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# Playability – A Game-Centric Definition

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## Abstract

Playability is a vague and ambiguous term that is often used but seldom defined. Used by games researchers, industry practitioners, journalists, and players alike, the term has remained unclear due to different interpretations and definitions. We propose a game-centric definition of playability that is based on a game's functionality, usability, and gameplay. We argue that playability should not cover aspects such as controllers, social contexts, or player experiences, as these are external factors in the form of hardware, situation, and players. Our game-centric definition is based on components which are designed into the game. This approach is simple yet elegant, practical in its nature, and applicable to all kinds of games – physical or digital. Good playability does not necessarily result in good player experience, while games with poor playability can be fun in the right circumstances.

## Author Keywords

Games; Gameplay; Definition; Functionality; Playability; Player Experience; Usability; Theory.

## ACM Classification Keywords

K.8.0 [General]: Games – *Personal Computing*.

### Components of playability by Järvinen et al. [1]

**Functional:** Focuses on how well the control peripherals, key mappings, and their configuration meet the requirements of the gameplay.

**Structural:** Focuses on rules, patterns, and structures of how interaction between a player and these aspects happens in a game on the macro (options, briefings, cut-scenes etc.) and the micro-level (actual gameplay, interaction patterns).

**Audiovisual:** Focuses on the style and appearance of a game and how it relates to the functional and structural components.

**Social:** Focuses on social practices in media. Uses for the product in suitable and different contexts in its use and culture.

### Introduction

In his article “I Have No Words & I Must Design” Greg Costikyan called for critical vocabulary for games so we could understand, design, and talk about them in an intelligent manner [6]. Focusing on the word ‘gameplay’, Costikyan provided an in-depth look on different aspects of gameplay while demystifying the word and its meaning for practical reasons.

Similarly to gameplay, ‘playability’ is a term without a common understanding. We see playability appearing in talks, essays, articles, and book chapters – but rarely is it rigorously defined and more commonly it is taken for granted. There have been attempts to define playability in the academia, but these attempts have not resulted in a *de facto* standard and the proposed approaches have been quite different from one another.

This paper proposes a new game-centric definition of playability. The purpose is to define playability in a simple yet elegant manner in a way that is applicable to all games – physical or digital. Our approach distances itself from non-game factors such as player experience or sociability that are subjective or context-dependent. The basis of our definition is that playability contains only components that are designed into the game.

### Related Work

The online dictionary Dictionary.com defines playability as follows:

*“The quality or state of being playable: The sound and playability of vintage instruments depends on how well they are maintained. Poor graphics and counterintuitive controls negatively affected the playability of the video game.”* [4]

This definition already provides interesting insights in relation to this paper. First, playability is seen as a quality factor and it is artifact-centered, focusing on instruments and games. Second, for games, it presents how poor visual and interface quality can negatively affect a game’s playability.

One of the earliest academic works mentioning the word playability in the context of games is Leitmann’s 1974 short paper on two-person zero-sum games and their playability [7]. For decades, playability as a term was mainly used in the field of mathematical optimization and zero-sum games.

In his doctoral thesis, Korhonen provides an extensive literature review for the concept of playability [8]. Korhonen notes that while there have been various definitions of playability, they are “*abstract, confusing or otherwise obscure which does not help in providing a clear view of what playability means in games*” [8]. For example, both Fabricatore et al. [3] and Egenfeldt-Nielsen et al. [23] have discussed the role of playability, but their definitions are rather unexplanatory, contain circular references, or are very limited in their focus [8].

Järvinen et al. [1] proposed a concept where playability is formed from four components: *Functional*, *Structural*, *Audiovisual*, and *Social Playability* (see details on the left). This definition provides more clarity, but it also includes components that are external to the game itself in the form of functional and social playability, which are related to the hardware (controllers) and sociability (context) between the players.

### Playability Model by Sánchez et al. [16]

**Satisfaction:** Fun, Disappointment, Attractiveness.

**Learnability:** Game knowledge, Skill, Difficulty, Frustration, Speed, Discovery.

**Effectiveness:** Completion, Structuring.

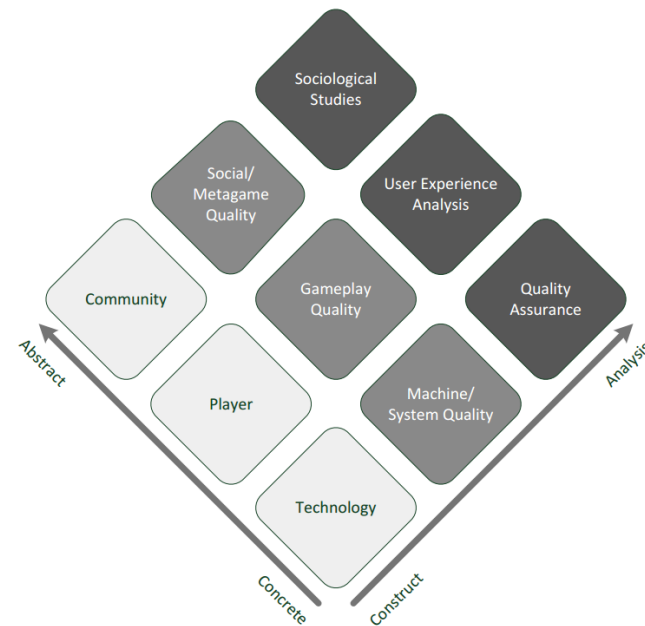
**Immersion:** Conscious Awareness, Absorption, Realism, Dexterity, Socio-Cultural Proximity.

**Motivation:** Encouragement, Curiosity, Self-improvement, Diversity.

**Emotion:** Reaction, Conduct, Sensory Appeal.

**Socialisation:** Social Perception, Group Awareness, Personal Implication, Sharing, Communication, Interaction.

Nacke has introduced a hierarchical game usability model [19] (Figure 1) that contains components on both an abstract and a concrete level, while proposing methods for studying them for evaluation purposes.



**Figure 1.** A hierarchical game usability model by Nacke [19].

Nacke's short paper does not define playability per se, but suggests that usability is a fundament of playability. It is not clear what the role of playability is, but we can interpret that *Technology*, *Player*, and *Community* play an important part in it. Similarly to Järvinen et al. [1], this model contains aspects that are not related to the game itself, but are more focused on the player, communities, and user experiences.

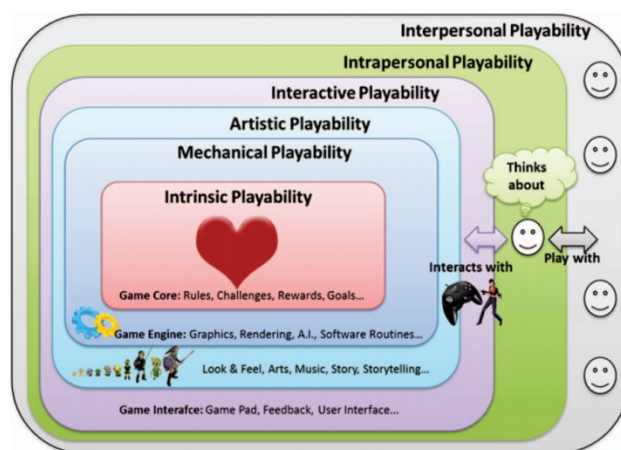
Sánchez et al. [16] propose a holistic definition and framework for playability where the focus is on the user and player experience instead of the game. Their definition of playability is:

*"A set of properties that describe the PX [player experience] using a specific game system whose main objective is to provide enjoyment and entertainment, by being credible and satisfying, when the player plays alone or in company."* [16]

Furthermore, the authors continue by paraphrasing the ISO usability standard [11] for the purpose of games and play:

*"Playability represents the degree to which specified users can achieve specified goals with effectiveness, efficiency and, especially, satisfaction and fun in a playable context of use."* [16]

It can be argued that this approach is player-centric, focusing on the player experience instead of the quality of the game. This is further emphasized in the *Playability Model* which contains attributes and properties which characterize the player experience. The seven main attributes are *Satisfaction*, *Learnability*, *Effectiveness*, *Immersion*, *Motivation*, *Emotion*, and *Socialisation*. Each attribute contains several additional properties (see details on the left). Sánchez et al. also present a model called *Facets of Playability* where six different facets allow the identification of different attributes and properties of playability that are affected by the player-game interaction process (Figure 2).



**Figure 2.** Facets of Playability by Sánchez et al. [16].

For our purposes it is not necessary to go into the details of each facet, but we can conclude that this is a holistic perspective considering gameplay, mechanics, game engine, user-interface, audiovisual representation, emotions, and sociability. The approach of Sánchez et al. is ambitious and covers many different aspects. By mixing game qualities and player experiences together, it can be argued that the model is quite complicated and does not necessarily help with the ambiguity related to playability. Interestingly, this approach considers player experience as a sub-component of playability.

Korhonen has discussed playability in many papers and his thesis focuses on the expert review method for evaluating playability in mobile games [8]. In the earlier papers related to playability heuristics, Korhonen & Koivisto [9, 10] discuss playability, but the term is not explicitly defined. In his thesis, Korhonen provides

an updated list of the playability heuristics and also presents a definition of (good) playability:

*"A game has good playability when the user interface is intuitive and the gaming platform is unobtrusive, so that the player can concentrate on playing the game. Fun and challenge are created through gameplay when it is understandable, suitably difficult and engaging."* [8]

This definition recognizes the gaming platform, the user interface, and the gameplay components that form playability. The playability heuristics themselves are organized into modules called *Game Usability*, *Gameplay*, *Multi-player*, *Mobility* and *Context-Aware*. Majority of the heuristics are game-centric but there are also player-centric heuristics like Gameplay 6 *"The first time experience is encouraging"*. This is a reference to player experience rather than a game-centric quality factor, and thus is subjective in its nature as different players experience games in different ways. In addition, although the definition mentions the gaming platform, it does not discuss hardware or software stability as such. Korhonen considers that platform stability is a prerequisite for playability (not a part of it), which is then a prerequisite for player experience.

In the aforementioned models and definitions, we can see a wide spectrum of approaches without a common agreement on what playability is. Some definitions are vague, while others are exhaustive – especially when player experiences are brought into the mix. Interestingly, the established books on game usability and games user experience research [18, 20] do not discuss playability rigorously. There are also other heuristic models that use the term (see [8]), but for our game-centric approach Korhonen [8] provides a good starting point.

### Practical Game-Centric Definition of Playability

**Definition:** Playability is a term describing game quality. At minimum, it is formed by three components known as functionality, usability, and gameplay.

**Functionality:** Describes the technical quality of the game, related to smooth operation, having no bugs or crashes, short loading times, etc.

**Usability:** Focused on the game interface, making sure that the game is easy and intuitive to use.

**Gameplay:** Basically, the rules of the game that create the mechanics and the dynamics. This is a reference to the game's internal operation, not human play activity known as gameplay.

As this is a work-in-progress paper, the details of the definitions and components are subject to change.

### The Game-Centric Definition

We propose a simple yet elegant approach to define playability. This game-centric definition focuses on the game itself and does not expand to player experiences or social contexts. This approach follows other artifact-centric definitions that can be seen in papers and patents considering the playability of violins [17] or the playability of golf balls [21], for example. The rationale for our approach is that while game developers cannot design player experiences or consider all play contexts - they can design the game (see MDA-framework by Hunicke et al. [22]). Therefore, a qualitative term such as playability should focus on the game itself.

The basis of our definition is that at minimum there are three components that define playability. These components are *Functionality*, *Usability* and *Gameplay* (see details on the left). To illustrate, we use the game *Rock, Paper, Scissors* (RPS) as an example. RPS is a two-person game played in a physical space with hand signals. The functionality of the game is based on the physical ability to use the hand in an orderly and timely fashion for signaling the selected choice between rock, paper, or scissors to the opponent, and a way to interpret these signals. The usability is related to the execution and the interpretation of the signals. The hand signal is easy to make in synchronization with the opponent on the count of three, for example, and the different hand signals are easy to remember, perform, and recognize. Lastly, the gameplay is based on the game rules and balance where the outcome can be a win, a loss, or a tie depending on the hand signal combinations between the players. Each signal is superior to one and inferior to another, thus creating a balanced game.

This approach can be applied to all games – physical or digital. Functionality is defined by technical quality, usability focuses on user-interface quality, and gameplay focuses on the quality of the game's rules. If any of these are defective, it affects playability in a negative way; the game does not work as it should, it cannot be used with ease, or it provides meaningless outcomes. For example, if rock beat both paper and scissors, the game would still be functional and usable, but not very exciting due to unbalanced rules.

While playability is certainly important, good playability is not necessarily required for players to have fun. Tic-tac-toe was one of the first games playable on a computer. In his doctoral thesis, Alexander Douglas used a Tic-tac-toe game titled *Noughts and Crosses* (or *OXO*), to study human-computer interaction and artificial intelligence on the EDSAC computer in the early 1950s [2]. The computer was able to play optimally, e.g. it never lost to a human opponent - but it could win if the player made a mistake. Tic-tac-toe is a game with flawed gameplay, as it will always result in a draw if both players understand and comprehend the rules. Hence Tic-tac-toe suffers from poor playability. However, Tic-tac-toe is an interesting example of a game with poor playability that can still provide enjoyable experiences in certain circumstances. The game has been played for thousands of years, which in itself is a statement of its popularity, and while adults might find the game boring and unsurprising, it can be very entertaining for children.

In a similar vein, Facebook games have been considered to be poor in quality, but fun when played with friends [12, 13]. In contrast, there have been many critically acclaimed games which presumably

have good playability (based on media reviews) but did not achieve commercial success for one reason or another. Therefore, the relationship between playability and player experience is not straightforward. This is an important aspect of our theory.

### Discussion

The proposed game-centric definition of playability has some advantages when compared to earlier attempts. Firstly, it is narrowed to focus only on the game, reducing the ambiguity of the definition's boundaries. Secondly, as it is focused on the game, it covers only the aspects which can be designed into the game. This is consistent in other artifact-centric definitions for the word. Thirdly, it recognizes that game quality and player experience do not always go hand-in-hand. Fourthly, as this approach rejects player experience, fuzzy and ambiguous concepts like fun, enjoyment, and satisfaction do not undermine the definition.

By focusing on the game, this approach steers toward playability heuristics that are objective in their nature and are not based on subjective interpretation. Many of the established heuristics [8] already meet this requirement, but there is still ambiguity and inconsistency present. This would improve the heuristic evaluation method by reducing the need for subjective interpretation. A similar approach has already been made in a study which objectively studied the social features in Facebook games [14].

It could be argued that the quality of a game is always dependent on the players' interpretation. This is not necessarily true as games can be played between artificial intelligences, or we could summon the *Implied*

*Player* [5] for theoretical purposes to represent an ideal, expected player.

The proposed definition is also flexible as more components can be added if necessary. For a game with in-app purchases, we could add a monetization component focusing on the price points, transactions, and gameplay benefits of virtual goods – all of which are designed into the game. For example, exclusive and overpowering virtual goods can be detrimental to the balance of a game, thus resulting in poor playability. Interestingly, we could also remove the gameplay component from our definition to study toys based on their functionality and usability. The playability of a ball or a stick, both introduced to the National Toy Hall of Fame (<http://www.toyhalloffame.org/>), would be an intriguing study related to the research of play [15].

The relationship between playability and player experience requires more research. One approach is to look at player experience as a result of the interplay of playability and enjoyability. It can be argued that if a game does not carry itself with good playability, it must rely on external aspects, like enjoyability of the social context, to provide good player experiences. This will be looked at in future research.

### Conclusions

In this paper we have proposed a new game-centric definition of playability. At minimum, playability is based on the game's functionality, usability, and gameplay. Depending on the game, additional components, such as monetization, can be included. This approach removes the ambiguity related to earlier definitions, sets boundaries with player experience, and is applicable to both physical and digital games.

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