https://doi.org/10.36315/2024v2end051
Education and New Developments 2024

BRIDGING PLAY AND INCLUSION: A QUALITATIVE INVESTIGATION INTO ACCESSIBILITY CHALLENGES AND INNOVATIONS IN BOARD GAME DESIGN

Joana Barros[1], Carla Sousa[2], & Filipe Luz[1]
[1]Universidade Lusófona, HEI-Lab (Portugal)
[2]Universidade Lusófona, CICANT (Portugal)

Abstract

Contemporary educational research increasingly emphasises the educational and learning potential of games, with a particular focus on board games, given their ability to promote meaningful experiences, including engagement, satisfaction, flexibility, or freedom of experimentation. Considering these potentialities, it becomes imperative to align the design of board games with the current needs and particularities of a more inclusive education. In this regard, the present study explores game design practices, focusing on the critical aspects of inclusivity, namely the players' and learners' specific accessibility needs. Through a qualitative approach, it engages with 26 board game designers, from various backgrounds and geographical locations, to understand their inclusive design views and attitudes. By employing content and critical discourse analysis, the research reports and contextualises multifaceted barriers and innovative solutions that designers employ to create inclusive gaming experiences. Key findings reveal that economic constraints significantly delay the pursuit of accessibility in board game design, requiring innovative solutions like supportive policies and cost-effective technologies. Moreover, designers are employing various strategies, such as digital aids and sensory adaptations, demonstrating the prevalence of a proactive approach to enhancing accessibility. Despite these efforts, challenges like sexism, racism, and accessibility issues persist, highlighting the need for ongoing education and awareness-raising initiatives within the community.

Keywords: *Inclusive education, board games, game-based learning, accessibility.*

1. Introduction

Games have been studied as differentiated and effective educational approaches for learning a wide range of skills (de Freitas, 2018). However, the focus of research has been more on the results of Game-Based Learning (GBL) approaches, exploring whether they work or not, and less on the intrinsic characteristics of these games that stimulate them. Accordingly, to better understand GBL as a pedagogical approach implies the understanding of game design aspects and game features, including "perceived usefulness, ease of use, and goal clarity, could increase student engagement and improve the enjoyment of games, which should be stressed by game designers" (Yu et al., 2021, p. 571).

While there is a predominance of digital games in GBL research, board games have been approached as feasible educational alternatives that should be valued for three fundamental reasons. Firstly, their value for operationalising abstract concepts, given that the player's understanding of the game system is fundamental for it to work (Maratou et al., 2023). Secondly, its economic accessibility presents itself as a solution to digital access barriers that are still very present in educational contexts (Sousa et al., 2023a). Finally, their tangibility, or the way touching physical objects is, to this extent, not only a source of entertainment but also a way of promoting holistic human development, which is essential for a balanced and healthy educational process (Sousa, in press).

Therefore, board games have been documented as having positive impacts on engagement, satisfaction, flexibility, or freedom of experimentation, due to their ability to promote meaningful experiences (Sousa et al., 2023b). In recent years, and more in terms of the themes addressed, board games have also been very relevant to learning themes related to environmental sustainability (Tsai et al., 2021), news literacy (Maze et al., 2020), and social power relations (Au, 2021).

1.1. Board games and learning: inclusion or exclusion?

As immersive and interactive environments, board games become spaces for creating meaning and conveying values par excellence (Booth, 2016). As such, their potential can reinforce social exclusion if inclusive design and accessibility principles are not adopted in their conceptualisation (Chakraborty, 2017). Moreover, its broad pedagogical potential, which has been explored previously, can only be accessed by all students if they have ways of accommodating the different support needs of players in their gameplay (Rye, & Sousa, 2023). In other words, the inclusive potential of GBL depends on the accessibility of the games produced and the way they consider the specific needs of each learner.

Considering this context, the present study explores the domain of board game design, focusing on the critical aspects of inclusivity, namely the players' and learners' specific accessibility needs. Through a qualitative approach, it engages with 26 board game designers, from various backgrounds and geographical locations, to understand their perceptions, current practices, challenges, and strategies concerning the integration of accessibility considerations into the design process.

2. Method

2.1. Participants

The study involved 26 female and male game designers aged between 20 and 63 years old. Among the participants, a significant portion (n = 11) were from Portugal, with additional representation from Germany (n = 6), Brazil (n = 3), USA (n = 3), France (n = 2), and Finland (n = 1). The participants showed a range of professional game design experience. A dynamic cross-section of comparatively early and mid-career professionals, 15 people had tenures ranging from 3 to 10 years. The remaining 11 players contributed a wealth of knowledge, having designed games for anywhere from 11 to 40 years. The sample was selected by convenience and therefore intentionally and non-probabilistically, based on the game designers present at a Portuguese board game convention.

2.2. Interviews and procedure

The interviews followed a semi-structured script, considering the aim of the research. Therefore, throughout the interviews, a flexible and participant-centric approach was adopted, with participants being encouraged to elaborate on their thoughts freely. Both the questions and the subsequent data coding process were designed considering the accessibility components of board games, as defined by Heron et al. (2018), guaranteeing a holistic and integral view of the potential needs of players.

To ensure accuracy and comprehensive analysis, all interviews, whether conducted online or in person, were recorded. Following the interviews, each recording underwent a thorough transcription process. Transcripts served as the primary textual data for analysis, providing a detailed and *verbatim* account of the participants' responses. Informed consent was obtained from all participants, ensuring they were aware of the research objectives, the recording process, and the subsequent use of the data. To uphold the privacy and confidentiality of the participants, names were anonymized during the analysis phase.

2.3. Coding and data analysis

It is important to note that a two-step method was adopted to analyse the interviews. Firstly, a mixed approach to content analysis (Castro et al., 2022), in which the textual units of analysis are quantified and categorised, according to the accessibility model of Heron et al. (2018), mentioned above, using NVIVO software, version 14. Afterwards, the content of each category was reviewed according to the principles of critical discourse analysis (Van Dijk, 2015), specifically adapted to understand how the power relations of the empowered society impact the perceptions and practices of these game designers.

In addition, it is important to note that the top-down approach, in which the categories were based on this conceptual model of accessibility (Heron et al., 2018), also adopted bottom-up content analysis procedures. Thus, the subcategories analysed emerged from what was most relevant in the game designers' interviews.

It is also important to emphasise that this work reports a preliminary approach to the results of the analysis of this extensive *corpus*, namely the “Inclusive Design Views and Attitudes” category.

The content analysis validity was based on an Inter Coder Reliability (ICR) procedure, with 10.00% of the corpus being coded by two independent researchers, to reveal a high level of agreement (97.63%).

3. Preliminary results

From the bottom-up coding of the interviews, and considering the category "Inclusive Design Views and Attitudes", the following subcategories emerged from the game designers' interviews: (1) Barriers and challenges to create accessible games; (2) Strategies implemented to create accessible games; (3) Perceptions about game genres and accessibility; (4) Perceptions about game mechanics and accessibility; (5) Age rating and definition; and (6) Inclusivity in the board games community. The full content analysis process resulted in the coding of 3849 units. The main category was present in all the analysed interviews (N = 24; 100.00%) and represented 23.02% (n = 886) of those coded units. The subcategories are quantitatively and critically analysed below. As we will explore, 24 sources/interviews were analysed, despite the inclusion of 26 game designers in the sample. This is because one interview was excluded due to the technical impossibility of transcribing the audio and another interview was with a pair of participants.

3.1. Barriers and challenges to create accessible games

The barriers and challenges to creating accessible games include all the hindrances encountered during the game design, prototyping stage and all the other creative phases, and represented 2.42% of the coded units (n = 93). The analysed discourses reflect a significant tension between the desire to make games more accessible and the practical economic constraints faced by producers. While there is a clear recognition of the importance of accessibility, the economic implications often lead to compromises that hinder inclusivity. This analysis suggests a need for innovative solutions that can balance cost and accessibility, perhaps through policy changes, economic support, or new technologies that reduce production costs while enhancing game accessibility.

3.2. Strategies implemented to create accessible games

The strategies implemented to create accessible games represented 3.87% of the total coded material (n = 149), being the second most coded subcategory. The strategies outlined in the interviews represent a diverse range of approaches to tackling the challenges of accessibility in game design. There is a clear trend towards integrating technological solutions, like digital aids and videos, and a strong emphasis on sensory adaptations to accommodate visual impairments. These strategies not only aim to make games more inclusive but also attempt to broaden the market reach by addressing the varied needs of a global and diverse player base. This analysis underlines the proactive measures being taken within the gaming industry to ensure that fun and engagement in gaming are accessible to all, regardless of physical limitations.

3.3. Perceptions about game genres and accessibility

The perceptions about game genres and their relationship with accessibility possibilities represented 3.79% of the total coded units (n = 146), being the third most coded subcategory within "Inclusive Design Views and Attitudes". To this extent, the discourse around game genres and accessibility reveals a nuanced understanding among designers about the trade-offs between game complexity, economic factors, and market demands. While family-friendly and party games are generally seen as more accessible, the economic burden of production and the specific needs of diverse player bases pose ongoing challenges. The industry's responses to these challenges, such as adopting multilingual support and designing with universal accessibility principles in mind, highlight a growing commitment to inclusivity in game design.

3.4. Perceptions about game mechanics and accessibility

The perceptions regarding the relationship between game accessibility and game mechanics represented the most discussed topic in the game designers' interviews (5.98% of the coded units; n = 230). Different relevant aspects were discussed. More specifically, the discourses stress the balance designers must attain between creating engaging, challenging games and ensuring they are accessible and enjoyable for diverse audiences. The findings suggest that while some mechanics can enhance accessibility by simplifying gameplay or reducing the stigma of poor decision-making, others may inadvertently exclude or discourage players – as random events, or player elimination.

3.5. Age rating and definition

This covered a variety of topics regarding the evaluation and assigning of appropriate age ratings for board games, and represented 3.61% (n = 139) of the total coded material. Through the interviews, it is possible to note that the discourse on age rating in the board game industry is characterised by a blend of objective criteria and subjective decision-making. While the complexity of the game and its content play critical roles, economic factors and regulatory environments also significantly influence age ratings. The findings underline the need for a more standardised approach to age ratings that considers developmental psychology, educational theories, and cultural contexts, aiming to serve the best interests of children and families more accurately and consistently.

3.6. Inclusivity in the board game community

This subcategory covers a range of topics regarding the state of accessibility in the community including challenges and opportunities in fostering diversity and inclusivity, and it represented 129 coded units (3.35%). The discourse on inclusivity within the board game community illustrates a complex landscape where progress and challenges coexist. While many express a strong sense of community and efforts towards inclusiveness, issues such as sexism, racism, and accessibility continue to require attention. The community's self-awareness and proactive stance are promising, yet the need for continuous improvement is clear.

4. Core insights and future directions

The obtained results reveal several key insights into the current state of inclusive design in board games. Firstly, economic constraints significantly delay the pursuit of accessibility, since designers acknowledge the importance of inclusivity but often face financial challenges. This tension between accessibility goals and economic realities underscores the need for innovative solutions, such as supportive policies, financial incentives, and cost-effective technologies.

Secondly, designers are already employing various strategies to enhance accessibility, including digital aids and sensory adaptations, highlighting a proactive approach within the industry and a willingness to innovate and adapt.

Thirdly, balancing engaging gameplay with accessibility is another critical consideration. Some mechanics enhance accessibility by simplifying gameplay, while others, such as random events or player elimination, may inadvertently exclude players. Another relevant identified aspects of the analysis include how assigning appropriate age ratings involves a blend of objective criteria and subjective decision-making. It highlights the need for a more standardised approach to age ratings that incorporates developmental psychology, educational theories, and cultural contexts.

According to this study, the board game community shows a strong sense of awareness and proactive efforts towards inclusiveness, as previously hypothesised by Booth (2021). However, challenges such as sexism, racism, and accessibility issues persist, highlighting the importance of ongoing education and awareness-raising initiatives within the community, namely to more equity-driven uses of GBL in education. To support such an aim, future directions of this study include a thorough analysis of the remaining categories and subcategories of the conducted interviews, as well as the development of strategies to support the industry and educators in implementing accessibility-driven practices, both in commercial and educational projects.

Acknowledgements

This study was funded by national funds through the FCT - Foundation for Science and Technology, I.P., under project GameIN (2022.07939. PTDC) – available at https://doi.org/10.54499/2022.07939. PTDC. The research team would also like to thank the game designers who made themselves available to contribute to the study, as well as the organisers of LeiriaCon, namely Spiel Portugal.

References

Au, L. (2021). The board game pandemic: Cooperative sociotechnical imaginaries obscuring power relations. *Science as Culture, 30*(4), 598-602. https://doi.org/10.1080/09505431.2021.1965111

Booth, P. (2016). Board, game, and media: Interactive board games as multimedia convergence. *Convergence, 22*(6), 647-660. https://doi.org/10.1177/1354856514561828

Booth, P. (2021). *Board Games as Media*. Bloomsbury Publishing.

Castro, L., Gessler, T., Majó-Vázquez, S. (2022). Content analysis in mixed method approaches. In F. Oehmer-Pedrazzi, S. H. Kessler, E. Humprecht, K. Sommer, & L. Castro, L. (Eds.), *Standardisierte Inhaltsanalyse in der Kommunikationswissenschaft – Standardized Content Analysis in Communication Research*. Springer. https://doi.org/10.1007/978-3-658-36179-2_4

Chakraborty, J. (2017). How Does Inaccessible Gaming Lead to Social Exclusion?. In J. Lazar, & M. A. Stein (Eds.), *Disability, Human Rights, and Information Technology*. University of Pennsylvania Press. https://doi.org/10.9783/9780812294095-015

de Freitas, S. (2018). Are games effective learning tools? A review of educational games. *Journal of Educational Technology & Society, 21*(2), 74-84.

Heron, M., Belford, P., Reid, H., & Crabb, M. (2018). Meeple centred design: a heuristic toolkit for evaluating the accessibility of tabletop games. *The Computer Games Journal, 7*(2), 97-114. https://doi.org/10.1007/s40869-018-0057-8

Maratou, V., Ennami, F., Luz, F., Abdullahi, Y., Medeišiene, R. A., Šciukauske, I., ... & Rye, S. (2023). Game-based learning in higher education using analogue games. *International Journal of Film and Media Arts, 8*(1), 68-84. https://doi.org/10.24140/ijfma.v8.n1.04

Maze, C., Haye, A., Sarre, J., Galaup, M., Lagarrigue, P., & Lelardeux, C. P. (2020). A board game to fight against misinformation and fake news. *Proceedings of the 9th International Conference, GALA 2020*, 326-334. https://doi.org/10.1007/978-3-030-63464-3_31

Rye, S., & Sousa, C. (2023). Investigating Inclusivity in Game-Based Learning: Current Practices and Multistakeholder Perspectives. *Proceedings of the 17th European Conference on Games Based Learning, ECGBL 2023*, 904-911. https://doi.org/10.34190/ecgbl.17.1.1923

Sousa, C., Neves, P., & Luz, F. (2023a). Barriers and Hindrances to the Effective Use of Games in Education: Systematic Literature Review and Intervention Strategies. *Proceedings of the 17th European Conference on Games Based Learning, ECGBL 2023*, 611-620. https://doi.org/10.34190/ecgbl.17.1.1472

Sousa, C., Rye, S., Sousa, M., Perim, C., & Ennami, F. (2023b). Playing at the school table: Systematic literature review of board, tabletop, and other analog game-based learning approaches. *Frontiers in Psychology, 14*. https://doi.org/10.3389/fpsyg.2023.1160591

Sousa, C. (in press). The Psychology of Analogue Game-Based Learning. In S. Rye, M. Sousa, & C. Sousa (Eds.), *Transformative Learning Through Play*. Palgrave Macmillan.

Tsai, J. C., Liu, S. Y., Chang, C. Y., & Chen, S. Y. (2021). Using a board game to teach about sustainable development. *Sustainability, 13*(9), 4942. https://doi.org/10.3390/su13094942

Van Dijk, T. (2015). Critical Discourse Analysis. In D. Tannen, H. E. Hamilton, & D. Schiffrin (Eds.), *The Handbook of Discourse Analysis, 2*. Wiley. https://doi.org/10.1002/9781118584194.ch22

Yu, Z., Gao, M., & Wang, L. (2021). The effect of educational games on learning outcomes, student motivation, engagement and satisfaction. *Journal of Educational Computing Research, 59*(3), 522-546. https://doi.org/10.1177/0735633120969214