The Contribution of Teacher-Student Attachment on Problematic Internet Use (PIU) Among High School Students

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Abstract

Teachers in schools can affect internet use among adolescent students, who have a high prevalence of accessing the internet for purposes other than educational content. This research aims to investigate the contribution of the teacher-student attachment to the problematic internet use (PIU) of high school students. The respondents came from high school students (N = 160) with a mean age of 13.8 (SD = 1.6), and 58% were female. Data was collected using an accidental sampling technique. PIU is measured by self-report scale using the Indonesian Problematic Internet Use Scale (IPIUS) and teacher attachment using the Inventory of Teacher-Student Relationship (ITSR). This research applied content validity and Cronbach's alpha. Data was collected with Google Forms and data analysis using regression analysis assisted by the SPSS software. The findings show a significant contribution from teacher-student attachment to high schools' PIU and highlight the importance of teacher roles in the onset of behavioral problems associated with internet use. More discussion about the role of teachers in determining adolescent student behavior is suggested.

Abstrak

Guru di sekolah dapat memengaruhi penggunaan internet di kalangan siswa remaja yang memiliki prevalensi tinggi mengakses internet untuk tujuan selain konten pendidikan. Penelitian ini bertujuan untuk menyelidiki kontribusi kelekatan guru-siswa terhadap *problematic internet use* (PIU) siswa sekolah menengah. Responden berasal dari siswa sekolah menengah (N = 160) dengan usia rata-rata 13,8 (SD = 1,6), dan 58% adalah perempuan. Data dikumpulkan menggunakan teknik *accidental sampling*. PIU diukur dengan skala laporan diri menggunakan Indonesian Problematic Internet Use Scale (IPIUS) dan keterikatan guru menggunakan Inventory of Teacher-Student Relationship (ITSR). Penelitian ini menerapkan validitas konten dan alpha Cronbach. Data dikumpulkan dengan Google Forms dan dianalisis menggunakan analisis regresi yang dibantu oleh perangkat lunak SPSS. Temuan menunjukkan kontribusi yang signifikan dari kelekatan guru-siswa terhadap PIU siswa sekolah menengah dan menyoroti pentingnya peran guru dalam timbulnya masalah perilaku yang terkait dengan penggunaan internet. Diskusi lebih lanjut tentang peran guru dalam menentukan perilaku siswa remaja disarankan.

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INTRODUCTION

The usage of the Internet among students today is inevitable. Using the Internet makes daily activities much easier, including the teaching and learning process in schools. According to data from the Indonesian Internet Service Providers Association (Indonesian: *Asosiasi Penyelenggara Jasa Internet*

Indonesia, abbreviated as APJII; 2022), high school and college students are the most common internet users. The existence of the Internet in education provides benefits related to ease of accessing learning material information and various other conveniences in the learning system, such as the use of videos (D'Aquila et al., 2019) and games in learning (Cheung & Ng, 2021) to make learning more interesting, facilitating accessibility in hybrid learning through e-learning, and various other advantages in using internet connections in the context of education. Dogruer et al. (2011) discovered that accessing the Internet makes it easier for students to get the materials needed to complete assignments. Almasi et al. (2017) also state that internet-based learning is beneficial.

On the other hand, internet use is like a two-edged sword, with negative consequences in the form of concerning psychological issues. Individuals who have difficulty controlling their internet behavior are found to have problems with cognitive abilities such as the ability to inhibit, make decisions, and working memory (Ioannidis et al., 2019), the ability to process information (Fisher et al., 2015), the ability to empathize (Jeon et al., 2018), emotion regulation (Gioia et al., 2021), and depression (Boers et al., 2019). In addition, Machimbarrena et al. (2018) discovered that teenage students who use the Internet have a significant frequency of more serious mental health issues, notably cyberbullying, which is linked to experiences of online harassment in the form of online grooming and online sexting. This discovery is in accordance with the statement by Almasi et al. (2017) that there is an increasing number of concerns with internet use in the classroom while the learning process is happening, which is related to students' use of social media, chatting, socializing, and playing games more frequently than studying.

Furthermore, Society 5.0 encourages internet use in all age groups, including the age of students. According to APJII (2022), around 77% of Indonesia's population accessed the Internet in 2022. Burhan (2021) wrote that teenagers are the most frequent users of the Instagram application. Data shows an increase in teenagers using music streaming applications since 2017 (Rhesa, 2022), as well as an increase in the use of the TikTok application in 2023 (Annur, 2023) in Indonesia. These data demonstrate the high amount of internet use among Indonesian high school students, particularly social media applications. This argument is supported by data from APJII (2022), which shows that students use the Internet more for social media than educational content in Indonesia. Even though there is evidence discovered that high school students' usage of the Internet for recreational and communication purposes was linked to warm relationships with peers, which led to the development of adolescents' social skills (Bezinović et al., 2015), certain Internet activities can also contribute to a deterioration in students' well-being (Gordon et al., 2007). This describes the negative and positive aspects of students using the Internet in class. Students may stay updated with knowledge and obtain effortless access to materials for learning or accomplishing tasks. At the same time, students may be distracted by other internet-related activities unrelated to the learning process, such as social networking, streaming, chatting, gaming, and many more.

Teenagers in Indonesia spend more than five hours online daily (Rahmawati & Bustan, In press). However, internet use was substantially connected to depressive symptoms and procrastination (Andangsari et al., 2019). The studies and data presented above demonstrate that today's high schoolers' internet use leads to maladaptive use because they need help managing their everyday internet usage behavior. They tend to stay connected to the internet for extended periods for no apparent reason, such as checking social media. Several studies also reveal that they have certain anxiety when they miss out on information as compared to their friends. Therefore, they can constantly check notifications that come on their devices (Balqis & Yusainy, 2021; Husna, 2023). This description of internet usage behavior reflects problematic internet usage, also known as

problematic internet use (PIU). This behavior may emerge due to teenage students' internet use problems. PIU is a symptom or syndrome that individuals experience in cognitive, emotional, and behavioral aspects due to maladaptive internet use, which results in negative things in academic, work, and social situations (Caplan, 2003). The term problematic relates to teenage issues regulating their cognitive obsession with being separated from an online connection (Caplan, 2010).

High school students' difficulties while connected to the internet can be hampered if they have protective factors from their immediate environments. Support from parents in the caregiving process has been shown to influence their internet use (Bleakley et al., 2016; Lukavská et al., 2020). The quality of interactions between parents and children also highlights their contribution to teenage PIU (Rahmawati et al., In press). In general research on the use of gadgets, poor parental psychological control was found to be a factor in increasing the prevalence of PIU ownership among teenagers (Lathiifah et al., 2023). Several issues should be highlighted in research on the role of parental support in teenage PIU. According to meta-analysis research by Lukavská et al. (2020), the association between parenting and PIU is intermediate.

Furthermore, Hasanah et al. (2023) underlined that communication between parents and teenagers would successfully overcome PIU only if the stress level were low. The findings of Lathiifah et al. (2023) also stress that numerous forms of parenting techniques, such as parental assertiveness (authority assertion), rejecting behavior (love withdrawal), and whether the parents introduce some dos and don'ts while using gadgets such as rapid growth technology, are effective in regulating teenagers' use of gadgets. These findings suggest that parenting roles require support from other social institutions, which may reduce the growth of PIU. Most high school students spend time outside the family, so this pattern of maladaptive behavior associated with the internet could result from their wider environment.

Protective factors also come from the other social agents in the individual microsystem, such as teachers and peers. This is relevant to Bronfenbrenner's ecological theory, which states that microsystem agents can influence individual behavior. In addition, multiple attachment theories also explain other figures besides parents who can be attachment figures and neutralize the poor quality of an individual's attachment to their primary caregiver. This multiple attachment perspective adds to the objectives that social agents such as teachers in their school also have a role in shaping their behavior and self-concept. Many studies confirmed that the teacher-student attachment relationship provides emotional security for the student and, in turn, makes them flourish even in disadvantaged circumstances (Spilt & Koomen, 2022). Besides, a study about teacher-student interaction is also related to student engagement in the classroom (Pianta et al., 2012), making the role of teachers in their students' behavior deserve consideration.

Teachers can affect high schoolers' internet usage habits because they spend most of their time as students at school. In addition, school teachers play a role in restricting internet use during the teaching and learning process in the classroom. Additionally, Zhou et al. (2020) found a negative correlation between teachers and students associated with PIU behavior, even in elementary school children. It is said that a positive interaction between teachers and students decreases or inhibits PIU behavior in children. Other studies have discovered the same thing about the function of positive connections between teachers and students in teenage students, which is defined by the absence of conflict between them and is associated with their low inclination to PIU (Hayixibayi et al., 2021). This research suggests that the teacher had a pivotal role in the school, which might contribute to shaping high school student behavior related to internet use.

Additionally, considering the puberty phase they may encounter at this educational level, the teacher-student relationship in an attachment style should become a concern. A teacher who can accept their students as they are might become a haven for them through facing daily stressors. High-schoolers, in turn, can build their sense of trust in their relationship with their teacher and make them dependable figures when facing problems. The proclivity toward using the internet compulsively could be minimized because they have a figure to share their problems and ruminations so that the need to compensate for their uncomfortable feeling could be resolved. Therefore, this research investigated the contribution of teacher-student attachment to PIU in high school students.

METHODS

This research applies a quantitative design to find the contribution of the independent variable to the dependent variable. The quality of teacher-student attachment is the independent variable, whereas PIU is the dependent variable. Several questions on respondents' demographic factors, including age, gender, parental status, and duration of internet use in one day, were also asked. This research was conducted on junior high school and high school students in the Jabodetabek (an acronym of Jakarta, Bogor, Depok, Tangerang, and Bekasi) area from June to October 2022.

Respondents

This research involved 160 high school students aged 12 to 20 (M = 13.8; SD = 1.6). As many as 58 percent of respondents were female students, with the remainder being male, and almost 49.9 percent spent more than five hours a day using the Internet. Data was collected using an accidental sampling technique with the help of Google Forms. The majority of respondents, or 88 percent, came from intact families.

Measuring Instruments

This research employs two instruments: (1) the Indonesian Problematic Internet Usage Scale (IPIUS), to measure students' maladaptive internet behavior; and (2) the Inventory of Teacher-Student Relationship (ITSR). The first instrument was used with the inventor's consent of the original scale, while the second instrument was the result of an adaptation carried out using Beaton's criteria. Both are self-report measurements, in which respondents fill in the instruments after reading and approving the informed consent form and demographic data.

PIU is assessed using the Indonesian Problematic Internet Usage Scale (IPIUS) developed by Andangsari et al. (2019). The IPIUS consists of 63 statements formed into six dimensions: preference for online social interaction (POSI), escaping, cognitive preoccupation, compulsive internet use, negative outcomes, and emotional reactions. This instrument calculates the total score of 63 statements representing the six dimensions of PIU behavioral symptoms. Some instances of remarks are: "I feel more open to communicating online than face to face" and "when the internet is offline, I still think about going online soon".

The quality of attachment students have with teachers is measured using an adaptation version of The Inventory of Teacher-Student Relationship (ITSR) by Murray and Zvoch (2011). The ITSR consists of 17 items derived from attachment measurement by Armsden and Greenberg (1987) via IPPA. Students' attachment to their teacher has three dimensions: communication, trust, and alienation. This instrument has four response options: never, sometimes, often, and always. The cumulative score of the 17 statements completed by respondents is converted into a total score that measures the quality of their attachment relationship with their teacher. "My teacher knows when I'm sad" and "my teacher helps me understand myself better" are two examples of statements. The instrument's reliability was determined using Cronbach's alpha values of .91 and .89, while the content validity value using Aiken's V was .83 and .80.

Analysis

The influence of the independent variable on the dependent variable is then determined using multiple regression analysis, which is done using SPSS 25.

RESULTS

The findings of the descriptive analysis of PIU and attachment to the teacher are shown in Table 1 below, along with the results of the analysis of the description of demographic factors obtained, such as age, gender, and duration of internet use. This table shows that the average length of internet use for students is more than five hours per day, which dominates the frequency of internet use. Table 1 below also shows that most of the respondents of this research are female, as much as 57 percent. This table also illustrated that the respondents of this research come from the middle adolescence stage. All of these demographic findings will be further analyzed in the discussion section.

Table 1.
Descriptive Analysis

Predictors	Mean	Standard Deviation	Frequency	%
Teacher-student attachment	45.86	9.07		
PIU	261.72	69.04		
Age	13.83	1.57		
Gender				
Male			68	42.2
Female			92	57.1
Duration				
0–1 hour			4	2.5
1–3 hour			19	11.8
3–5 hour			58	36.0
> 5 hour			79	49.1

This research investigates the influence of students' attachment to teachers on their PIU tendencies. It employed regression analysis to demonstrate this. The results of this analysis are described below.

Table 2.
Regression Analysis

Model	Standardized Coefficients	t	Sig.
	Beta		
1 (Constant)		12.57	.000**
Teacher-student attachment	- .240	-3.108	.002**
R^2	.058		

Note. (*) significant at $p < .05$, (**) significant at $p < .001$

This table shows that students' attachment to their teachers significantly influences their problematic internet usage behavior ($p < .00$). The direction of the relationship is also negative, indicating that the stronger the student's attachment to the teacher, the lesser the PIU behavior. Attachment to the teacher based on the findings contributes to up to 6 percent of students' PIU behavior.

DISCUSSION

This research revealed that teacher-student attachments were found to contribute 6% to students' PIU behavior and had a negative direction, which means that when a student has a strong attachment to

his teacher, he has a low PIU tendency, and vice versa. This finding supports the theory that individuals have attachments with others besides their primary caregivers (Cassidy, 2016; Spilt & Koomen, 2022). This finding is in accordance with the attachment theory, which states that teachers provide multiple attachments instead of parental figures, which could contribute to developing maladaptive internet behavior. This research shows that students' attachment to their teachers' figures significantly affects their PIU behavioral tendencies.

This research finally covers a gap that has rarely been filled before, which only focuses on the primary figures, such as parents, that could contribute to one's behavior. Teacher-student attachment was discovered to influence the PIU of high school students. Teachers' responses to teenagers at school assist them in overcoming issues they face outside of school. Teachers who are emotionally close to their students are responsive to their demand for attention and can communicate interactively, representing their strong attachment to their students. This appears to be related to their regulation of internet usage behaviors because students believe that the teacher figure is dependable, so teachers indirectly regulate children's internet usage instead of engaging in meaningless internet behavior. The teacher-student attachment also represents that their teacher figure could fill adolescents' emotional needs, i.e., to be heard, to be understood, and to need guidance. In short, teachers become a haven for students to express their feelings and thoughts. This is in accordance with a previous study that stated that the attachment relationship built by teachers with their students provides emotional security so that their students can trust and depend on them when needed (Spilt & Koomen, 2022). In this research, we enrich the previous study with the student appraisal of their relationship with their teacher in terms of attachment relationship because we use a tool to measure the student perception about the relationship they had with their teacher named The Inventory of Teacher Student Relationship (ITSR) that originally constructed from Armsden and Greenbergs' IPPA.

This finding is further supported by the adolescent stage they are in, where teacher figures at school might buffer the stage of searching for self-identity and rebellion against parents. At this age, adolescents require a figure who understands the complexities of life. As a result, reciprocal communication, as noted by Hasanah et al. (2023) and Maulida et al. (2023), is essential when they do not always follow and obey an authority figure. School teachers can fill in this figure to minimize behavioral problems (Li et al., 2022), such as PIU.

Noted that teacher-student attachment research was scarce (García-Rodríguez et al., 2023), in general teacher-student relationship and its impact on internet use behavior still need to be more concerned. Hayixibayi et al. (2021) found there was a contribution from a student who had a conflict with their teacher in their internet use behavior. Their research investigated the number of experiences and conflicts students have with their teacher (e.g., punishment, both emotional and physical, and quarrels) and discovered that it contributed to students' PIU behavior. However, their study lacks of emotional aspect that might appear in students as they are still emotionally unstable adolescents, so their emotional state might influence their behavior of internet-related activity in their daily lives. This research considers the emotional aspect of adolescents, utilizing IPIUS, which measures emotional reactivity. Instead, they stated that this result may have emerged because of cultural values in which the teacher figures are held in high esteem in Chinese Confucian culture (Hayixibayi et al., 2021). Other studies did not clearly state the role of behavior teachers have in contributing to student internet use (Xin et al., 2018).

To the best of researchers' knowledge, no study has directly explored the relationship between students' attachment to their teachers. This research backs up recent research by Zhou et al. (2020), which looked at the impact of student-teacher attachment as a moderating variable and focused on a

certain subject context. They discovered a significant relationship between teacher-student relationships and PIU in primary school students. It was noted that students' feelings of trust and evaluation that the teacher was responsive to their needs in class helped them acquire efficacy in carrying out specified tasks. More specifically, this research adds to prior study findings that communication and trust between students and teachers and an absence of alienation among high school students can help them reduce their internet usage behavior. This may occur because teachers act as responsive figures, assisting students in meeting their needs while at school. However, Zhou et al. do not directly address the quality of attachment but rather teacher-student relationships in general and only relate to students' perceptions of the teacher's presence in the classroom during certain subjects. This is important since different subjects require different learning and teaching approaches. Thus, teachers can adjust their interactions with pupils based on the setting.

Another study linked to teacher attachment to PIU that researchers have discovered is quite scarce. This demonstrates that there needs to be more concern about multiple attachments to teacher figures, which should be developed to inhibit maladaptive behavior in the school context. Other research on attachment and occupation as a teacher discovered that teachers with avoidance attachment actually impede the adjustment process of primary school students (Lifshin et al., 2020). Children in primary schools perceive their teachers as unresponsive and that their teachers ignore and reject them, affecting their adjustment to tasks and the school environment. This highlights the importance of developing multiple attachments further, such as in the school context, because they can be interrelated and result in behavioral problems. Other research about multiple attachments also supported this research's finding that poor peer attachment contributed to the increased risk of teenage PIU (Reiner et al., 2017). They explained that insecure peer attachment in adolescents might have low social competence. This, in turn, makes it challenging to perform social contact and leads them to interpersonal problems like loneliness. To compensate for this condition, they use the Internet activities. This is relevant to our finding that attachment to teachers contributes significantly to high school students' PIU. Our finding explains that we also investigated the emotional context in which high school students exhibit maladaptive internet behavior. It could happen because they frequently use the internet to compensate for their uncomfortable feeling related to the result of the puberty process in which they may be feeling lonely, different, and inferior to their body image. It could also be more complex because of the development of the cosmetic industry, where, nowadays, it sets up a high standard for defining beauty. This, in turn, may be correlated with interpersonal relationships such as peer acceptance or even romantic relationships where they are in their developmental task as adolescents who begin a hobby, friendship, or interest and build relationships with the opposite sex. Previous studies also found there is a relationship between having or not having a girlfriend or boyfriend with PIU. This finding supports the explanation of romantic relationships before. Finally, the teacher's pivotal role is to maintain and help students regulate internet-using behavior. Teachers can fill the role of parents at school by enforcing internet-related rules so that adolescent students do not acquire improper, maladaptive, or misconduct behavior. Teachers could also become teenagers' friends and build a strong bond with them at school, where they spend most of their time, so they could help them inhibit PIU behavior. Studies about teacher contribution to student internet use were still limited.

CONCLUSION

This research revealed a contribution from teacher-student attachment to teenagers' PIU. The less attachment they have to the teacher, the more vulnerable they are to developing PIU behavior. Although the contribution is little, it is worth considering the importance of teacher roles in the onset of behavioral problems associated with internet use. Other variables influencing students' internet be-

havior regulation include age, gender, cognitive ability, interactions between attachment figures, and the individual's internalizing and externalizing problems. Future studies should be conducted to assess teachers' roles toward students more precisely. This is because multiple teachers interact with or teach students in a school setting. This may impact students' perceptions of their relationships with teachers. Appropriate methods for measuring this can be applied, such as a sociometric approach backed by psychological measurement scales. In addition, age and gender may need to be considered. These two factors have a tremendous influence on attachment relationships.

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