudes have a significant positive influence on student engagement, while mobile technology does not have a significant influence on student engagement during classroom learning. The combination of a positive teacher attitude and appropriate use of mobile technology can create a more dynamic and participatory learning environment, ultimately increasing student engagement and academic success.

REFERENCES

Balalle, H. (2024). Exploring student engagement in technology-based education in relation to gamification, online/distance learning, and other factors: A systematic literature review. *Social Sciences & Humanities Open*.

Chelsea Dobbins, P. D. (2017). MyWallMate: An Investigation into the use of Mobile Technology.
AECT, 541-549.

David Nkengbeza, D. M. (2022). Challenges Faced by Primary School English Teachers in Integrating Media Technology in the Teaching and Learning of English. *Creative Education*.

Fernanda Ramírez Hernández, M. F.-R.-V.-A. (2024). Effects of Effect of classroom climate and eudaimonic well-being on student engagement in Mexico and El Salvador. *International Journal of Educational Research Open*.

Firmansah, Yayan. (2023). Performance Apraisal: A Study in Indonesian Islamic Higher Education Istitution. *JURNAL VALUE: Jurnal Manajemen dan Akuntansi.* Vol. 18, no. 3. (855-868).

Houston Heflin, J. S. (2017). Impact of mobile technology on student attitudes, engagement, and learning. *Computers & Education*.

Irena Burić, H. W. (2024). Relationships among teacher enjoyment, emotional labor, and perceived student engagement: A daily diary approach. *Journal of School Psychology*.

Jalal Rajeh Hanaysha, F. B. (2023). Impact of classroom environment, teacher competency, information and communication technology resources, and university facilities on student engagement and academic performance. *International Journal of Information Management Data Insights*.

Leah Taylor, J. P. (2011). Improving Student Engagement. *Current Issues in Education*. Matthew L. Bernacki, J. A. (2019). Mobile Technology, Learning, and Achievement: Advances in
Understanding and Measuring the Role of Mobile Technology in Education. *Contemporary Educational Psychology*.

Muhammad Rahimi, K. K. (2023). Exploring expert teachers' cognitiExploring expert teachers' cognitions and practices of teaching English speaking and their students' experiences and engagement. *System*.

nugroho, B. a. (2023). Mobile Learning Environment System: Android Media Development From a Validity Perspective . *Biopedagogia*, 26-36.

Pei-Hsin Li, D. M.-E. (2024). Student engagement and teacher emotions in student-teacher dyads: The role of teacher involvement. *Learning and Instruction*.

THOMAS L. GOOD, J. E. (1972). BEHAVIORAL EXPRESSION OF TEACHER ATTITUDES.
Journal of Educational Psychology, 617-624.

Traxler, J. (2007). Defining, Discussing, and Evaluating Mobile Learning: The moving finger writes and having writ   *International Review of Research in Open and Distance Learning* .

Veiga, F. H. (2016). Assessing student Engagement in School: Development and validation. *Procedia - Social and Behavioral Sciences*, 813 – 819.

Vesa Korhonen, E. K. (2024). Student engagement and its development in university education: Athree- year follow-up study. *Learning and Individual Differences*.