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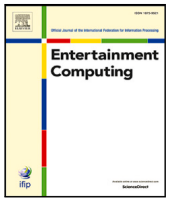

Eight types of video game experience

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ABSTRACT

The study of game experience is a well-established area within game research, supported by numerous models. These models, while valuable, often focus on analyzing game experiences within specific contexts rather than facilitating comparative analyses. Addressing this research gap, our study empirically identifies prevalent game experience types that are common across various games. By analyzing 5,372 game experience descriptions provided by 1,193 survey respondents, this research employs a survey design inspired by the flow of qualitative interviews, facilitating a comprehensive understanding of the diverse factors shaping these experiences. Through latent class analysis, we delineate eight distinct game experience types: Compelling Challenge, Immersive Exploring, Creative Caring, Energetic Rushing, Competitive Shooting, Cheerful Bouncing, Strategic Management, and Daily Dwelling. Each type is analyzed in terms of both the variables from the latent class analysis and additional survey variables, enhancing our understanding of their unique and comparative characteristics. This approach sheds light on the multifaceted nature of game experiences and broadens our insights into player engagement across different game genres, offering practical implications for game design, marketing, and future research.

1. Introduction

Game experiences are a widely studied subject, with numerous models and frameworks developed by both businesses and researchers. In game research and beyond, game experience models are utilized to study how different types of players interact with games. Insights from these models help refine theories about game design and player engagement, contributing to the understanding of game experience as a psychological, cultural, and social phenomenon. Models that classify game experience types also facilitate a more nuanced understanding of how games affect individuals and groups, enhancing the capacity to create more engaging, personalized, and effective game-based applications to fields including entertainment, education and health.

Game experience models are important for game businesses since by classifying different types of game experiences, developers can tailor game features to suit various player types, enhancing engagement and satisfaction. This can involve adjusting difficulty levels, narrative elements, or interactive components based on the player's capabilities and preferences. Modeling game experiences also help designers by providing a framework for interpreting and discussing player feedback. Knowing the types of experiences players consider gratifying also allows companies to craft personalized marketing campaigns. This can increase the effectiveness of advertisements by targeting players with content that aligns with their interests.

Some game experience models focus on analyzing game qualities, examining how specific elements like gameplay mechanics, aesthetics, social features, and narrative design contribute to the overall player experience. Other models build upon player traits and player types, exploring how motives, preferences, and behaviors shape game experiences and predict players' choice of games and play styles. While these existing models have provided valuable insights, they have certain limitations. Models that focus on analyzing game experience from the perspective of player traits may overlook the contextual and situational factors that influence game experiences, treating them as static and consistent across different games and environments. On the other hand, models that focus on game qualities may have to treat players as *implied* [1], which is to say that players' varied reasons to play are often left outside of the main research model. As a consequence, these models are often constructed based on game designers' or marketers' expertise on understanding the game experience without correlating it with extensive empirical data on how players' themselves experience the game and its elements.

This study aims to contribute to the existing body of knowledge by addressing the limitations of current models and adopting a more

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phenomenologically comprehensive and contextualized approach to understanding different game experiences, while still incorporating empirical statistical data analysis. By emphasizing the subjective experiences of players, our goal is to capture both the multidimensional and dynamic nature of game experiences and the diverse factors that shape player preferences. There is a need for game experience models grounded in extensive empirical analysis of how players perceive gratifying and memorable games. The primary objective of this study is to construct such a player data-driven model, one that considers a variety of game elements and contextual factors critical for differentiating one game experience from another.

We begin the article by discussing prior research on game experiences and the challenges associated with assessing them. Next we will present the research questions of the current study and relate them to earlier research on game experiences. We will then describe the methodology employed, which includes the design of a research survey capturing multiple types of valued game experiences. Finally, we will present the results and discuss the implications for game studies and player research.

2. Theoretical background

2.1. Context-specific and general models of game experience research

The research on game experiences can be broadly categorized into two approaches: context-specific and general models. *Context-specific models* analyze player experiences within the specific context of playing a particular game and in relation to the features of that game. This involves examining factors such as gameplay mechanics, graphics, sound design, narrative, level design, playability, and overall player satisfaction. Therefore, the context-specific approach closely aligns with the primary objective of Games User Research (GUR), which is to understand the individual player's experience during and immediately after playing a specific game [2–7].

In contrast to context-specific models, *general models* aim to understand the underlying factors and motivations behind why people play games and seek game experiences. These models delve into the psychological, social, and cultural aspects of gaming, with an objective of identifying common psychosocial drivers and the needs fulfilled through gaming. General models have primarily been applied in the three main areas of research: (1) player preferences, which encompass player motives, preferred play styles, and behavioral patterns across multiple games [e.g., 8–13], (2) demographic factors related to players and their avatars [e.g., 14–16], and (3) player cultures and communities [e.g., 17–19].

While researchers using both context-specific and general approaches frequently employ surveys, interviews, and psychophysiological experiments to study game experiences, these approaches aim to address only partially overlapping research questions. For example, a context-specific approach might explore which elements of a game are perceived as nostalgic and how nostalgia motivates continued gameplay of that particular game, whereas a study based on a general model of game experience might investigate the extent to which players engage with games to satisfy a desire for nostalgia. Both types of studies focus on understanding game experiences, albeit from different perspectives. However, both context-specific and general approaches share a similar understanding of the elements and factors that shape and contribute to the game experience. In our effort to identify different types of game experiences, it is crucial to consider these aspects and their implications for the present research.

In their literature review of 15 models of game experience research, Högberg, Hamari, and Wästlund [20] have identified eleven dimensions that are frequently regarded as crucial components of the game experience. Since these dimensions were identified as based on a literature review on how the game experience has frequently been studied and broken down into its prevalent aspects, the eleven dimensions can be regarded as paramount for any research on the game experience regardless of whether the research focuses on context-specific or general approach. The dimensions encompass playfulness, enjoyment, affect, flow, immersion, challenge, skill, competition, social experience, presence, and sensory experience.

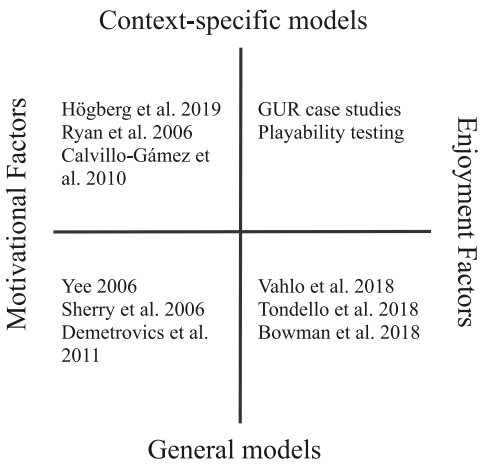

Fig. 1. A figure summarizing how context-specific models and general models of game experience research have been applied for studying motivational factors and enjoyment factors as described by Crawford [34].

Playfulness is a broad category that intersects with several of the other ten dimensions, as it encompasses qualities like curiosity, creativity, imagination, spontaneous learning, and a willingness to explore [21–24]. *Enjoyment* and *affect* both pertain to the emotional states evoked by the game experience and how game design practices aim to create engaging and captivating experiences [25,26]. *Flow*, *challenge*, and *skill* are interconnected concepts, as the state of autotelic flow is said to be attainable when players' skills and abilities align with the challenges presented by the environment [27,28]. Similarly, from the perspective of Erving Goffman's [29] influential analysis of self-experience and social interaction, *immersion*, *presence*, *social experience*, and *sensory experience* are closely intertwined. Both presence and immersion are described as the sensation of "being there" and the perception of direct experience without mediation [30]. In research, presence has been described as consisting of at least two dimensions: spatial presence and social presence. Spatial presence refers to the physical sensation of being transported to another environment, while social presence refers to the perception of being in the presence of another autonomous being [29–33].

It would be beneficial in relation to understanding the dimensions of game experience, if we can further clarify the conceptual distinction between the research on general gameplay motivation and the models that assess game-specific features. To achieve this, it is helpful to revisit the insights of game designer and researcher Chris Crawford [34], who proposed distinguishing between the question of "why do people play games in general?" and the question of "what makes one game more enjoyable than another?" The former question relates to motivating factors, while the latter focuses on factors that contribute to enjoyment during gameplay. *Motivating factors* encompass psychological needs and explicit self-attributed reasons that influence individuals' choices to engage with games instead of pursuing other leisure activities. In contrast to this, *enjoyment factors* influence an individual's game choices and represent the specific gratification offered by particular video games or particular type of video games [35,36].

2.2. Research questions

In general models of the game experience research, the analysis primarily emphasizes motivational factors, while enjoyment factors are only included as descriptive variables (Fig. 1). On the other hand,

in context-specific models, enjoyment factors are typically considered only in relation to the particular game experience under analysis.

There exists a gap in game experience research regarding models that focus on game enjoyment factors in ways that aim to bridge context-specific and general approaches: the empirical identification of prevalent game experience types remains largely unexplored. Moreover, understanding how players' sustained enjoyment factors, linked to their genre preferences, may relate to the game experiences they value the most remains uncharted. To address these gaps, we ask what prevalent types of game experiences can be empirically identified when the research focus is set on players' enjoyment factors of playing particular games.

More specifically, the research questions of the current study can be formulated as:

RQ1: How can a research survey be designed for statistical analysis, allowing respondents to describe multiple types of their favored game experiences in detail, irrespective of whether these experiences are similar or significantly different from each other?

RQ2: In a research model that enables players to consider both the main elements of the games they have played and aspects of their own gaming experience with these games, what kind of forms do players' preferred video game experiences take?

RQ3: How are players' general enjoyment factors as genre preferences associated with the types of game experiences they favor?

3. Methodology

3.1. Survey methodology

From a methodological perspective, the foremost aim of this study is to investigate how recurrent patterns in individuals' varied experiences of playing video games can be studied using structured statistical surveys in a way that enables and encourages participants to describe the particularity of each of their game experiences (RQ1). To achieve this, a self-report player preference survey was designed, drawing some inspiration from the structural principles of qualitative interviews. The objective is to collect self-report data on players' multiple game experiences rather than just one and then identify recurring patterns in these individual descriptions, thereby enabling a more phenomenologically inclined analysis of prevalent game experience types.

The decision to collect data through a survey, rather than through direct interviews or observational methods, was driven by the need to gather a large dataset capable of representing a wide range of player experiences across diverse gaming contexts. Surveys are particularly adept at this, as they allow for broad participation while maintaining a structured format that can be statistically analyzed. The design of the survey was intentionally reminiscent of interview techniques to harness some of the focus, depth and detail often found in qualitative research. With this approach, we aimed to elicit rich, descriptive data that goes beyond surface-level preferences and taps into the deeper emotional and cultural engagements players have with games. This design choice was crucial not only for gathering detailed data but also for aligning the survey's structure with our analysis goals, which prioritize understanding the essence of experiences as they are perceived by individuals (RQ2). This alignment ensured that the methodological approach of the current study was coherent with its analytical objectives, thereby providing a holistic view of how game experiences are lived through and articulated by players.

In studies aiming to provide a comprehensive description of experiential features, a qualitative research approach is undoubtedly more suitable than a statistical approach relying on self-report surveys and psychometrically validated instruments. However, there are ways to incorporate statistical analyses either in combination with qualitative methods or independently, to bridge the gap between statistical and qualitative approaches. Due to the validity of lived experience [37,38], it is necessary that such statistically oriented studies do not require informants to generalize their experiences, but rather ask them to bring a particular or a particular kind of experience within them and concentrate on the experience for an extended period of time. Regardless of the applied question types, it is important to design a survey that encourages and supports survey participants on focusing on describing a particular experience under analysis.

We designed a self-report survey on *valued game experiences* by drawing some inspiration from the ways thematic interviews and elicitation interview techniques support the interviewee in focusing on and describing a particular experience. In general, thematic interviews aim to explore and understand the underlying patterns and meanings within participants' experiences. They are structured into predefined interview topics that aim to cover an important aspect of interviewee's meaning-making [e.g., 39]. Similarly to this, we structured the survey using *focused lenses* in a manner that corresponds with the topics of thematic interviews. Elicitation interview here refers to specific techniques in which the informants are repeatedly asked to focus on the same particular experience of their past. At the core of this method is a cyclic process in which an evocative focus on the target experience is maintained while, through repeated re-enactions of the reminisced lived experience, the interviewee is guided to unfold descriptions of the experience in varying angles [38]. Following a similar idea, our survey technique was designed to retain a sustained focus on experiences of a particular game. Hence, the focused lenses of the survey were designed and structured in a manner that embraced varying descriptive focuses on the experience, gradually unfolding different aspects of what the experience is and how it could be described, and preferably avoiding questions too much requiring generalizations or reasonings from the informants. This kind of focused technique (see Fig. 2) was used to unveil extensive yet comparable layers of description on game experiences.

In a well-conducted interview, interviewees are able to express their viewpoints and experiences freely, while the interviewer typically also attentively engages with the responses, encouraging further elaborations and probing for deeper insights [38–40]. Of course, within surveys, such a rich interaction between persons is not possible, as they are mostly fixed in their flow of questions. The aim with our focused survey technique, however, is to somewhat mimic the feel of being present in a conversation-like information exchange between an interviewee and an interviewer. This was implemented by presenting questions preferably one at a time to the respondent, and affording straightforward-as-possible ways to answer the question, for example via an array of checkbox items, multiple-choice fields, or open answering. However, since our goal is to statistically identify prevalent and reoccurring game experience types, we considered that the survey should mainly consist of pre-structured rather than open-ended questions. Differently put, the survey design was influenced by interview techniques regarding the shared goal to (1) provide support for study participants in focusing on the game experience while (2) providing a guided and effortless means to unfold descriptions of the focused experience by responding to checkbox options from varying angles of different thematic lenses.

3.2. Survey design and implementation

The online survey began by asking participants to mention a video game they enjoyed playing or that had become a significant part of their daily life. After this, participants were asked to specify why they chose to mention the game, with four predefined reasons provided: "Because playing the game was very enjoyable", "Because it has been meaningful for me," "Because I had fond memories about it," and "Because it has grown to be a part of my everyday life". Participants could choose any combination of these reasons. Following this, participants were asked to indicate the primary device they used to play the game and the typical duration of a play session. To streamline the process, we implemented autocomplete game lists and autocomplete game device

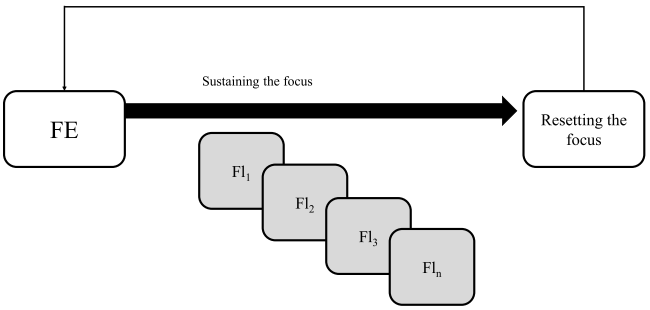

Fig. 2. An instance of experience-focused survey technique, initialized with a Focused Experience (FE), followed by a series of Focused Lenses (Fl_n) that retain the focus, and finally ending the phase with a reset of focus (e.g., for a new iteration with another game experience).

lists in the survey. Participants could begin typing the name of the game they had in mind and select the game title from a pop-up menu that displayed close matches. The autocomplete game list consisted of 3,386 popular games, and the game device list had 181 predefined options. If participants could not find a match in the autocomplete lists, they were instructed to manually enter the game and device names in the search box. The use of autocomplete lists served two purposes. Firstly, it saved respondents' effort by facilitating the identification of correct game names. Secondly, it ensured cleaner data as game titles can be challenging to remember, and many participants tend to use acronyms or shortened versions of game titles in their communication.

In succession to the introductory questions, an initial focus on a particular game experience was set and participants then started to respond to a series of focused lenses, which allowed them to topically describe their experience with the game in detail (see Fig. 2). Each lens included an array of checkbox options from which participants selected the items that best described their game experience in focus. Checkbox items were here considered to be the most convenient way to respond to the question of a focused lens. From an array of checkbox items, respondents could easily and with only a few clicks describe the most prominent aspects in relation to the personal game experience in question.

After responding to the lenses, the focus was reset to another game that a participant would like to mention (see Fig. 2). In all, survey participants were instructed to mention a minimum of three and a maximum of five games. After participants mentioned three to five games and responded to the questions of the corresponding lenses, the experience-focused phase was completed and the survey moved to traditionally structured questions about motivational factors assessing participants' general gameplay preferences, gaming motives and orientations, and game genre play habits. Towards the end of the survey, participants were asked demographic questions, their weekly playtime, and their monthly expenditure on video games.

4. Measures and study participants

4.1. Measures: The focused lenses on game experiences

The focused lenses (see Fig. 2) and their corresponding checkbox type question options (see Tables 3 and A.7) were designed based on how earlier research had studied varied aspects of the game experience. We examined several survey instruments specifically designed to assess different facets of game experience, particularly those relating to enjoyment factors that influence an individual's preference for certain games over others.

The structure of focused lenses comprised seven topics aligned with specific experiential factors of playing the specific game: *gaming situation* (7 items), *gameplay activity* types (26 items), *gameplay challenges* (16 items), *emotions in gameplay* (20 items), *overall game experience* (13 items), *game element appreciation* (24 items), and *orientations to play the game* (9 items). The items of the seven lenses are listed in Tables 3 and A.7. Except for the gaming situation question, participants were asked to choose one to four options that best captured their game experiences in each topic. This was done, because limiting the number of options enables statistical analyses in a way in which the number of selected options does not have unnecessary statistical weight. Instead, limiting the options to only a few enables the researcher to focus on the profile of each game experience description in which both the selected options and the unselected options can be considered.

In the case of the gaming situation lens (lens 1), we delineated seven common situations in which video games are often played (e.g. "At home", "On a trip"). The 26 items of the gameplay activity type lens (lens 2) were designed based on a psychometrically validated instrument that assesses players' preferences in five types of gameplay activities: aggression, exploration, management, coordinate, and caretaking [11,35]. The focused lens on game challenges (lens 3) was inspired by the Videogame Challenge Inventory (CHA) [41] that measures physical, analytical, socioemotional, and insight type of game challenges [see also 42,43]. The list of emotions in game experience lens (lens 4) was generated on the basis of the empirically founded model of 13 distinct dimensions of subjective feelings associated with music [44]. Seven additional emotion types (awe, carefree, curiosity, empathy, excitement, love/attraction, nostalgia) were added to complement potentially more gameplay-based emotions. For designing the focused lens that enabled participants to describe overall game experience (lens 5), we drew from a list of general motives to play video games. This was done as motive factors aim to portray on a high abstraction level the main qualities in video games that underscore players' interest and desire to engage with this experience type. A list of 13 items were developed and they covered experience types and motive categories of competition, achievement, immersion, fun and enjoyment, challenge and skill, self-expression, boredom, escapism, social interaction, playfulness, aesthetic experiences, experiences that structure daily life, and experiences that are engaging also outside gaming sessions [see, e.g., 5,12,13].

Our model of focused lenses aligns with the eleven dimensions identified as central to game experience: playfulness, enjoyment, affect, flow, immersion, challenge, skill, competition, social experience, presence, and sensory experience [20]. Game challenges (lens 3) directly relates to the dimensions of challenge and skill, highlighting how the alignment of a player's abilities with the challenges presented by the game can facilitate the state of flow, a core component of the gaming experience. Emotions in gameplay (lens 4) ties directly into the dimensions of affect, enjoyment, and sensory experience, reflecting the emotional responses that games elicit from players. These responses are fundamental to understanding how games captivate and maintain player interest.

The gameplay activity types (lens 2) reflect the diversity of interactions that games can offer, relating closely to the dimensions of playfulness, immersion, and social experience. This acknowledges the variety of ways games can engage players, whether through competitive play, cooperative tasks, or exploration, all of which contribute to a game's appeal and its ability to provide meaningful experiences. The inclusion of gaming situation (lens 1) aligns with the dimensions of presence and sensory experience, recognizing the importance of the physical and virtual contexts in which gaming takes place. This encompasses the immersive qualities of games, enhancing their sense of presence within the game environment.

Finally, considering the motivating game experience as a whole (lens 5) allows us to encompass a broad and more generalized view of what drives players to engage with games, integrating insights into how various aspects of gameplay come together to fulfill psychological, social, and cultural needs. This holistic approach ensures that we capture the complex interplay of factors that contribute to the gaming

experience, resonating with the model proposed by Högberg, Hamari, and Wästlund and all of its eleven dimensions [20].

In addition to the above five lenses, a total of 24 checkbox items were designed to enable respondents to describe the most appreciated game elements (lens 6) in their focused gameplay experience. Finally, to measure general player orientation (lens 7) towards game experiences, we utilized the 9-item Hedonic and Eudaimonic Motives for Activities (HEMA) scale [45] and adapted its Likert-type inventory items into checkbox items. The lenses concerning game element appreciation and orientations toward playing the mentioned game were considered more abstract, evaluative, and reflective layers of description. Therefore, they represent a different kind of measure compared to the first five lenses. Hedonic and eudaimonic gaming orientations refer more to motivational factors and player dispositions than to game enjoyment factors, the latter of which are the focus of this research. The last two lenses (6 and 7) were included as auxiliary measures for investigating the construct validity of the approach.

In selecting items for three of the seven lenses (2, 3, 7), we directly drew from psychometrically validated survey instruments and their factor structures. In these cases, the items included in their corresponding lenses were selected based on factor loadings these items had shown in validation studies. In principle, we opted to choose those items that had shown the highest loadings for each of the identified factors.

4.2. Study participants and data collection

The survey data[1] of 1,200 respondents were collected in the UK (N=600) and in the US (N=600) via online research platform Prolific. Currently Prolific holds an online panel of over 130,000 vetted participants across several countries, and its data services are widely applied by many research organizations. Prolific utilizes a model in which a corresponding researcher has a possibility to evaluate each submission before approving them if a participant violates some of the basic criteria of the survey. Such a criteria can include responding to each question with the same value, submitting an unfinished survey because of technical issues, or responding too quickly to the survey. Because of this procedure, no large-scale additional data cleaning process was not required for our data. However, we were able to identify one submission from the UK sample and six submissions from the US sample who responded to the questions by using a particular pattern of values (e.g., 1, 2, 3, 1, 2, 3… or 2, 5, 2, 5…) across several of the psychometric instruments. After the cleaning process, the final sample consisted of (N=1,193).

Both of the samples were collected by using the balanced sample option of Prolific regarding genders, and the survey was targeted to those 18–70 aged Prolific panel members who had reported to play some video game at least occasionally within the past 12 months. At the time of collecting the data, over 40,000 Prolific panelists fit this criterion. We did not utilize any other criterion for game play habits as we aimed for a sample that would represent as many aspects of game experience preferences as possible. This was a conscious decision as the main objective of this study was to identify prevalent game experience types based on player experiences, and this goal is only achievable if the data would represent as many types of players as possible. In the study description on Prolific's panel service, we furthermore noted that it was required for each survey participant to be able to name at least three video games they had enjoyed to play or that had been an integral part of their everyday life. All participants provided their written informed consent to participate in this study. The samples were collected between 5th and 10th of October 2022. The median time a user spent in taking the survey in the UK sample was 22 min and in the US sample 21 min. Descriptive statistics of the full sample are reported in Table 1.

[1] The data-related procedures used in this study adhere to the tenets of the Declaration of Helsinki. Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements.

Table 1
Descriptive demographics of the research data of the study.

	UK	USA	Total
N	599	594	1193
Female	292	284	576
Male	296	292	588
Non-binary	7	14	21
Not disclosed	4	4	8
Mean age	36.7	32.9	34.8

Table 2
Most played game genres, reported as the percentage of the sample who reported to play the mentioned genre frequently.

Game genre	% participants	Game genre	% participants
Adventure	60%	Platform	13%
Action	55%	MMORPGs	13%
Action-Adventure	38%	Battle Royale	11%
Role-playing	38%	Fighting	10%
Puzzle	36%	Party games	8%
Shooter games	28%	Visual novel	5%
Strategy	26%	Collectible Card Games	3%
Simulation	25%	Edutainment	3%
Racing	17%	MOBA	3%
Sports	14%		

From a predefined list of 17 game genres, the survey participants were asked to select 1–4 genres that they had played the most (Table 2). Adventure games were mentioned the most as some 60% of the whole sample reported to play games of this genre. This was followed by action games (55%), action-adventure games (38%), role-playing games (38%), puzzle games (36%), shooter games (28%), strategy games (26%), and simulations (25%). Over 77% of the sample reported to be active players of video games (N=922), over 19% had actively played video games earlier in their life (N=230), and 3% did not consider themselves to be active players of video games (N=41).

Regarding game types, single-player computer or console games were the most played type (mean value 3.6 on a 5-point scale in which 1=Not at all, 5=Very much), followed by multi-player computer or console games (mean value 2.8), single-player mobile games (mean value 2.8), multiplayer mobile games (1.8), and finally esports on any platform (mean value 1.8). Regarding weekly play time, 54% of the respondents reported to play computer games weekly with the average weekly play time of 6.9 h, 53% reported to play console games weekly with the average play time of 6.3 h, and 49% reported to weekly play mobile games with the average play time of 4.1 h. In total, 33% of the sample reported that they did not play any video games weekly (N=395), while the average play time across different gaming platforms was 11.9 h for the 66% who did report to play weekly (N=798). Taking these descriptive statistics in consideration, the research sample can be described to be representative from the perspective of varied gaming habits and player preferences although the sample was not demographically representative albeit it was collected to be balanced between genders. The data was analyzed by using Stata 17.1/SE software.

4.3. Latent class analysis

We used latent class analysis (LCA) for identifying the game experience classes or types (RQ2). LCA was selected over *k*-means clustering as LCA is based on a probabilistic and model-based framework whereas *k*-means is a distance-based algorithm [46,47]. Since LCA allows for the estimation of probabilities of observations belonging to each latent class, it provides a framework for a richer understanding of the uncertainty associated with class assignments than *k*-means clustering. LCA is also particularly well-suited for analyzing categorical or binary data which corresponds with the type of data analyzed in this study as the focused lenses consisted of a large number of binary checklist questions.

Table 3
Statistics of all the 82 items included in the LCA in relation to the eight types of video game experience: Compelling Challenge (CHAL), Immersive Exploring (IMME), Energetic Rushing (RUSH), Creative Caring (CREA), Competitive Shooting (COMP), Cheerful Bouncing (BOUN), Strategic Management (STRA), Daily Dwelling (DWEL).

	Type 1 CHAL		Type 2 IMME		Type 3 RUSH		Type 4 CREA		Type 5 COMPE		Type 6 BOUN		Type 7 STRA		Type 8 DWEL	
N	856		840		670		691		637		1006		325		347	
Lens 1: Gaming situation																
At home	100%	⇑	100%	⇑	96%	⇓	99%		96%	⇓	96%	⇓	99%		98%	
At someone else's place	13%	⇓	12%	⇓	34%	⇑	19%		28%	⇑	16%	⇓	10%	⇓	51%	⇑
At work	0%	⇓	1%	⇓	1%	⇓	4%		3%	↓	2%	⇓	3%		43%	⇑
At school	0%	⇓	1%	⇓	2%	↓	5%	↑	2%		1%	⇓	2%		25%	⇑
Outdoors (e.g. in a park)	0%	⇓	1%	⇓	0%	⇓	6%	↑	0%	⇓	1%	⇓	0%	⇓	50%	⇑
On a trip or on the way (e.g. to work, to school)	0%	⇓	4%	⇓	1%	⇓	12%	⇑	0%	⇓	2%	⇓	2%	⇓	74%	⇑
When waiting (e.g. something to happen)	2%	⇓	7%	⇓	3%	⇓	13%	↑↑	5%	⇓	4%	⇓	4%	⇓	81%	⇑
Lens 2: Gameplay activity types																
Battle	51%	⇑	49%	⇑	19%	⇓	6%	⇓	87%	⇑	25%	⇓	42%		38%	
Caretaking and nurturing	0%	⇓	1%	⇓	0%	⇓	37%	⇑	0%	⇓	1%	⇓	6%		10%	↑↑
Character development (e.g. developing skills or abilities)	40%	⇑	58%	⇑	10%	⇓	34%	↑↑	12%	⇓	18%	⇓	24%	↓	26%	
Choosing looks and customizing appearances	10%	⇓⇓	11%	↓	13%		43%	⇑	14%		2%	⇓	6%	⇓	11%	
Collecting or looting (e.g. rare items, treasures, creatures)	34%	⇑	38%	⇑	5%	⇓	30%	↑	14%	⇓	32%	⇑	13%	⇓	35%	⇑
Construction and development (e.g. cities or bases)	3%	⇓	3%	⇓	1%	⇓	35%	⇑	1%	⇓	0%	⇓	45%	⇑	7%	
Dating	0%	⇓	2%	↑	0%	⇓	7%	⇑	0%	⇓⇓	0%	⇓	1%		1%	
Decorating	1%	⇓	0%	⇓	0%	⇓	31%	⇑	0%	⇓	0%	⇓	2%	↓	3%	
Doing acrobatics	3%		1%	⇓	5%	⇑	0%	⇓	2%		6%	⇑	0%	⇓⇓	1%	↓
Exploding or destroying	15%	⇑	4%	⇓	2%	⇓	2%	⇓	25%	⇑	13%	⇑	2%	⇓	7%	
Exploring the gameworld	50%	⇑	71%	⇑	4%	⇓	28%	⇓⇓	9%	⇓	33%		14%	⇓	22%	⇓
Gardening	0%	⇓	0%	⇓	0%	⇓	15%	⇑	0%	⇓	0%	⇓	1%		1%	
Investigating the story	36%	⇑	59%	⇑	1%	⇓	4%	⇓	3%	⇓	11%	⇓	2%	⇓	14%	↓
Making meaningful choices	10%		21%	⇑	4%	⇓	8%	↓	4%	⇓	9%	⇓	26%	⇑	14%	↑
Managing and directing (e.g. people or units)	1%	⇓	1%	⇓	2%	⇓	5%		2%	⇓	1%	⇓	44%	⇑	5%	
Performing in music (e.g. playing instruments, dancing)	1%		0%	⇓⇓	7%	⇑	1%		0%	↓	0%	⇓	0%	↓	1%	
Performing in sports	0%	⇓	0%	⇓	37%	⇑	0%	⇓	0%	⇓	0%	⇓	9%	↑↑	2%	⇓⇓
Producing, crafting or manufacturing	3%		1%	⇓	0%	⇓	17%	⇑	1%	⇓	0%	⇓	8%	⇑	5%	
Racing	2%	⇓	0%	⇓	39%	⇑	0%	⇓	1%	⇓	5%	↓	0%	⇓	3%	⇓⇓
Resource management	5%	↓	1%	⇓	2%	⇓	12%	⇑	2%	⇓	1%	⇓	41%	⇑	11%	⇑
Running or jumping on platforms	11%		3%	⇓	7%	↓	0%	⇓	4%	⇓	28%	⇑	0%	⇓	6%	
Shooting	32%	⇑	4%	⇓	2%	⇓	1%	⇓	61%	⇑	10%	⇓	1%	⇓	3%	⇓
Sneaking or hunting	19%	⇑	4%	↓	0%	⇓	1%	⇓	12%	⇑	3%	⇓	0%	⇓	3%	⇓⇓
Solving puzzles	12%		19%	⇑	3%	⇓	3%	⇓	1%	⇓	27%	⇑	5%	⇓	38%	⇑
Trading (e.g. items, resources, weapons)	3%		2%		1%	⇓⇓	4%	↑↑	1%	↓	0%	⇓	10%	⇑	3%	
Warfare	3%	⇓	0%	⇓	0%	⇓	0%	⇑	35%	⇑	0%	⇓	16%	⇑	2%	⇓⇓
Lens 3: Game challenge types																
Acting under a time pressure	35%		15%	⇓	50%	⇑	13%	⇓	40%	⇑	50%	⇑	33%		37%	
Dealing with frustration or disappointment	26%	⇑	14%	⇓	29%	⇑	15%	⇓	27%	↑↑	22%		26%		24%	
Diplomacy or negotiation	4%	↓	15%	⇑	0%	⇓	4%		0%	⇓	2%	⇓	22%	⇑	2%	⇓⇓
Lateral thinking (e.g. creativity or improvisation)	11%	⇓	24%	⇑	7%	⇓	45%	⇑	7%	⇓	9%	⇓	18%		14%	
Logical problem-solving	25%		40%	⇑	5%	⇓	23%		3%	⇓	33%	⇑	28%		38%	⇑
Mastering complex controls	21%	⇑	9%	↓	21%	⇑	5%	⇓	12%		5%	⇓	3%	⇓	7%	↓
Moral or ethical decision-making	9%		26%	⇑	0%	⇓	12%	⇑	1%	⇓	1%	⇓	6%		1%	⇓
Optimizing (finding out the best solution or combination)	14%	⇓⇓	28%	⇑	6%	⇓	25%	⇑	9%	⇓	7%	⇓	35%	⇑	30%	⇑
Patience or persistence	31%	↑	28%		17%	⇓	48%	⇑	11%	⇓	28%		18%	⇓	33%	↑
Precision and accuracy	36%	⇑	15%	⇓	39%	⇑	7%	⇓	53%	⇑	24%		6%	⇓	23%	
Quick reflexes and fast reaction	53%	⇑	22%	⇓	53%	⇑	3%	⇓	60%	⇑	38%	↑	6%	⇓	24%	⇓
Strategy and strategizing	24%	⇓⇓	38%	⇑	13%	⇓	19%	⇓	34%	⇑	17%	⇓	76%	⇑	39%	⇑
Stress tolerance	18%	⇑	0%	⇓	6%		3%	⇓	8%	↑	4%	⇓⇓	4%		5%	
Strong nerves	16%	⇑	1%	⇓	5%		0%	⇓	7%	⇑	1%	⇓	2%	↓	2%	↓
Tactical decision-making	17%		24%	⇑	7%	⇓	7%	⇓	34%	⇑	5%	⇓	47%	⇑	17%	
Teamwork	5%	⇓	6%	⇓	14%	↑↑	5%	⇓	37%	⇑	3%	⇓	7%		8%	
Lens 4: Emotions in gameplay																
Amusement	39%	⇓	45%	⇓	64%	⇑	58%		52%	↓	77%	⇑	50%	⇓⇓	68%	⇑
Annoying	7%	↓	3%	⇓	13%	⇑	3%	⇓	18%	⇑	8%		16%	⇑	13%	↑
Anxiety	27%	⇑	4%	⇓	14%		2%	⇓	20%	⇑	4%	⇓	20%	⇑	13%	
Awe	16%	⇑	24%	⇑	3%	⇓	6%	↓	2%	⇓	1%	⇓	2%	⇓	5%	↓
Beauty	9%		25%	⇑	0%	⇓	14%	⇑	1%	⇓	2%	⇓	1%	⇓	3%	⇓⇓
Carefree	5%	⇓	10%	⇓	12%	↓	46%	⇑	7%	⇓	20%	⇑	4%	⇓	19%	
Curiosity	24%	⇑	42%	⇑	2%	⇓	21%	↑↑	3%	⇓	7%	⇓	12%	↓	20%	
Defiant/Bold	21%	⇑	4%	⇓	3%	⇓	2%	⇓	11%	⇑	1%	⇓	12%	⇑	3%	⇓⇓
Dreaminess	2%	⇓	15%	⇑	1%	⇓	17%	⇑	0%	⇓	3%	⇓	2%	⇓⇓	3%	↓
Empathy	3%		10%	⇑	0%	⇓	4%	↑↑	0%	⇓	0%	⇓	2%		1%	↓
Energy	31%	⇑	10%	⇓	43%	⇑	4%	⇓	48%	⇑	16%	⇓	19%		17%	⇓⇓
Erotic/Desirous	1%	↑↑	1%	↑	0%		1%		0%		0%	⇓⇓	0%		0%	
Excitement	61%	⇑	42%	⇓⇓	58%	⇑	16%	⇓	70%	⇑	36%	⇓	49%		44%	
Joyful/Cheerful	9%	⇓	20%		26%	↑↑	35%	⇑	16%	⇓	25%	↑↑	14%	⇓⇓	28%	↑↑
Love/Attraction	1%	↓	5%	⇑	0%	⇓	4%	⇑	0%	⇓⇓	1%		0%	↓	1%	
Nostalgia	17%	⇓	29%	↑↑	18%	⇓	23%		20%	⇓⇓	36%	⇑	30%	↑	26%	
Sadness/Melancholy	7%	⇑	13%	⇑	0%	⇓	1%	⇓	0%	⇓	0%	⇓	2%		1%	⇓⇓

(*continued on next page*)

Table 3 (*continued*).

	Type 1 CHAL		Type 2 IMME		Type 3 RUSH		Type 4 CREA		Type 5 COMPE		Type 6 BOUN		Type 7 STRA		Type 8 DWEL	
N	856		840		670		691		637		1006		325		347	
Scary/Fear	26%	⇑	4%	⇓⇓	0%	⇓	0%	⇓	7%		0%	⇓	0%	⇓	0%	⇓
Serenity/Calmness	3%	⇓	16%	⇑	1%	⇓	35%	⇑	1%	⇓	5%	⇓	13%		12%	
Triumphant/heroic	29%	⇑	16%		11%	⇓	1%	⇓	31%	⇑	5%	⇓	41%	⇑	18%	
Lens 5: Motivating game experience as a whole																
Aesthetic experiences that are appreciated in itself	40%	⇑	57%	⇑	15%	⇓	40%	⇑	13%	⇓	27%	⇓⇓	16%	⇓	18%	⇓
Competitive experiences of playing against others	9%	⇓	1%	⇓	55%	⇑	4%	⇓	66%	⇑	5%	⇓	16%		18%	
Enjoyable experiences that are entertaining, fun and relaxing	30%	⇓	49%		50%		66%	⇑	34%	⇓	58%	⇑	44%		54%	↑
Experiences of accomplishment and achievement	55%	⇑	37%	⇓	39%	⇓⇓	35%	⇓	36%	⇓	38%	⇓	69%	⇑	59%	⇑
Experiences of making your own choices and to expressing yourself	11%	↓	27%	⇑	4%	⇓	34%	⇑	5%	⇓	3%	⇓	17%		10%	↓
Experiences of overcoming challenges and becoming more skillful	49%	⇑	21%	⇓	20%	⇓	9%	⇓	33%	⇑⇑	21%	⇓	42%	⇑	36%	⇑
Experiences that ease boredom and help you kill time	17%	⇓	12%	⇓	21%		29%	⇑	21%		29%	⇑	23%		45%	⇑
Experiences that give structure and rhythm to your everyday life	2%		2%		1%	⇓⇓	6%	⇑	1%	⇓⇓	2%		2%		6%	⇑
Experiences that help you to forget everyday life concerns	18%		21%	⇑⇑	10%	⇓	22%	⇑	16%		14%	⇓⇓	14%		19%	
Experiences that keep you engaged even outside gaming situations	6%	⇑	5%	⇑	2%		1%	⇓⇓	3%		0%	⇓	5%		3%	
Immersive experiences of putting myself in the game	32%	⇑	38%	⇑	6%	⇓	8%	⇓	12%	⇓⇓	3%	⇓	14%		7%	⇓
Playful experiences of exploring and discovering	24%	⇑	41%	⇑	4%	⇓	18%		3%	⇓	13%	⇓	10%	⇓	19%	
Social experiences of playing and communicating with each other	5%	⇓	3%	⇓	12%	⇑	5%	⇓⇓	26%	⇑	3%	⇓	10%		7%	

Higher value ↑ $p < 0.05$, ⇑⇑ $p < 0.01$, ⇑ $p < 0.001$, Lower value ↓ $p < 0.05$, ⇓⇓ $p < 0.01$, ⇓ $p < 0.001$, in comparison to the mean of other seven classes (Pearson's χ^2).

Furthermore, LCA classes are more robust than *k*-means clusters as the latter are based on randomly initializing the initial cluster center and then iteratively updating them until convergence [48,49].

Prior to making the clustering, the data was edited into a form that enabled approaching the game experience descriptions as the unit of analysis instead of focusing primarily on the survey participant level data. Thus, we reshaped the data from a participant-based wide format into game experience based long format.

It was mandatory for a participant to name at least three video games and answer to the seven focused lenses for each of these games. Naming the fourth and the fifth game and answering to their corresponding lenses was voluntary and survey participants did not receive any kind of additional compensation for naming more than three games. A total of 266 survey participants mentioned exactly three video games and replied to the set of experience-focused questions therefore also thrice. Sixty participants mentioned four games, whereas 866 participants mentioned the maximum number of five games and also answered the experience-focused questions for each of those games. Altogether, the 1,193 survey participants mentioned 5,372 video games and responded correspondingly to the same number of the focused question structures, making the data of 5,372 video game experience descriptions the main dataset for the clustering analysis of the study. In total, 1,605 individual game titles were mentioned in the survey data. Minecraft had the most mentions (n=106), followed by FIFA 22 (n=87), Grand Theft Auto V (n=68), Fortnite (n=67), and the Sims 4 (n=63). Approximately 57 percent of mentioned games were mentioned only once.

To identify prevalent forms of video game experience, we included the five game experience lenses (lenses from 1 to 5) as clustering inventories and considered the two remaining lenses descriptive inventories. The inventories applied for identifying the clusters or classes were Gaming situation, Gameplay activity types, Game challenge types, Emotions in gameplay, and Game experience as a whole. These five lenses were included in the LCA process.

The number of classes was identified by combining three statistical tests and criteria. First, we utilized the Bayesian Information Criterion (BIC), which is widely utilized in LCA studies as it considers the log-likelihood and the number of parameters, penalizing more complex models [50,51]. Second, we examined scree plots created from the within-cluster sum of squares (WSS) and its logarithm [$\log(WSS)$] for all possible cluster solutions ranging from 2 to 20 clusters [52]. The tests supported a solution of eight game experience types, which we then proceeded to generate using an LCA with the cloud-based statistical analysis software, DisplayR. As the third criterion, we applied an approach of domain usefulness, thereby accepting only models in which all classes had more than 6 percent of the sample [53]. The solution of eight game experience types fulfilled this criterion. Table 3 reports the prevalences for each of the 82 binary clustering variables for the eight experience types and how these values differ from the sample mean in a statistically significant way.

5. Results: The eight game experience classes

In this section, we will analyze the eight game experience classes. The first subsection focuses on identifying these classes by analyzing the variables included in the Latent Class Analysis (LCA) procedure (Table 3). We will examine how the classes differ from each other based on these variables, providing a statistical foundation for their distinctions. In the second subsection, we will further characterize these experience classes. This involves an in-depth review of additional and auxiliary variables from the survey that were not included in the initial LCA but contribute to a richer understanding of each class (Table A.7 in Appendix). Additionally, we will conduct comparative analyses of classes that appear most similar to each other, highlighting subtle nuances and significant contrasts to better delineate their unique characteristics.

5.1. Identifying the LCA-based game experience classes

Below, we outline the eight game experience types, suggesting names for these experience types based on variables included in the LCA process that showed both absolutely and relatively highest values on them (Table 3). We also identified games characterizing each experience type based on three criteria: statistical prevalence within the type in comparison to the mean of other seven classes ($p < 0.001$), the frequency of mentions in the dataset, and the percentage representation in the dataset. For instance, the notation "Elden Ring (n=26, 76%)" would signify that Elden Ring had significantly higher prevalence within the described game experience type ($p < 0.001$), that it was mentioned 26 times in the analyzed game experience type, and accounted for 76% of all mentions in the data.

The first game experience type consisted of 856 game experience descriptions. This game experience type had notably more sneaking and hunting type of gameplay than the other types. Seen through the lens of game challenges, this game experience type required more stress tolerance and stronger nerves than any of the other types. Higher levels of defiance, boldness, fear, and anxiety were the emotions that separated this game experience type from the others, and at the overall level of the game experience, this type was characterized by overcoming difficult challenges by becoming more skillful. These experiences were

also immersive and something that kept players engaged with them also beyond actual gaming situations. Furthermore, this experience type had notably low values for amusement, joy, and nostalgia as well as for enjoyment and relaxation. The most noteworthy games of the this game experience type were: Dark Souls (n=9, 100%), The Last of Us (n=26, 87%), Bloodborne (n=8, 89%), Elden Ring (n=26, 76%), and Horizon Zero Dawn (n=7, 100%). We name the game experience type *Compelling Challenge*.

The second game experience type was based on 840 game experience descriptions. This experience type was characterized by gameplay activities of character development, exploring the gameworld, and investigating the story. From game challenges, this game experience type had notably more moral or ethical decision-making than the other types. Awe, beauty, curiosity, empathy, love, and melancholy were emotions and feelings that were associated with this game experience type, and the game experience as a whole was described often as aesthetic, immersive, and playful experience of exploring and discovering. This experience type had very low values for acting under time pressure, dealing with frustration, stress tolerance, annoyance, and playing out of boredom. The most prevalent games mentioned in this experience type were: The Witcher 3: Wild Hunt (n=27, 82%), Final Fantasy VII (n=19, 76%), Persona 5 Royal (n=11, 85%), Dragon Age: Inquisition (n=8, 100%), and Mass Effect (n=8, 100%). We call this type *Immersive Exploring*.

The third game experience type consisted of 670 game descriptions. This type differed from the other types by its higher value for gameplay activities of performing in sports, racing, and performing in music (e.g., playing instruments or dancing). From the game challenge types it had as high a value for mastering complex controls as the Compelling Challenges type. It had the second highest value for energy as a feeling or emotion, and also the second highest value for the competition as an experience description. When compared to all experience types, it had the lowest value for item collecting or looting and gameworld exploration, and also relatively low value for logical problem-solving, optimizing, strategy, curiosity, calmness, and the escapist game experience. Noteworthy games in this game experience type were: Guitar Hero (n=8, 100%), Mario Kart 64 (n=26, 96%), Rocket League (n=25, 96%), Mario Kart 8 Deluxe (n=19, 86%), Fall Guys (n=19, 95%), NBA 2K22 (n=14, 93%), and Gran Turismo (n=12, 92%). We name this game experience type *Energetic Rushing*.

The fourth game experience class had 691 game mentions. This experience type had a high value for the gameplay activities of nurturing and caretaking, customization, decorating, and gardening. Its challenge types required patience and persistence and included challenges of creativity and improvisation. Serenity, calmness, carefree, and dreaminess were associated with its gameplay, and it was something that provided aid for everyday life concerns as it gave a sense of structure and rhythm to daily life, and enabled enjoyable and relaxing self-expression. It had a low value for battle, and for the challenge types of acting under time pressure, dealing with disappointment, quick reflexes and fast reaction. It also was less exciting and heroic as an emotional experience as the other classes. On a whole, this experience type was not skill-based similarly to other types as it did not have difficult challenges. Games of this class included titles such as: Animal Crossing: New Horizons (n=93, 96%), The Sims 4 (n=57, 92%), Stardew Valley (n=50, 91%), The Sims (n=31, 91%), and Minecraft (n=79, 75%). We label this game experience type *Creative Caring*.

Gameplay activity types of battle, exploding and destroying, shooting, and warfare all were clearly over-represented in the fifth game experience type that had 637 game experience descriptions. From the perspective of game challenges, it was best described by teamwork-based challenges that require precision, accuracy, and fast reaction time. In comparison to the other game experience types, these game experiences were commonly described as exciting, energetic, competitive, and social. The descriptions did not include much character development, meaningful choice-making, puzzle-solving, or collecting and looting. Also patience and logical problem-solving had relatively low values for this game experience type alongside the feelings of curiosity, calmness, empathy, and awe. The most prevalent games of this class included: Team Fortress (n=10, 100%), Call of Duty 4: Modern Warfare (n=43, 86%), Overwatch (n=37, 82%), League of Legends (n=19, 73%), and Counter-Strike: Global Offensive (n=9, 90%). We call this game experience type *Competitive Shooting*.

The sixth game experience type was the largest with 1,006 game descriptions. This class had a high value for running and jumping on platforms, acting under time pressure, amusement, and nostalgia. The experience type did not typically include character customization, construction and development, resource management, or trading. It also did not usually include challenges of optimizing, strategy, or tactical decision-making. On the level of whole game experience, this type usually did not keep players engaged outside gaming situations. The most notable games of this class were: Sonic the Hedgehog (n=40, 95%), Super Mario Bros. (n=14, 88%), Super Mario World (n=13, 87%), Crash Bandicoot (n=34, 81%), and Spyro Reignited Trilogy (n=9, 100%). We name this cluster *Cheerful Bouncing*.

The seventh type of game experience was the smallest with 325 descriptions. It had higher values than the other clusters for construction and development, managing and directing, resource management, and trading. Strategy, tactical decision-making, optimizing, and diplomacy were all notable challenge types for this class, whereas heroic and triumphant feelings were clearly associated with it as an emotional experience. On the level of the whole game experience, playing games of this class were described as something that felt like true accomplishment and achievement. This game experience type did not require mastering complex controls, fast reactions, or precision and accuracy. The games that best describe this class included: Civilization V (n=10, 100%), Age of Empires II (n=8, 100%), RimWorld (n=9, 90%), Civilization VI (n=12, 92%), and Football Manager 2022 (n=12, 75%). This game experience class was named *Strategic Management*.

The eighth and final game experience class included 347 game descriptions. It differed drastically from all other game experience types as these games were very commonly played outdoors, when waiting for someone, and at someone else's place in addition to playing them at home. From the gameplay activity types this cluster had a high value for solving puzzles, and the experience of playing these games was frequently described as something that eases boredom, gives structure and rhythm to everyday life, and feels like accomplishment and achievement. This final game experience type included games such as: Pokémon GO (n=8, 80%), Candy Crush Saga (n=17, 55%), Words with Friends (n=6, 86%), and Candy Crush Friends Saga (n=9, 53%). We call this game experience type *Daily Dwelling*, as it emphasizes the permeable relationships between gameplay and everyday life.

We can note from Table 3 that all items included in the LCA had statistically significant differences between the eight game experience types. We can also note that some of the items were prevalent for all of the game experience types whereas others were near non-existing. For instance, playing at home had a value over 95% for every class which indicates that is a very common practice to play all kinds of video games at home. It can also be summarized that emotions such as amusement and excitement and experiences that can be described as enjoyable and entertaining and filled with accomplishment and achievement are frequent for all kinds of gaming. Similarly should be observed that feeling erotic and desirous feelings are very rare for games that players value, or at least that these feelings are not among the top characteristics that make a game gratifying and enjoyable for players.

5.2. Further descriptions the game experience classes

Above we have identified the eight game experience classes based on the variables and focused lenses included in the LCA procedure. In this subsection, we will provide additional descriptions of the classes

based on the auxiliary descriptive variables included in the survey but excluded from the LCA procedure (see Table A.7 in Appendix).

Games allocated to Energetic Rushing and Competitive Shooting were most typically played with friends in a multiplayer game mode, and the second most typical play mode for Competitive Shooting was playing with other players in a multiplayer game. Cheerful Bouncing had the highest value of the eight experience types for humor and for a single-player game played together with friends.

For all the eight game experience types, games were typically mentioned because playing them had been very enjoyable. In addition to that, especially Immersive Exploring but also Compelling Challenge and Creative Caring were associated with an experience of meaningfulness. Creative Caring and Daily Dwelling were both related to a higher value in the orientation to relax and to play to take it easy. Competitive Shooting and Energetic Rushing had a higher value in the orientation to play for fun whereas the other hedonic orientation of playing because of enjoyment was mostly associated with Immersive Exploring and Compelling Challenge. The three items that assessed skill-based eudaimonic orientations were all associated with both Compelling Challenge and Strategic Management and two of those items were furthermore associated with Competitive Shooting. Finally, the eudaimonic orientation item "To do what you believe in" as a reason to play the game was selected rarely, but it had statistically higher value for Immersive Exploring than the other classes.

The eight game experience types differed from each other also from the perspective of game element appreciation (Table A.7). Compelling Challenge had a higher value than any of the other experience types for atmosphere. Immersive Exploring had a higher value than the other types for art style, characters, game music, world-building, story, and theme. In the Energetic Rushing type, physics modeling, game controls and playability, game sounds, and realistic graphics were valued more than in the other experience types whereas in Creative Caring type freedom to choose your own way to play and creativity were valued the most. Competitive Shooting had the highest comparative valuation for battle, player community, and social features whereas the same was true in the case of Cheerful Bouncing for animation, humor, and level design. Strategic Management had the highest value of the eight types for difficulty level, game mechanics, and the amount of playable content. And finally, Daily Dwelling had the highest comparative values for feeling of progression and price.

Finally, and based on the results reported both in Table 3 and in Appendix Table A.7, let us consider how the game experience classes that seemingly are similar to each other differ from each other in important ways. While both Compelling Challenge and Immersive Exploring are played predominantly as single-player games and at home, they diverge significantly in their gameplay focus and emotional outcomes. Compelling Challenge involves high-stakes gameplay such as battle and sneaking or hunting, aligned with emotions like anxiety and fear. It demands stress tolerance and strong nerves, indicative of its intense and skill-oriented challenge nature. In contrast, Immersive Exploring excels in exploring the game world and investigating the story, fostering feelings of awe and beauty, and focusing on moral decision-making. This experience is more about aesthetic appreciation and narrative depth, offering a less stressful environment.

Energetic Rushing and Cheerful Bouncing both feature dynamic and active gameplay but cater to different gaming dynamics. Energetic Rushing is notable for its high involvement in performing in sports and racing, with significant emotional energy and competition. It requires mastering complex controls and quick reflexes similar to competitive environments. Cheerful Bouncing, however, focuses on running and jumping on platforms, with high levels of amusement and nostalgic elements. It offers a more casual, less competitive experience, emphasizing joy and lighthearted play, suitable for single-player or social settings with friends.

While both Competitive Shooting and Strategic Management engage players in deep, rewarding gameplay, their approaches and player experiences are vastly different. Competitive Shooting is centered on fast-paced, teamwork-oriented challenges that demand precision, accuracy, and fast reaction times. The gameplay is typically thrilling, focusing on combat scenarios that heighten excitement and competition. This type resonates strongly with players who thrive in energetic and social gaming environments, where quick decision-making and tactical cooperation are key. In contrast, Strategic Management is more contemplative, involving complex strategy and resource management. It appeals to players who prefer a cerebral challenge, involving careful planning and tactical decision-making. This type of gameplay is less about physical reflexes and more about intellectual engagement, offering a sense of accomplishment through strategic mastery and control.

Finally, Daily Dwelling and Creative Caring both integrate gaming into players' daily lives, but they do so in uniquely different ways. Daily Dwelling is characterized by its integration into routine activities, often played in short bursts throughout the day, such as during commutes or waiting times. Its gameplay is designed to be engaging yet unobtrusive, making it ideal for casual play that fits into the player's lifestyle, providing structure and easing boredom. It commonly includes solving puzzles and managing resources in a way that is accessible and instantly rewarding. On the other hand, Creative Caring offers a more immersive and nurturing environment, focusing on caretaking, customization, and creativity. It provides a comforting escape from daily stress, promoting serenity and a carefree atmosphere. This type encourages self-expression and creativity, appealing to players who enjoy personalizing their game experience and engaging in leisurely, non-competitive play.

As a summary and considering the most prevalent items in each game experience type described above, we additionally suggest eight primary game experience drivers, one for each experience type. Based on our analysis, game experiences can be *challenge*-driven, *discovery*-driven, *competition*-driven, *creation*-driven, *combat*-driven, *nostalgia*-driven, *strategy*-driven, and *lifestyle*-driven. The associations between these drivers and the eight game experience types are presented in Table 4.

5.3. Player preferences across game experience types

The academic discussion on player types has several common and recurring themes. One of these themes revolves around the question whether players can be given a single player type if their player preferences evolve over time and are overall varied instead of being static and one dimensional [10,35,54]. The third research question of this study addresses these issues as our goal is to explore how players' valued game experience types could be understood from the perspective of assessing relatively stable factors including players' habits of particular game genres.

We proceed to analyze whether the evolving preferences and motives of players over time are reflected in their favored games and their gaming descriptions and subsequently within the eight LCA game experience types. To study this subject, we reshaped the data first back to the original wide format as we focused on the participant-level data instead of game experience level data. By doing so, the data once again consisted of 1,193 rows as the sample had the same amount of respondents.

The results reported in Table 5 clearly show that players typically did not mention games and describe game experiences of a single type. The pattern of describing game experiences of more than one type was similar for all respondents regardless whether they mentioned three, four, or five games. On the level of the whole data, most respondents described game experiences of three distinctive types (41% of all respondents). We can also note that in the sub-sample of those who mentioned five games, those five games were rarely of five different types (6%) although them being of four types was almost as common as them being of three types.

Table 4
The eight game experience types: description, main drivers, and notable games.

The Eight Game Experience Types
Compelling Challenge Emphasizes sneaking and hunting gameplay, demands high stress tolerance and nerve strength, focuses on skill mastery, immersive engagement. Main driver: Challenge Notable games: Dark Souls, The Last of Us, Bloodborne, Elden Ring, Horizon Zero Dawn
Immersive Exploring Highlights character development, world exploration, and story investigation, involving moral decision-making and evoking feelings of awe, beauty, curiosity, empathy, love, and melancholy. Main driver: Discovery Notable games: The Witcher 3: Wild Hunt, Final Fantasy VII, Persona 5, Dragon Age: Inquisition, Mass Effect
Energetic Rushing Emphasizes sports, racing, and music gameplay, featuring high energy and competition, and challenges of mastering complex controls. Main driver: Competition Notable games: Mario Kart 64, Rocket League, Guitar Hero, Fall Guys, Mario Kart 8 Deluxe, Gran Turismo
Creative Caring Focuses on nurturing, customization, and calming gameplay activities, emphasizing patience, comfort, and relaxation over excitement and challenges. Main driver: Creation Notable games: Animal Crossing: New Horizons, The Sims 4, Stardew Valley, Minecraft
Competitive Shooting Centers on battle-oriented gameplay, emphasizing teamwork, precision, and excitement, fostering an energetic and competitive social experience. Main driver: Combat Notable games: Team Fortress, Call of Duty 4: Modern Warfare, Overwatch, League of Legends, Counter-Strike
Cheerful Bouncing Emphasizes platform-jumping, time pressure, and nostalgia, primarily engaging players within gaming sessions. Main driver: Nostalgia Notable games: Sonic the Hedgehog, Super Mario Bros., Crash Bandicoot, Spyro Reignited Trilogy
Strategic Management Focuses on construction, resource management, and strategic challenges, evoking feelings of triumph and accomplishment. Main driver: Strategy Notable games: Civilization V, Age of Empires II, RimWorld, Civilization VI, Football Manager 2022
Daily Dwelling Frequently played outside home, this experience type emphasizes puzzle-solving, offering a sense of accomplishment and structure within daily life. Main driver: Lifestyle Notable games: Pokémon GO, Candy Crush Saga, Words with Friends

Table 5
Descriptive statistics of game mentions and game experience descriptions in the survey, and how many distinctive game experience types their descriptions were associated with in the LCA.

Mentioned games / Number of experience types	One type	Two types	Three types	Four types	Five types
Total (N=1,193)	60 (5%)	271 (23%)	489 (41%)	320 (27%)	53 (4%)
Three games mentioned (N=265)	32 (12%)	118 (45%)	115 (43%)	n/a	n/a
Four games mentioned (N=60)	1 (2%)	9 (15%)	36 (60%)	13 (22%)	n/a
Five games mentioned (N=867)	26 (3%)	143 (16%)	338 (39%)	307 (35%)	53 (6%)

The results reported in Table 5 indicate that players' game experience preferences are varied and take most typically from two to four distinctive forms. This complexity in player preferences poses a challenge in correlating psychometric instruments with specific player preferences.

The presence of preferences across multiple game experience types prompts an inquiry into the relationship between habitual game genres and the eight game experience types. To investigate this relationship, we conducted ordinal regression analyses between binary game genre variables reported by each survey participant (Table 2) and the eight game experience types. In this model, the binary genres were assigned as the independent variables, and each of the eight game experience types were the dependent ordinal variables. To calculate the dependent outcome variables, we divided the number of times a respondent mentioned a game classified into a specific game experience type by the number of focused experience question loops the respondent answered. This resulted in values of 0.00, 0.20, 0.25, 0.33, 0.40, 0.50, 0.60, 0.66, 0.75, 0.80, or 1.00 assigned to each respondent for each of the eight game experience types. Table 6 reports results of these regressions.

Compelling Challenge (CHAL) was associated with a habit to play adventure, shooter, and action games. Role-playing games (RPGs) and visual novels but also multiplayer online role-playing games (MMORPGs) and adventure games were precedents for Immersive Exploring (IMME) while racing game play was negatively associated with it. Energetic Rushing (RUSH) was predicted by racing games together with sports games and party games. Several genres including visual novel and RPGs predicted this game experience type negatively. Creative Caring (CREA) was associated with a habit of playing simulation games, and negatively by sports and strategy game genres. A habit to play shooters, multiplayer online battle arenas (MOBAs), and battle royale games were the most significant precedents for Competitive Shooting (COMPE) whereas visual novel and adventure game genres predicted it negatively. Many genres including RPGs, shooter, and strategy were negatively associated with Cheerful Bouncing (BOUN). Only puzzle genre was related to this game experience type positively. Strategic Management (STRA) was associated with simulation games and especially strategy games, and finally Daily Dwelling (DWEL) was related with a habit to play puzzle games and collectible card games.

6. Discussion

Identifying game experience types that players find to be gratifying and meaningful presents a unique challenge. Traditional statistical approaches based on psychometric instruments assume that individuals have consistent preferences and experiences across different gaming situations. While an individual's behavioral tendencies, personality traits,

Table 6
Multiple ordinal regression between genre playing frequency variables and game experience type classes.

	CHAL	IMME	RUSH	CREA	COMPE	BOUN	STRA	DWEL
	z-value	z-value	z-value	z-value	z-value	z-value	z-value	z-value
Action	2.86**	0.3	1.16	−1.87	2.55*	−0.51	−0.66	0.83
Action-adventure	1.26	1.36	−1.18	−1.79	0.48	−1.04	−0.68	−1.53
Adventure	4.28***	4.03***	−1.55	1.88	−3.23**	−2.24*	0	0.52
Battle Royale	0.04	−1.08	−0.06	1.17	5.54***	−2.01*	−0.45	−0.15
Collectible Card Games	−1.19	−0.9	1.16	0.05	−0.43	−0.42	2.35*	2.66**
Edutainment/serious games	−0.21	−0.87	1.22	−0.43	−0.45	−0.42	−1.39	1.48
Fighting	2.05*	0.25	1.12	−1.87	2.17*	−0.48	0.74	1.57
MMORPGs	0.55	3.08**	−2.03*	−0.78	2.14*	−3.24**	0.45	2.36
MOBA games	0.74	0.62	−0.1	0.49	4.57***	−4.3***	1.5	2.05*
Party games	−1.63	−0.43	4.1***	2.03*	0.03	−3.1**	1.78	1.17
Platform	2.22*	1.49	−2.9**	−0.76	−2.10*	1.5	0.72	0.66
Puzzle	−1.69	−1.19	0.94	1.3	−2.44*	2.17*	−2.23*	3.81***
Racing	0.37	−3.44**	9.12***	−0.39	−0.44	−2.01*	−1.23	0.79
Roleplaying	1.96*	8.5***	−2.93**	2.37*	−2.00*	−6.03***	0.39	−0.45
Shooter games	3.5***	1.65	−2.22*	−2.72*	8.95***	−5.83***	−0.43	−2.05*
Simulation	1.45	−0.27	−2.41*	6.69***	−1.53	−3.97***	4.11***	0.58
Sports	0.99	−0.49	10.42***	−3.68***	−0.9	−2.02*	2.03*	−1.22
Strategy	1.8	0.12	−1.57	−2.92**	1.01	−4.42***	9.63***	1.95
Visual Novel	0.9	5.97***	−3.52***	1.86	−2.91**	−3.32**	−2.62*	1.74

* $p < .05$
** $p < .01$
*** $p < .001$

and even preferences may remain somewhat consistent regardless of environmental factors, the validity of such measures is questioned in research settings that specifically examine situated experiences, where an individual's environment directly contributes to their experience.

The first objective of this study was to design a research survey that allowed survey respondents to describe multiple of their favorite game experience in detail, thereby enabling the identification and statistical analyses of distinct game experience types across a large number of survey participants (RQ1). Acknowledging the variability and multi-dimensionality of game preferences and the limitations of applying psychometric measures for studying a complex phenomenon such as game experience led us to design the survey into arrays of checkbox questions which we call *focused lenses*. Taken together, these lenses formed a tentative model for studying *focused game experiences*. The streamlined survey structure was inspired by the principles of thematic interviews and elicitation interview techniques.

We believe that the survey format, which primarily utilized binary checkbox questions, effectively facilitated detailed descriptions of game experiences. By opting for checkboxes, we were able to include a wide range of variables, making it easier for participants to select those that best described their experiences. This design also encouraged participants to mention and describe more games than initially required, thereby enriching the data collected. We found that this streamlined structure was effective in addressing our study objectives and provided a solid foundation for designing a research survey capable of statistical analysis, allowing respondents to describe multiple types of their favored game experiences in detail.

By collecting data through focused lenses, we addressed the second objective of the current study: the identification of prevalent game experience types in a large-scale survey encompassing a diverse range of players (RQ2). The model of focused game experience was applied in a latent class analysis (LCA) by which eight game experience types were identified: *Compelling Challenge, Immersive Exploring, Energetic Rushing, Creative Caring, Competitive Shooting, Cheerful Bouncing, Strategic Management*, and *Daily Dwelling*. By integrating focused lenses into our research, we effectively anchored our study within the broader framework of game experience research, ensuring that our findings contribute meaningfully to the ongoing discourse on what makes games engaging and multifaceted activity.

The latent class analysis procedure revealed that the ways the game experience types differ from each other were not one-dimensional, for instance, based only on what kind of feelings players associate with them. Instead, all of the five focused lenses used in the LCA (gaming situation, gameplay activity types, game challenges, feelings and emotions, and game experience as a whole) were found to contribute directly to identifying the experience types. Furthermore, the descriptive variables of the auxiliary lenses showed multiple statistically significant differences between the game experience types from the perspectives of play modes, game element appreciation, and hedonic – eudaimonic gaming orientation. Based on the items that were the most prevalent for each of the eight game experience types, we propose eight main gameplay drivers for further describing the eight game experience types. From this perspective, the eight game experience types can be called: *challenge driven* (Compelling Challenge), *discovery driven* (Immersive Exploring), *competition driven* (Energetic Rushing), *creation driven* (Creative Caring), *combat driven* (Competitive Shooting), *nostalgia driven* (Cheerful Bouncing), *strategy driven* (Strategic Management), and *lifestyle driven* (Daily Dwelling).

Essentially, we believe that the methodological approach of using focused thematic lenses enabled us to grasp game experiences ontologically as heterogeneous arrangements of different elements. We find this approach highly beneficial for accounting for the diverse materials involved in the dynamic formation of gameplay. In line with theories of situated affectivity [e.g., 55], game experience formations should encompass elements such as the gaming situation, gameplay activities, challenges, and emotions as part of a dynamically related setting. Rather than examining each aspect separately, such holistic settings can be referred to as *assemblages of the game experience* [e.g., 56,57], reflecting, but not limiting their focus to, loops of core gameplay interaction. [e.g., 58]. More specifically, they should be called *valued* assemblages of game experiences, as we asked participants to focus on games they favor or find otherwise meaningful.

The current study identified prevalent game experience types by employing a comprehensive data collection method that utilized focused lenses to encapsulate a broad spectrum of gaming dynamics. The latent class analysis (LCA) effectively leveraged these lenses to distinguish eight distinct game experience types, demonstrating that the differences among these types are multi-dimensional (RQ2). The approach of focused lenses was instrumental in achieving nuanced insights into the diverse gaming preferences and behaviors exhibited by a large and varied sample of players.

The third objective of our study was to gain insight into how players' genre preferences were associated with the types of game experiences

they favor. We analyzed whether players described their valued game experiences to be of a single type or of multiple types, and how their habits of playing game genres were associated with their game experience valuations (RQ3). It was found that genre playing habits were related with game experience preferences in versatile ways as some genres showed positive associations and others negative associations with the experience types. The current research also revealed that players usually do not value only one type of game experience but instead from two to four types of them. Thus, the current research suggests that associations between psychometric measures and contextual experiences of valued game experiences are complex. This holistic perspective on player preferences is particularly useful in recognizing the multifaceted nature of gaming, where different elements combine to form rich, engaging experiences that are valued by players.

6.1. Limitations and future research

It is important to acknowledge the inherent constraints associated with the checkbox-oriented nature of our survey methodology. While the use of numerous structured checkbox questions facilitated the systematic categorization and analysis of player experiences across a broad dataset, this approach might inadvertently overlook the subtleties inherent in individual player experiences. Open-ended questions, by contrast, offer respondents the freedom to articulate their experiences in a more detailed and personalized manner, potentially unveiling nuanced aspects of gameplay that structured formats might miss. For future research, integrating open-ended inquiries or in-depth player interviews could not only also triangulate our results but also enrich our understanding of the eight identified game experience types by capturing a wider array of player perspectives and emotional responses.

An additional limitation of the current study is its reliance on data collected solely from the UK and US. Cultural backgrounds can influence how players perceive and interact with games, potentially leading to different interpretations of what constitutes distinctive and prevalent game experience types. Expanding the scope of future studies to include diverse cultural and geographical contexts would not only enhance the generalizability of our findings but also provide a more nuanced understanding of the universal and culture-specific elements of game experiences. Incorporating data from a broader range of countries is required also for developing a more inclusive model of player engagement and for tailoring game design to cater to a more global audience. This is important also for further investigating the construct validity and convergent validity of the eight game experience types across countries.

While we have argued in this study for the usability of checkbox type of questions, we acknowledge that for many studies Likert type of inventories are more suitable. However, the checkbox question technique employed in this study was essential for identifying patterns in subjective experiences. In this regard, our methodology was influenced by qualitative interview research, emphasizing the identification and comprehension of phenomena. Therefore, in future studies there is potential to explore whether the model delineating eight game experience types and their main drivers could be developed and transformed into a Likert type psychometric inventory which could potentially be validated through confirmatory factor analyses.

Participants of this study were able to mention from three to five games they had considered to be enjoyable, meaningful, memorable, or important for their daily life. Because of this design decision, the submissions that included five game mentions had more relative weight than those that included only three game mentions in the LCA procedure. This latter limitation reflects the fact that some players value only a couple of games while others have more versatile preferences. In this sense the design decision is not only a limitation of the model as it possibly enhances its construct validity. If the goal of the study had been to identify player types, the decision to allow players to mention a varying number of different games could have been problematic. However, as the objective of this study was to identify game experience types, this decision enabled us to consider whether player preferences for game experiences also vary at the individual level—specifically comparing those who mentioned only three games to those who mentioned four or five games.

6.2. Academic implications

The findings of this study enrich the field of game research by providing a framework to explore player satisfaction across different game types. For example, by analyzing the design features of the games mentioned, future studies are able to investigate how different elements of game design associate with the experience types and their experiential constituents. Triangulating the descriptions of experiences with specific game analyses can provide valuable insights into the gameplay mechanics, narrative elements, social interactions, and other factors that contribute to the player experience of each game. This approach helps in understanding how different game design elements and features influence player engagement and satisfaction while also enabling comparisons to other game experiences via the general analysis presented in this study.

Moreover, experimental studies can be conducted to test emotional and other psychological responses within the framework of the experience types, potentially leading to a more rigorous understanding of what makes games fulfilling for different types of players. The detailed analysis of emotions and gameplay elements including both game challenges and activities associated with each type can help in studying the impact of video games on outcomes such as learning and social behaviors, especially from the perspective of player motivation to engage with these type of activities.

The model of eight game experience types can also be developed into a tool that could be used in constructing player profiles and player personas. Although players often do not exhibit only a single type of game experience preferences, preferences in game experience types may be associated with each other in ways that could generate more in-depth understanding about player clusters and how player preferences develop and change over time. For instance, a preference in Compelling Challenge can be found to be closely associated with Competitive Shooting but distant from Creative Caring, whereas Daily Dwelling might be related to all other seven game experience types but only weakly. These associations and the approaches of how the model could be applied in player typing both require additional research on the model.

The data generation model developed for this study prompted the participants to mention specific games and to focus on describing their experiences with those games. This model not only facilitates an understanding of individual player experiences but also enables researchers to explore how particular games influence players' enduring preferences for video games. This enables research to investigate how games can become 'genre-shaping' products with the potential to transform player behaviors and preferences, thereby creating new markets and attracting new audiences.

The model presented in this study provides a classification which could potentially be developed into a game genre system, or at least into a communicative map that helps game developers to conceive how their players experience and perceive their product. In contrast to game genres which are defined and constantly negotiated between game developers, gaming marketplaces and player audiences [36,59,60], the eight game experience types identified in this research are essentially player-centric constructs as they were identified based on how players described their valued game experiences. Consequently, the model of eight game experiences can be utilized as a way to generate player-centric game metadata for game titles across different game databases.

6.3. Practical implications

The insights from this study can be used in innovating and developing new types of games. The model of eight game experience types and the large number of variables included in this study can serve as a guideline for game developers, helping them identify which game elements and gameplay characteristics are synergistic from the perspective of players' sense-making of game experiences. Furthermore, the results of this study can inform companies in taking more calculated risks when combining game elements in innovative ways—perhaps not prototypical examples of the eight experience types, but rather aimed at creating new audiences.

The insights from this study also support the creation of more customized gaming environments. By understanding the primary drivers of engagement for each game experience type, developers can craft experiences that not only retain players longer but also potentially attract new players who might not have previously engaged with certain game genres. For instance, incorporating strategic elements in a typically nostalgia driven game could appeal to players who favor strategy but are drawn by the charm of retro or nostalgic elements. Combining different game experience types lays the groundwork for creative game development that could attract new player segments and even foster the creation of new game genres.

Indeed, marketing strategies can also be tailored based on the game experience classifications. For games representing the Energetic Rushing type, which includes games like the Mario Kart series and Guitar Hero games, marketing can emphasize the competitive, high-energy aspects that resonate with its audience. Conversely, for Creative Caring games such as the Animal Crossing series, marketing efforts can focus on the calming and nurturing gameplay, targeting audiences who prefer relaxation and creativity to competitive gameplay. The model as a whole also provides an indication of the prevalence of each of the game experience types, which helps game developers in identifying the size of the potential core audience in different markets.

To effectively leverage these insights, we recommend that developers consider the experience types as blueprints for tailoring game design and marketing strategies. For example, enhancing narrative elements and expansive game environments may appeal more to players identified with the Immersive Exploring type, while incorporating leaderboards and other forms of social interaction could attract those aligned with the Competitive Shooting experience. Furthermore, it is important to consider which elements and characteristics are not associated with a particular experience type. For instance, Immersive Exploring game experiences are not typically associated with feelings of anxiety or fear, so including these elements in a game representing this experience type could be risky. Conversely, Competitive Shooting experiences are not generally perceived as amusing, so game developers should perhaps avoid incorporating humorous elements into games representing this type of experience.

6.4. Conclusions

In this study we delineated eight game experience types, enhancing our understanding of player engagement and providing insights for game design, marketing, and academic research. By analyzing a broad spectrum of gameplay activities, game challenges, emotional responses, situational factors, and drivers of engagement, we mapped distinct segments within the gaming landscape, each characterized by specific player behaviors and preferences. This classification not only serves as a blueprint for tailored game design and informed marketing strategies but also enriches academic inquiry into how games function as cultural products and experience goods. The diversity in game preferences highlighted by our study reveals the complex interplay of psychological, cultural, and emotional factors that drive player satisfaction. The research model presented supports a holistic approach to understanding and comparing game experience types as assemblages, effectively bridging the gap between analyzing individual games and exploring broader gameplay motivations.

CRediT authorship contribution statement

Jukka Vahlo: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Kai Tuuri:** Writing – review & editing, Methodology, Investigation, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors of this manuscript certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

Data availability

Data will be made available on request.

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Appendix. Supplementary table

See Table A.7.

Table A.7
Descriptive statistics of survey variables not included in LCA, in relation to the eight types of videogame experience. Compelling Challenge (CHAL), Immersive Exploring (IMME), Energetic Rushing (RUSH), Creative Caring (CREA), Competitive Shooting (COMP), Cheerful Bouncing (BOUN), Strategic Management (STRA), Daily Dwelling (DWEL).

	CHAL		IMME		RUSH		CREA		COMPE		BOUN		STRA		DWEL	
Most typical play modes of the game																
Single-player game played by myself	64%	⇑	79%	⇑	20%	⇓	65%	⇑	13%	⇓	61%	⇑	59%		67%	⇑
Single-player game played with friends	11%		7%	↓	12%	↑	10%		6%	⇊	13%	⇑	5%	⇊	5%	↓
Multi-player game played without interacting with others	10%		5%	⇓	19%	⇑	13%		15%	↑	12%		15%		9%	
Multi-player game played with friends	9%	⇓	5%	⇓	39%	⇑	9%	⇓	38%	⇑	11%	⇓	10%	⇊	7%	⇓
Multi-player game played with people met in the game	6%	⇊	4%	⇓	10%		4%	⇓	28%	⇑	3%	⇓	10%		11%	↑
Reasons to mention the game																
"Playing it has been very enjoyable"	88%		89%	↑	88%		86%		89%		82%	⇓	89%		88%	
"It has been meaningful for me"	34%	↑	49%	⇑	22%	⇓	35%	↑	23%	⇓	20%	⇓	32%		33%	

(*continued on next page*)

Table A.7 (*continued*).

	CHAL		IMME		RUSH		CREA		COMPE		BOUN		STRA		DWEL	
"I have fond memories about it"	62%	⇈	68%	⇑	51%	⇓	54%	↓	59%		57%		56%		52%	↓
"It has grown to be a part of my everyday life"	12%	⇊	12%	⇊	12%	⇊	22%	⇑	19%	⇈	9%	⇓	14%		40%	⇑
Most appreciated game elements of the game																
Animation	7%	⇓	7%	⇓	14%	⇈	12%		9%		16%	⇑	9%		11%	
Art style or visual style	34%	↑	44%	⇑	21%	⇓	37%	⇑	23%	⇓	31%		18%	⇓	29%	
Atmosphere	31%	⇑	28%	⇑	11%	⇓	17%		14%	⇓	12%	⇓	13%	↓	13%	⇊
Authenticity (e.g. physics, simulation modeling)	8%		4%	⇊	11%	⇑	8%		6%		4%	⇓	9%	↑	3%	⇊
Battle	21%	↑	15%	⇊	11%	⇓	2%	⇓	55%	⇑	8%	⇓	23%	⇈	18%	
Characters	33%	↑	44%	⇑	25%	⇊	28%		23%	⇓	32%		13%	⇓	19%	⇓
Creativity	10%	⇓	15%		9%	⇓	32%	⇑	6%	⇓	11%	⇊	14%		12%	
Difficulty level	22%	⇑	7%	⇓	21%	⇈	6%	⇓	21%	↑	21%	⇈	26%	⇑	26%	⇑
Feeling of progression	21%		15%	⇓	16%	↓	17%	↓	15%	⇓	22%		34%	⇑	34%	⇑
Freedom to choose your own way to play	12%	↓	17%	↑	7%	⇓	35%	⇑	9%	⇓	6%	⇓	23%	⇑	10%	↓
Game controls or playability	12%	↓	6%	⇓	29%	⇑	7%	⇓	23%	⇑	14%		10%	↓	14%	
Game mechanics and interactive elements	16%		13%		14%		11%	⇓	23%	⇑	11%	⇓	34%	⇑	16%	
Game music soundtrack	13%		21%	⇑	15%		11%		5%	⇓	11%		9%	↓	11%	
Gameworld and world-building	19%	⇑	29%	⇑	3%	⇓	22%	⇑	7%	⇓	8%	⇓	21%	⇈	12%	
How the game sounds	8%		5%	⇓	14%	⇑	7%		7%		10%	↑	5%	↓	7%	
Humor	5%		7%		4%		5%		4%		8%	⇑	5%		3%	
Level design	11%		8%	⇊	9%		6%	⇓	15%	⇈	15%	⇑	9%		15%	↑
Player community	4%	⇊	3%	⇓	8%	⇈	5%		15%	⇑	2%	⇓	5%		8%	↑
Price (e.g. the game is free-to-play)	2%	⇓	1%	⇓	5%		5%		7%	⇈	6%	↑	3%		15%	⇑
Realistic or lifelike graphics	10%	⇑	7%		12%	⇑	6%		7%		4%	⇓	4%		2%	⇓
Social features (how players interact with each other)	4%	⇊	3%	⇓	11%	⇑	6%		13%	⇑	2%	⇓	5%		7%	
Story	33%	⇑	41%	⇑	3%	⇓	10%	⇓	8%	⇓	15%	⇊	8%	⇓	13%	⇊
The amount of playable content	12%		14%		10%	↓	17%	⇑	10%	↓	10%	⇊	19%	⇈	17%	↑
Theme and setting	16%		20%	⇑	9%	⇓	15%		12%		12%		16%		7%	⇓
Hedonic/Eudaimonic orientations to play the game																
To take it easy	15%	⇓	22%		15%	⇓	43%	⇑	16%	⇓	22%		22%		35%	⇑
For fun	68%		68%		76%	⇑	59%	⇓	78%	⇑	71%		64%	↓	67%	
For enjoyment	68%	⇑	73%	⇑	59%		51%	⇓	60%		53%	⇓	63%		61%	
For pleasure	35%		39%	⇑	32%		31%		27%	⇊	29%	↓	30%		32%	
For relaxation	23%	⇓	40%	⇑	23%	⇓	59%	⇑	21%	⇓	35%		30%		48%	⇑
To pursue excellence or a personal ideal	11%	⇑	6%	↓	7%		5%	↓	9%		4%	⇓	15%	⇑	10%	
To develop a skill, learn, or gain insight into something	19%	⇑	10%	⇊	12%		7%	⇓	21%	⇑	5%	⇓	21%	⇑	14%	
To use the best in myself	10%	⇑	6%		7%		4%	⇊	8%	↑	3%	⇓	10%	⇈	7%	
To do what you believe in	3%		4%	⇑	1%	↓	1%		1%		1%	↓	2%		1%	

Higher value ↑ $p < 0.05$, ⇈ $p < 0.01$, ⇑ $p < 0.001$, Lower value ↓ $p < 0.05$, ⇊ $p < 0.01$, ⇓ $p < 0.001$, in comparison to the mean of other seven classes (Pearson's χ^2).

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