Short Report

AFROGAMES: Developing culturally relevant board games for equitable heathcare education

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Background. Despite the benefits of serious games as an effective teaching tool in professional training, it is important to acknowledge that games are not neutral, as they often reinforce hegemonic Western and Eurocentric perspectives. Game-based learning (GBL) has proven to be an effective educational tool, however, it often reproduces these dominant cultural ideologies. Therefore, there is a need for culturally sensitive alternatives that reflect the health needs of Black communities.

Objective. This paper reports the innovative process of developing 'Afrogames', a series of board games designed to facilitate the professional development of healthcare professionals through culturally relevant Afro-referenced content that supports inclusive and equitable health professions education (HPE).

Methods. Using a design thinking approach, six board games were developed to address core topics such as skin care, mental health, sex education, aging, self-care and indigenous medicine. The approach used the following design stages: ideation, immersion, prototyping, and development.

Results. The games incorporate elements of Black cultural values, civilisational principles and biological specificities. Each game was iteratively tested with healthcare professionals and students, with feedback used to refine the design and educational content.

Conclusion. Afrogames offer a culturally responsive and engaging method for training healthcare professionals. By centering Afro-referenced narratives and values, they help challenge systemic biases in education and, in doing so, support the development of culturally competent healthcare professionals. Furthermore, the games mediate positive engagement towards the provision of equitable healthcare.

Keywords. Afrogames; board games; game-based learning; healthcare education, countercoloniality

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In an increasingly globalised world, health professions education must prioritise local relevance to ensure equitable healthcare outcomes. While global health connectivity encourages standardisation, such an approach often marginalises local ways of knowing and being, particularly those rooted in indigenous and Afro-referenced knowledge systems. Health professions education continues to be shaped by historically dominant Western worldviews, which inadequately prepare professionals to meet the diverse needs of marginalised communities, particularly in African contexts where such curricula often fail to reflect local realities and knowledge systems.

Game-Based Learning (GBL) is a valuable pedagogical tool that focuses on the design, development, use and application of games in education and training.[1] Serious games, in particular, have been developed with a specific purpose beyond pure entertainment and have been applied to fields such as healthcare and education. According to Raessens,[2] serious games are designed and used to address the most pressing issues of our time and have an impact on the player's real world and individuality, boosting the development of cognitive, motor, social and emotional skills, as they provide the opportunity to develop practical knowledge. Usually, this type of game provide the experience of being immersed in a subject, allowing the player to deal with difficulties, create strategies, exercise decision-making and get quick feedback on their actions. However, games are not neutral. Trammel[3] argues that the typical structure of games glorifies individualism, whiteness, and colonial ideals with very little appreciation of the experiences and knowledge systems of underserved populations.

Serious games can take many forms, such as simulations, role-playing games and board games, and can be used in a variety of environments, such as classrooms, workplaces and healthcare.[4] In 2022, Tay *et al.*[5] carried out a systematic literature review that found evidence for the use of GBL as an effective teaching tool in professional training. Whilst this is progressive, in the health sciences, the lack of inclusivity is further compounded by curricula which are based on white Eurocentric epistemologies. Such frameworks render alternative cultural perspectives as invisible and universalise the status quo. As a result, students in the health professions are often trained under the assumption that what works for dominant populations are applicable to all. To this end, curricula, literature and practices are still extremely based on white-European history, presenting European history and reality as representing the whole of human experience, imposing their realities and culture as universal and adaptable to all peoples regardless of their geographical origin, historical, economic, social, cultural and political background, and as being hierarchically superior to others.[6] For this reason, Naidu[7] argues that the education of health professionals remains influenced by colonial principles, by centering Western ways of thinking and teaching. This often sidelines other cultural perspectives, lived experiences, and community-based understandings of health, which are equally important for addressing local healthcare. Esegbona-Adeigbe[8] explains that higher education curricula continue to be colonised by white and Western intellectual traditions with a lack of appropriate representation of ethnically diverse groups. As a result, we keep training health professionals based on the idea that if the processes, technologies and theories are suitable for

taking care of the white body, they will undoubtedly be suitable for other human beings, because we live under the aegis that we are all part of the great human race and are therefore equal. This scenario disregards the fact that the human being is a social product, with genetic variability; '[they] are what they eat, learn, hear, see, feel and live'.[9]

When considering the presence of a Eurocentric curriculum in the Global South, it is imperative to urgently assess its impacts on both cultural displacement and the erosion of students' identities. A Eurocentric curriculum, for instance, can reinforce colonial and neocolonial mindsets and power dynamics, while simultaneously excluding local perspectives. Moreover, such curricula are often saturated with Western and European examples, perpetuating language barriers and contributing to the academic underperformance of students from the Global South.[10]

Games are also a way of promoting this Eurocentric perspective and stereotypes about the Black population while upholding racism and violence. Trammell[3] further highlights how the subjectivity of white European colonial thinking is deeply linked to games: white protagonists are heroes, they are outstanding, they grow in power over time, they make decisions with consequences for others in the world, they are forgiven, they are individualistic, they carry weapons, they remake the world as self-expression, they do not see race and are not read through the lens of race. Simply put, the deeply connected histories of games and colonialism have produced a context in which the pleasures of many games are colonial pleasures. It is therefore crucial to recognise that games (even educational ones) are not neutral technologies and that they carry stereotypes and violence. When Black people consume a product they cannot identify with, filled with stereotypes and negative messages about their people, they end up being exposed to conditions that impact the cognitive, emotional and social benefits of games.

It is important to recognise that both curricula and educational games developed in the Global South are often shaped by ethnocentric assumptions. These tend to prioritise white cultural perspectives while overlooking others, resulting in knowledge production that remains grounded in white norms and worldviews. From this context, Karenga[11] highlights the emergence of a struggle for meaningful education that goes beyond what is currently offered by existing Eurocentric universities. This vision calls for an academic environment that actively engages with, learns from, and teaches knowledge, experiences, and perspectives rooted in diverse cultural perspectives that are too often dismissed, distorted, or devalued by Eurocentric conceptions of education and prevailing notions of humanity, culture, and human life.

This meaningful education must be culturally relevant using an approach that seeks to align with the specific realities of the students being taught. It acknowledges each student and their cultural background as a unique, equally legitimate, and valuable way of being human in the world. It leverages culture that includes knowledge, perspectives, values, lived experiences, and practices as a foundation for presenting and addressing critical, reflective questions essential to teaching and learning within a given educational field. The underlying premise is that every culture has its own knowledge, perspectives, values, practices, and experiences that can meaningfully inform critical reflection and contribute to the production of knowledge.[11]

Countercoloniality, as articulated in the works of Master Nego Bispo, refers to a range of practices aimed at dismantling the colonial project that underpins global structures and point the way to this culturally relevant education. While terms like 'postcolonialism' and 'decoloniality' are more commonly used in academic discourse, countercoloniality shares their

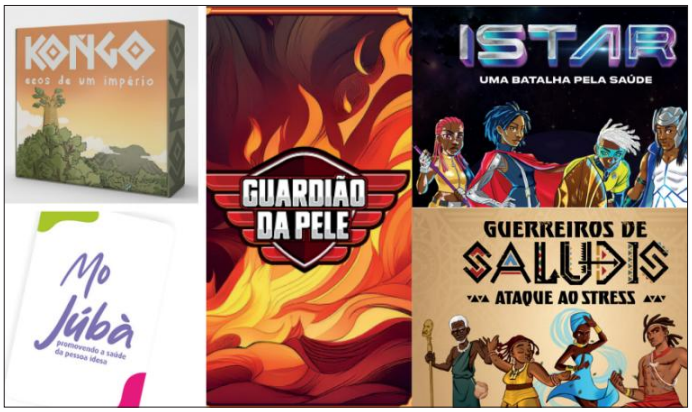

Fig.1. Cover of Afrogames developed.

critical intent but emerges specifically as a lived, political, and ethical praxis grounded in Black people, Quilombolas, and favelas/townships dwellers, and the struggles grounded in their ancestral knowledge. It is not a theoretical position, but a form of resistance rooted in ancestral knowledge and community-led alternatives to colonial systems. This praxis fosters alternative ways of being, functioning, and organising in response to the enduring ruins of colonial violence.[12]

To countercolonialise knowledge, then, is to identify and pursue emancipatory and alternative modes of knowledge production that exist outside the conventional frameworks of modern science and Eurocentrism. It involves asserting agency over one's own historical and social experience.[13] Countercoloniality seeks to break free from the gravitational pull of coloniality by decentering Europe and the white individual, whether from the global North or South as the locus of reality. It calls for the creation of knowledge from a 'Black or Indigenous perspective' in opposition to the dominant 'white perspective,' enabling individuals to see themselves and act as agents rather than as victims or dependents.[6]

Considering that Brazil is a country with a Black majority population, and yet continues to provide education based on a white-eurocentric curriculum, the Comunidades Virtuais research group ('Virtual Communities') at the State University of Bahia in Brazil, has been developing Afrogames (board games) to serve as culturally responsive tools in the teaching and training of healthcare professionals. Thus, the connection between African and Brazilian identities is especially prominent in Salvador, Bahia, where African heritage continues to shape culture, language, religion, and social structures making it a fitting site for developing countercolonial educational tools like Afrogames, which could be translated and adapted for the African continent. Afrogames are rooted in Afro-referenced aspects such as Black cultural knowledge systems and values, civilisational principles, as well as the biological specificities of the Black body. This paper describes the process behind their development and reflects on broader implications for countercolonial and equitable educational practices. Therefore, this paper reports on innovative ways to develop Afrogrames as tools to mediate culturally responsive, culturally sensitive and contextually relevant pedagogical practices.

Objective

The objective of this paper is to describe the process of designing and developing Afrogrames to support the teaching and training of health professionals using culturally relevant and biologically informed gameplay.

Table 1. Six Afrogames developed

Game title	Focus area	About the game	Rationale
Istar – A battle for health	Sexual education	Addresses sexual education and has an Afrofuturistic design, inspired by a cultural movement that uses science fiction, fantasy and history to navigate the Black experience.	Challenges stigma and taboos while promoting agency and identity, promoting learning about sexual health education through culturally affirming narratives.
Warriors of Saludis – an attack on Stress	Stress and self-care	Addresses stress-related diseases and self-care actions, in a narrative that takes place inside the walls of the city of Saludis, home to four major tribes.	Promotes awareness of stress within culturally relevant frameworks, addressing structural nuances often overlooked in mainstream self-care and mental health curricula.
Kongo - Echoes of an Empire	Mental health	Seeks to promote mental health by sharing knowledge about the history of the great Kongo Empire (Africa) from pre-colonial times to its connection with Quilombo dos Palmares (Brazil).	Supports identity-based resilience and culturally grounded mental health by linking historical consciousness with present-day wellness, disrupting Eurocentric narratives about the Black people.
Mó Jubà	Elder care	Addresses healthcare for elderly people, focusing on the quest to reclaim the concept of seniority.	Challenges Western biomedical models of ageing by integrating Indigenous and Afrocentric understandings of elderhood, respect, and intergenerational care.
Okren	Indigenous medicine	A guide to ancestral healing: presents Indigenous medicine and its medicinal plants.	Validates traditional healing practices often excluded from curricula, promoting respect for pluralistic health systems and holistic approaches to care.
Guardian of the Skin	Dermatology	Addresses skin care and lesion prevention, covering the specific features of dark skin, which is rich in melanin.	Fills critical gaps in clinical training by representing skin of colour, countering diagnostic bias, and improving dermatological care for racially diverse populations.

Design process experience

The development of the Afrogames was a collaborative effort led by a multidisciplinary team that included educators, healthcare professionals, digital game designers many of whom are based in or have deep community ties to Salvador, Bahia. This diversity helped ensure that the games integrated both accurate health information and culturally resonant narratives grounded in Afro-Brazilian knowledge systems.

While the games have not yet been formally integrated into health professions curricula, they have been piloted in a range of informal teaching settings, workshops, and community-based learning environments. Early responses from students and facilitators have been positive, suggesting strong potential for future curriculum integration and impact on student engagement and learning. A formal evaluation study is being planned as the next phase of this work. The process of producing a game began with the definition of its initial concept (game design) and ended with the creation of a final version of the game, with several stages taking place between these two points. We used design thinking methodology to develop the Afrogames.

Design thinking prioritises collaborative work in multidisciplinary teams in search of innovative solutions. According to Viana *et al.*,[14] the design thinking process must cover at least four stages: immersion; ideation; prototyping; and development. In the **immersion stage**, we identified the actual demands regarding the problem to be addressed. Thus, during this phase, we conducted literature reviews on health topics that informed the narrative of the Afrogames. We also conducted a market analysis to determine whether other games covering these concepts were available. This helped us to understand pre-existing visual language, design gaps, opportunities and how the project could be innovative.

The **ideation stage**, is the phase during which the project members create, think, rethink, develop and test ideas based on their research and discussions. During the development of the afrogames, the ideation phase was based on several team meetings, initially for brainstorming, trying to come up with ideas quickly and instigating questions and suggestions for the solution to be implemented. All the ideas were compiled into tables in order to coordinate the decision-making process around narratives, mechanics, layouts and rules.

During the **prototype stage**, the suggestions were structured so that they could be tested and validated. Low-fidelity (paper) prototypes were created to test the aesthetic composition and readability of the typography and colors chosen.

Finally, during the **development stage**, the solution is implemented. The design thinking process is dynamic and, therefore, requires multiple interactions between the development team and the community that tests the games through iterative cycles. These cycles were used in order to advance development, testing new possibilities and seeking to solve problems found, in order to carry out a gradual refining process that culminated in a prototype considered suitable to serve as the basis for the final product.[15]

Each game underwent several testing iterations throughout the design process. Regarding the playtest sessions, the process followed Fullerton's[16] guidelines, which emphasise the importance of engaging diverse participant profiles, as different user types are better suited to different stages of the project. The playtests began with members of the research team itself including nurses, students from various healthcare disciplines, an educator, a historian, and some digital game design students. The following sessions involved 'confidants' (individuals outside the development team but within the testers' social networks, such as healthcare professionals, early childhood educators, digital game design faculty and students), and finally, sessions were conducted with strangers (specific target audience for each game).

It is worth noting that the research group is based in Salvador, Bahia, a city with the highest demographic of Black people in Brazil, where 83.2% of the population identifies as Black, totalling 2 011 925 people. Accordingly, Black participants were present in all iterative testing cycles.

Once development was complete, the prototypes were sent to the designer to create the game artwork (Fig. 1)and then the board games were sent for printing. At the end of the process, the following Afrogames were developed (Table 1).

Ethics approval was obtained from the State University of Bahia (ref. no. CAAE n. 86474425.5.0000.0057). Each game was iteratively tested with healthcare professionals and students based in Salvador. These sessions took place across academic settings, and feedback was used to improve the clarity of instructions, cultural relevance and accuracy of the health information.

All of the Afrogames challenge the prevailing dominance of Eurocentric approaches in health professions education. By embedding Black cultural and biological knowledge into the game-based learning tool, the games contribute to a more equitable solution in the educational approach. In addition, players who interact with the games also learn critical reflection about culture, historical context and identity and not only health-related knowledge.

The development of the Afrogames also demonstrates the value of multidisciplinary collaboration, as teams included educators, designers and healthcare professionals. These teams helped to affirm the pedagogical effectiveness and cultural relevance of the content.

One of the principal challenges in advancing counter-colonial technological development is the current impossibility of producing a game entirely insulated from colonial influence, whether in relation to the developers' educational backgrounds, the selection of technological tools, or the distribution platforms. Nevertheless, we remain committed to the ongoing pursuit of epistemologies and methodologies capable of guiding this process by repositioning the history, culture, and specificities of Black communities at the centre, while simultaneously undermining the colonial project that sustains violent global structures and fostering the construction of small utopias.[17]

As a way forward, we aim to expand the Afrogames collection by starting a translation and validation exercise to adapt the games to suit the needs of different contexts. Evaluating the impact on students' clinical decision-making and cultural competence will also be essential.

Conclusion

The Afrogames were developed in Brazil by a multidisciplinary team of educators, healthcare professionals, historians, and designers based at the State University of Bahia. The team is deeply embedded in Afro-Brazilian communities, and their lived experiences informed the games' cultural framing and educational design. The South African co-author joined the project through a shared scholarly interest in game-based learning and equity in health professions education. Drawing from experiences within African health education systems, the South African author is currently leading a pilot initiative to translate and adapt selected Afrogames for use in the South African context, ensuring their relevance across linguistic and cultural settings in the Global South.

Afrogames represent a powerful tool for integrating cultural competence, clinical decision-making, and inclusive and equitable narratives into healthcare education. It is a rich way in which to engage different cognitive, motor and relational skills, as well as being a research field that takes into account all the specific features of Black people, whether related to their culture, ancestrality, social determinants of health or biological issues, seeking to provide comprehensive and equitable healthcare. These games also serve as a model for how to equitably use countercolonial co-design design practices that allow us to reimagine and disrupt educational content and knowledge systems that have long been excluded. In doing so, Afrogames contribute to a broader movement towards a culturally relevant curriculum in health professions education.

Limitations and future directions

As a design-led innovation paper, this submission does not present a formal evaluation of the Afrogames or their educational impact. The games were developed and tested in the Brazilian context, which may limit direct transferability without adaptation. Furthermore, while early feedback has been promising, systematic data on student learning, implementation processes, or educator experiences have not yet been collected. Future work will involve adapting and piloting selected games in new contexts, including South Africa, followed by formal evaluations to explore their pedagogical impact, cultural responsiveness, and potential for integration into health professions curricula.

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