

# EXPLORING THE DESIGN FACTORS SHAPING THE GAMING EXPERIENCE FOR GENERATION ALPHA

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## ABSTRACT

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Generation Alpha is the first generation to grow up in a fully digital environment. They learn through play, especially gaming, and are the drivers of the current and future gaming industry. To ensure game design aligns with the characteristics and preferences of generation Alpha, this study focuses on exploring and analyzing the gaming elements favored by this generation. The purposive sampling method was chosen to specifically target primary school students who actively engage in gaming, ensuring that the data collected would be relevant and representative of this demographic's preferences. The data for analysis was collected from 681 primary school students at Assumption College Nakhon Ratchasima Thailand during the first semester of the 2023 academic year. Out of these, 304 students were purposively selected to respond to a questionnaire regarding 47 game factors that influence the gaming experience, with a Cronbach's Alpha Coefficient of 0.910, indicating high reliability. Exploratory factor analysis (EFA) with Varimax rotation was employed to cluster the game design elements, as it is an effective method for identifying underlying factor structures in complex datasets. Linear regression analysis was used to verify the relationship between game design elements and user preference. The research results found that the extracted components had an Eigen value greater than 1.00 and could explain all the variables by 59.921 percent, with 12 components. However, when the coefficients of game design components and game playing time of generation Alpha were calculated, there were 7 components: 1) aesthetics that enhance gameplay, 2) enjoyment from playing the game, 3) disenjoyment from playing the game, 4) gameplay style, 5) system functionality, 6) positive experience, and 7) gameplay features. The results of this research help game designers and developers use the obtained factors as an important basis for game design and development.

**Keywords:** Game design elements; factor analysis; game preferences

## 1. INTRODUCTION

Generation Alpha represents a new wave of digital natives born at the dawn of the digital age of the 21st century. There, electronic devices have become an important part of everyday life (McCrindle, 2020). This

generation is embedded in technology and is particularly drawn to an interactive learning environment that enjoys commitment and collaboration with others. This requires innovative learning tools and approaches, and encouraged stronger participation and commitment to Generation Alpha (Kong, 2023). Their actions reflect a strong affinity for technology as they are the first generation immersed in digital technology. They have a deep understanding of technology and can use them at a young age and shape their lives for devices that allow for mobility, connectivity and privacy. Communication and interaction with society mainly uses mobile phones and the Internet, via online platforms (Tripathi, 2019), and serves as important elements of everyday life.

Generation Alpha are now spending more time gaming than on any other activity. Gamers play a significant role in their lives and Generation Z, representing 79% of total online population (Newzoo, 2022). This shows that Generation Alpha is one of the most popular and rapidly expanding gaming consumer segments driving industries growth. With the increasing popularity of mobile games and everyday playthings, alongside this generation's intrinsic understanding of digital and technical language, games have evolved beyond being just for fun, they are now becoming integral in education as well as socialization to help build the next steps in our growing digital society. In particular, for Generation Alpha, the visual rich fast pace and high interactivity games are very appealing. Game developers also are faced with a number of hurdles creating games that appeal to them. These may include addressing their short focus quality, constantly changing interests and age-sensitive content as well as meaningful personalization that respects cognitive and emotional development of the young gamers. Moreover, integrating educational content while making sure the resulting game is fun to play still faces a problem in terms of developing effective games for this age group.

In the game development process, gameplay design plays a pivotal role, with a series of its own steps ensuring games are fun and enjoyable. Game design serves as the foundation on which the game is built. Scientists, game designers and other stakeholders in game development have sought to continually determine attractive game design principles and guidelines. However, game design is not subject to fixed rules. Rather, it involves examining game elements and extracting key factors that influence the play experience. These factors are identified by data analysis using appropriate statistical methods to determine the significance of each element in the player's design (Tirakoat, 2021). While the gaming industry is advancing with new technologies, game designers need to continually adjust their designs to meet player development requirements. However, the gap remains a structural factor affecting the gaming experience of the Alpha generation. A comprehensive understanding of factors that influence their gaming experience is still lacking in existing research.

The purpose of this study is to investigate design factors that influence the gaming experience of generations of Alpha and identify key elements of game design that use this demographic fee, and to provide the following objectives. We aim to resolve the research gap. The results of this study provide game designers and educators with valuable insight into creating engaging, educational and developmentable gaming experiences for this generation of children.

## 2. LITERATURE REVIEW

### 2.1 Generation Alpha

Generation Alpha, born around 2010, is considered a digital native cohort with early technology. Research shows that at age 4, many of this generation can use a tablet, 61% of them own a tablet and 49% have a smartphone (Roctec Global, 2022). They represent the first true cohort of the digital age after growing up with digital technologies that have become an important part of everyday life (McCrindle, 2020).

From an analysis of multiple sources, the following seven factors have been identified as significantly influencing the behavior of Generation Alpha:

**1) Digital generation:** Generation Alpha inhabits a digitally dominant world, also known as the digital generation (Tootell et al., 2014). This early exposure had molded their behavior and sense of autonomy and privacy. Therefore, they have the tendency to be skeptical of unproven information and value self-determination more than guidance from conventional authority.

**2) Smartphone use:** Generation Alpha spend hours per day on their smartphones (Roctec Global, 2022). They have learnt to be social beings, and to think, in ways shaped by the use of mobile technology. Their smartphones are most commonly used in private spaces, which enables the device to be automatically personalized into a highly personalized digital space. But this heavy use of tech is not without its risks, in terms of digital security and internet safety.

**3) Parenting styles:** Generation Alpha parents come primarily from Generation Y who prioritize financial stability and comfort in raising children. This trend has led to a generation that is used to modern amenities and received higher training and showed higher empathy compared to others (McCrindle, 2020).

**4) Social and economic gap:** In a society with considerable social inequality (Areekul, 2019), Generation Alpha developed adaptive behavior. They are used to multitasking, enjoying the challenge, a willingness to break away from, flexibility and traditional norms.

**5) Environmental awareness:** The Generation Alpha grew during a period of extreme environmental change (Tripathi, 2019). This environmental awareness will affect their values and lifestyle decisions.

**6) Economic changes:** The economic challenges faced by Generation Alpha have led them to reject traditional ownership models such as rental economies (McCrinkle, 2020). They prefer to have direct objects rather than participate in a common ownership model, indicating a lower trend in traditional career paths.

**7) Gaming and technology:** Generation Alpha is glued to screens for an average of 2 hours per day. However, this prolonged exposure to screen time comes with some consequences such as insufficient sleep which can result in lower attention span and memory impairment caused by disrupted neural maturation (Jha, 2020).

## 2.2 Generation Alpha and games

The Alpha Generation is being raised in the technology and internet age with smart electronic devices to fill every niche of our life. They glide back and forth between online and offline worlds, although many have occasional phases of exclusively online experiences. For instance, mobile games are likely very popular on late weekend nights, but during the day users would be expected to switch between virtual and real-world interactions (Darawuttimaprakorn, 2020).

Since 2023, gaming engagement among Generation Alpha has exploded past its predecessors when it comes to the length of time playing and interest in online gaming content. This change is attributed to the greater availability and capability of contemporary technology (Meehan, 2023). The pervasiveness of these technologies seeps into every aspect of their lives, helping them stay connected to other likeminded people and build new digital communities. Smartphones especially are a pocket sized super computer, which has in turn fuelled Generation Alphas' online gaming space. Mobile gaming has thus become an expanding industry.

The gaming behavior of Generation Alpha is intricately connected with online networking which shape their selection of game, buying habits and social interaction (Zaki et al., 2023). Identity and self-expression are also key drivers for this generation in gaming. Apart from entertainment, there have been beneficial effects of gaming noticed in the research. Research has shown gamification can improve family relationships, increase participation in chores and activities, goody uptake of schooling responsibilities and enhance intellectual well-being. In addition, the gaming context is associated with the delivery of prosocial behavior when it comes to help, sharing, cooperation, and sympathy (Price-Mitchell 2013).

Some 65% of children aged 8 to 11 in Generation Alpha use a smartphone. Game (85%) and watching online videos (82%), are the most popular hobbies in Thailand (Thongsuk, 2022). These are indicators of the positive role that digital media plays in their lives.

One recent systematic review was conducted to determine the use of gamification and game-based learning (GBL) in Generation Alpha primary education pupils. Children of Generation Alpha are growing up with tech and digital devices and become curious to learn through engaging interactives including various formats and game-like applications. Game with narrative, engaging characters and a more realistic style fall into favor because they match the visual learning styles and shorter attention spans of Alphas versus previous generations (Fernando & Premadasa, 2024).

## 2.3 Elements of game design

Game design is a dynamic process that does not adhere to fixed rules but combines information about the behavior and needs of a target group. These insights are incorporated into the design of game elements to create content and environments that align with gameplay mechanics, considering the devices used for gaming and ensuring the game's performance to deliver a satisfying experience. This approach aims to make the gameplay enjoyable, engaging, and rewarding for the players.

The Pyramid of Game Designs Framework outlines three levels of game design along with a central connecting element (Lovell, 2019):

**1) Base Layer:** this is the basic element of the game and consists of game mechanics, gameplay, and boss mechanics. Game mechanics adjust in-game interactions, gameplay refers to the overall experience of play, and boss mechanics involve challenges where players must defeat bosses or monsters to advance.

**2) Retention Layer:** this layer focuses on keeping players in the game for a long period of time. Factors that influence retention are not always clearly defined and vary based on individual preferences. Designers want to improve the player's experience by integrating theories related to the needs of the user.

**3) Super Fan Layer:** this layer refers to points where the game becomes a hobby for players, investing a considerable amount of time and money in the game, and surpassing other gaming experiences.

**4) Core Loop:** as the driving force connecting the base layer and storage layer, the core loop for game design is very important, and the importance of the player being included continuously. In this way, player will feel joy and satisfaction. To design an effective core loop, game designers need to understand player preferences and game dynamics to ensure long-term player engagement.

While the Base Layer are important as the heart of the game, it involves clear processes and constraints, making it challenging for game designers. However, the Retention Layer is a more complicated task. Its success depends on the attempts, errors and iterations supported by player analysis and testing. By choosing the right core loop and the confidence that it is directed at both the player and the game mechanic, a game can elevate to the Super Fan Layer.

In addition to the pyramids of game design frameworks, another widely-used framework in game design is MDA (Mechanics-Dynamics-Aesthetics) (Hunicke et al., 2004). This framework is a tool that analyzes games and uncovers three core elements (Rungsoongnern & Tirakoat, 2025). The MDA framework categorizes these elements as follows:

**1) Mechanic:** refers to game mechanics that allow players to interact. These can be divided into:

*Game Mechanics:* specific actions that players can take advantage of, such as moving, jumping, attacking, and interaction with the environment.

*Boss Mechanics:* the mechanisms that allow players to engage with obstacles or bosses, that defeats a henchman before facing the main boss.

*Gameplay:* the use of theories and principles, such as challenges, objectives, and paces, tailored to a particular group of players and game types.

**2) Dynamics:** Depict the motivational and behavioral principles that arise out of particular feature-sets as users interact with them in a gamified system. Good game design should guarantee that these dynamics are resonant with both player group and type of game, such that play is enjoyably effective.

**3) Aesthetics:** Relate to the look and sound of the game that can stimulate one's feelings and sensation. Such sensory content comprises of visions, sounds, gestures and rhythms that attract players' commitment with artistic designs tailored for players' tastes.

The MDA Framework is well-suited for system-level analysis of game design elements. It provides a structured approach to dissecting how game mechanics generate dynamics and evoke aesthetic experiences, focusing on the technical and functional components that drive gameplay. In contrast, the Pyramid of Game Design Framework emphasizes the player's behavior and retention levels, offering insight into how different game elements influence player motivation, engagement, and long-term commitment. This framework is particularly effective for analyzing player experience from a behavioral and emotional perspective. By integrating the Pyramid of Game Designs Framework and MDA, game designers will create a broad range of experiences targeting game dynamics and emotional engagement of players, ensuring a rich and unforgettable gaming experience.

## 2.4 Factor analysis

The data collection process using questionnaires should include Cronbach's Alpha Coefficient calculation, which is crucial for ensuring data reliability and validity (Tirakoat, 2020). Exploratory factor analysis (EFA) is employed as a statistical technique to reduce data dimensionality and identify underlying structures within the dataset (Samokhina & Lertputtarak, 2017). It serves as a valuable tool in theory development and the creation of measurement instruments across various fields. The EFA process involves several steps, including variable selection, data suitability, factor extraction method, rotating factors, and interpreting the factors. Key considerations for applying EFA include:

1) Determining sample size is important to ensure the reliability of EFA results.

2) Choosing a factor extraction method, such as Principal Component Analysis (PCA) or Principal Axis Factoring (PAF), depends on the nature of the data and the objectives of the analysis.

3) Selecting the factor rotation method, such as Varimax or Promax rotation improve the interpretability of extracted factors.

4) Decision on the number of factors obtained must be based on specificity, screen diagram analysis, and theoretical interpretation (Sürücü et al., 2022).

This research framework using EFA ensures that the extracted factors are meaningful and relevant for subsequent analysis and measurement development.

### 3. MATERIALS AND METHODS

#### 3.1 Research design

An empirical research design was used in this study to investigate the design dimensions that influence the gaming experience of Generation Alpha. The study was conducted among 681 primary school students from Assumption College Nakhon Ratchasima, Thailand after obtaining informed consent in the first semester of academic year 2024. A sample of 304 upper primary school students was drawn through purposive sampling, a non-probability sampling technique. This specific segment was chosen as it's one of the key active gaming segments in Generation Alpha, a categorization endorsed by Newzoo Global Games Market Report (Newzoo, 2024).

#### 3.2 Research methodology

##### 3.2.1 Literature review

This research started with a literature review about gaming preferences and behaviors of Generation Alpha, as well as the related game design theories. The literature review provided an underpinning for the determinants of game engagement and preferences among this cohort. In order to better understand these play patterns, this paper explored game design features that align with the gaming preferences of Generation Alpha. Thus, questionnaire items were constructed from previous research into preferred game genres, device use practices and emotional engagement with gaming content. These aspects are key in order to assess the motivational dimensions of sustained play and see what design elements support retention, enjoyment-principles that can be translated into games tailored for this generation. By targeting these dimensions, the survey closely taps into the digital experiences and psychological involvement with games of Generation Alpha.

##### 3.2.2 Instrument development

For data collection, a structured questionnaire was designed by the researchers to explore what factors influence Gen Alpha's choices for mobile games. The survey comprised multiple-choice questions in 4 different sections: respondent profile (3 items), mobile phone use patterns (10 items), gaming experience and motives for playing mobile games (26 items) and preferred design characteristics of a mobile game for Generation Alpha (47 items).

The preferences of the respondents were measured using a 5-point Likert scale (Boone Jr & Boone, 2012), where: 5 = Strongly like, 4 = Like, 3 = Neutral, 2 = Dislike, and 1 = Strongly dislike.

Validity of the questionnaire was tested using the Index of Item-Objective Congruence (IOC). A panel of three survey design specialists examined the questionnaire and the IOC values were computed for each item. Only those with an IOC greater than or equal to .50 were chosen for the final questionnaire.

The internal consistency of the questionnaire was assessed through Cronbach's Alpha. This is comprised of 47 determinants affecting the gaming experience of Generation Alpha. Cronbach's Alpha value of .910 was estimated which shows good internal consistency. No items were deleted due to the satisfactory correlation of all.

#### 3.3 Data collection

The process of data collection proceeded according to a number of structured phases. First, ethical consideration was addressed and formal consent to conduct this study was obtained from the Director of Assumption College Nakhon Ratchasima, Thailand. Once permission was obtained from parents, informed consent forms were sent home to the parents of all eligible children along with a description of study goals and procedures.

Data collection was jointly coordinated with the computational science teachers to utilize a classroom setting where 1:1 computer access was available for all of their students. In order to build trust and context, one of the researchers was an assistant teacher in computational science classes of upper-primary class for one week prior to collecting data.

The researcher explained the study goal and the method of administering the questionnaire during a designated data collection time. All questions were read aloud to the sampling group and clarifying opportunities made available along the way. Then the sampling group filled the questionnaire on their classroom computers through Google Forms. After gathering, the extracted data were pooled and organized.

#### 3.4 Data analysis methods

The researchers analyzed the factor loadings, mean, and standard deviation of the factors influencing the gaming experience of Generation Alpha using: 1) Exploratory factor analysis (EFA), 2) Linear regression analysis, 3) Mean, and 4) Standard deviation.

## 4. RESULTS

### 4.1 Factors influencing the gaming experience of Generation Alpha

The researchers used statistics to analyze the exploratory factors influencing the gaming experience of Generation Alpha and found that they can be categorized into 12 groups. The researchers then identified the groups and presented the factors within each group, as shown in Table 1.

**Table 1:** Factor loading, mean, and standard deviation of the analysis of factors influencing the gaming experience of Generation Alpha

Factors influencing the gaming experience of Generation Alpha	Factor loading	Mean	Standard deviation	Game design elements
Color scheme of the game visuals	.772	4.22	1.09	Element 1: Number of Variables: 7 Statistical Values: Eigenvalues = 3.861 and % of Variance = 8.215 Name: Aesthetics that Enhance Gameplay
Character movement in the game	.683	4.31	0.91	
Character appearance in the game	.675	4.30	0.95	
Displaying images in 3D format	.641	4.10	1.12	
Game sound that enhances enjoyment	.613	4.23	0.97	
Presence of buttons for character control	.609	4.51	0.84	
Displaying images in 2D format	.384	3.72	1.19	
Win with the highest score	.706	4.35	0.99	Element 2: Number of Variables: 5 Statistical Values: Eigenvalues = 3.165 and % of Variance = 6.735 Name: Enjoyment from Playing the Game
Compete for scores with friends through the leaderboard	.641	4.24	1.01	
Use items to increase the score	.579	4.27	1.00	
Increase in game level	.571	4.20	1.05	
Team-based competition	.563	4.43	0.87	
Cannot play on mobile devices	.770	3.37	1.54	Element 3: Number of Variables: 5 Statistical Values: Eigenvalues = 2.866 and % of Variance = 6.098 Name: Factors Leading Players to Abandon the Game
Need to pay to purchase in-game items	.707	3.22	1.53	
Requires an internet connection	.631	3.04	1.54	
No friends who are familiar with playing this game	.597	3.23	1.54	
No assistance to overcome obstacles/complete missions	.518	3.32	1.41	
The game does not penalize or reward the player	.720	3.55	1.40	Element 4: Number of Variables: 4 Statistical Values: Eigenvalues = 2.854 and % of Variance = 6.072 Name: Disenjoyment from Playing the Game
The visuals, sound, and animations are the same	.708	3.19	1.49	
The gameplay remains the same	.615	3.37	1.51	
The challenges are too easy	.599	3.37	1.50	
Use memory or knowledge to solve problems	.783	3.56	1.38	Element 5: Number of Variables: 4 Statistical Values: Eigenvalues = 2.439 and % of Variance = 5.189 Name: Favorite Challenges
Use thinking, planning, and selecting items to solve problems	.650	3.88	1.25	
Compete against time or have a time limit for gameplay	.572	3.68	1.29	
Win by playing for the longest time	.481	3.63	1.31	
The gameplay is fun/enjoyable	.800	4.60	0.85	Element 6: Number of Variables: 3 Statistical Values: Eigenvalues = 2.187 and % of Variance = 4.654 Name: Game Mechanics
Can play with friends	.648	4.79	0.60	
There are many activities to do	.500	4.44	0.87	
The game has simple gameplay	.732	3.72	1.39	Element 7: Number of Variables: 3 Statistical Values: Eigenvalues = 2.052 and % of Variance = 4.366 Name: Gameplay Style
No boss fights	.623	3.64	1.50	
Stop playing when the challenges become too difficult	.457	3.29	1.59	
Use swipe gestures to control gameplay	.636	3.97	1.22	Element 8: Number of Variables: 3 Statistical Values: Eigenvalues = 1.933 and % of Variance = 4.112 Name: Usability
Story-driven game	.597	3.66	1.35	
Control the character to reach the finish line	.477	3.91	1.21	
The character represents the player	.605	4.37	1.04	Element 9: Number of Variables: 4 Statistical Values: Eigenvalues = 1.819 and % of Variance = 3.870 Name: System Functionality
Play freely, with the option to do things in any order	.548	4.44	0.89	
In-game purchases with game currency	.450	4.01	1.23	
Playable without an internet connection	.438	3.91	1.29	
Play according to the assigned role	.550	3.93	1.27	Element 10: Number of Variables: 4 Statistical Values: Eigenvalues = 1.790 and % of Variance = 3.808 Name: Game Characteristics
Challenge of managing limited items/products	.533	4.15	1.11	
Explore new areas in the game	.472	4.33	0.96	
Have activities to do with friends in the game	.400	4.50	0.87	
Have a pause/stop button for the game	.700	3.96	1.32	Element 11: Number of Variables: 2 Statistical Values: Eigenvalues = 1.619 and % of Variance = 3.444 Name: Positive Experience
No penalties when players exit the game before it ends	.634	3.64	1.50	

**Table 1:** Factor loading, mean, and standard deviation of the analysis of factors influencing the gaming experience of Generation Alpha (continued)

Factors influencing the gaming experience of Generation Alpha	Factor loading	Mean	Standard deviation	Game design elements
Play to relieve stress	.590	4.36	0.90	Element 12: Number of Variables: 3
Easy-to-use control buttons	.506	4.37	0.98	Statistical Values: Eigenvalues =
Buttons/icons fit the screen and are not excessive in number	.425	4.39	0.92	1.579 and % of Variance = 3.359 Name: Gameplay Features

Table 1 shows that the factors preferred by Generation Alpha can be categorized into 12 groups, with the element having Eigenvalues greater than 1.000, as follows:

**Group 1:** Aesthetics that enhance gameplay has an Eigenvalue of 3.861 and consists of 7 factors: 1) color scheme of the game visuals, 2) character movement in the game, 3) character appearance in the game, 4) displaying images in 3D format, 5) game sound that enhances enjoyment, 6) presence of buttons for character control, 7) displaying images in 2D format.

**Group 2:** Enjoyment from playing the game has an Eigenvalue of 3.165 and consists of 5 factors: 1) win with the highest score, 2) compete for scores with friends through the leaderboard, 3) use items to increase the score, 4) increase in game level, 5) team-based competition.

**Group 3:** Factors leading players to abandon the game has an Eigenvalue of 2.866 and consists of 5 factors: 1) cannot play on mobile devices, 2) need to pay to purchase in-game items, 3) requires an internet connection, 4) no friends who are familiar with playing this game, 5) no assistance to overcome obstacles/complete missions.

**Group 4:** Disenjoyment from playing the game has an Eigenvalue of 2.854 and consists of 4 factors: 1) the game does not penalize or reward the player, 2) the visuals, sound, and animations are the same, 3) the gameplay remains the same, 4) the challenges are too easy.

**Group 5:** Favorite challenges has an Eigenvalue of 2.439 and consists of 4 factors: 1) use memory or knowledge to solve problems, 2) use thinking, planning, and selecting items to solve problems, 3) compete against time or have a time limit for gameplay, 4) win by playing for the longest time.

**Group 6:** Game mechanics has an Eigenvalue of 2.187 and consists of 3 factors: 1) the gameplay is fun/enjoyable, 2) can play with friends, 3) there are many activities to do.

**Group 7:** Gameplay style has an Eigenvalue of 2.052 and consists of 3 factors: 1) the game has simple gameplay, 2) no boss fights, 3) stop playing when the challenges become too difficult.

**Group 8:** Usability has an Eigenvalue of 1.933 and consists of 3 factors: 1) use swipe gestures to control gameplay, 2) story-driven game, 3) control the character to reach the finish line.

**Group 9:** System functionality has an Eigenvalue of 1.819 and consists of 4 factors: 1) the character represents the player, 2) play freely, with the option to do things in any order, 3) in-game purchases with game currency, 4) playable without an internet connection.

**Group 10:** Game characteristics has an Eigenvalue of 1.790 and consists of 4 factors: 1) play according to the assigned role, 2) challenge of managing limited items/products, 3) explore new areas in the game, 4) have activities to do with friends in the game.

**Group 11:** Positive experience has an Eigenvalue of 1.619 and consists of 2 factors: 1) have a pause/stop button for the game, 2) no penalties when players exit the game before it ends.

**Group 12:** Gameplay features has an Eigenvalue of 1.579 and consists of 3 factors: 1) play to relieve stress, 2) easy-to-use control buttons, 3) buttons/icons fit the screen and are not excessive in number.

#### 4.2 Game design elements that influence the gaming preference of Generation Alpha

The researchers analyzed the data from Table 1 using linear regression to determine the relationship between gameplay duration (dependent variable) and game design elements (independent variables), as shown in Table 2.

**Table 2:** The coefficients of game design elements and gameplay duration of Generation Alpha

Game design elements	Coefficient	t-Statistic	p-Value*
Constant	24.862	107.922	.000
1. Aesthetics that enhance gameplay	1.071	4.641	.000*
2. Enjoyment from playing the game	.975	4.226	.000*
3. Factors leading players to abandon the game	.328	1.421	.156
4. Disenjoyment from playing the game	.736	3.189	.002*
5. Favorite challenges	.334	1.448	.145

**Table 2:** The coefficients of game design elements and gameplay duration of Generation Alpha (continued)

Game design elements	Coefficient	t-Statistic	p-Value*
6. Game mechanics	.340	1.473	.142
7. Gameplay style	-.606	-2.625	.009*
8. Usability	.310	1.345	.180
9. System functionality	.544	2.356	.019*
10. Game characteristics	.240	1.042	.298
11. Positive experience	.548	2.374	.018*
12. Gameplay features	.520	2.255	.025*

\*Statistically significant at the .05 level.

Table 2 shows the coefficient values, t-statistics, and p-values for game design elements that affect player preferences from results of analysis of factors with statistical significance ( $p < 0.05$ ): Aesthetics that enhance gameplay, Enjoyment from playing the game, Disenjoyment from playing the game, Gameplay style, System functionality, Positive experience, and Gameplay features.

Among all factors, Aesthetics that enhance gameplay exhibited the strongest correlation with player preference (Coefficient = 1.071,  $p = .000$ ), followed by Enjoyment from playing the game (Coefficient = .975,  $p = .000$ ), Disenjoyment from playing the game (Coefficient = .736,  $p = .002$ ), Gameplay style (Coefficient = -.606,  $p = .009$ ), Positive experience (Coefficient = .548,  $p = .018$ ), System functionality (Coefficient = 0.548,  $p = .019$ ), and Gameplay features (Coefficient = .520,  $p = .025$ ). These elements have a p-value less than .05.

These findings suggest that to enhance player preference, game designers should prioritize aesthetic design that enriches the gameplay experience, alongside fostering enjoyment, minimizing disenjoyment, designing an appropriate gameplay style, improving system functionality, and emphasizing positive player experiences.

## 5. DISCUSSION AND CONCLUSION

The results of the gameplay duration of Generation Alpha and its contributing factors provide quite an interesting result where 7 out of 12 elements are statistically significant to player preferences. The results may be delineated as follows:

### 1) Aesthetics that enhance gameplay

The player's gameplay is augmented by the color, character motion, screen aesthetics and sounds; operation-oriented control buttons also make for comfortable play. All of these components add up to create a favorable emotional experience and greater satisfaction in play.

### 2) Enjoyment from playing the game

Setting goals, competing to win, or achieving high scores challenges players and sparks their interest. The presence of helpful items or progressing to higher game levels also contributes to a sense of advancement, while team competition creates a fun and engaging atmosphere.

### 3) Disenjoyment from playing the game

Games that lack penalties or rewards lead to a lack of motivation for players. Games with repetitive designs or challenges that are too easy fail to excite players, resulting in a less engaging gaming experience.

### 4) Gameplay style

Games with overly simple gameplay may lack excitement, while challenges that are too difficult can lead to player dissatisfaction. The balance between ease and appropriate challenge helps maintain enjoyment during gameplay.

### 5) System functionality

Having a character that represents the player helps foster a sense of connection. Playing freely allows for enjoyment in exploration and decision-making, while offline play increases convenience in accessing the game.

### 6) Positive experience

Having a pause button allows players to manage their time better, while the absence of penalties for exiting the game creates a sense of freedom and ownership in the gaming experience.

### 7) Gameplay features

The design of easy-to-use and simple controls allows players to focus on gameplay without feeling stressed by managing the control system, making gaming an enjoyable activity that helps relieve stress.

These factors are closely related to the experience of having fun playing games and are major contributors to Generation Alpha's time spent gaming. A good game should take these points into account,

making the game meaningful and enjoyable for playing groups of this profile. The findings of the present study indicate that aesthetics influencing gameplay have the most influence on Generation Alpha's preference in choice of games, particularly graphics, characters, animation, dialogue interaction, sound effects and musical composition. These aesthetic properties are very important in evoking emotions and making the experience of players positive. The ease of pressing the control buttons is due to the convenient placement of the buttons. All of these elements combine to make players better enjoy and find more satisfaction in the game. These results are in line with a previous study (Tirakoat, 2020) that found attractive aesthetic and sound can enhance enjoyment from gameplay. In addition, enjoyment in playing the game is still a significant consideration, supporting the argument that positive affective experience is important for player satisfaction (Egami et al., 2024). In summary, well-defined goals and competitive challenges attract players' attention and interest, while receiving higher scores or moving up to the next level gives players a sense of achievement and progression. The team spirit and competition also serve to make it entertaining and lively.

Furthermore, game developers should take into account factors of disenjoyment, as a lack of punishment or reward may lead to reduced player motivation. Players get tired of games with few new light and super-easy challenges, making the game less attractive to players. Gameplay style had a negative coefficient showing that not all gameplay style is suitable for everyone and provides no challenge to players (Wibowo & Hardiwinata, 2023). At the same time, high demands from players and the experience might be lost. Balancing convenience and appropriate challenge is thus an important factor for keeping player entertained and satisfied.

Notwithstanding such insights, this study has limitations. It does not necessarily represent players' preferences in all gaming environments. Future research could determine if these results generalize to a more representative group of players. Furthermore, to explore the interaction between these game design features and players' motivation, skill profile, and gaming habits may offer a better understanding of player behavior.

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