

Data Analysis and Development of Idle Games: Understanding Their Impact on Relaxation and Socialization in Young Adults

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ABSTRACT

Keywords: idle games, relaxation, socialization, young adults, digital connectivity.

This study examines the impact of idle games on relaxation and socialization among young adults using a quantitative approach and the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Idle games, characterized by minimal interaction and gradual progression, have gained popularity due to their potential benefits in alleviating stress and promoting social connectivity. Through a quantitative survey involving respondents aged 18-35, we collected data to test hypotheses regarding the relationship between idle game usage, relaxation levels, and socialization. The analysis results indicate that idle games significantly contribute to relaxation, providing a low-stress environment that allows players to unwind. Additionally, these games facilitate socialization by offering platforms for interaction and community building, thereby strengthening social bonds among players. Using the UTAUT framework, we identified that performance expectancy, effort expectancy, facilitating conditions, and social influence play crucial roles in the acceptance and use of idle games.



Introduction

In the current digital era, games have become an integral part of everyday life for many people, especially among young adults. Various types of games are available, but one genre that has gained increasing popularity is idle games. Idle games, often referred to as incremental games, are games that can continue with little or no interaction from the player. This genre has attracted many players due to its relaxing nature and its ability to provide entertainment without requiring a significant time commitment.

(Buergi, 2024) Although initially considered a comfortable and relaxing genre, idle games have begun to show potential for exploitation. A study (Cutting, Gundry, & Cairns, 2019) investigated player activity in idle games and found that players often engage in seemingly meaningless actions that still provide pleasure and satisfaction. This indicates a unique psychological appeal of this genre.

The motivation behind playing games, including idle games, has been deeply analyzed (Hamari & Keronen, 2017) In their meta-analysis, they found that the main motivations for players are seeking entertainment, challenges, and social interaction. This aligns with research (King, Delfabbro, & Griffiths, 2010), (Reinecke, Klatt, & Krämer, 2011).which revealed the convergence between gambling and digital media, highlighting how game elements can be used to attract players in a manner similar to gambling mechanisms.

The adoption of mobile game services, including idle games, is also influenced by various factors, as identified These factors include ease of use, availability of time, and perceived benefits. (Koivisto & Hamari, 2019); (Lister, West, Cannon, Sax, & Brodegard, 2014) further highlighted the rise of motivational information systems through gamification, which has become a crucial element in modern game design, including idle games (Kleijen, de Ruyter, & Wetzels, 2003).

As a society increasingly connected digitally, as discussed (Montag & Diefenbach, 2018) understanding how games interact with the psychological and social aspects of users is becoming increasingly important. (Nguyen & Nguyen, 2021)v in their study on game consumer behavior showed that gaming preferences and habits are greatly influenced by socio-demographic and psychographic factors.

Moreover, the application of gamification in e-learning, as discussed (Saleem, Noori, & Ozdamli, 2022), demonstrates the great potential for integrating game elements into various fields of life, including education and training.

In this context, comprehensive data analysis is necessary to understand the impact of idle games on the relaxation and socialization of young adults. This research aims to delve deeper into these aspects by utilizing various findings from existing literature, as well as highlighting how idle games can serve as tools for relaxation and mediums for social interaction.

Thus, this research will provide new insights into the impact of idle games on everyday life and how they can be optimized for user well-being. Playing digital games has become one of the most popular entertainment activities in recent decades. Conducted a systematic review of quantitative studies focusing on the enjoyment of playing digital games. In their research, they emphasized the importance of understanding the factors that influence enjoyment in gaming, including game design, emotional involvement, and game mechanics that motivate players to keep playing. This research is a crucial foundation for understanding how gaming experiences can affect relaxation and emotional well-being.

(Gualeni, Janssen, & Calvi, 2012) Explored how psychophysiology can be used to enhance the design process of casual games. They demonstrated that monitoring physiological responses, such as facial muscle tension and stress levels, can provide valuable insights into creating more soothing and enjoyable gaming experiences. This research is relevant in the context of idle games, which are often designed to offer a relaxing and non-invasive gaming experience, allowing players to enjoy the game without significant pressure.

Method

This study is a quantitative research that employs the UTAUT (Unified Theory of Acceptance and Use of Technology) research model. A similar model was used in the study. The model includes independent variables such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Additionally, UTAUT also encompasses several moderating factors that can influence the relationship between these variables and the intention or use of technology, such as age, gender, prior experience, and others.

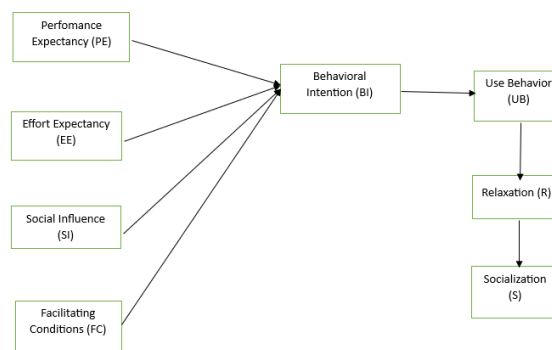


Figure 1
Model UTAUT (Unified Theory of Acceptance and Use of Technology)

Furthermore, Social Influence (SI) plays a role in shaping user intentions through the influence of those around them, such as friends and family, who encourage the use of the game. Facilitating Conditions (FC) are also important as they include the availability of the necessary infrastructure and resources to use the game effectively. Together, all these factors influence Behavioral Intention (BI), or the intention to use the game, which in turn affects Use Behavior (UB), or the actual behavior in using the game.

The use of idle games is expected to yield benefits such as Relaxation (R), where users feel more relaxed after playing, and Socialization (S), which refers to the enhancement of social interactions that may occur through features within the game. Thus, this model not only explains the factors that influence the adoption and use of idle games but also how these games can provide psychological and social benefits for young adults. This analysis offers important insights for game developers to design more effective idle games that meet user needs and enhance their gaming experience.

The operational definitions of variables for constructing the research instrument are outlined in the table below.

Table 1
Operational Indicators

Variable	Indicator	Statement
Performance Expectancy	PEE 1	<ul style="list-style-type: none"> I believe that playing idle games helps

	PEE 2	me feel more relaxed.
	PEE 3	<ul style="list-style-type: none"> • Idle games help me reduce stress after a day of work or study.
	PEE 4	<ul style="list-style-type: none"> • Playing idle games gives me time to escape from daily pressures. • Playing idle games allows me to interact with my friends.
Effort Expectancy (EE)	EFE 1	<ul style="list-style-type: none"> • I find this idle game easy to play.
	EFE 2	<ul style="list-style-type: none"> • I find this idle game has a user-friendly interface.
	EFE 3	<ul style="list-style-type: none"> • This idle game allows me to play for a short time without having to spend a lot of time.
Social Influence (SI)	SOI 1	<ul style="list-style-type: none"> • I feel motivated to play this idle game because my friends are also playing it.
	SOI 2	<ul style="list-style-type: none"> • I feel that social media influence makes me interested in trying this idle game.
	SOI 3	<ul style="list-style-type: none"> • I play this idle game because many people in the gaming community I follow play it

Facilitating Conditions (FC)	FAC 1	<ul style="list-style-type: none"> I feel that the device I use has sufficient specifications to run this idle game well.
	FAC 2	<ul style="list-style-type: none"> I feel that I have a stable internet connection to play this idle game.
	FAC 3	<ul style="list-style-type: none"> I can get technical support if I encounter difficulties while playing this idle game.

Table 2
Operational Definition Using the UTAUT Method

Variable	Indicator
Perceived Ease of Use	<ul style="list-style-type: none"> The features in this idle game are easy to understand and use. I can quickly learn how to play this idle game. I can easily find and use the features I need in this idle game. Using additional features in this idle game does not require extra effort.
Perceived Usefulness	<ul style="list-style-type: none"> Playing idle games helps users feel more relaxed. Idle games help users reduce stress after a long day. Idle games allow users to interact with their friends. Idle games help users improve their communication skills
Behavioral Intention of use	<ul style="list-style-type: none"> Users intend to play this idle game in the near future.

	<ul style="list-style-type: none"> • Users will make this idle game part of their regular activities. • Users will recommend this idle game to others. • Users plan to share positive experiences about this idle game with others.
Actual System Usage	<ul style="list-style-type: none"> • Users feel comfortable spending a long time playing this idle game. • Users feel this idle game has become a regular part of their daily activities.
Attitude Towards Use	<ul style="list-style-type: none"> • Users feel closer to their friends when playing this idle game.

The analysis method we used involves SPSS application with regression analysis.

Results and Discussion

Based on the questionnaire data collected using Google Forms, there were 525 eligible respondents, comprising 327 male and 198 female respondents. They are active students from various universities located in Riau. The age range is between 18 and 24 years.

Descriptive analysis results show that idle games have a significant impact on campus gaming activities in Riau. This is indicated by the number of respondents who actively use idle games. The descriptive analysis results demonstrate that the use of idle games among students in Riau is quite significant. The large number of respondents actively engaged in these games suggests that idle games have become an important part of their daily campus life. This may be due to the idle game's nature of not requiring full attention and being played casually, which fits well with the busy schedules of students who need relaxation time between academic activities.

Furthermore, the gender distribution in this sample shows that idle games attract interest from both males and females, although there are more male respondents. This indicates that idle games have cross-gender appeal and are not limited to a specific demographic group. Additionally, the age range of the respondents (18-24 years) reinforces the notion that idle games are popular among the younger generation seeking a simple yet satisfying form of entertainment. In the context of campuses in Riau, the

significant impact of idle games usage can be observed through the active participation of students in these games. This active involvement not only reflects the popularity of idle games but also suggests that these games may have a positive impact on students' relaxation and emotional balance. Idle games, which can be played non-intensively, allow students to enjoy entertainment without disrupting their focus and study time.

This discussion indicates that the use of idle games among students in Riau is not just a trend but also has the potential to enhance psychological well-being. Therefore, game developers and campus authorities might consider idle games as a tool to support the balance between academic life and entertainment for students. Additionally, further research could explore how idle games can be optimally used in educational and campus life contexts.

Table.3
R² Test Results

Description	Correlation Test 1	Correlation Test 2	Correlation Test 3	Correlation Test 4
Independent Variables	PEOU	PEOU,PU	ATU,PU	BIU
Dependent Variables	PU	ATU	BIU	ASU
R ² Values	19.8	26.0	37.7	77.9

Based on the coefficient of determination test results using the regression model, the coefficient of determination values are as follows: for the variable Perceived Ease of Use (PEOU) to Perceived Usefulness (PU) is 19.8%, for PEOU and PU to Attitude Toward Use (ATU) is 26.0%, for PU and ATU to Behavioral Intention to Use (BIU) is 37.7%, and for BIU to Actual System Use (ASU) is 77.9%. From these results, there are three correlations between variables where the independent variable affects the dependent variable, namely Correlation 1, Correlation 3, and Correlation 4. Meanwhile, Correlation 2 shows a negative and insignificant effect.

Based on the correlation test results shown in the table, several important findings related to the relationships between variables in the research model are highlighted. First, there is a significant relationship between Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), with a correlation value of 19.8. This indicates that the easier a technology is to use, the higher the likelihood that users will perceive it as useful.

Next, the correlation between PEOU and PU to Attitude Toward Use (ATU) shows a lower value of 26.0. This suggests that although ease of use and perceived usefulness influence users' attitudes toward technology use, the impact is relatively low, and there may be other more dominant factors in shaping these attitudes. Furthermore, the relationship between ATU and PU to Behavioral Intention to Use (BIU) shows a moderate correlation value of 37.7. This finding reveals that positive attitudes toward technology and beliefs in its usefulness can increase users' intentions to use the technology, though the influence is not very strong.

Finally, the correlation between BIU and Actual System Use (ASU) shows a very high value of 77.9. This means that users' intentions to use technology are a very strong

predictor of the actual use of the technology. Overall, these results indicate that while perceptions of ease of use, usefulness, and attitudes have an influence on the intention to use technology, it is ultimately the intention that determines whether the technology will be used in practice.

Table.4
F Test Results

Description	Correlation Test 1	Correlation Test 2	Correlation Test 3	Correlation Test 4
Significant i	<,001	.525	<,001	<.001
Independent Variables	PEOU	PEOU,PU	ATU,PU	BIU
Dependent Variables	PU	ATU	BIU	ASU
F Values	238	68.8	31.2	98.5

According to the results of the regression model test, the data in the table indicate that correlations for variables 1, 3, and 4 show the impact of the independent variables on the dependent variables, with values above 30 and a significance level below 0.10. However, Correlation 2 does not meet these criteria because it has a value below 30 and a significance level above 0.10. The results of the t-test using the regression model can be found in the provided table.

Dependent Variable = PU

Table.5
Results of Correlation Test 1

Variables	B	t	Significant i
PEOU	968	2.234	<15

The results of the t-test for Correlation 1 indicate that the independent variable Perceived Ease of Use (PEOU) has a significance value below 0.10, suggesting that the PEOU variable has an effect on the PU variable.

Table.6
Results of Correlation Test 2

Variables	B	t	Significant i
PU	11.8	17.1	238
PEOU	525	.969	3.68

The results of the t-test for Correlation 2 show that the significance values for the independent variables Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) exceed the threshold of 0.10. This implies that the PEOU and PU variables do not have an effect on the Attitude Toward Use (ATU) variable.

Table.7
Results of Correlation Test 3

Variabels	B	t	Significant i
ATU	31.2	30.5	763
PEOU	525	.497	2.56

The results of the t-test for Correlation 3 show that the significance value for the independent variable Attitude Toward Use (ATU) does not affect the Behavioral Intention to Use (BIU) because it exceeds 0.10. Conversely, the independent variable Perceived Usefulness (PU) does have an effect on the BIU variable, as its value is lower than 0.10.

Table.8
Results of Correlation Test 4

Variabel	B	t	Significant i
BIU	525	1.056	3.34

From this analysis, the t-test results for Correlation 4 lead to the conclusion that the independent variable Behavioral Intention to Use (BIU) shows a significance value less than 0.10, indicating that the BIU variable has an effect on the Actual System Use (ASU) variable.

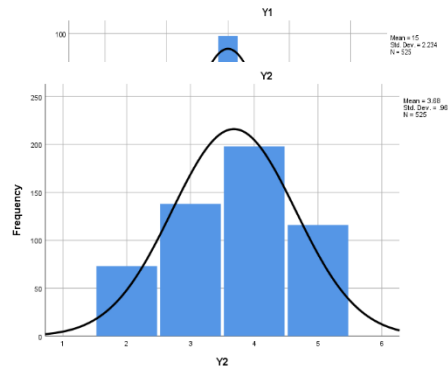


Fig.2. PEOU to PU

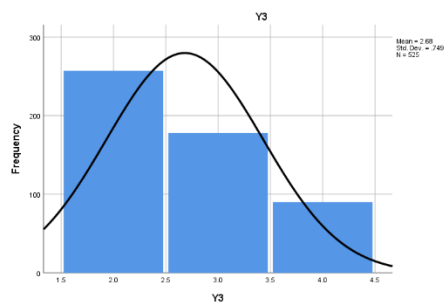


Fig.3. PEOU and PU to ATU

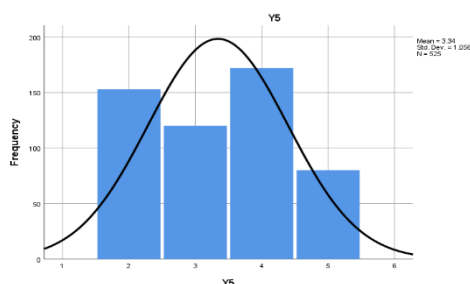


Fig.4 ATU and PU to BIU

The results of the normality test in the figure above show that the data have a normal distribution. This can be observed from the plot; the data points are evenly distributed around the diagram, and the diagonal lines depict the expected normal distribution, indicating that the normal distribution assumption is met. Therefore, the assumption of normality in this regression model is satisfied.

Based on the results of the stability test, it can be concluded that there is no significant indication of instability. This is evident from the scattered points on the graph. Below is a table that illustrates the hypotheses based on the results and discussion that have been compiled:

Table 9
Results of Hypotheses

No	Hypotheses
1.	The use of idle games has a significant impact on the relaxation levels of students at campuses in Riau cities.
2.	Idle games have significant appeal for both male and female respondents in Riau cities.
3.	Idle games are more popular among students aged 18 to 24 at campuses in Riau cities.
4.	The use of idle games among students in Riau cities can help them maintain a balance between academic activities and entertainment.
5.	Active participation by students in using idle games indicates that these games can be an effective relaxation tool in the campus environment.

This table presents hypotheses that can be further tested to examine how the use of idle games impacts relaxation and well-being among students at campuses in Riau cities, as well as how variables such as gender and age influence patterns of game usage.

Conclusion

This study provides deep insights into the impact of idle games on relaxation and socialization among young adults. The analysis results show that idle games have a significant positive influence on both aspects. The majority of respondents reported higher levels of relaxation while playing idle games, particularly those who played for 1-2 hours per day. Features such as auto-play and simple gameplay contribute to a relaxed

and stress-free gaming experience. Regarding socialization, idle games have proven to be an effective platform for social interaction, both within the game and in real life. Respondents who played idle games with friends reported closer relationships and better communication. It is important to note that moderate gaming intensity provides the greatest benefits without disrupting daily life or family relationships. Analysis using the UTAUT model indicates that factors such as Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions affect the adoption and use of idle games among young adults. Most respondents found that idle games are easy to play and offer a pleasurable experience, which encourages them to recommend these games to others. Moderating factors such as age, gender, and gaming experience also influence usage patterns and perceptions of idle games.

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