

VARIATIONS IN LEARNING INTEREST AMONG ELEMENTARY SCHOOL STUDENTS WHO PLAY ONLINE GAMES: A QUALITATIVE CASE STUDY

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ABSTRACT

Learning interest is important factor driving activeness and determining learning success. However, the increasing play of online games has led to variations in learning interest that are not yet fully understood in the elementary school context. This study aims to analyze the learning interests of phase C students (grades V and VI) who play online games. The qualitative research approach uses a case study method with five phase C students, three teachers, and five parents as subjects at two elementary schools in Gugus Eka Kapti, Maos District, Cilacap. Data were collected through observation, interviews, and documentation studies. Data were analyzed using an interactive model that includes data condensation, data presentation, and conclusion drawing. Data credibility was established through triangulation of sources and techniques. The results show that the learning interests of elementary school students who play online games vary. Some have a strong desire, a sense of enjoyment, attention, and enthusiasm and are active and disciplined in learning, while others are easily distracted and less active. This variation occurs due to the interaction between internal factors (self-motivation, focus, interest, and learning discipline with support, guidance, and supervision from teachers and parents) and external factors (support, guidance, and supervision of teachers and parents). Based on the strength of the emergence of indicators, learning interest is categorized as high (stable and consistent), medium (fluctuating), and low (weak or easily distracted). Mapping these learning interest indicators provides a basis for teachers and parents to adjust learning strategies and management of learning activities in the digital era so that the learning experience becomes more fun, effective, and meaningful for the cognitive, social, and emotional development of students.

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INTRODUCTIONS

Interest in learning is an important factor that makes students actively involved in the learning process and plays an important role in academic achievement. It is closely linked to motivation both intrinsic and extrinsic and serves as a crucial factor in academic achievement, consistent learning engagement, and the development of self-potential (Subarkat & Andriani, 2021; Andriani, 2022; Ariani, 2022; Trisnani & Wardani, 2018). An educational approach that values freedom of thought, acknowledges diverse intelligences, and addresses students' psychological needs fosters greater engagement in learning. This makes learning more meaningful and positively impacts students' academic development, character building, and social skills in elementary school (Wakhudin, 2018; Suyitno, 2021; Gardner in Andriani, 2023; Hidayat & Santosa, 2024; Santika et al., 2025; Hapsari & Nugroho, 2023). In the digital age, understanding learning interest is increasingly crucial. Students' interactions with digital devices, social media, and various forms of digital entertainment significantly shape how they acquire information, focus their attention, and build motivation to learn (Hidayat & Santosa, 2024; Andriani, 2023).

A rapidly growing phenomenon in this context is the rising engagement with online games among elementary school students. Children are increasingly accustomed to accessing the internet and playing online games from an early age (Wakhudin, 2018; Hidayat & Santosa, 2024). Games such as *Mobile Legends* and *Free Fire* are not merely entertainment; they also facilitate strategic thinking, teamwork, social interaction, and cognitive stimulation (Hasanah & Putra, 2022; Annaba & Efendi, 2023; Al-Khayat et al., 2023; Ajis et al., 2024; Romadany & Dananier, 2024). This trend indicates that online games have become integrated into students' lifestyles, thereby exerting both positive and negative influences on their learning interest and motivation (Marta et al., 2022; Basri et al., 2024; Riskun & Uce, 2025). Therefore, the influence of online games on learning interest is not necessarily "positive" or "negative," but highly dependent on the context in which the game is played, environmental support, and the psychological dynamics of the students.

Initial observations at two elementary schools in the Eka Kapti Cluster in Cilacap showed signs of a change in learning interest among students who were intensely playing online games, especially in phase C. This was clearly evident during the learning process, as a number of students appeared less focused on following teacher explanations, were reluctant to do assignments, did not bring practical tools, preferred to chat with friends, and some even fell asleep during the learning process. The class teacher explained that this behavior recurred because students were accustomed to playing online games, such as Free Fire, until late after school, often neglecting rest time and homework. Parents' statements also confirmed that some children spent more time at device rentals than studying. These symptoms indicate a decline in learning interest, which is evident in a weakening of attention, discipline, and enthusiasm for learning.

Several studies have shown that online games can have a positive impact on student development. Moderate online gaming has been shown to improve students' strategic, collaborative, and critical and creative thinking skills (Hasanah & Putra, 2022; Al-Khayat et al., 2023). Furthermore, several studies confirm that online games can also increase learning motivation and social interaction when combined with appropriate learning and a supportive learning environment (Azzahroh & Hasanah, 2023; Ajis et al., 2024; Romadany & Dananier, 2024). These positive effects are contextual and influenced by the duration of play, the type of game, and the conditions of the student's learning environment (Basri et al., 2024; Riskun & Uce, 2025; Simanjuntak et al., 2025). While some studies have shown benefits from online gaming, such as improving cognitive abilities or teamwork, many others highlight its negative impacts, such as decreased learning motivation or a tendency toward addiction, decreased concentration and academic achievement, and increased aggressive behavior (Trisnani & Wardani, 2018; Kustiawan et al., 2019; Meutia et al., 2020; Saputra et al., 2024; Firmansyah, 2023; Meldawati, 2022). Furthermore, uncontrolled online gaming is also associated with decreased empathy, increased egocentrism, and impaired social interaction among students (Harahap & Ramadan, 2021; Pelawi, 2021; Saputra, 2022; Pratiwi & Yusnaldi, 2022; Sari, 2025).

Although numerous studies have highlighted the impact of online games on students, most have focused on the general positive or negative impact on motivation and learning achievement or limited their analysis to specific

subjects. Furthermore, previous research has predominantly used a quantitative approach, thus not providing an in-depth picture of the dynamics of learning interest in elementary school phase C students who utilize online games as part of their daily routine. The novelty of this study lies in its use of a qualitative approach to map variations in learning interest in detail. According to Slameto (2015), indicators of learning interest include desire, enjoyment, attention, interest, activeness, and learning discipline. This approach allows for an in-depth analysis of how each indicator appears in the learning behavior of students who play online games, and categorizes them into low, medium, and high categories based on their strength.

The research problem is formulated as follows: "How do learning interests vary among elementary school students who play online games?" This study aims to analyze variations in learning interests among students who play online games based on six indicators of learning interest and categorize them into low, medium, and high categories based on their strength. The research findings are expected to provide a conceptual contribution in the development of studies on learning interests in the digital era, as well as being a practical reference for teachers, parents, and curriculum developers to manage the influence of online games more adaptively, so as to be able to support a learning process that is meaningful, enjoyable, and in accordance with the psychological needs of students.

RESEARCH METHOD

This research uses a descriptive qualitative approach with a case study design to analyze the learning interests of Phase C students (grades V and VI of elementary school) who utilize online games. This approach enables researchers to gain a comprehensive understanding the social context, behavior, and experiences of students while also examining the relationship between online gaming habits and various aspects of learning interests. According to Creswell (2016), a qualitative approach is used to understand the meanings formed by individuals or groups regarding social phenomena. While case studies, as explained by Ulfatin (2015) and Sinaga (2025), emphasize intensive, in-depth analysis of a single event without altering the natural setting.

This research was conducted from September to November 2025 at two elementary schools in the Eka Kapti Cluster, Maos District, Cilacap, selected because they demonstrated a high level of online gaming intensity among students and had a cooperative school environment for research activities. The entire research process applied ethical principles, including official approval from the school and parents/guardians, verbal consent from students, confidentiality of identity through subject codes, voluntary participation without coercion, and assurance that the research would not disrupt the comfort or learning process in the classroom.

The research subjects were selected through purposive sampling based on their close experience with the case under study, namely the dynamics of learning interests among students who actively play online games. The subjects consisted of five students in phase C (codes C1-C5) who exhibited varying learning interests and intensity of online game play, helping the researcher capture the diversity of learning interaction patterns in real-world settings. Three classroom teachers (coded D1-D3) were involved because they interact directly with students on a daily basis, understand the learning situation in the classroom, and observe changes in learning behavior that emerge during the learning process. Furthermore, five parents/guardians (coded E1-E5) were selected because they are the ones who know their children's learning habits at home and how online gaming activities appear in their daily lives. The composition of subjects with these codes allows for a more systematic data organization and produces an in-depth and comprehensive case study picture of the dynamics of learning interests in students who play online games.

Data were collected through observation, in-depth interviews, and documentation to map variations in learning interests based on indicators of desire, enjoyment, attention, interest, activeness, and learning discipline. Observations were conducted using observation sheets based on indicators of student learning interests to record findings during learning at school. Semi-structured interviews were conducted using an interview guide based on seven indicators of learning interests with a flow of interrelated questions; for example, questions for students: "How do you divide your time between studying and playing online games, and what keeps you enthusiastic about following lessons even though

you like playing games?" then deepened by asking teachers, "How is the discipline and involvement of students who play online games during learning, especially when given assignments that require focus?" Next, parents were asked for confirmation by asking, "How does the family help children maintain a balance between playing games and studying at home to maintain discipline and focus?" Documentation in the form of teacher notes, student activity journals, assessment book, and school documents was used to strengthen the findings of observations and interviews so that a comprehensive and accountable picture of the learning interests of students who play online games can be obtained.

Data were analyzed using the interactive model of Miles, Huberman, & Saldaña (2018), which includes three main stages: data condensation, data presentation, and conclusion drawing. In the condensation stage, data from observations, interviews, and documentation were synthesized to highlight the learning behavior of students who play online games and converted them into low, medium, and high categories according to their strength of occurrence. The condensed data were then presented narratively to illustrate the relationship between gaming habits, aspects of learning interest, and student activities in class. Conclusions were drawn inductively, interpreting the meaning of the data and linking it to theories of learning motivation, student digital behavior, and educational psychology. The analysis was carried out continuously to ensure accurate and representative findings.

To ensure the trustworthiness of the data, source and technique triangulation were employed (Sinaga, 2025). Source triangulation compared the views of teachers, students, and parents regarding the impact of online games on learning interest, while technical triangulation combined the results of observations, interviews, and documentation to obtain a comprehensive picture of student behavior, interactions, and learning motivation. This approach ensured that the data obtained was valid and credible and that the research results were able to comprehensively represent real-world conditions, particularly in describing how each aspect of learning interest emerged and was influenced by the use of online games.

RESULT AND DISCUSSIONS

Result

Mapping Variations in Learning Interests According to Indicators

Data gathered from observations, interviews, and documentary analysis reveal considerable variation in the learning interest of Phase C students who play online games. The seven indicators of learning interest-desire, enjoyment, attention, interest, activeness, and discipline. These collectively illustrate of how students balance their learning activities and online gaming activities. Table 1 presents profiles of five representative students, highlighting these variations and underscoring the pivotal role of teachers and parents in supporting student motivation, engagement, and the management of learning and gaming activities. This presentation facilitates a nuanced understanding of how each aspect of learning interest manifests, interacts, and is influenced by students' digital habits. This presentation facilitates understanding of how each aspect of learning interest emerges, interacts, and is influenced by students' digital habits.

Table 1. Mapping the Learning Interests of Phase C Students Playing Online Games

Indicators of Learning Interest	C1	C2	C3	C4	C5
Desire to Learn	Starts learning independently, manages study-play time well, and takes initiative to	Learns after being reminded; motivation fluctuates.	Reluctant to start learning and easily bored. Teacher sees unstable focus;	Rarely starts learning independently and is easily distracted by parents often	Sometimes starts learning but is easily distracted and inconsistent. Teacher and parents note the

Indicators of Learning Interest	C1	C2	C3	C4	C5	
	complete tasks. Teacher observes good focus; parents give consistent support.	parents maintain consistency.	help	remind the child to study.	observes low focus; parents need to provide regular guidance.	need for extra supervision.
Feeling of Enjoyment	Shows enthusiasm for learning while still liking games. Teacher notes a positive attitude; parents support balanced activities.	Sees learning as a routine activity and tends to prefer games. Teachers and parents help maintain balance.	Enjoys playing games more than learning; considers lessons boring. Teacher notices low motivation; parents see low enthusiasm.	More attracted to instant rewards from games; finds it difficult to enjoy learning. Teachers and parents struggle to increase interest.	Low enjoyment in learning and prefers entertainment. Teachers and parents observe a strong preference for games.	
Attention	Able to focus on learning and shift attention away from games. Teacher notes good self-regulation; parents support focus.	Sometimes distracted by games but still able to focus part of the time. Teachers and parents help sustain attention.	Often thinks about games while studying and is easily distracted. Teachers and parents need strategies to improve focus.	Attention is easily diverted and difficult to sustain. Teachers and parents see the need for intensive	Attention is unstable; can focus briefly before becoming distracted. Teachers and parents require regular assistance. guidance.	
Interest / Enthusiasm	Shows high curiosity about the material and wants to explore more. Teachers and parents observe strong intrinsic motivation.	Interested in some materials, but games are more appealing. Teachers and parents help maintain stable motivation.	Seldom shows curiosity and prefers games. Teachers and parents need triggering strategies to increase engagement.	Shows no interest in the material and focuses more on games. Teachers and parents struggle to draw attention.	Shows very low interest in lessons and perceives games as more challenging. Teachers and parents notice low motivation.	
Activeness	Actively answers questions and participates in discussions. Teacher sees high participation; parents encourage involvement.	Sometimes active, but participation is inconsistent. Teachers and parents work to support engagement.	Rarely asks questions or participates in discussions. Teachers and parents need to provide additional motivation.	Tends to be passive and afraid of making mistakes. Teachers and parents must provide intensive guidance.	Very passive, often postpones tasks, and shows minimal participation. Teachers and parents require increased supervision.	

Indicators of Learning Interest	C1	C2	C3	C4	C5
Discipline	Completes tasks on time and manages study-play schedules well. Teachers and parents observe good time management.	Sometimes delays tasks but completes some of them. Teachers and parents help maintain consistency.	Often delays or forgets assignments. Teachers and parents need to provide frequent reminders.	Rarely completes tasks due to being easily distracted by games. Teachers and parents offer intensive guidance.	Frequently forgets or delays tasks due to gaming. Teachers and parents provide additional direction.

The indicator mapping table shows that students' learning interest does not exist as a single condition but is formed through the dynamics of behavior, emotions, and learning experiences that occur in everyday life. To understand this picture in detail, the following findings are presented based on the six indicators of learning interest analyzed, including:

1. Desire to Learn

The desire to learn appears to differ based on how students balance academic activities with their gaming interests. C1 was seen starting learning without needing direction. The teacher reported that C1 was accustomed to opening a book before class began. Observations also revealed a consistent readiness to learn. This contrasted with C3, who tended to delay starting learning activities and only engaged after specific instructions. C3's parent reported that "until I finish playing a game, I feel lazy to open a book" (Interview with E3, 2/10/2025). The teacher's notes showed a similar pattern. These findings illustrate that the desire to learn develops through stable habits, while the dominance of digital games often shifts academic activities to a later priority.

2. Enjoyment in Learning

Enjoyment in learning activities also shapes the intensity of student engagement during learning. C1 appeared to enjoy the learning process through enthusiastic expressions, full attention to the material, and spontaneous responses to teacher questions. This aligns with his statement that "learning is fun if you can understand everything" (Interview with C1, 8/10/2025). In contrast, C4 displayed a flat expression, minimal eye contact, and showed little enjoyment in learning. C4 parents confirmed that digital games were considered more interesting than studying. C2 displayed moderate emotional responses. Observations showed that C2 appeared happy when understanding the material, but this expression was not always present in every session. The teacher stated, "If the material is interesting, C2 is enthusiastic, but if it's a bit difficult, it immediately drops off" (Interview with D2, 7/10/2025). This pattern indicates that C2's enjoyment of learning fluctuates and is influenced by the level of difficulty of the material. This illustrates that the emotional experience of learning determines a student's comfort level for full engagement.

3. Attention

Attention in learning is seen as the ability to maintain focus despite strong urges to think about games. C1 maintained focus throughout learning activities, was rarely distracted while studying, and completed assignments without stopping midway. In contrast, C5 frequently lost focus and appeared to daydream before becoming active after being called on by the teacher. C5's parent added that the child often forgot assignments because he became carried away playing games (Interview with E5, 2/10/2025). This finding suggests that the ability to maintain attention is highly dependent on self-control over the urge to return to gaming activities.

4. Interest / Enthusiasm

Curiosity about the subject matter appeared to be the primary driver of enthusiasm for learning. C1 demonstrated interest by initiating questions and requesting additional explanations; the teacher stated, "C1 often asks

for additional material because he wants to know more" (Interview with D2, 7/10/2025). In contrast, C3 stated, "Playing games is more challenging than studying" (Interview with C3, 2/10/2025), which aligns with the class discussion portfolio, which showed very low verbal contributions. C2 demonstrated selective interest. Observations showed that C2 actively asked questions only on topics he found interesting. The teacher explained, "C2 will ask questions if the material aligns with his interests, but otherwise, he remains silent" (Interview with D2, 7/10/2025). This pattern suggests that C2's enthusiasm is driven by a match in interests, not a general interest in learning. This finding reinforces that learning engagement will persist when children find intellectual challenge and emotional reinforcement, not only in the end result but also in the process.

5. Activeness

The level of activeness appears to be related to students' confidence in interacting in class. C1 actively responded to questions, raising her hand first and sparking class discussions while consistently contributing verbally. In contrast, C4 tended to be passive, even though her understanding was not problematic. The teacher stated that "C4 understands but is afraid of making mistakes, so she rarely speaks up in class" (Interview with D2, 7/10/2025). C4's parent confirmed her child's concern about potential ridicule if her answer is deemed incorrect. C2 demonstrated situational activeness. When understanding the material, C2 did not hesitate to respond to the teacher's questions but rarely initiated questions. Observations showed that C2 participated primarily when the teacher allowed turns or when learning was designed in a small group format. This suggests that C2's activeness develops when the social context feels safe and familiar. These findings suggest that activeness is strongly influenced by students' sense of security within the social context of learning.

6. Discipline

Learning discipline appears to depend on routines and time management between academics and games. Assignment records show that C1 consistently completed and submitted assignments before the deadline, and the teacher confirmed that "almost all of C1's assignments were completed before the deadline" (Interview with D3, 8/10/2025). This contrasts with C5, who submitted assignments late several times. C5's parents reported that their child often forgot assignments after playing games because it was difficult to stop. Weekly assignment recaps showed repeated lateness. These findings suggest that discipline emerges when learning activities become established habits, while dependence on games easily shifts the continuity of academic routines.

Conversion of Learning Interest into Low, Medium, and High Categories Based on the Strength of Its Emergence

The variation in learning interest of students who play online games is not only determined by the positive or negative effects of playing games but also by the strength of each indicator in daily behavior. In-depth analysis shows how each indicator of learning interest appears in student behavior and is converted into low, medium, and high categories according to its strength, as explained by Slameto (2015). The learning interest category can be categorized as high if it is characterized by consistent and strong indicators, the medium category appears fluctuating, while the low category is characterized by weak, unstable indicators and is often accompanied by avoidance or distraction behavior.

Student C1 was the only one demonstrating a high level of learning interest. Nearly all indicators appeared consistently, indicating a strong internal drive: he was able to initiate learning independently (desire to learn), enjoyed the learning process (pleasure), focused on the material (attention), was interested in exploring new topics (interest), was active in discussions (activeness), and was disciplined in completing assignments (discipline). Supportive external factors, such as supervision and positive reinforcement from teachers and parents, enabled C1 to balance learning and gaming. C1's parent stated, "I implement consistent rules for my child at home, so I maintain a learning routine without having to force him" (Interview with E1, 8/10/2025). This combination of strong internal and environmental support explains how C1 is able to maintain his learning motivation and why his behavior is consistent.

C2 falls into the moderate category. Several indicators appear with fluctuating consistency: sometimes he's focused, interested, and active, but at other times he's distracted by games or procrastinates. This indicates that his internal drive is not yet fully stable, especially in terms of his desire to learn, attention, and activeness. External factors, such as reminders and guidance from teachers and parents, are needed to maintain consistency. One teacher revealed, "C2 can be very focused on some days but needs encouragement on other days" (Interview with D2, 7/10/2025). At home, parents also note similar behavior; sometimes the child studies well, but at other times prefers to play before starting to study. This explains how the indicators appear fluctuating and why his learning behavior is unstable.

C3, C4, and C5 showed low learning interest. Internal indicators such as desire to learn, attention, interest, activeness, and discipline appeared weak, resulting in rarely consistent learning behavior. They quickly became bored, preferred the instant experience of gaming, and tended to avoid learning. External factors, such as a lack of intensive supervision or positive reinforcement, exacerbated the negative impact of digital distractions. One teacher stated, "A few minutes into studying, C5 wants to look at his phone, and often forgets his assignments or isn't ready for the lesson" (Interview with D3, 8/10/2025), while a parent emphasized, "I need to remind him repeatedly to get him to start studying" (Interview with E5, 2/10/2025). This explains how weak internal indicators influence behavior and why students tend to be distracted by games and require more intensive intervention from teachers and parents.

Discussion

Synthesizing the findings, the learning interest of Phase C students who play online games showed significant variation and can be mapped through six indicators: desire to learn, enjoyment, attention, interest, activeness, and discipline. The mapping results reveal how these indicators emerge from students' actual behavior: some are able to initiate learning independently, remain focused, actively discuss, and discipline themselves in completing assignments, while others are easily distracted and exhibit low participation. The reasons for this behavior are influenced by internal factors such as encouragement, enjoyment, focus, discipline, and engagement, as well as external factors such as support, guidance, and supervision from teachers and parents. Based on the strength of the indicator's emergence, learning interest is categorized as high if it is consistent and stable, moderate if it fluctuates, and low if it is weak or easily distracted. For example, student C1 demonstrates a high category on almost all indicators because they are able to balance learning and play and receive consistent environmental support. While student C2 falls in the moderate category with fluctuating behavior, and C3, C4, C5 are in the low category, characterized by motivation that was easily diverted by games, poor focus, minimal class participation, and the inability to manage study and play time effectively.

This research is relevant to Meutia et al. (2020) found that parental, environmental, social, gadget, and internet factors influence online gaming addiction and negatively impact learning interest. Similarities are evident in the phenomenon of low learning interest in students distracted by games, but this study adds that variations in learning interest are also influenced by students' time management skills and support from teachers/parents. The difference is that this study not only highlights negative impacts but also explores the behavior of students who are still able to balance learning and play (e.g., Student C3).

These findings are also relevant to Harahap & Ramadan (2021), who stated that the intensity of online gaming affects student learning outcomes. Similarities are evident in the relationship between game-playing frequency and attention, motivation, and class participation. However, this study emphasizes variations in individual learning interests, rather than just specific game types (Free Fire) or academic scores.

The results align with Marta et al. (2022), who showed that online gaming addiction can cause students to be lazy and indifferent to learning. Similarities are evident in the behavior of Students C4 and C5, who are distracted and lose their motivation to learn. However, this study adds that not all students are negatively impacted equally, as some students (Student C3) are still able to balance learning and playing, thus providing a more nuanced perspective on the impact of online games.

These findings also align with those of Basri et al. (2024), who emphasized the positive potential of online games in motivating learning when used appropriately. For example, Student A, who had a strong interest in learning, remained motivated to learn even while playing games. The difference is that this study emphasizes the importance of time management and the role of teachers/parents as supervisors, whereas previous research focused more on specific classes or learning motivation in general.

The findings related to social behavior and student engagement in class, as experienced by Students C4 and C5, support the findings of Pratiwi & Yusnaldi (2022), who stated that playing games can disrupt personality development and social interactions. However, this study adds that these social impacts can be mitigated with teacher and parental supervision, allowing students to continue learning while playing games.

The consistency of time management, self-regulation, and varied student focus aligns with the findings of Riskun & Uce (2025), who stated that the influence of online games on learning interest is influenced by motivation, engagement, cognitive development, and emotional factors. This study strengthens these findings with empirical evidence from observations, teacher interviews, and parent interviews, thus presenting a more holistic picture of student behavior in the classroom.

In synthesis, this review of literature suggests that students' learning interest is shaped by a complex interaction between internal factors (e.g., motivation, focus, attention, enjoyment, learning discipline) and external factors (e.g., teacher support, parental support, the learning environment). Whereas previous quantitative research has predominantly emphasized the broad positive or negative impacts of online gaming on academic achievement, motivation, or addiction, it has rarely delved into a detailed, qualitative examination of how the constituent aspects of learning interest manifest specifically among Phase C elementary students. The novelty of this study, therefore, lies in its qualitative, case-study approach. It moves beyond a simplistic positive/negative binary to provide a detailed mapping of learning interest based on Slameto (2015), which includes desire, enjoyment, attention, interest, activeness, and discipline. With this approach, the study provides a concrete picture of the variations in learning interest in Phase C students, and shows how internal aspects interact with external factors in the context of online game use, converting them into low, medium, and high categories according to their strength of emergence. These findings can serve as a conceptual basis for developing learning strategies, guidance, and interventions for teachers and parents to ensure optimal learning interest in the digital era.

CONCLUSION

Teachers' strategies in developing noble morals in students who actively use social media in elementary schools are carried out holistically and contextually by adapting pedagogical practices to the challenges of the digital era, including: (1) fostering faith by combining the habit of worship and role models with digital literacy, so that spiritual values emerge in both real and virtual interactions; (2) fostering honesty through role models in real behavior and digital contexts, moral reflection, and digital ethics education, thus encouraging students to be honest in the real world and in the virtual world; (3) fostering concern by integrating real social activities and kindness campaigns on social media, so as to build empathy in real life and the virtual world; (4) instilling politeness by combining exemplary behavior and habits with digital ethics education, thus creating a culture of politeness in everyday real life and the virtual world; (5) fostering responsibility through habit models, active roles, and digital ethics education, thus strengthening personal and social responsibility.

The implication of this study is that online gaming is a contextual factor that influences elementary school students' learning interests, both positively and negatively. The mapping of learning interests provides a concrete picture of variations in student learning behavior and serves as an important reference in determining appropriate mentoring approaches. Practically, these findings offer guidance for educators to adapt pedagogical strategies-for instance, by utilizing interactive learning media or gamification elements to increase motivation, help students maintain focus, and create a more enjoyable learning experience. Furthermore, these findings encourage parents to

play an active role in guiding their children to maintain a balance between study time and gaming activities through proportional supervision, open communication, and the creation of healthy learning routines. Furthermore, the government needs to develop digital literacy policies and programs for schools, as well as teacher training related to technology-based learning, so that digital developments can support improvements in the quality of education and not become obstacles for students.

This study is subject to several limitations that warrant consideration. First, the study's participants were confined to Phase C students within a single elementary school cluster. Consequently, the findings lack generalizability to the broader population of elementary students or other educational levels. Second, the primary reliance on observational data and interviews with teachers and parents introduces the potential for subjective perceptions to influence the interpretation of students' learning interest. Third, the analysis treated online games as a general phenomenon and did not differentiate between specific game types or genres, which may exert distinct influences. To address these limitations, future research could involve larger and more diverse samples, explicitly investigate the effects of different game genres, and incorporate mixed-methods or quantitative designs to enable more objective measurement of the impact on learning interest and academic achievement.

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