

The Influence of Online Game Intensity on the Academic Achievement of Grade XI Students at Madrasah Aliyah Ma'arif Bulukumba

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ABSTRACT

This study aims to analyze the level of addiction/intensity of online games played by Grade XI students at Madrasah Aliyah Ma'arif Bulukumba, to examine the average level of academic achievement among Grade XI students who play online games at the same institution, and to analyze the influence of online gaming on their academic performance. This research employs a quantitative method with an associative descriptive approach. The population consists of all Grade XI students of Madrasah Aliyah Ma'arif Bulukumba, while the sample includes 30 respondents selected using purposive sampling. Data were collected through questionnaires developed based on indicators of online gaming intensity, including frequency, duration of play, and emotional involvement, which are elaborated in relation to four aspects of online game addiction: compulsion, withdrawal, tolerance, and interpersonal and health-related problems. Academic achievement data were obtained from students' report card scores. Data were analyzed using simple linear regression to test the influence of variable X (online gaming intensity) on variable Y (academic achievement) using SPSS 26. The results of this study indicate that the online gaming intensity of Grade XI students at Madrasah Aliyah Ma'arif Bulukumba is categorized as high based on descriptive analysis using SPSS 26, with an average score of 73.17 obtained from the administered questionnaire. The study also found that the daily duration of online gaming is relatively high: 36.7% of students play online games for 5 hours per day, 16.7% play for more than 5 hours per day, 33.3% play for 4 hours per day, and 13.3% play for more than 4 hours per day. The findings of this research may serve as a basis for further studies on other factors that influence academic achievement, such as learning motivation, social support, and patterns of educational technology use.

Keywords: *online gaming intensity; academic achievement; high school students.*

1) INTRODUCTION

Technological advancements in the modern era have drastically transformed human life, especially among adolescents and students. In the 1980s and 1990s, children were familiar only with traditional games typically played with friends, such as hide-and-seek, marbles, and jump rope. However, in today's era, children rarely or no longer recognize these various traditional games. Instead, they are focused on the digital world, particularly on playing internet-based online games.

Paper presented at The 2nd ICONETT, 2025
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Research conducted by Iqbal Ramadhan shows that excessive engagement in online gaming can reduce the amount of time students spend studying; this study indicates that such behavior can negatively affect students' academic achievement. Similarly, research conducted by Santoso reports that students who frequently play online games tend to experience mental fatigue, which leads to decreased learning motivation. Along with the rapid development of internet technology, the growth and advancement of online games have also accelerated significantly. Online games today are electronic and visually immersive, allowing players not only to play with people around them but also with players from various regions, even from across the world. This characteristic distinguishes online games from other types of games and constitutes a major attraction for online game players, particularly among adolescents and students who naturally possess high curiosity. Consequently, teenagers or students are considered more likely and more vulnerable to online gaming activities compared to adults. Many teenage students even become addicted and dependent on online games, leading to uncontrolled and excessive gaming behavior. According to Jordan & Andersen, adolescents who are in a period of instability are more inclined to experiment with new things, making them more susceptible to online game addiction compared to adults.

School-age adolescents should ideally spend their time engaging in positive activities. This is cultivated within the school environment, which plays a crucial role in preparing students for future success by helping them develop their potential in their personal, social, and professional lives. Guidance and counseling programs, which institutionally form part of the school curriculum, are designed to support and facilitate students in achieving their developmental goals effectively.

Based on these considerations, schools and education hold a vital role in shaping students' character and developing their potential, both in terms of academics and personal, social, and professional growth. However, it cannot be denied that the daily activities of school-age adolescents are increasingly influenced by online gaming applications. The fact that adolescents especially those at the senior high school level (SMA/MA) prefer to spend their time playing online games serves as evidence of this phenomenon. According to Dr. Mark Griffiths, individuals who prioritize online gaming tend to develop into more individualistic and self-centered persons.

The characteristics mentioned above are potentially harmful to the future development of the individuals involved. These data were obtained from a preliminary observation conducted by the researcher on July 1, 2024, in the 11th-grade science and social studies classes. Several issues were

identified at Madrasah Aliyah Ma'arif Bulukumba. First, 50% of students in Grade 11 Science and 48% in Grade 11 Social Studies spent much of their time playing online games on their smartphones. Most of their time was devoted to online gaming, often prioritizing gaming over studying and completing school assignments.

Based on the description above, the problems examined in this study are as follows: What is the level of online gaming intensity among Grade XI students at Madrasah Aliyah Ma'arif Bulukumba? And what is the average level of academic achievement attained by Grade XI students who engage in online gaming at Madrasah Aliyah Ma'arif Bulukumba?

2) METHODS

This study employs quantitative descriptive and quantitative associative methods. Quantitative descriptive research aims to describe a phenomenon, event, symptom, or occurrence factually, systematically, and accurately. In other words, the quantitative descriptive method seeks to explain a phenomenon using numerical data that reflect the characteristics of the subjects being studied. Thus, the purpose of this research is to provide a factual, systematic, and accurate explanation of the phenomenon regarding the influence of online gaming on the academic achievement of Grade XI students at Madrasah Aliyah Ma'arif Bulukumba.

Meanwhile, quantitative associative research aims to determine the relationship between two or more variables. Through this approach, researchers are able to construct theories that explain relational patterns, whether causal (cause–effect) or correlational. Associative research functions to clarify the linkage between one variable and another, whether the relationship is causal or reciprocal. Therefore, quantitative associative research not only describes phenomena but also tests hypotheses about intervariable relationships using statistical tools such as Pearson correlation, simple linear regression, or multiple regression.

The population of this study consists of all Grade XI students at Madrasah Aliyah Ma'arif Bulukumba, while the sample includes 30 respondents selected through purposive sampling. Data were collected through a questionnaire developed based on indicators of online gaming intensity, including frequency, playing duration, and emotional involvement, which were further elaborated according to the four aspects of online game addiction: compulsion, withdrawal, tolerance, and interpersonal and health-related problems. Academic achievement data were obtained from students' report card scores. Data were analyzed using simple linear regression to examine the influence of

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variable X (online gaming intensity) on variable Y (academic achievement), with the assistance of SPSS version 26.

The primary data collection instrument used in this study was a questionnaire, while observation, documentation, and interviews served as supporting methods. The field data collection process was conducted by distributing a Google Form link through social media platforms such as WhatsApp. To avoid errors in completing the questionnaire, the researcher provided clear instructions. Google Forms is an online tool that allows users to easily create surveys, quizzes, and other forms. It also enables users to collect data efficiently and integrates with other Google services, such as Google Sheets, for further analysis.

This study used a Likert scale to measure social skills and online game addiction. The Likert scale is used to assess attitudes, opinions, and perceptions of individuals or groups toward a social phenomenon. In research, this social phenomenon is specifically defined by the researcher as a research variable. Using the Likert scale, the variables are broken down into indicators, which then serve as the basis for constructing instrument items in the form of questions or statements. The Likert scale used in this study consists of statements with four answer choices: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The instrument consists of unfavourable statements. Unfavourable statements are those that express negative aspects of the attitude object, meaning statements that imply opposition to or disapproval of the object.

The scoring system for unfavourable items is as follows:

Table 1: *Likert Scale*

Response	Score (Unfavourable)
Strongly Agree (SA)	4
Agree (A)	3
Disagree (D)	2
Strongly Disagree (SD)	1

The data analysis techniques used in this study were quantitative analyses assisted by SPSS (Statistical Package for the Social Sciences). The analytical procedures included descriptive analysis, associative analysis (Pearson correlation test and simple linear regression), normality test, linearity test, homogeneity test, and autocorrelation test using the run test.

3) RESULTS AND DISCUSSION

The data obtained from the distribution of the questionnaire revealed that the level of online gaming intensity among the 30 students selected as the research sample at Madrasah Aliyah Ma'arif Bulukumba falls into the high category. This can be observed in Table 2 and Histogram Chart 4.1, which show that the average score obtained from all questionnaire items distributed to the students was 73.17, with a maximum score of 110, a minimum score of 37, and a range of 73.

Table 2: *Descriptive Statistics of Online Gaming Intensity*

Descriptive Statistics	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
Online Game Intensity	30	73.00	37.00	110.00	2195.00	73.1667	18.04034
Valid N (listwise)	30						

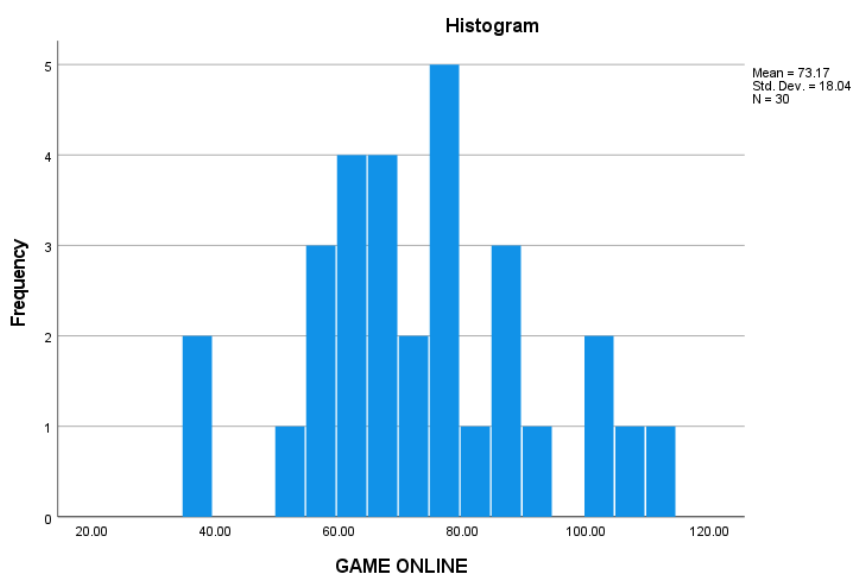


Figure 1: *Histogram*

Based on the explanation above, it can be concluded that the level of addiction/intensity of online gaming among the 30 students sampled at Madrasah Aliyah Ma'arif Bulukumba is classified as high. These findings indicate that gaming intensity is influenced by various factors, including the types of online games played, as found among the Grade XI students of Madrasah Aliyah Ma'arif Bulukumba.

The most popular online games among the Grade XI students are Free Fire and Mobile Legends, each representing 30% of the total respondents. These are followed by Texas Holdem Poker Pro at

26.7%, while Clash of Clans and PUBG are the least played games, with a proportion of 6.7% each. This distribution can be observed in Table 4.12.

Thus, it can be concluded that students tend to focus more on battle royale games (Free Fire, PUBG) and MOBA games (Mobile Legends, Clash of Clans), while some others prefer card/poker games (Texas Holdem Poker Pro). The data show that students' preferences lean heavily towards battle royale and MOBA games, which require active player involvement in real-time matches, teamwork, and high-level competition factors that contribute to higher gaming intensity compared to casual or single-player games.

According to Lemmens, Valkenburg, and Peter, the intensity of online gaming is strongly influenced by both the psychological characteristics of the players and the structural features of the games themselves. They state that:

The structural characteristics of online games, such as reward systems, social interaction, and competition, are important predictors of excessive gaming behavior.

This means that the higher the level of challenge and social interaction within a game, the greater the likelihood that players will spend more time playing.

Games such as Free Fire and Mobile Legends offer reward systems, ranking systems, and social interaction through team-based gameplay, all of which strengthen players' intrinsic motivation to continue playing. This explains why students tend to show high levels of gaming intensity when engaging with these types of games. In addition, Griffiths emphasizes that during adolescence, social motivation is a dominant factor influencing online gaming behavior. He states that:

Adolescents often play online games to develop friendships and gain peer acceptance, which can increase the amount of time spent gaming.

Thus, it can be understood that the high intensity of playing competitive game genres among the students of Madrasah Aliyah Ma'arif Bulukumba is not only driven by the enjoyment of playing, but also by the need for social recognition and peer-group belonging. Meanwhile, games such as Texas Holdem Poker Pro place greater emphasis on individual strategy and elements of chance. Although still engaging, this type of game does not offer the same level of social experience as MOBA or battle-royale games, resulting in lower or more moderate playing intensity. In line with this, Griffiths also explains that:

Different genres of games have different potentials for excessive play; competitive and social games are more likely to lead to high engagement.

This statement reinforces that game types with competitive and interactive characteristics are more likely to produce higher playing intensity compared to other kinds of games. The findings of this study align with previous research conducted by Kusuma and Wibowo in the *Journal of Psychology and Digital Technology*, which found that competitive game genres such as MOBA and battle royale are positively associated with the level of online gaming intensity among adolescents. Their study showed that players of Mobile Legends and Free Fire have longer playing durations than players of strategy or simulation games.

Another study by Putra and Santoso in the *Journal of Adolescent Psychology and Digital Media* also stated that game genres requiring social interaction and competition tend to trigger deeper emotional involvement, which in turn increases playing intensity. These results strengthen the findings of the present study that social interaction, competition, and reward systems in games are crucial factors shaping intensive gaming behavior in adolescents.

This phenomenon can also be explained from the perspective of adolescent development. According to Santrock, adolescence is a period during which individuals have strong needs for social recognition, self-achievement, and peer-group identity. Therefore, games that provide spaces for competition and teamwork become appealing media for adolescents to fulfill these psychological needs. Thus, it can be understood that students' tendency to choose games such as Free Fire and Mobile Legends is not only driven by entertainment but also by psychological and social needs relevant to their developmental stage.

Based on this, it can be concluded that there is a positive relationship between the type of game played and the level of online gaming intensity. Competitive and interactive games such as Free Fire and Mobile Legends trigger higher playing intensity because they provide emotional satisfaction, a sense of achievement, and strong social interaction.

The results of the study show that the majority of students at Madrasah Aliyah Ma'arif Bulukumba choose competitive and socially interactive game types, namely Free Fire and Mobile Legends. Psychologically and structurally, these game types encourage high playing intensity. Therefore, it can be concluded that the type of online game influences students' playing intensity, especially due to elements of competition, teamwork, and social interaction embedded in the games.

Another factor that needs to be considered in determining the level of online gaming intensity is the location where respondents play online games. The descriptive analysis using SPSS, as shown in Table 4.13 and Figure 4.3 above, reveals the frequency distribution of playing locations among Grade XI students of Madrasah Aliyah Ma'arif Bulukumba: 17 respondents (56.7%) usually play online games at home and school, 6 respondents (20.0%) play only at home, and 7 respondents (23.3%) play at both coffee shops and home.

These results indicate that most students frequently play online games both at home and at school, accounting for more than half of all respondents. Meanwhile, some choose to play only at home, and the remainder at both coffee shops and home. When associated with academic achievement, playing online games at school potentially affects students' learning concentration. According to Santrock, a conducive learning environment significantly influences focus and academic performance. Therefore, playing online games at school may reduce effective study time and negatively impact academic achievement.

Meanwhile, playing online games at home can still be controlled with parental supervision. This aligns with Hurlock's view, cited in the work of Rischa Pramudia Trisnani and Silva Yula Wardani, which emphasizes the importance of family environment control in shaping students' study habits. Playing in coffee shops, however, typically occurs in a free environment without control, increasing the risk of excessive gaming intensity that could lead to online gaming addiction.

Thus, it can be concluded that the location of online gaming contributes to students' playing intensity and patterns, which in turn affect academic achievement. The majority of respondents who play at home and school potentially experience higher learning distractions compared to those who play only at home.

Another factor that can be examined as an indicator of online gaming intensity and addiction is the duration of daily gameplay. Based on the descriptive analysis using SPSS shown in Table 4.14 and Figure 4.4 above, it is evident that most students have a habit of playing online games for relatively long periods, namely 4 to 5 hours per day. In total, 21 respondents (70%) play for 4–5 hours daily, while the remaining 30% play for more than 4 hours up to more than 5 hours per day.

According to Santrock, the amount of time children spend on non-academic activities, such as online gaming, can reduce focus, concentration, and study time necessary for academic success. The

findings of this study reinforce this view, as playing online games for more than 4 hours daily may decrease students' academic performance.

Santrock's opinion aligns with Chen and Chan, who argue that in terms of duration and frequency, individuals experiencing tolerance one aspect of online gaming addiction typically show increased playing time from several hours to more than 4–6 hours per day, along with very high playing frequency, meaning daily engagement without significant breaks. When gaming becomes the dominant activity, interfering with essential activities (studying, sleeping, social interaction), it becomes a sign of addiction.

The findings of this study reveal that most students have intensive online gaming experiences, both in terms of daily frequency and length of involvement over the years. Based on Chen and Chan's theory, individuals who consistently play for more than 4 hours a day and consider it a primary activity may experience symptoms of compulsion (uncontrollable urge), tolerance (need for longer play to achieve the same satisfaction), and withdrawal (discomfort when not playing).

Kimberly S. Young also states in her Internet Addiction model that a person may be categorized as addicted if they spend more than 38 hours per week (around 5–6 hours per day) on online activities such as gaming and show an inability to control their playing duration despite being aware of its negative effects. Therefore, playing for more than 4 hours per day continuously for several months can be considered an early indicator of online gaming addiction.

In this study, almost all respondents fall within that range, indicating that their online gaming intensity is high and potentially leads to addictive behavior. Thus, it can be concluded that most students have high online gaming intensity, which may negatively affect academic achievement. This is consistent with previous research, which asserts that the higher the intensity of online gaming, the greater the likelihood of decreased academic performance due to reduced effective study time. This is in line with the findings of Retno Ayu Wardany, Suhartono, and Siti Mas'ula in their study titled "Analysis of the Impact of Online Games on Learning Outcomes of Grade IV B Students at SD Negeri Sawojajar 01 Malang City." They found that students with lower academic scores tend to play online games for longer durations than those with moderate or high scores. This implies that long-duration online gaming can reduce students' focus and learning activity, negatively affecting themselves, including a tendency to neglect other important activities such as studying.

Online gaming intensity can also be observed from the length of time respondents have been playing online games over the years, to determine long-term intensity or addiction levels. Based on the questionnaire distributed to 30 Grade XI students of MA Ma'arif Bulukumba, the data show that 15 students (50%) have been playing online games for 1 year, 3 students (10%) for 1.5 years, and 12 students (40%) for 2 years. These results indicate that most students (90%) have been playing online games for one year or more, meaning that online gaming activity is not merely a temporary activity but has become a long-term habit for most of them.

Playing online games for one to two years can be categorized as high intensity, as it reflects emotional attachment and consistent behavior toward the activity. According to Young, the longer a person engages in online activities such as gaming, the higher the risk of developing addictive behavior due to habit formation and psychological dependence.

This is consistent with the view of Griffiths, who states that online game addiction can be identified through chronic engagement, namely continuous and long-term involvement in gaming activities. A duration that reaches two years or more indicates a high level of tolerance, meaning that the player requires longer playtime to achieve the same level of satisfaction as before.

Meanwhile, according to the World Health Organization (WHO) in the ICD-11 Classification of Gaming Disorder, online gaming behavior that persists for at least 12 months (1 year), accompanied by disturbances in academic, social, or emotional functioning, can be categorized as a potentially addictive behavioral pattern. This means that students who have been playing online games for one year or more have met one of the minimum time indicators for the emergence of gaming disorder symptoms.

Thus, the findings of this study show that the duration of long-term online gaming (≥ 1 year) serves as one of the main indicators of online game addiction. The longer an individual engages in gaming activities, the greater the likelihood of reduced self-control, concentration problems, and declining academic achievement, as also observed in the results of classroom observations and interviews with homeroom teachers at MA Ma'arif Bulukumba.

Based on descriptive analysis, observations, interviews, and expert opinions, this study indicates that Grade XI students at Madrasah Aliyah Ma'arif Bulukumba have a relatively high level of online gaming intensity, with most students playing 4–5 hours per day and having gaming experience of up to 2 years. According to the theories of relevant experts, this condition suggests the potential presence

of online game addiction among some students, which in turn may negatively affect their learning focus and academic performance.

The next issue examined in this study is the average level of academic achievement attained by Grade XI students who play online games at Madrasah Aliyah Ma'arif Bulukumba. The guideline used to measure the average academic achievement is the students' average score from two semesters, namely the odd and even semesters, based on the Minimum Mastery Criteria (KKM).

Based on the data collected through questionnaires, direct observations, and interviews with 30 Grade XI students at MA Ma'arif Bulukumba, an overview of academic achievement during the past year is shown in Table 4.16. Students' average scores ranged from 74.87 to 92.59, with an overall mean of 84.06. This indicates that, in general, students' academic achievement remains in the good category based on the KKM of 68, as shown in Table 4.17.

When viewed from the score categories (Table 4.18), 8 students (26.7%) achieved an A (Excellent), 16 students (53.3%) achieved a B (Good), and 6 students (20%) achieved a C (Sufficient). Thus, the majority of students (80%) remain in the good and excellent categories, although a small proportion shows a significant decline in performance due to high online gaming intensity.

The data also show that students with high gaming intensity those who play almost every day for five hours or more tend to experience reduced focus, difficulty managing study time, and declining grades in several subjects. Conversely, students who play at moderate or low intensity maintain stable scores, and some even show improvement.

Observations support these findings, showing variations in the effects of online games on learning behavior. Students with high gaming intensity (6–7 days/week and durations >5 hours/day), such as AHF, FIW, MHR, and HZY, tended to experience decreased focus, fatigue in class, and delays in submitting assignments. In contrast, students with low to moderate intensity (2–3 days/week for 3–4 hours), such as AKM, DRF, and CND, were able to maintain concentration and achieve stable academic scores, with some achieving improvement.

Interviews with students also revealed that those who played games almost every day admitted difficulty in managing their study time and often experienced decreased concentration in class, whereas students who played only occasionally stated that online games did not significantly affect their learning activities. Some students noted that playing games helped reduce stress; however, they

acknowledged that excessive gaming reduced motivation to study and led to decreased performance in certain subjects.

The interviews and observations show a correlation between online gaming intensity and a decline in academic performance for some students. Those who played games almost daily with durations exceeding 4–5 hours tended to struggle with managing study time, maintaining concentration in class, and achieving good grades in certain subjects. Conversely, students with low gaming intensity (2–3 times per week for 3–4 hours) showed relatively stable academic performance, with some demonstrating improvement.

These findings are consistent with the study by Nia'am Syafi et al., titled "The Influence of Online Games on Students' Learning Concentration," which states that excessive use of online games negatively affects academic performance by reducing study time and inhibiting academic focus. Similarly, the study by Syah Raihan Mullatifa titled "The Influence of Online Game Intensity on Students' Learning Concentration at SMK Revany Indra Putra Jambi City," concluded that high online gaming intensity reduces learning motivation and academic productivity, as students become more engaged in gaming activities than school learning activities.

Both studies show that gaming intensity is negatively correlated with students' interest and academic achievement, which is also reflected in the context of students at MA Ma'arif Bulukumba.

Furthermore, the views of Griffiths and Chen & Chang strengthen the findings of this study. According to Griffiths, excessive engagement in online games can lead to behavioral addiction, which negatively affects a person's cognitive, social, and emotional abilities. This addiction can result in symptoms such as loss of motivation, difficulty focusing, and declining academic performance. Chen and Chang add that high gaming duration is associated with decreased self-control and increased tendencies to procrastinate academic responsibilities, thereby negatively impacting students' learning outcomes.

When linked to the findings at MA Ma'arif Bulukumba, students who play online games intensively exhibit similar symptoms, such as drowsiness in class, loss of focus, and reduced participation in learning activities. This demonstrates the real influence of gaming intensity on academic performance, as explained in the theories above.

Thus, it can be concluded that the academic achievement of Grade XI students at MA Ma'arif Bulukumba remains in the good category, but there are indications of declining performance among

students with high gaming intensity and daily long-duration play. Time management, study discipline, and support from family and teachers play essential roles in balancing gaming activities and academic responsibilities.

4) CONCLUSIONS

Based on the research conducted over approximately two months regarding the influence of online gaming intensity on the academic achievement of students at MA Ma'arif Bulukumba, it can be concluded that the level of intensity or addiction to online gaming among students is relatively high. This is indicated by the questionnaire score, which shows an average of 73.17, while the students' average report card score over the last two semesters is 84.06. Furthermore, based on the academic average within the past year, it is known that the students' average score is 84.06. Although this score falls into the "good" category, there is a tendency for students with high gaming intensity to have lower academic achievement compared to those who play less frequently. In other words, the higher the intensity of online gaming, the lower the academic performance achieved.

The results of this study indicate that students' academic achievement can be improved by controlling the intensity of online gaming. In other words, maintaining a balance between learning activities and digital engagement becomes a crucial factor in efforts to enhance the quality of education within the Madrasah Aliyah environment. These findings may serve as a foundation for further studies on other factors that influence academic achievement, such as learning motivation, social support, and patterns of educational technology use.

Acknowledgment

Alhamdulillah, all praise and gratitude the author extends to Allah SWT, for His blessings and mercy bestowed upon us all, and for granting wisdom that is most beneficial for all humankind. Because of His grace, the author has been able to complete this proposal properly and on time.

During the process of preparing this thesis entitled "The Influence of Online Gaming Intensity on the Academic Achievement of Grade XI Students at Madrasah Aliyah Ma'arif, Bulukumba Regency," the author encountered various challenges. However, with the support, guidance, and direction from many parties especially Dr. Saprin, M.Pd.I as the first supervisor, and Mrs. Wahyuni Ismail, M.Si, Ph.D as the second supervisor; Dr. M. Yusuf T, M.Ag as Examiner I; and Dr. Hamka Ilyas, M.Th.I as Examiner II, the author was finally able to complete this proposal satisfactorily.

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Therefore, on this occasion, the author would like to express sincere gratitude and highest appreciation to all parties who contributed to the completion of this thesis.

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Paper presented at The 2nd ICONETT, 2025
Faculty of Teacher Training and Education
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Rahim, R., Sao'dah., Sulistyaningsih, S., Daeng Tiring, N., Asman, M., Fitriyah, M. L. A., ... Wicaksono. (2021). Metodologi penelitian (Teori dan praktik) (E. Santoso, Ed.). Perkumpulan Rumah Cemerlang Indonesia.