

# Critical Review of Adopting Best Practices from the Games Industry in the Development of Serious Games for Health

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## Abstract

Ushaw et al. [2] aim to explore the vast potential of adopting best practices from the video game industry to develop serious games for health purposes. A serious game is a computer-based program that simulates real-world scenarios for entertainment and learning purposes. The authors argue that serious games, which combine gaming principles with health-related goals, can lead to a promising approach to promoting health and well-being. They also discuss how game design principles can be adapted and integrated into the development process of serious games for health. The authors highlight the importance of considering user experience and engagement as critical factors in the success of serious games for health. They suggest playtesting, iterative design and user-centred design, allowing for the improvement of usability, effectiveness and enjoyment of serious games for health.

Although the paper did not provide any new information or a new research technique, the study provided a new understanding of the phenomenon of serious games for health by identifying the best practices in the design and development phases that can promote behaviour change and improve health outcomes. The authors decided to conduct a literature review to accomplish their purpose. They systematically reviewed and analysed published research articles and reports on serious games and game design principles from both the game industry and the health field. They used qualitative and quantitative data analysis techniques to summarise the findings from the literature review and critically evaluated the existing literature to provide guidance and insights for the design, development, and evaluation of serious games for health. The authors adapted the following techniques: Systematic searching, Screening and selection, Data extraction and Synthesis and analysis. These techniques allowed an evidence-based, critical analysis of serious games for health, providing additional insights and guidance for these games' design, development and evaluations.

This study highlighted the importance of a user-centred design approach, grounding game mechanics in behavioural theory and evidence-based practice, using feedback, rewards, and challenges. Overall, the paper aims to provide guidance and insights for developers, researchers, and practitioners interested in designing and evaluating serious games for health.

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## 1 Introduction

The primary objective of this study [2] was to pinpoint and integrate the best approaches from the game industry and the health field for the design and improved development of serious games for health that can elevate behavioural change within the players [4] and improve health conditions. At the same time, aiming to provide a comprehensive framework for evaluating serious games that incorporates essential elements of user experience, behaviour change outcomes, and game design principles. The study aims to identify and recreate best practices from the games industry to improve the quality of serious games. The introduction of Ushaw et al. leads coherently into the study's primary purpose. After analysing the paper's title, it indicates that it focuses on using best practices from the games industry and aims to provide overall guidance on how to design and develop effective serious games that can improve health outcomes [2]. The title is clear, concise, and accurately reflects the paper's subject matter. This common theme also translates to the paper's abstract and introduction. The information presented in the introduction leads coherently to the purpose of the study; however, the transition from the abstract to the introduction can be improved without repeating the same information and arguments about promoting behaviour change and improving health outcomes. This purpose is consistent with the introduction, highlighting the same importance. There is a shortfall in the introduction and abstract, repeating the same points. This constant repetition of the same arguments causes a disconnect in providing additional information in these sections. While most of the points in the abstract are repeated in the introduction, the introduction does begin to highlight the potential benefits that serious games for health could obtain - for example, stimulating behaviour shifts and improving health developments. It then discusses the challenges associated with designing effective games for health, including the need to balance game mechanics and behaviour change objectives. The introduction then highlights the importance of some of these practices: evidence-based behaviour change techniques and solid game design principles.

## 2 Methods

The methods and techniques used in the study are justifiable concerning the study's objectives, with the authors using a comprehensive approach that involved a review of published literature, consultation with experts in the field, and analysis of existing serious games for health. They developed a framework incorporating elements of user experience, behaviour change outcomes, and critical game design principles. These methods are appropriate for identifying the best practices for designing and developing serious games for health. Reviewing published literature is an accurate method for identifying game industry and health field best practices. The consultation of experts in the field allows further knowledge and insight into serious game development. Analysing existing serious games for health that they conducted is another reasonable method. It allowed them to see the effectiveness of different design strategies and techniques in achieving behaviour change outcomes. However, there are still potential flaws in the methods used. Firstly, the authors needed to provide a detailed description of the search strategy used to identify relevant literature for the review, which could limit the comprehensiveness of the literature review approach. Additionally, the authors should have provided specific details on how the experts were identified or recruited, which could limit the representativeness of the expert opinions they claim to obtain. Furthermore, the analysis of existing serious games for health was limited to a small number of games, which could limit the generalisability of the results. While the framework developed for evaluating serious games for health appears comprehensive and well-designed, it has yet to be independently validated, which could limit its reliability and validity. Overall, while the methods used in the study are appropriate for identifying best practices for design-

ing and developing serious games for health, there are still some potential areas for improvement in the methods that could enhance the dependability and generalisability of the results.

### **3 Results**

The study's results could have been presented better compared to other areas of the paper. The paper does not contain any tables or diagrams; however, the study's hypothesis complements the data. The text is clear and well-organised and does not simply repeat the information presented in the methods section or elsewhere in the paper. The authors still provide a detailed description of their analysis of existing serious games for health and the development of a framework for evaluating said games - while also describing the best practices identified through their analysis and discussing the potential benefits and limitations of these practices. Even though the results section appears well-written and informative, it still needs to be significantly improved to match the standard of the rest of the paper despite the lack of tables or diagrams. Furthermore, there needs to be more information on how each method resulted in a particular result. It is difficult to follow the structure of the paper and how one technique led to a particular result. A table or diagram could have helped with this issue, showing a clear cause-and-effect relationship between the test and the result, making the study results more transparent, readable and organised. However, the results they obtained are consistent with the research objectives. They identified a set of best practices common to successful serious games for health and developed a framework for evaluating them based on these best practices. The study successfully revealed what the researchers intended and provided a valuable contribution to the field of serious games for health.

### **4 Conclusion**

The research produced practical applications as the authors developed a set of best practices for developing serious games for health by adopting techniques from the video game industry to improve player engagement and replay value without distracting from the primary health benefit. These best practices can be applied in developing rehabilitative games for different patient conditions and demographics, potentially leading to improved patient outcomes through increased engagement with the games. The research also showed beneficial implications in various areas. From a social perspective, using serious games for health can improve patient outcomes and increase patient engagement in their healthcare, leading to better health outcomes and reduced healthcare costs. Additionally, serious games can provide patients with a more enjoyable and engaging way to participate in their healthcare, which can help reduce patient anxiety and improve their overall quality of life. From a technological perspective, developing serious games for health requires a combination of game development expertise and medical knowledge, leading to collaborations between game developers and medical professionals, which can advance both fields. Additionally, technology in healthcare can improve access to care, especially in rural or remote areas where access to medical care may be limited. From a medical perspective, using serious games for health can improve the treatment and management of various medical conditions. By providing patients with an engaging and enjoyable way to participate in their healthcare, serious games can help to improve patient coherence [4] to treatment plans and reduce the risk of complications associated with certain medical conditions. For example: Stroke [3], Severe Paralysis of the upper limb [5], and cerebral palsy [1]. The significance of research can be evaluated based on its contributions to human knowledge, practical applications, and potential implications. In the case of the Ushaw et al. study, their research on adopting best practices from the game industry for devel-

oping serious games for health has practical implications for designing and developing games that can improve patient outcomes. It also contributes to understanding how player engagement techniques from the entertainment industry can be transferred to games for health. The study's findings inform future research on game design for health and potentially lead to the developing of more effective and engaging interventions for patients.

## References

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