

Structural standards for Electronic Game Design

Prof. Abeer Hassan Abdo

Dean of School of Arts and Design -New Giza University - Egypt

Professor of Advertising Design-Advertising Department

Faculty of Applied Arts-Helwan University-Egypt.

profabeer@yahoo.com

Assist. Lect. Ahmed Ismail Abdelrazik Ismail

Assistant lecturer at the graphic design program

School of Arts and Design New Giza University -Egypt.

Ahmedism@gmail.com

Abstract:

This research aims to explore the effectiveness of using structural axes and criteria in designing video games, going beyond technical aspects by starting with identifying what makes a game appealing to a specific audience while avoiding distractions. It also emphasizes maintaining flexibility for adjustments as needed by defining the challenges and choices that players face, and guiding the gameplay experience through psychological strategies that enhance enjoyment and reduce negative behaviors.

Games often include elements such as varied loops and randomness to achieve diversity and encourage players to replay. Balanced games require equitable options in terms of opportunities and rewards, utilizing data and statistics to fine-tune this balance. The narrative contributes significantly to enriching the gaming experience by providing a goal for players to achieve. This is achieved through key components: The protagonist, the setting, and the plot, which define the game's challenges. The story also motivates players to explore and gives meaning to their actions in an engaging fictional world.

Game design begins by defining the objective and the core mechanic, such as movement, combat, or resource management, which help establish obstacles and enemies. Secondary mechanics are then added to support or hinder players. The game is implemented through paper or digital prototypes, with digital games being preferred for interaction. The game design is brought to life to test rules and digital features using game engines, focusing on essential fundamentals to turn the abstract idea into a practical model. This includes graphics, inputs, and various programming options, with the choice depending on long-term benefits.

Playground models are used to test movement constraints, obstacles, and goal clarity, contributing to the design of arenas suited to game objectives. Levels in games often represent small stories that teach players new skills through progressive challenges, leading to a final confrontation. Two main systems organize movement: The turn-based system, which focuses on strategy, and the real-time system, which relies on quick reactions. Additional unexpected movement elements can be introduced to heighten excitement. Ultimately, the structural criteria for designing electronic games are extracted.

Research Introduction:

Game design is one of the key factors for its success, and this suggests that game designers should consider certain features when designing to create an emotional connection between

players and the game. The purpose of the game is to engage and immerse users, as game design defines the criteria for winning and losing, the plan for how the user interacts with the game, the information the system communicates to the user, and the level of difficulty. In other words, the game design strategy determines every detail of the game's functionality, clarifying its impact on designing successful user interfaces and experiences. This provides designers and developers with the tools they need to create effective and engaging games that captivate users and foster loyalty, ensuring that user desires are met and the games become ideal and widely adopted.

Research Problem:

With the widespread adoption of digital games and the continuous increase in the number of players worldwide from various nationalities, video games now serve multiple communication purposes alongside entertainment. This has led to a rise in the number of designers and producers in the gaming industry, highlighting the need to derive structural design standards for electronic games. Hence, the research problem is summarized in answering the following question:

What are the stages of game design and the structural criteria for designing electronic games?

Research Objective:

To derive the structural criteria for designing electronic games.

Research Hypothesis:

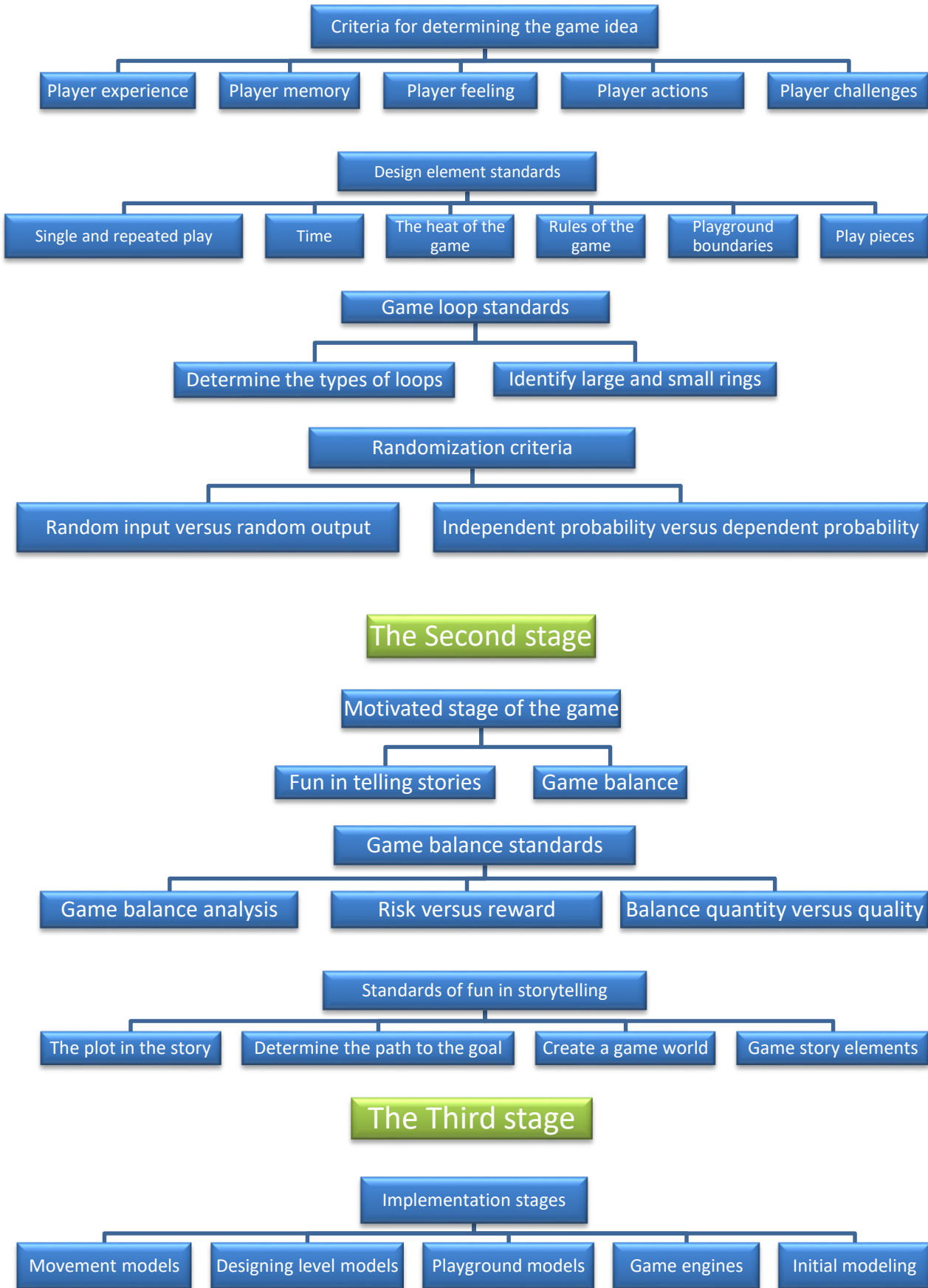
- How can the structural design criteria of electronic games be effectively and scientifically implemented?
- How does this contribute to producing professional design forms and types that achieve the communication objectives of electronic games?

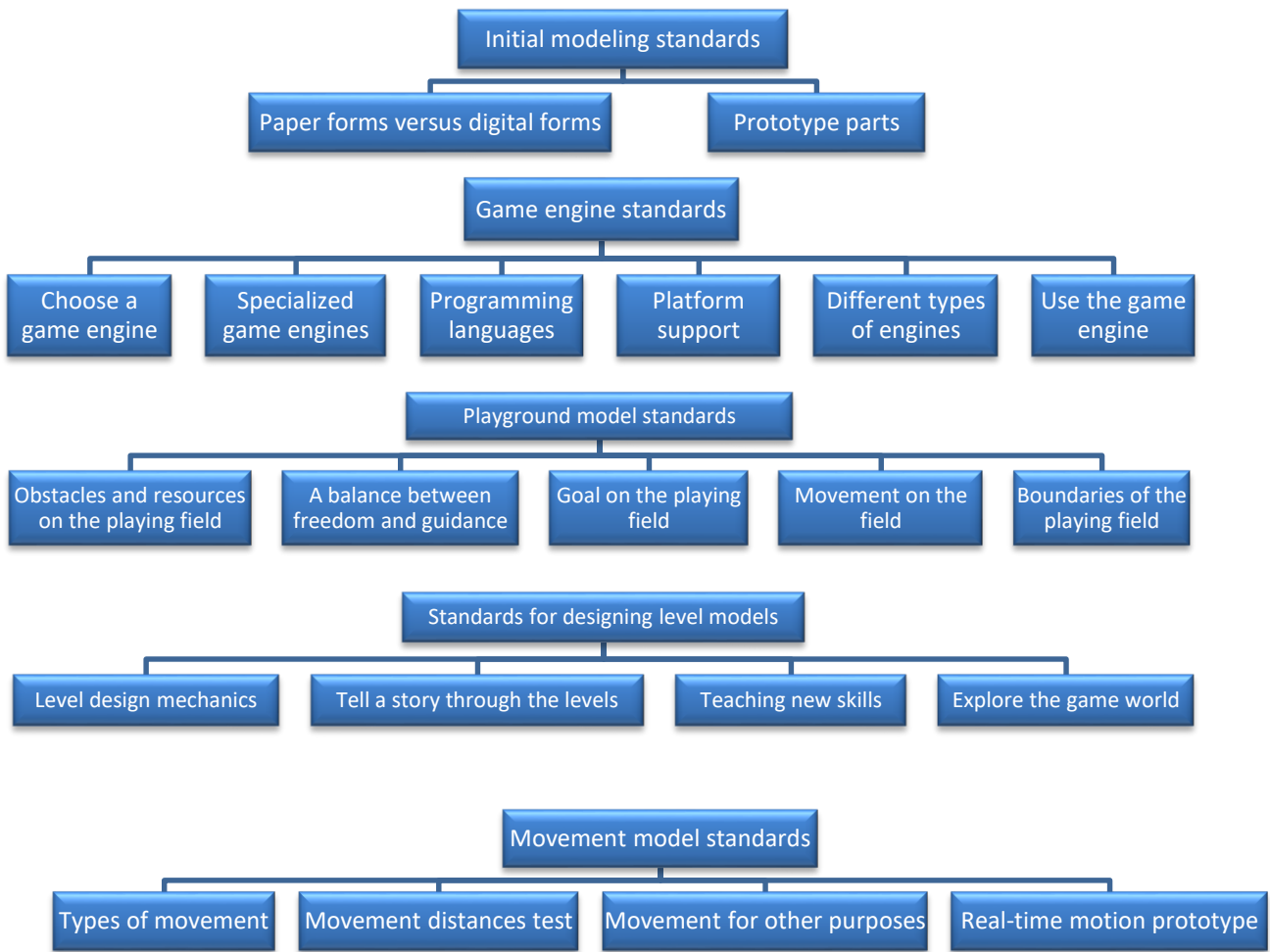
Research Methodology:

The research follows a descriptive methodology in analyzing and describing the types of digital/electronic games to verify the research hypothesis.

Based on the research has derived a mechanism for employing structural criteria in electronic game design through the stages of game development (game concept – game motivations – game implementation). Each stage relies on several structural design criteria for electronic games.







Research Findings:

1. Designing electronic games and transforming a game idea into an executable game requires careful planning and an understanding of how various components function. Recognizing the mechanism and applying the structural criteria for game design enhances planning, increasing the chances of success.
2. The stages of electronic game design can be divided into three main phases: Game Idea, Gameplay Motivations, and Game Implementation.
3. The Game Idea Phase criteria involve defining the idea, design elements, game loops, and randomness, including player challenges, player actions, player emotions, player memory, player experience, game pieces, game rules, game opponents, time, single vs. repeated play, defining major and minor loops, independent vs. dependent probability, and random inputs vs. outputs.
4. The Gameplay Motivation Phase criteria focus on game balance and the enjoyment of storytelling, considering aspects such as balancing quantity vs. quality, risk vs. reward, game balance analysis, game story elements, world-building, defining the path to the objective, and narrative structure.
5. The Implementation Phase criteria involve prototyping, game engines, game field models, level design models, and movement models, including initial prototype parts,

- selecting a game engine, studying the game field, balancing freedom and guidance, analyzing level design mechanics, and studying and choosing movement mechanics.
6. Utilizing structural criteria in game design strengthens the player-game connection, ensuring the production of well-integrated electronic/digital games. This supports an interactive approach that allows players to feel, control, and engage with digital games creatively and compellingly, adapting to evolving player preferences.
 7. The structural criteria for electronic game design complement each other, ensuring the effective execution of game development while achieving communication and marketing objectives.

Research Recommendations:

1. Game designers should thoroughly study different game genres and emerging artistic trends to ensure alignment with the game concept.
2. Understanding the behavior of the target audience is essential for designing engaging games.
3. Academic courses should be introduced to teach electronic/digital game design and production and their relationship with the target audience.
4. Establish specialized research centers dedicated to studying, designing, producing, and implementing digital games, fostering collaboration between designers, programmers, and producers.