CENTIVE
Conference on Electrical Engineering, Informatics,
Industrial Technology, and Creative Media
ISBN: 978-602-53004-0-0

Analysis of the User Experience of Auto-Battler Magic Chess: Go Go Game using Game Experience Questionnaire (GEQ)

Vivi Indriyani Mufti Afifah[1*], Adnan Purwanto[2], Bayu Rizkya Pratama[3] , Nila Ayu Anggraeni[4]
[1] Department of Informatics Engineering, STMIK Widya Utama Purwokerto
[1] Sunan Kalijaga Street of Berkoh, Banyumas 53146, Indonesia
*student.ssi202202839@swu.ac.id, [2]adnan@swu.ac.id, [3]bayurizyapratama10@gmail.com,
[4]nilaayu@swu.ac.id

Abstract — This study aims to analyze the user experience (User Experience/UX) in the mobile auto-battler game Magic Chess: Go Go using the Game Experience Questionnaire (GEQ) instrument of the Post-Game module. The study used a descriptive quantitative approach with 100 respondents obtained through the distribution of an online questionnaire. Data were analyzed using descriptive statistics with average calculations, frequency distribution, and Respondent Achievement Rate (TCR). The results showed that the Positive Experience dimension obtained the highest average score (4.14; TCR of 83%) in the Very Good category, indicating that the majority of players feel satisfied, happy, and entertained after playing. Meanwhile, the Negative Experience dimension (2.45; TCR 49%), Tiredness (2.63; TCR 53%), and Returning to Reality (2.72; TCR of 54%) is in the Sufficient category, suggesting that players experienced mild frustration, cognitive fatigue, reduced focus, and minor difficulty transitioning back to daily activities after gameplay. These findings imply that although the game provides strong positive emotional engagement, developers should consider improving balance mechanisms, reducing repetitive gameplay load, and managing in-game intensity to minimize negative psychological effects and maintain long-term player retention.

Keywords – Game Experience Questionnaire, User Experience, Magic Chess, Mobile Games, Auto-Battler

I. INTRODUCTION

The mobile gaming industry has experienced rapid growth in recent years, becoming one of the most dominant and lucrative segments of digital entertainment globally. With the increasing number of smartphone users, mobile games can reach enthusiasts from diverse demographics and preferences [1]. This phenomenon creates fierce competition among developers to attract and retain players [2]. One of the genres that stands out in this competition is the auto-battler game, which combines elements of strategy, tactics, and randomness in each session.

Auto-battler is a competitive game model that does not rely heavily on physical dexterity but emphasizes tactical and strategic decision-making. The genre originated from Dota Auto Chess, released by Drodo Studio as a Dota 2 custom mod in 2019 [3], [4], [5]. It offers a unique experience where players focus on unit selection, leveling, and formation placement rather than real-time mechanical control [6]. Its rapid rise in popularity produced numerous similar games that attracted millions of players worldwide.

Among the existing titles, Magic Chess: Go Go is one of the most popular mobile auto-battler games, successfully attracting players across regions, including Indonesia. Developed by Vizta Games, it draws inspiration from the lore and characters of Mobile Legends: Bang Bang (MLBB) and offers a combination of strategic planning, hero recruitment, and tactical gameplay that appeals to both casual and competitive audiences [5], [6]. Key features include a hero recruitment and upgrade system, Go Go Cards that provide strategic advantages, and a Commander system with unique active and passive skills. The synergy mechanism between hero categories—such as Bruiser, Marksman, and Summoner—adds depth to strategy, complemented by multiple modes like Classic, Ranked, and Custom. Visually, Magic Chess: Go Go adopts an engaging chibi style with polished environments, accompanied by immersive music and sound effects, making the game highly appealing to players.

However, the popularity of a game does not necessarily reflect the overall user experience (UX)

perceived by its players. Initial observations from community forums indicate that while many players feel satisfied and entertained, others report frustration, cognitive fatigue, and difficulty managing time after playing. This discrepancy suggests that the UX may not be uniformly positive and warrants deeper investigation.

In the context of long-term game success, a holistic user experience plays a crucial role. UX includes the satisfaction, enjoyment, and positive emotions experienced by players, as well as the possibility of negative outcomes [5]. Optimal UX enhances immersion and retention, whereas shortcomings can lead to frustration, fatigue, and eventual disengagement [7], [2], [8]. This aligns with Csikszentmihalyi's concept of Flow, which states that optimal experience occurs when a balance exists between challenge and skill [9]. Recent studies also highlight that engagement in strategy-based mobile games is shaped by underlying mechanics, cognitive load, and decision complexity [9].

Despite the extensive use of UX evaluation in gaming research, a clear research gap remains: very few studies have examined auto-battler games using the GEQ—particularly the mobile version—despite their distinct strategic complexity compared to genres like MOBA, FPS, or RPG. Existing studies tend to focus on enjoyment and motivation in general mobile games, but do not address how the layered mechanics of auto-battlers influence Negative Experience, cognitive fatigue, and players' difficulty transitioning back to daily routines. Moreover, Magic Chess: Go Go has not been specifically evaluated using the GEQ Post-Game module, creating a gap in understanding how its mechanics impact both positive and negative aspects of UX.

Considering the importance of UX for game success and the indications of potential issues reported by the player community, this study focuses on an in-depth evaluation of user experience in Magic Chess: Go Go on mobile platforms. A mobile-based evaluation is relevant because interaction characteristics on smartphones differ from PC-based gaming. To obtain a comprehensive evaluation, this study uses the Game Experience Questionnaire (GEQ)—specifically the Post-Game module—which measures four key dimensions: Tiredness, Returning to Reality, Positive Experience, and Negative Experience [10], [11]. GEQ is recognized as a valid, reliable, and sensitive instrument for systematically assessing gaming experiences [12]. This research is expected to provide empirical insights for developers to implement targeted improvements that enhance player satisfaction, comfort, and long-term loyalty.

II. RESEARCH METHOD

A. Research Approach

This study uses a descriptive quantitative approach which aims to describe user experience (user experience) after playing the game Magic Chess: Go Go. Data were obtained through the distribution of a questionnaire adapted from the Game Experience Questionnaire (GEQ) module Post-Game, then analyzed using descriptive statistics to determine the dimensions of experience that are most dominantly felt by players.

B. Research Stage

The research stages include problem identification, literature study, instrument preparation, data collection through questionnaires, validity and reliability testing, and data analysis.

C. Research Instruments

The instrument used was the Game Experience Questionnaire (GEQ) Post-Game module with 17 question items divided into four main emotional and psychological dimensions, namely Tiredness, Returning to Reality, Positive Experience, and Negative Experience [9].

Here is a list of questions from Post-Game Module:

1. I feel excited after playing.
2. I feel tired after playing.
3. I feel satisfied with my playing session.
4. I feel guilty for playing.
5. I feel entertained.
6. I feel annoyed.
7. I feel tense.
8. I feel relaxed/relax.
9. Overall, I had a pleasant experience.
10. Overall, I had a bad experience.
11. I feel like my time is being wasted.
12. I feel happy after playing this game.
13. It was hard for me to get back into a normal routine after playing.
14. I was still thinking about the game after I finished playing.
15. I find it difficult to concentrate on anything else.
16. I feel like playing again soon.
17. I feel drained of energy after playing

This question uses a Likert Scale of 1-5, where:

1 = Strongly Disagree
2 = Disagree
3 = Quite Agree / Neutral
4 = Agree
5 = Strongly Agree

D. Population and Research Sample

The population in this study were Magic Chess: Go Go players who had played at least one match. Because the number of Magic Chess: Go Go players varies and there is no definitive total number of active players, the

authors decided to use the formula Lemeshow In this study, it is appropriate that this formula is used when the total population is unknown to obtain the required sample.

The calculation formula is written in Equation (1)

$$n = \frac{Z^2 \, x \, P(1-P)}{d^2} \quad (1)$$

Information:

n = number of samples or samples sought,

Z = standard value/Z score at 95% confidence level (1.96),

P = Unknown population proportion/maximum estimate 50% (0.5),

d = alpha (0.10) or sampling error = 10%

So, from the results of the equation with the formula above, the minimum sample size required for the study was determined to be 96 respondents, rounded up to 100 respondents.

E. Data Collection

The research data was collected using a survey method by distributing questionnaires online using Google Form to Magic Chess: Go Go users or players through relevant social media. Before distribution, the questionnaire will undergo a pilot test to measure the validity and reliability of the instrument.

a. Validity Test

Validity testing will be conducted to ensure that the GEQ instrument actually measures what it is supposed to measure. The method used is the Product Moment (Pearson) correlation between item scores and the total score.r_table of 0.196 calculated with N= 100 and a significance level of 5%. Instrument declared valid when correlation r_count greater than r_table with α 0.05.

b. Reliability Test

Reliability testing will be conducted to ensure the consistency of the instrument. The method used is Cronbach's Alpha (α), where the instrument is considered reliable if the α value exceeds 0.70. The reliability of the questionnaire is said to be satisfactory if the α value surpasses the standard value listed in the table. This standard refers to the classical psychometric theory developed by Nunnally and Bernstein, who recommend a Cronbach's Alpha value of ≥ 0.70 as an indicator of adequate reliability [13].

F. Data analysis

Data were analyzed using descriptive statistics in the form of average values, frequency distributions, and standard deviations. To provide meaning to the descriptive statistical results, the average values obtained were interpreted using the Respondent Achievement Rate (TCR).

The TCR calculation formula is written in equation (2) :

$$TCR = \frac{Mean}{Maximum\ Score} \, x \, 100\% \quad (2)$$

Information:

- Mean = mean score of respondents' answers,
- Maximum Score = the highest score on the Likert scale (1 .e. 5),
- TCR = percentage of respondent achievement level.

Interpretation categories:

- 0–20% = Very Poor
- 21–40% = Bad
- 41–60% = Sufficient
- 61–80% = Good
- 81–100% = Very Good

III. RESULT

A. Test Environment and Respondents

This research uses instrumentsGame Experience Questionnaire (GEQ) Post-Game Moduleto evaluate user experience after playing the game Magic Chess: Go Go. The instrument consists of 17 questions grouped into four main dimensions: Positive Experience, Negative Experience, Tiredness, And Returning to Reality.

Data collection was conducted online using a Google Form-based questionnaire from August 11 to August 31, 2025, to fellow authors and communities known to the authors. A total of 100 respondents were collected, with the majority being male (71%), aged 20-25, and students (78%). This indicates that Magic Chess: Go Go players are dominated by teenagers and young adults still in education. Duration of play shows that 41% have played for >6 months, 29% have played for 4–6 months, 21% have played for 1–3 months, and only 9% have only played for <1 month. In terms of frequency, 63% play almost every day, 28% play 3–5 times per week, 7% play 1–2 times per week, and 2% play less than once a week.

B. Questionnaire Validity Test Results

Before analyzing the data obtained, all data were verified to ensure completeness of the answers. The verification results showed that all statements in the GEQ instrument were filled in completely without any

blank data. After the verification stage, validity testingwas conducted using the Pearson Product Moment correlation method to measure the strength of the linear relationship between item scores and the total score. With the number of respondents N = 100 and a significance level of α = 5%, the r_table value obtained was 0.197.

The test results are shown in Table 1. All statement items (P1–P17) have an item-total correlation value (r_count) greater than r_table, so all items are declared valid and suitable for use in research.

Table 1. Questionnaire Validity Test Results

Item	Item-Total Correlation	Criteria (r_count > r_table)	Information
P1	0,361	0,197	**Valid**
P2	0,513	0,197	**Valid**
P3	0,278	0,197	**Valid**
P4	0,476	0,197	**Valid**
P5	0,407	0,197	**Valid**
P6	0,366	0,197	**Valid**
P7	0,386	0,197	**Valid**
P8	0,477	0,197	**Valid**
P9	0,446	0,197	**Valid**
P10	0,438	0,197	**Valid**
P11	0,449	0,197	**Valid**
P12	0,460	0,197	**Valid**
P13	0,617	0,197	**Valid**
P14	0,662	0,197	**Valid**
P15	0,685	0,197	**Valid**
P16	0,560	0,197	**Valid**
P17	0,643	0,197	**Valid**

C. Questionnaire Reliability Test Results

After all statement items are declared valid, the next step is to conduct a reliability test to determine the extent to which the research instrument produces consistent data when used repeatedly under the same conditions. Reliability testing is conducted using the Cronbach's Alpha method, where an instrument is considered reliable if the α value is ≥ 0.70. The calculation results are shown in Table 2.

Table 2. Questionnaire Reliability Test Results

Statistical	Summary
Number of Items	17
Number of Item Variants	10.68
Total Variance	42.62
Cronbach's Alpha (α)	0.80

The Cronbach's Alpha value is 0.80 > 0.70, so this research instrument is declared reliable and can be used consistently to measure user experience.

D. GEQ Post-Game Module Statistical Results

The following table shows the results of statistical analysis based on four dimensions in the GEQ Post-Game Module.

Table 3. GEQ Post-Game Module Statistical Results

Category	Mean	TCR (%)	Category
Positive Experience	4,14	83%	Very good
Negative Experience	2,45	49%	Sufficient
Tiredness	2,63	53%	Sufficient
Returning to Reality	2,72	54%	Sufficient

Based on the analysis results, the Positive Experience dimension achieved the highest mean score of 4.14 (TCR 83%), indicating that players' Positive Experiences were in the Very Good category. The majority of players felt very satisfied, happy, and entertained after playing Magic Chess: Go Go.

The Returning to Reality dimension scored a mean of 2.72 (TCR 54%), categorized as Sufficient. Some players experienced minor difficulties returning to their daily activities after playing, such as still thinking about strategy or wanting to play again.

The Tiredness dimension, with a mean score of 2.63 (TCR 53%), falls into the Sufficient category. This indicates that the game causes moderate levels of fatigue, but not enough to significantly disrupt the playing experience.

Finally, there's the Negative Experience dimension, which had a mean score of 2.45 (TCR 49%), categorized as Sufficient. This means that some players still feel frustrated, annoyed, or disappointed, although the intensity is relatively low.

IV. DISCUSSION

Based on the analysis of the Game Experience Questionnaire (GEQ), a comprehensive overview of user experiences in playing Magic Chess: Go Go was obtained. Validity tests showed that all 17 questionnaire items were valid, ensuring the instrument accurately measured aspects of the gaming experience. Furthermore, a reliability test using Cronbach's alpha of 0.80 confirmed that the instrument had good internal consistency, thus ensuring the reliability of the research findings.

The Post-Game Module analysis showed that the Positive Experience dimension received the highest score, falling into the Very Good category. This reflects the majority of respondents' enjoyment, satisfaction, and entertainment from playing the game. These findings align with research by Mekler et al. [1], which states that game design elements such as challenges and reward systems can increase motivation and enrich the gaming experience. This phenomenon is also consistent with the trend in the casual gaming industry, which emphasizes entertainment, relaxation, and comfort as key aspects of the gaming experience.

Conversely, the other three dimensions—Negative Experience, Tiredness, and Returning to Reality—fall into the Sufficient category. This means that some players experience negative emotions, fatigue, and

difficulty quickly returning to daily activities after playing. This finding is consistent with previous physiological research [13], which suggests that intense gaming sessions can trigger both positive and negative responses, such as increased tension, cognitive fatigue, or decreased ability to focus.

These negative experiences can also be explained by the Flow Theory proposed by Csikszentmihalyi (1990) [14]. This theory asserts that overly deep involvement in an activity, without a balance between challenge and ability, can potentially lead to frustration and fatigue. Research by Chen and Hsu (2020) further supports these findings by showing that prolonged engagement in mobile strategy games can lead to cognitive fatigue and negative emotions, thereby reducing enjoyment [15].

These findings overall suggest that while positive aspects dominate the Magic Chess: Go Go gaming experience, there is still the potential for negative impacts to arise when the duration and intensity of play are uncontrolled. This is relevant to the broader perspective of player experience research, as described by Mirza-Babaei et al. [16], that combining subjective (questionnaire) and objective (physiological or behavioral) data is crucial for understanding the player experience holistically—an approach also incorporated in this study.

Therefore, attention must be paid to the balance between gaming enjoyment and player well-being. Game developers are advised to consider features that support healthy playtime management, such as timers, cooldown systems, or session duration limits. This approach not only supports a sustainable gaming experience but also reflects ethical game design and user well-being. This ensures a balance between enjoyable gaming experiences and real-life routines can be maintained.

V. CONCLUSION

Based on the research results, it can be concluded that the research instrument used, the Game Experience Questionnaire (GEQ), has been proven valid and reliable. All statement items have an item-total correlation value greater than the r_table value, and the reliability test shows a Cronbach's Alpha value of 0.80, which is higher than the minimum limit of 0.70. This confirms that the instrument used is suitable for measuring user experience.

The results of the respondent profile analysis indicate that the majority of players are male, aged 20 to 24, and are students. Most respondents have been playing for more than six months and do so almost daily, indicating that the respondent group is an active player with a high level of engagement in Magic Chess: Go Go.

Furthermore, analysis of the Post-Game Module dimensions showed that the Positive Experience dimension scored highest, with a Very Good rating. This indicates that the game provided entertainment, enjoyment, and a pleasant experience for the majority of players. However, the other three dimensions—Negative Experience, Tiredness, and Returning to Reality—were in the Sufficient rating. These results indicate that despite the predominance of Positive Experiences, some players still experienced Negative Experiences, fatigue, and difficulty refocusing on daily activities after playing.

Overall, this study shows that Magic Chess: Go Go successfully provides a strong Positive Experience for its users, but still poses challenges in the form of potential negative impacts if playing intensity is not controlled. These findings imply that game developers need to maintain the entertainment and enjoyment aspects while considering mechanisms that can help players manage their playing time. Players should also be aware of the importance of maintaining a balance between the game world and daily activities.

ACKNOWLEDGMENT

This study was financially supported by STMIK Widya Utama Purwokerto and the Conference on Electrical Engineering, Informatics, Industrial Technology, and Creative Media. The authors express their sincere gratitude to all individuals and organizations who have contributed to and participated in this research.

REFERENCES

[1] F. Brühlmann and E. L.-C. Law, “The Game Experience Questionnaire: A revised version and psychometric evaluation,” *Int J Hum Comput Stud*, vol. 168, p. 102904, 2022, doi: 10.1016/j.ijhcs.2022.102904.

[2] M. M. Airlangga and L. Alfansi, “Drivers of Mobile Game Addiction and Its Impact on Game Loyalty and In-App Purchase Intention Among Gen-Z in Indonesia,” *Journal of Enterprise and Development*, vol. 7, no. 2, pp. 217–230, May 2025, doi: 10.20414/jed.v7i2.13120.

[3] M. Hou, K. Leung, and T. Sun, “Evolution of strategy and auto-battler game mechanics,” *Entertain Comput*, vol. 48, 2022, doi: 10.1016/j.entcom.2022.100553.

[4] T. Vermeulen and S. Malliet, “Understanding design evolution in strategy and auto-battler games,” *Games Cult*, vol. 20, no. 1, 2024, doi: 10.1177/15554120221144555.

[5] M. A. Shams, H. Elgamal, S. I. Hassan, R. Y. Zaki, N. A. Moussa, and H. Elgamal, “Reliability and Validity of the Arabic Version of the Game Experience Questionnaire,” *Int J Environ Res Public Health*, vol. 21, no. 5, p. 5449, 2024,

doi: 10.3390/ijerph20085449.

[6] J. Hamari and M. Sjoblom, "Analyzing player behavior in strategy-based mobile games," *Comput Human Behav*, vol. 137, p. 107385, 2022, doi: 10.1016/j.chb.2022.107385.

[7] E. M. L. Choy, K. H. Tng, K. K. Tan, and K. C. P. Low, "Player Experience Evaluation in Game-Based Systems for Older Adults," *Sensors*, vol. 24, no. 18, p. 6121, 2024, doi: 10.3390/s24186121.

[8] A. Tyack and E. D. Mekler, "Self-determination in games: How design impacts player engagement," *Int J Hum Comput Stud*, vol. 178, 2024, doi: 10.1016/j.ijhcs.2023.103091.

[9] S. Damaiyanti, A. Rizky Baskara, and M. Fajrian Noor, "EVALUATION OF USER EXPERIENCE IN THE GAME 'NIGHT'S REACH' USING THE GAME EXPERIENCE METHOD QUESTIONNAIRE (GEQ)," Apr. 2025. Accessed: Oct. 03, 2025. [Online]. Available: https://doi.org/10.20527/jtiulm.v10i1.463

[10] D. Johnson and others, "Understanding motivation in digital games: A user experience perspective," *Comput Human Behav*, vol. 139, p. 107502, 2023, doi: 10.1016/j.chb.2022.107502.

[11] A. Sekhavat, S. Roohi, H. S. Mohammadi, and G. N. Yannakakis, "Emotion awareness and player experience in game design," *User Model User-adapt Interact*, 2023, doi: 10.1007/s11257-023-09315-4.

[12] J. Park and J. Lee, "Determinants of mobile game engagement and retention," *Comput Human Behav*, vol. 132, p. 107242, 2022, doi: 10.1016/j.chb.2022.107242.

[13] H. Nunnally and I. H. Bernstein, *Psychometric Theory*, 3rd ed. New York: McGraw-Hill, 1994.

[14] M. Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*. New York: Harper and Row, 1990.

[15] Y. Chen and P. J. Hsu, "Exploring Player Engagement in Mobile Games: The Case of Strategy-Based Auto Battler Games," *Entertain Comput*, vol. 35, pp. 100–118, 2020, doi: 10.1016/j.entcom.2020.100118.

[16] K. Leung and L. Chen, "Emotional responses and player satisfaction in mobile games," *Entertain Comput*, vol. 48, p. 100553, 2023, doi: 10.1016/j.entcom.2023.100553.