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COLLECTIVE AESTHETICS THROUGH I-POSITION AND SELF-ENGAGEMENT:

ADVANCING USABILITY FOR INCLUSIVE SOLO BOARD GAMES

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Abstract

The social impact of board game usability is historically explored in group and multiplayer contexts, ranging from pedagogical spaces of collaborative student learning to team and businesses development. Alongside educational usability, aesthetic features of board games are long established in children and adult therapy for enhancing symbolic and emotional expression with interpersonal motivation in a safe space. Given consistent emphasis on multiplayer board games and group impact, this paper addresses an overlooked area concerning human interaction with oneself rather than with others, achieved through artistic features in solo board games. We, therefore, employ psychological and aesthetic frameworks to discuss the significance of *I-position* designs for identity multiplicity, demonstrating the need for solo game designs to improve inclusion specifically for neurodivergent and disabled individuals as well as introverts who may prefer solo board games.

Keywords: *Collective aesthetics, Dialogical Self Theory (DST), Emotional Intelligence (EI), inclusive, I-position, self-engagement, usability, User Experience (UE)*

Introduction: Board Games and Interactive Group Learning

Group interaction and effectiveness of games (Loban, 2020) are key research themes in interpersonal learning applied to pedagogical approaches in schools, higher education, and lifelong learning where people have shared experiences. Systematic reviews suggest that, identified as a tool, board games can improve interpersonal interaction among players in collective spaces of learning (Noda & Nakao, 2019). Board games, designed for two or more players, are furthermore understood to boost cognitive function. For example, board games involving only two players, such as Shogi (Hosch, 2025), help to increase activation in the caudate nucleus which, as a key part of the basal ganglia in the brain, operates to control motor functions (Wan et al., 2012). In group interaction, the potential of board games that generate collaboration is emphasized since they offer players opportunities for collective learning (Vasconcelos et al., 2022).

Comparative analysis of User Experience (UE) between multiplayer digital versus multiplayer board games is, however, broadly underrepresented in literature (Barbara, 2017). Yet, board game has been shown to promote interpersonal relationships among players irrespective of age difference and learning development (Chou, 2017). In modern therapeutic contexts, mainly in the process of mental health recovery, board games are demonstrated to enable self-perception, leading to self-discovery stories known as identity narratives (Kerr et al., 2020). Centuries ago, similar to modern times, board games impacted humans socially, helping individuals in self-understanding and group formation as ancient ethnographic narratives indicate that games contributed to identity building (Walter, 2019; Raybeck, 1996). Accessible data about board games in the Near Eastern Bronze Age, around 3300-1200 BC in Mesopotamia and Egypt, showcases games as social lubricants (Crist et al., 2016). Multiplayer board games provide safe power play spaces due to the possibility of position movement and perspective-taking, i.e. players moving to take others' positions while seeing through various player lenses in different game stages.

Board game commonalities allow perspective-taking among players, inferred by verbal communication when building decks, placing workers, rolling dice, bluffing, and thereby game mechanics enhance a sense of group understanding and familiarity (Atherton et al., 2024). Board games help autistic people for whom, the game becomes a social lubricant as a safe alternative to uncertain community interactions in social gatherings or work meetings where they may find it difficult to read people's underlying motives and emotions. This means that both neurodivergent and neurotypical people can use board games to take each other's perspectives when playing, and therefore developing shared empathy. The communicative perspective-taking context in board games may consequently be seen as both a usability function and an aesthetic mode (reinforced in game artistic features) by which people discuss what they are passionate about when harder to deliberate in other social situations (Crompton et al., 2020).

We see this communal, verbal, and aesthetic perspective-taking possibility as a robust inclusive indicator in multiplayer boards games where people enjoying group interaction. It

also affords players the added benefit of exploring various game positions more objectively. For this reason, we understand board game as a learning tool with artistic features enhancing *collective aesthetics*, i.e. facilitating shared group experiences of multiple players responding with diverse emotional dimensions, cognitive properties, and social behaviours. In this study, then, we confer the multitude of player experiences in collective aesthetics in two ways: On the one hand, *thematic-aesthetic* usability that relates to board game themes conveyed via artistic features and, secondly, *psycho-aesthetic* usability which corroborates the psychological and artistic interplay in board games. Highlighting collective aesthetics in board games, we draw on current studies of interconnectedness driven by feelings of togetherness and agency through aesthetic engagement leading to inclusive learning and collective life (Mueller & Knewitz, 2024).

This study, therefore, sets out to explore collective aesthetics in board games at the level of interactive solo player and self-engagement rather than group interaction since research about the former is substantially scarce. Our cross-disciplinary approach is aimed to open a dialogical window for various disciplines so that researchers can further plan for collaborative and inclusive UE assessment provisions. We believe that such endeavour would support designers and scholars to develop inclusive solo board games beyond the current scarcity that exists in research and design, and expand game usability by diversifying solo board game modality and modularity.1

For theoretical framing, the focus on collective aesthetics in solo game artistic features allows authors to also examine the concept of usability in relation to Emotional Intelligence (EI). To this end, both authors' field-specific contribution in this study is informed by a shared interest in board game artistic and social features, diversity in personality traits, and multiplicity of people's social identities. Intertwined with authours' lived experience of playing solo and multiplayer board games, the collective aesthetic approach plays a crucial role in checking for bias cues that may transpire if read from the lens of one discipline alone. Here, the methodological approach, more specifically, sits within cross-disciplinary frameworks of psychology and aesthetics.

Structurally, this study is organized to primarily expand on board game *usability*, followed by deliberating the EI framework along Dialogical Self Theory (DST) as primary conceptual stations for reading I-positions and identity building. We then provide positionality application to board game modality in lieu of thematic-aesthetic varieties of board games that can be played in solo mode with social impact. The concluding section offers a summary of collective aesthetics in

1) In this study, board game *modality* reflects how board games are artistically structured by means of various modes such as 3D constructs and design features which prompt tactile and interoceptive response; in essence, various physical and emotional sensations. Board game *modularity*, however, communicates the space afforded to game modality in the space of 3D parts and other smaller components such as interchangeable modules as in tokens, pawns, meeples, and other assets with which player identity movement can be achieved. We, consequently, understand variation processes, including depletion and game expansion, in game design regarding modularity and assets, as board game *modularization*.

relation to inclusivity, discussing study limitations, and future directions in this field.

What Constitutes *Usability* in Board Games?

Studies on the positive impact of board games in autistic people's social experience have progressed at a pace, though physical disability research addresses only a limited number of cases, such as visual impairment (da Rocha Tomé Filho, 2019). While case-specific studies are important, we argue that limited focus on one single disability or the other can pose risks to understanding collective UE, leading to bias in board game accessibility. A prevailing harmful factor is that advancing board game accessibility, with disability-inclusive UE evaluation, has not been a priority for game designers and researchers (Heron et al., 2018). On the surface level, this means that disabled people may encounter poor social outcomes if their diverse UE is not included in theoretical framing.

On a more profound level, we face significant knowledge gaps about the role of board game usability for those who live with physical disabilities, suffer chronic health conditions, or both. We are concerned that the lack of accessibility criteria in board game design and research may have other expansive consequences for our shared human experiences. For instance, we ask, what constitutes board game *usability* for people of diverse abilities? How do board games socially connect us given that not all games are designed with inclusive UE criteria? Research scarcity in this direction also reveals a missed opportunity about recognizing diverse perspectives of individuals with disability and chronic illness regarding their own experience of the emotional, aesthetic, and value-based functions of board games.

EI, in its multifaceted aesthetic and psychological framing as well as its social impact, is yet another key subject when we think about board game design and inclusive usability. Recent studies show a growing academic interest in digital and video games in relation to people's emotional responses to games, their personality traits, and other attributes such as players' genders (Gao et al., 2025; Bonnaire & Conan, 2024).

Interestingly, Shadi Torbey, an opera singer and game designer, explains how board game design processes require emotional commitment and patience (Interview with Shadi Torbey, 2022); hence *inPatience* chosen for his board game company name. Torbey's profile affirms that, due to his career and travels, he started thinking about solitaire and solo games with ease of mobility while simultaneously offering multi-player game challenges. He reiterates that his interest in solo board games has been long-standing but arguably he has also faced scarcity of solo games with multiplayer attributes. We find Torbey's perspective reflective of EI awareness for UE, as his views echo the collective aesthetics that can be achieved in board games for the purpose of improving inclusive social impact.

In modernist conceptions, product *usability* has seen various definitions, that a system, service, or product (digital or non-digital) can be utilized by its users to achieve certain goals, while proving accuracy, thoroughness, and efficiency (ISO 9241-210, 2019). Extensive achievements of design are often reliant on UE which, considering our diverse,

technologically advancing, and aging populations, would require a growing investment for inclusive design (Goodman-Deane et al., 2018; Kaur et al., 2017).

We know that game design requires user testing not only for game purposes, but also for wider educational and social applications (Desurivre & Wiberg, 2009; Isbister et al., 2008). Recent studies also confer that what constitutes usability in educational board games can impact UE since games function as a multi-operational tool through the juxtaposition of three key elements: aesthetics, learnability, and operability (Daud et al., 2024). Scholars clarify that we can comprehensively experience a product if it succeeds in demonstrating aesthetics resulting in emotional impact rather than merely being made for delivering an action or mechanical function (Norman, 2013; Norman, 2005). Others add to usability components the fact that memorability, errors, and efficiency also come together to constitute usability (Nielsen, 2012).

Emotional Intelligence (EI) Application to Board Game Usability

From our cross-disciplinary lens, a major descriptive factor lies in the long history of field-specific theoretical advancement processes i.e., communication and emotive discourses have been studied disjointedly in the historical developments of neurolinguistics, psychology, literary, media, and cultural studies, in addition to their relevant developments in aesthetics and narratology (Waisbord, 2019; Charters, 2006; Van Rooy et al., 2005). EI, as a theoretical framework, has also received ongoing interest and has been adapted over time (Matthews et al., 2002). Considering the role of game mechanics and theme in board games, EI is crucial in reading player awareness of themselves and others.

We draw on Daniel Goleman's (1995) essential EI theory as it provides key conceptualizations for comparing the self with other players. Goleman's framework can be applied to group interaction in any setting as it is devised with social impact at its core with a view to improve social awareness and relationship management (Filice and Wisse, 2024). In this well-established psycho-social framework, there are four domains: self-awareness, self-management, social awareness, and relationship management. Research in the field of board game usability and collective aesthetics has so far failed to contextualize board games in relation to EI frameworks. Therefore, we apply Goleman's four domains of EI to the interactive context of board games as presented in Table 1 to discuss the social impact of multiplayer versus solo board games in relation to players' emotional competence.

Recently, Santoso and Mahatmi (2023) studied the emotional recognition factor within board games in adolescent age groups while, nearly thirty years ago, Wilde (1994) researched the board game impact on mental health conditions among adolescents. While we are interested in the mechanics and design dynamics of multiplayer board games for narrative building and storytelling, thereby valuing enhanced usability, we see several underlying issues in research around storytelling usability of multiplayer board games.

One of our concerns is the case of psycho-aesthetic gaps, such as research scarcity on the value of EI criteria and usability for improving introverted versus extraverted players'

	EI (Awareness)	EI (Action)
Impact (Personal)	• Self Awareness • Recognizing one's personal and gaming emotions on game mechanics and themes. • Understanding one's emotional positions: negative, positive, neutral. • Identifying one's focus on game modality, or game modularity, and emotions.	• Self Management • Separating one's and others' emotions. • Controlling negative emotional positions in the game to foster positive outcomes for oneself and others. • Handling game setbacks with emotional balance and goal setting despite defeat.
Impact (Social)	• Social Awareness • Hearing other players' perspective and emotional expressions. • Recognizing automa dynamics, game mechanic and theme from the lens of others. • Empathizing with other players' perspective and emotional positions in the game.	• Relationship Management • Appreciating game time with other players by approaching any conflict empathetically. • Describing your meaning accurately while respecting players' turns, choices, and moves. • Using the game space and time for improving learning and enjoyment.

Table 1 Goleman EI Framework Adapted for Multiplayer Board Games

interaction. This is particularly an issue in research output that also overlook solo player conceptions of identity positionality and identity-expansion possibilities.2 In multiplayer board games, people can see one another's actual placement in the game and potentially discuss various aspect of their positionality in the social space of life and the board game. In solo games, this type of group dynamic is non-existent for cross examination, and yet solo board game enthusiasts may wish to explore aspects of their own identity in solo mode.

We argue that remedying such research gap is more urgent today than ever, particularly from sociological, psychological, and narrative perspectives as education research is encouraged to address diversity-aware methodologies (Eden et al., 2024; Qorib , 2024). Due to implications of the Covid-19 pandemic, game-based learning took centre stage and board games were crucial to this process (Egwutvongsa & Tongmoon, 2023). Covid-19 came with a shift in socializing and multiplayer board games were impacted but people continued playing them in various other ways, solo being one. If

2) When discussing player *identity* in board games, we take inspiration from social justice conceptions of human *position* versus human *positionality*. We expand on Sensoy and DiAngelo (2017) that in the social context of board games, no two players are equal as 1) their position (placement) in the game is defined according to personal or group choice and game instructions or rules, and 2) their positionality is multidimensional and separate from their position in the game, meaning that their personal perspective is unique in how they see themselves and their abilities or disabilities, their health or illness, their unique identity or a combination of identities, their emotional dimensions, their cultural heritage and ethnic background, their career paths and life aspirations, and so forth. One can always expand one's identity at different stages of life.

we think of board game usability and the popularity of solo board games in the past decade, specifically during and after the pandemic (Katsantonis, 2025), we can see that players require sophisticated board games that can cater for their diverse needs, one of them being the efficiencies, thoroughness, and satisfaction that can be obtained in solo mode rather than in multiplayer board games.

Regarding gaps in literature, several questions are noteworthy. For instance, how can previous and current interdisciplinary approaches come together to enhance our understanding of the relationship between board games and art design that precisely helps improve usability for solo players? What potential exists for impactful collaboration between artists, game researchers, and game designers to help create more inclusive and socio-culturally aware paradigms of usability that accomplish valuing user-group heterogeneity in participation, within diverse communities, rather than merely catering for homogenous extrovert players who prefer group interaction? And, given the prevalence and frequencies of research output upon multiplayer board games and storytelling, what strategies would be potentially supporting game design that may enable wider cultural representation3 and diversity, for instance, for users who may not enjoy multiplayer games?

One way to address these questions, and consequently the gaps that we observe, is to emphasize that the dynamics between board game aesthetic theme and mechanics are different in multiplayer versus solo modality and modularity. When we play with other people, in the space and timespan assigned to a multiplayer board game, the mechanics may be the priority (Gulzar and Ansari, 2025) because mechanic aspects encourage the interactive and group communication with collective EI awareness and actions. However, we also argue that, in multiplayer board games, other people are a constant distraction from thematic-aesthetic, if not psycho-aesthetic, immersion in the game.

Concerning attention span, then, multiplayer board game mechanics hold players' focus on the interactivity of the game space, i.e. between players, rather than allowing them each the freedom to individually delve deep in the game thematic and aesthetic possibilities without feeling an effort-loss pressure for winning. Reflecting on Table 1, a multiplayer board game space exposes the heavy weight of interactive emotional dimensions beyond the self and is, consequently more socially, focused on quadrants B, C, and D. By contrast, a solo board game presents considerably reduced disruption and noise from others mirrored in these three quadrants, thereby inspiring self awareness in quadrant A in relation to oneself and the game rather than in communication with other players.

We also contend that the primary vehicle for conveying theme and thematic-aesthetics in board games is through artistic images that enhance game usability in such a way that players immerse in the game theme without distraction. From a psychological perspective, this means that designers

3) Regarding the "cultural representation" domain, social and political aspects of games are studied in the historical context of board games in relation to wider colonialism discourses. However, this topic is beyond the scope of the present study, and therefore we recommend readers to explore the comprehensive work of Flanagan & Jakobsson (2023) as a valuable resource if interested.

and artists need to be aware of players' sensory and interoceptive capabilities, their self-engagement preferences, emotional triggers and disruptive factors, interactive styles, and critical thinking competencies. Given that inclusive UE methodologies are scarce, specifically for personality traits and in the case of disabilities, allocating extended time and space for targeted pre-game surveys and questionnaires may be helpful to decipher these areas. With co-design and participation design methods, game scholars and designers can collaborate to devise inclusive UE cross-sectional studies to understand diversity of players' perspectives. We propose that such research aspirations can bridge the gap between traditionally standardized designs and open doors for heterogenous artistic engagement possibilities.

Conceptualizing Board Game Usability with Player Positionality

In the social context of board games, players' diverse positions contribute to group interaction and collective learning by facilitating discussions of different game attributes among players. However, player positionality extends beyond game positions and rules, social conversation, and storytelling as, similar to tech workers' positionality, it encompasses player identity adoptions and adaptions (Scheuerman & Brubaker, 2024). For example, some board games are played intergenerationally such as *Monopoly* (Sun et al., 2025) when others are not. We see the positive social impact of intergenerational board games through the familiarity of their perspective-taking process accelerated among players. They collectively, and perhaps more readily, share in their familial experiences and aesthetic appreciation of an intergenerational board game that they enjoy in a family setting. This means that they may be more emotionally aware of one another's feelings and choices, and thereby closer to each other in terms of social impact due to the nature of the commonality in their positionality. We argue that in a social group outside either familial or familiar ties, board games do not necessarily augment shared and collective experiences due to players' positionality dissimilarities and distances.

The prevalence of overlooked differences in the social positionality of players concerns us, particularly about research outcomes that capitalize on interpersonal learning as a categorically positive aspect of board game usability. Let us not forget that introverts, in their own positionality, may also value solo above multiplayer board games in social gatherings as they may learn differently to extroverts. While collective aesthetics in multiplayer board games stretches to shared group experiences and multiple player identities, the solo mode can reflect the identity multiplicity of one player. This means that each type of board game has the potential to stimulate psycho-aesthetic appreciation by promoting focused self-engagement or group interaction. Players, therefore, enjoy unique identity discovery journeys in relation to their positionality in life and games in a multidimensional process that we term "psycho-aesthetic escapism" in board games. This process counters the mundane and real-world daily conundrums by the perceived interplay of artistic and emotional response varieties to games. In that sense, solo board games offer a reflective space for users who, due to diverse socio-cultural, financial, physical or psychological situations, would prefer a solo dynamic space while, at the same time, recognizing the value and opportunities afforded in group interaction.

Dialogical Self Theory (DST) and I-Position in Solo Board Games

In multiplayer board game spaces, players' EI in relation to one another, and the game's artistic presentation, is multimodal, spanning verbal, visual, and other sensory interfaces to identify game meaning and strategy. Psycho-aesthetically, however, each player is pressed more for self-presence consciously in relation to other players than being aware of oneself. Furthermore, in emotionally challenging moments, self-understanding requires a reflective process to decipher multiple meanings and the ways in which one is different from others (Ardelt & Grunwald, 2018). According to Jacques Derrida, self-difference is about how meaning incurs multiplicity rather than fixed states of self rigidity as "consciousness in all its modifications is conceivable only as self-presence" (Derrida, 1982, p. 291).

We extend Derrida's observation to note that multiplayer board game design conceives of rigid group consciousness in the limited presence of game time and space. Players in such spaces of social interaction can neither freely dictate the timespan nor the game modularity. By contrast, solo board game design, while displaying certain spatial and temporal boundaries, can be utilized under the psycho-aesthetic engagement of the solo player who is free from emotional regulation in relation to the presence of others. In essence, players benefit more flexible attributes in the context of solo mode. In board game experience, as in writing, contextualized by Derrida (1967), we argue that subjective self-presence and self-difference are essential to meaning-making in the game process as they would be in writing.

One player may adopt various emotional and interactive positions, at once acknowledging their presence by participation while navigating strategies and mechanical requirements in the space of the game. While in the multiplayer board game space, conceptions of self-presence may be vocalized (e.g. using out-of-context quotes or aggressive expressions) with other players, the solo game beholds self-interactionism with more communicative freedom, expressed psychologically or aesthetically, perhaps due to the space of solo safety in the board game. The relevance of Derrida's self-presence and self-difference is an overlooked area in game design and research.

Conceptually, Derrida's *difference* can be read in relation to board games, and in conjunction with a more recent development under Hubert Hermans et al.'s extensive work in 1992 around Dialogical Self Theory (DST). In Hermans' conceptualization of DST, the *Personal Position Repertoire* (PPR) methodology helps to examine both inward- and outward-looking positions underlying meanings for players' game position and identity positionality. In the context of board games, specifically for solo play, this means that each individual can uptake beyond one position for identity and emotional communication. Therefore, players can experience identity multiplicity in their many independent selves or *I-positions* within the solo game design. This variety in player I-position has the potential to empower solo players when they are not distracted by the presence of other players in the case of multiplayer board games. In this way, I-position echoes solo player's ability to shift their perspective from one identity to another or from one self-understanding or position to another.

The Interplay of Goleman's EI and Hermans's DST in Solo Board Games

To visualize multiple possibilities in solo game modality and modularity, we propose application of a conceptual EI and DST interplay. Unlike the multiplayer space, enriched by dialogical multiplicity conferred to the number of players, solo games open an opportunity for *I-position* multiplicities and solo player multiple identities. While thematic-aesthetics and game mechanics in multiplayer board games are outside the control of any one player, solo games offer better potential for control and adaption. This helps create a space for the solo player to communicate with oneself, with imagery, immersing by presenting, controlling, and regulating various perspectives and positionality within the game space.

Studies in games, and also psychology of sports demonstrate that *self-talk* is not only a common phenomenon, but also one that enhances learning and objective-setting for furthering game deliverables and achievements (Latinjak et al., 2019; Van Raalte et al., 2000). In terms of solo modalities in board games, the convergence can be argued in the dialogical nature of thematic self-representation. Self-talk, while considered an internal monologue in sport, offers solo board game players a dynamic thematic spectrum for dialogues within the self. It can be both inwardly and outwardly, present- or future-oriented talk.

The player self-difference can happen both with oneself, with game automa, and with other elements as well as with one's own I-position and multiplicity of identities and emotions as ascribed in the game. We propose thematic-aesthetic expansion in light of the interplay between Goleman's EI and Hermans's DST to visualize the modularity which may empower solo player I-positions as demonstrated in Table 2. Quadrants A and C showcase player awareness and independence of one's own multiple selves or I-positions, while quadrants B and D display that emotional regulation requires overlapping actions for handling differences, balancing self-dialogue, and managing self-criticism. For a player to regulate their own emotions, personally and socially, they need to be aware of the multiplicity and independence of their own identities, emotions, and positionality regarding themselves and game modularity. This applied framework helps to acknowledge that inclusive UE assessment stretches beyond multiplayer board games, as solo players can experience collective aesthetics in their own personal multiplicity rather than in the presence of people's multiplicity of identities.

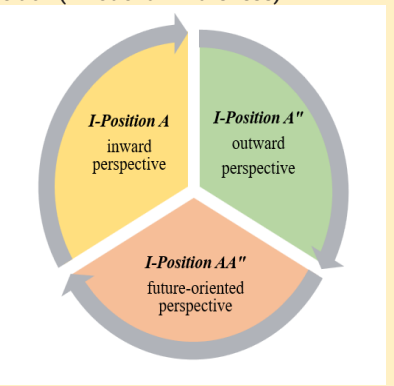
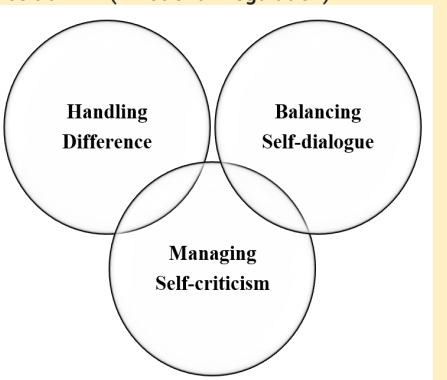
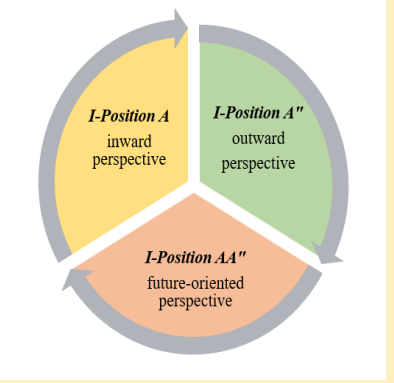
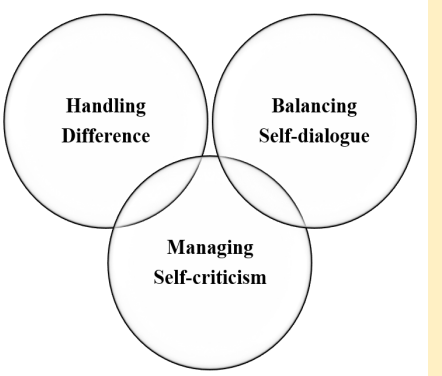
	Position (Awareness)	Position (Action)
Positionality (Personal)	A. *I-Position* (Emotional Awareness) 	B. *I-Position* + n (Emotional Regulation) 
Positionality (Social)	C. *I-Position* (Communication Awareness) 	D. *I-Position* + n (Communication Regulation) 

Table 2 Adaptation of Goleman-Hermans EI-DST Framework for Solo Board Games

Solo versus Multiplayer Collective Aesthetics: The Culture Element

When games are released, game designers often pay for a design containing a solo mode (generally a deck of cards to mimic another player – automa) for the game. In terms of usability and to improve dialogical self via multiple *Personal Position Repertoires* (PPR), as proposed by Hermans (2015), automa diversification and inclusion makes the solo board games more impactful for player satisfaction. Considering game themes, solo mode allows time and space for more imaginative participation in the game environment than would be achieved in multiplayer board games. The solo psycho-aesthetics advances self-regulated involvement with a more creative focus, and perhaps strategically more nuanced, possibilities.

When we play with other people, game mechanics become our priority since the presence of others beyond one's own self-presence can be observed and felt as a continuous diversion from enjoyable immersion in game theme. Multiplayer psycho-aesthetics in board games are more directed towards political and strategic engagement in the game space rather than artistic exploration and creative expansion; thereby, less focused on thematic aesthetics. One interesting example is the game *Spirit Island* (2017) wherein the solo user can play a nature spirit encouraging novel reflections on the natural space and elements as well as conceptions of transcendence. Board games require imagination and the creation of the players' own vision, of the world of the game, not similar to computer and text-based games due to the pace and visual attention. In solo board games, the player participates in the vision of the game designer by immersing with one's independent selves or I-positions.

Another example is *Imperium: Horizons* (2024) wherein a solo user can play out the history of an ancient civilization (such as the *Abbasid Caliphate*). Given the range of civilizations, in addition, offered in the game, one possibility is that players can explore their own heritage and history by playing the game. However, as a solo player, one can also consider various civilization positionalities in the modularity varieties offered in this game, all achieved via multiplicity of artistic themes. In the same vein, one can also be of a different heritage and yet assume the I-Position of any of the civilizations in the game. Therefore, one user can take many I-positions and identity multiplicities afforded in the collective aesthetics created in the game space.

Osprey Publishing blog (2023) has reviewed this game for its specific aesthetic dynamics, rather than its mechanics, asserting that thematic choices are put in place in the game design that allow players better freedom for expansion. We see this game as an interesting development in the Western realm of creative expression and artistic engagement, as it refutes conventional political generalizations about Muslims, in particular, when we look at the Abbasid game modularity. For instance, while in the Western socio-political discourse, Muslims are seen as a homogenous group of Middle Eastern identities, several critics have contested this idea by referencing DST for Muslims' socio-political positionality and identity heterogeneity (Moghissi, 2006). The Abbasid modularity in *Imperium: Horizons* (2024) configures, at once, solo player identities as well as the need for inclusive positionality and

collective aesthetics that can challenge our historical and cognitive biases.

Another example is the case of *Lord of the Rings* (2011) and *Marvel Champions* (2019). These Living Card Games (LCGs) allow players to explore the worlds of J. R. R. Tolkien (1892-1973) and *Marvel Mystery Comics* (1930-present) respectively. The *Lord of the Rings* LCG prompts Tolkien's vision of a certain idea of Englishness whereas superhero comics are set in the contemporary world where superheroes exist inspiring a vision of the human spirit transcending the mundane realities of modernity. Therefore, in this thematic-aesthetic direction, the solo player can expand their personal and game identity in a safe space to juxtapose their positionality with that of a writer or identities and positions of superheroes.

Aesthetic I-Position in Solo Board Game Artistic Presentation

Moving from cultural examples to abstract creativity, we can refer to Shadi Torbey's *Oniverse* (2019-2022) wherein solo players can explore different aspects of a dreamlike world. It is possible to argue that *Oniverse,* as a solo game, achieves usability criteria not only in its mechanics, easy packing, and rapid set-up for play time, but also for its creative and imaginative possibilities. By playing different games in the series displayed in Figure 1, solo users engage with different aspects of the main world, called *Oniverse*. If you play the modules (each little expansion that comes with each game that contain several expansions), then it deepens the richness of the world you are exploring. Considering player I-position, you use your imagination to fill each world, or each aspect of the *Oniverse*, beyond the mechanic rules.

These various games, under the umbrella-term Oniverse, invite different types of identity positionality engagement as Figure 2 exhibits some pawns that the solo player comes up against. The Menace pawn in *Castellion* specifically portrays a shadow-like effect which encourages imagining various characters in itself, an I-position characteristic. In response to a question about creating the art of a board game (Connell, 2017), the inspiring artist, Élise Plessis clarifies creativity in this process as a collaborative work between herself and Shadi Torbey. This aspect of designing games resonates with the multiplicity of ideas and diversity of aesthetic characteristics

Figure 1 *Oniverse* Game Packaging Modularization by Lettering Varieties

in artistic presentation, and thereby iterating the multimodality of these board games.

The Hellkite pawn in *Aerion* resonates with positionality in the way that it moves player imagination beyond the spatial and temporal space of the game. The ravage pawn conjectures destruction quality in the game of *Sylvion* as one can imagine the small or large positionality it takes to affect various game positions. The solo player self-engagement with these pawns or meeples helps to advance one's perspective-taking in the absence of other players. The pawns' artistic features as demonstrated in Figure 2, regarding facial presentation, communicates the potential for diversity of player perspectives and emotional responses to *Oniverse* thematic-aesthetics.

One specific feature of *Oniverse* and its artistic presentation is the designer's use of diversified lettering aesthetics in game modularization, which enhances inter-related dynamics of paratextuality in the interest of player I-positions. Not only visually inclusive, but it also communicates a collective aesthetics where one's imagination can move from one narrative positionality to one or more identity positionalities in between dreamlike worlds facilitated by visual-textual hybrids. As a popular art revealing multiple artistic and meaning-making implications on our socio-cultural interactions, lettering diversification enhances storytelling and narrative building by prompting innovative futuristic alternative identities, narratives, and possibilities (Cirillo, 2019; Fetta, 2019; Lommen; 2016; Blake, 1991; Gray, 1974).

Active artist engagement with word-image hybrids can encourage wider product and service usability in settings where learning can be enhanced by diversification of board game modalities and modularity. In the past decade, for

Figure 2 Sample Demonstration of *Oniverse* Pawns/Meeples

instance, content adaption models and visual hybrid development learning systems (VHDLS) have been emphasized in utilization of aesthetic pedagogical frameworks to improve the learning experience for children with autism (Ismail & Jomhari, 2019; Banire et al., 2015). In self-declared and other autistic adults, likewise, mental images and imaginative spaces help learning beyond the mundane textual formalities of wording and lettering (Bouvet & Guillon, 2024; Bled et al., 2021).

Alongside the psycho-aesthetic possibilities of lettering in the case of *Oniverse*, the way in which Élise Plessis (the creative artist) has aesthetically formulated the pawn's identities, helps not only with functionality and mechanic engagement, but also impacting thematic imagery and immersion in each game. In *Cyberion*, 5 Devious Cog figures thematically function in I-position modularity, driving imaginative involvement for the solo player while enhancing functionality as 5 power level markers (Figure 3). They can be aesthetically expanding player imagination and dialogical interaction as multiple positionalities can be ascribed to them on and off the board game.

Figure 3 *Cyberion* Devious Cog Figures Designed with I-Position Modularity

The multiplicity, in the design of the Devious Cog figures, corroborates I-position possibilities for game navigation and mobilization. Each power level, in this sense, is aesthetically constructed by a cog to showcase distinction from another power level, while all of the cogs' aesthetic similarities reinstate harmony in mechanics of the game. *Cyberion* expansions offer another layer of multiple positionalities as using robot abilities in microbats and function varieties can trigger counteracting robot abilities. This means that solo players practice with perspective-taking while immersed in the thematic-aesthetics of the game.

All cogs can also be physically joined up as seen in Figure 4, similar to how they are indicated on the game box, to unify in their power direction as one chief villain identity while, separately and singularly, they can drive power levels assigned in their multiple I-position modulations. This can be further explained by recourse to Table 2 in quadrants A and C, where different I-positions can independently come to join as one umbrella positionality. The cogs then represent inward-, outward-, and future-oriented perspectives with which the solo player needs to encounter.

Figure 4 *Cyberion* Box Showcasing the Chief Villain in Unity of Multiplicity of Devious Cogs

Figure 5 The 3D Artistic Feature in *Oniverse* Game Series as Demonstrated in *Cyberion*

A more immersive and aesthetic feature of the games in the *Oniverse* series, can be described as their 3D openings to each game's rule-book and boxing features. In *Cyberion*, for example, this type of multi-layered opening resonates with multiplicity of player and villain I-positions engaging solo players' emotional awareness as well as emotional regulation, since entering this dreamlike world requires a more focused visual attention (Figure 5). The visual-tactile space offered in 3D products is suggested to enhance learning and user satisfaction (Shin & Park, 2019; Huk, 2006), which can be experienced in this solo player game.

Finally, we encounter the multiplicity of positionalities in the artistic aspect of *Cyberion*, where perspective-taking probabilities are expansive as demonstrated in Figure 6 through the 5 devious cogs that can become one villain, 10 interference tokens that can trigger counteracting abilities in robots, and 20 microbot tokens that are cascaded by devious cogs to

Figure 6 Multiple Positionality Possibilities in Cogs, Microbots, and Interference Tokens

impact machine functions. The solo player would be bound to imagine perspectives from complex relationships between these entities all of which are set up in sets of 5.

Conclusion

This study reiterates that board game research continues to focus on group experience, rather than solo learning, to drive positive social outcomes. While this continuity can create a sense of urgency for game designers and researchers to expand on board game usability in multiple social situations where board games can enhance interpersonal learning and communication, authours argue that we should not lose sight of solo board game artistic features that communicate collective aesthetics.

Unlike multiplayer board games, the solo mode is less understood for its collective aesthetic value when we think of board game artistic features by which people can experience various identity positions afforded to multiplayer games. This line of inquiry is important for several reasons. At the level of perspective-taking, we need to understand how diverse players feel about personality traits that impact them in multiplayer versus solo board games. For instance, how introverts experience artistic features in board games is unique to their positionality. At the level of inclusive practice, if we do not appreciate the solo board game contribution to positive social results, we are potentially missing an opportunity to also explore diversity needs in learning disabilities, physical disabilities, chronic health conditions, and any combination of situations that may prompt people towards solo designs. In principle, we suggest that board game usability is not about one definition or the other. Rather, it should reflect the multiplicity of modalities for preferred social outcomes be it in multiplayer settings or solo, so that players can comprehensively experience inclusive identity positionalities and emotional dimensions that can be enhanced via artistic features of board games. No one-size-fits-all approach or persistence in continuity of a particular line of inquiry would enhance players' social interaction as long as we miss on UE diversity and collective aesthetics in board games.

Author contributions

Maryam Farahani: aesthetic-narrative conceptualization, pedagogic grounding, game art analytics, draft writing and interdisciplinary methodology expansion, bibliography selection.

Ian Schermbrucker: psychology theoretical framework, comparative game features, interdisciplinary methodology & narrative endorsement, reviewing content and editing, reference examination.

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