INTRODUCING INCLUSIVITY THROUGH PLAY: BLURRING SOCIETAL BOUNDARIES FOR DESIGNERS

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ABSTRACT
Many design students face challenges when designing for inclusivity, particularly in navigating barriers such as language, age, gender, emotional, hierarchical, neurological, cultural, socio-economical, socio-emotional, and educational. In an increasingly globalised world, designers are expected to create products and services that address these diverse user needs across broad social, cultural, and physical contexts. However, many traditional design education methods primarily emphasise technical skills and individualistic approaches, overlooking the importance of empathy and socio-emotional competencies. These gaps hinder students' ability to approach design inclusively, impacting both, their projects and everyday interactions. This study investigates the impact of collaborative, participatory design education practices by examining how play-based learning can foster empathy and bridge socio-emotional divides. Through experiential, multi-sensory activities, participants engaged in inclusive learning methods that equipped them with essential skills and tools to design for diverse communities. By exploring how play can overcome social, emotional, and physical barriers, the study recommends using participatory play-based teaching methods to prepare design students for more inclusive design practices.

Keywords: Play, empathy, socio-emotional barrier, inclusivity, design education, design pedagogy

1 INTRODUCTION
Inclusivity is essential in today's diverse world [1]. Designers have a responsibility to create solutions that foster belonging and representation across gender, age, ability, and culture. Inclusive design goes beyond accessibility, to challenge assumptions and enrich experiences through empathy. Prioritising care and inclusivity ensure equitable, sustainable solutions that respect diversity and well-being. This approach is both a responsibility and an opportunity (for designers) for meaningful innovation. However, novice designers may struggle to integrate inclusivity effectively, as it requires deep understanding and thoughtful, empathetic design choices. Inclusion is often defined as addressing the needs of individuals with physical or educational challenges. However, this study adopts a broader perspective, viewing inclusion as overcoming exclusion and discrimination based on gender, class, disability, sexual orientation, ethnicity, faith, and family background, as defined by Ainscow et al. [2]. Since exclusion shapes identities and institutions, a holistic approach must also embrace environmental care, recognising its deep connection to social equity, well-being, and sustainable systems.
Play is a universal and inclusive activity that benefits individuals' physical and mental well-being across ages [3,4]. Playing together enhances engagement, flexibility, and socio-emotional skills by fostering collaboration and negotiation [3,5]. In classrooms, games improve emotional intelligence, learning environments [6], social skills [3,7] and enable deeper, long-lasting learning [3,8], motivation, and interpersonal interactions [9] by providing a safe space for risk-taking and experimentation and allowing players to apply simulated experiences to real-life situations. Additionally, games can simplify complex societal issues, making them accessible and easier to understand [8]. Playing games fosters collaboration, empathy, and inclusivity by creating opportunities for participants to engage with one another in meaningful and emotionally rich ways. Our research goes further, exploring game design as a transformative tool for inclusivity and empathy. This study aims to investigate the integration of participatory teaching through play to foster empathy in future designers equipping them with the skills and perspectives needed to design inclusive solutions.

2 CONTEXT AND PARTICIPANTS

The present study was conducted within the scope of 'Cultures of Care', an elective theme at NID Bangalore, India. There were 19 participants, of which 6 were male and 13 were female, from the 2nd year of Bachelor of Design and the 1st year of Master of Design programmes.

3 METHODOLOGIES

Empathy is central to inclusivity, requiring an understanding of other's emotions (affective empathy) and perspectives (cognitive empathy) to inform thoughtful actions (applied empathy) [10]. Research highlights how participatory, play-based methods foster empathy and inclusivity in design education [11]. Our pedagogical approach applies constructionist learning principles, using analog games (physical, board, and card-based) to facilitate experiential, reflective, and experimental design processes. Through the Experience-Reflect-Create (ERC) framework (Figure 1), participants move through cycles of emotional engagement, perspective-taking, and inclusive problem-solving, deepening their ability to recognise and address diverse barriers.

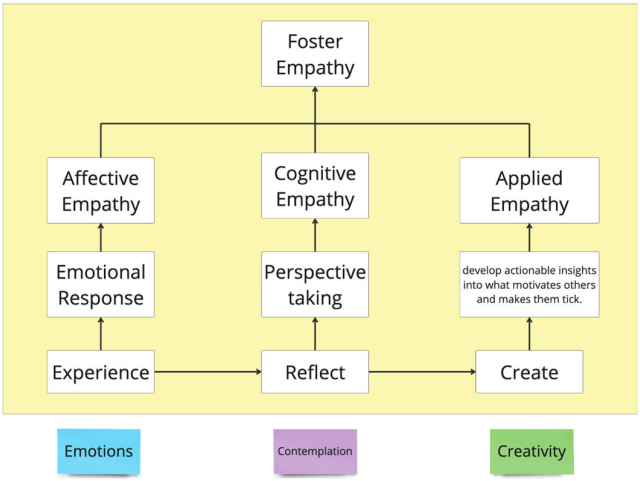


Figure 1. Experience-Reflect-Create (ERC) Framework to Build Empathy (Author)

The 10-day workshop was divided into two phases. Phase 1, spanning six days with five sessions, explored (i) nostalgia in play, (ii) versatility of play, (iii) social interactions through play, (iv) cultural relevance of play, and (v) materiality and narrative building. These themes emphasised play's multifaceted nature as a medium for learning, development, creativity, and empathy while highlighting its role in fostering connections, reflecting cultural contexts, and providing a foundation for inclusive design. The workshop was designed to progress in complexity, with each day's learnings building upon the previous day. This structured progression ensured that participants not only deepened their understanding of inclusivity through play but also developed their ability to apply these insights in increasingly nuanced ways, culminating in game creation in Phase 2. Each session began with curated games, followed by discussions, theoretical grounding through lectures, and exploratory exercises. Of the 7 daily hours, 4 hours were for gameplay, 1.5 hours for discussions and presentations, and 1.5 hours for modifying and creating games. This iterative structure ensured that participants not only understood inclusivity through play but also developed the skills to apply these insights in nuanced ways immediately. Figure 2 outlines the session-wise intentions of the ERC framework in Phase 1.

In phase 2- which lasted 4 days, the participants designed and tested their final games. The groups were to first decide which of the barriers they intended to blur, for which demographic, and whether the game that they design needs to be pre-emptive or reactionary in its approach. They could then decide the gameplay based on the theme or the narrative or vice versa. Each group had daily check-ins with the instructors, to first discuss their concepts, then test the gameplay, and finally draft instructions.

The workshop feedback was collected after the completion of the workshop, once the participants had put their games up for display and testing and received feedback from the audience, which included other students and faculty from the design community.

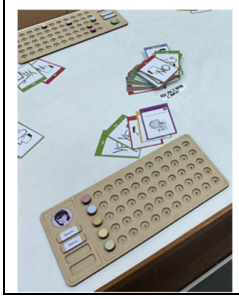
Session	Activity	Experience	Reflect	Create
Nostalgia in Play	Play childhood games	Evoke emotions of nostalgia associated with childhood.	Understand why the games were enjoyable in childhood and why some no longer are; evaluate them for strengths, weaknesses, and inclusivity.	Modification of the played games for increased inclusivity based on reflections.
Versatility of Play	1. Wordplay with the word Play	Explore different contexts andemotions tied to the word "play"	Gain a deeper understanding of play's inherent properties and its potential as a dynamic, context-driven activity.	Encourage innovation in game mechanics to foster creativity and originality by creating games (for playing cards) that do not use traditional playing card mechanics.
	2. Playing card games	Experience a variety of play mechanics via the same medium	Evaluate how game mechanics may influence game dynamics.	
Social Interactions through Play	Play analog games with different levels of collaboration and competition	Experience the range of emotions that arise from competitive and collaborative play, such as joy, frustration, camaraderie, or tension.	Develop an understanding of how game mechanics influence social interactions, player dynamics, and personal preferences while fostering self-awareness of strategic and behavioural shifts in competitive and collaborative context.	Reimagining game mechanics to align with themes from "cultures of care" to integrate collaborative and competitive strategies to promote inclusivity and meaningful engagement.
Cultural Relevance of Play	Play various traditional and contemporary Indian games.	Evoke a sense of connection to cultural heritage and identity; Inspire curiosity and appreciation for diverse cultural practices, traditions, and narratives through expert inputs and classroom discussions.	Reflect on the role of play in preserving and passing down cultural knowledge and values; Analyze how cultural relevance can shape the mechanics, themes, and storytelling in games.	----
Materiality and Narrative Building for Play	Touch, feel and compare materials within the various games that have been played	Foster emotional connections with games by exploring how material choices influence tactile, visual, and auditory experiences; Understand how narratives in games are affected by design choices, such as tone, theme, and material selection, to drive player engagement and immersion.	Assess how materials impact usability, comfort, and emotional resonance, considering safety, nostalgia, culture, and sustainability in game design; Analyze the cultural, sensory, and sustainability dimensions of materials and how they shape the player experience and game mechanics.	Integrate cultural, sensory, and emotional elements into game narratives and material selection; repurpose everyday materials for unique mechanics; balance storytelling with functionality; Foster creativity by challenging participants to develop original narratives and games that balance storytelling and material functionality effectively.

Figure 2. Session-wise break up for phase 1 based on the Experience-Reflect-Create (ERC) framework

4 KEY FINDINGS

Participants developed key elements of their games, including narrative, characters, rules, and mechanics, refining them through peer evaluation. The final games from Phase 2 were assessed by 3 experts (with 10–14 years of experience in design) based on two criteria, Inclusivity or Overcoming Exclusion (I) and Cultivating Empathy (E) (Table 1). The six games show the effectiveness of the "Experience-Reflect-Create" model in fostering inclusivity and empathy. The games engaged players with diverse perspectives, whether through inclusion/representation of differently abled or marginalised communities or care for the environment. They encouraged teamwork, often incorporating collaborative mechanics and narratives over purely competitive ones.

Table 1. Analysis of final games for empathy and inclusivity

Game Details from Participants	Experts' Comment Summary
 **SENSO (**Ages 7+) 2-6 Players: Senso is a strategy and luck-based card game, featuring textured surfaces for tactile recognition. Designed for both visually impaired and sighted players, it fosters an inclusive, shared experience. The game's versatility allows for custom rules, while mandatory auditory cues ensure equitable play across sensory abilities.	- (I) Includes the marginalised community of visually impaired individuals - (I) Provides equitable engagement for both visually impaired and clear-sighted individuals - (E) Enhancing the communal experience.
 **BOUNDARY BLOOPERS** (Ages 5+) 4-20 players: Boundary Bloopers is a party game where players are split into 2 or more diverse 'families. Each member is assigned a culture via character bands. Artefacts from these cultures are scattered across the room. Teams, bound by a ribbon, must coordinate their movements to collect respective cultural artefacts from around the room without dropping or touching the ribbon- all before time runs out.	- (I) Encourages cross-cultural interaction - (I) Provides cultural context and promotes cultural literacy - (E) Increases social engagement by bonding through collaborative play - (I) Equally engaging for a wide age range
 **SAVE THE TOWN FROM THE MEGA-MELTDOWN** (Ages 5+) 2-4 players: This board game teaches children eco-friendly choices as they race to the Ice Cream Parlor. Players choose between a car, cycle, or metro, gaining carbon footprints based on their choices. They may lose carbon footprints by participating in eco-friendly practices scattered across the board, challenging players to balance speed with eco-conscious decisions. If all footprints are used, the island overheats, melting the ice cream, and everyone loses.	- (I) Promotes environmental care as part of inclusion - (E) Develops collective responsibility and empathy toward nature - (I) Universal theme makes it relevant across abilities, ethnicities, and cultures
 **BUILD AND BURN** (Ages 4+) 4-20 players: This game, designed for children with CP and ADHD, enhances fine motor skills, focus, problem-solving, confidence, and teamwork through sensory play. Players use textured and colour-coded blocks to construct a magical castle where they follow instructions from the 'build' cards to become master builders. In the 'burn' phase, they carefully deconstruct the castle, reinforcing organisation and responsibility by following the 'burn' cards.	- (I) Addresses the needs of children with CP and ADHD - (I) Provides equitable engagement for all players - (E) Promotes collaboration and shared responsibility - (E) Fosters transferable inclusive behaviours beyond the game
 **POWER OF FRIENDSHIP** (Ages 10+) 3-6 players: A card game that fosters friendships through interaction and collaboration. It is meant to blur social barriers and help individuals who lack social skills build social bonds. It sensitises players to social dynamics, showing that setbacks aren't always personal but situational. Mimicking real-life scenarios,	- (E) Fosters positive social interactions and connections - (E) Raises real-life social awareness - (I) Eases engagement for socially anxious or awkward players

the goal is to befriend all players. Though one person wins, the path to victory remains collaborative.	- (I) Ensures equitable participation regardless of social skills or background
 **SPECTRUM BONDS** (Ages 14+) 2-6 players: A card game that normalises diverse family structures and sensitises players to the LGBTQA+ community. Players build characters with different genders and sexual orientations and build 'bonds' between these characters to create 'families. They can also draw tokens that represent interests and possessions to add to the families. Both the tokens and the characters bonded in families add to the players' Aura points. The game ends whenever the player completes 3 families; at this point, the player with the maximum Aura points wins.	- (I) Represents diverse gender identities and sexual orientations - (I) Normalises different family structures - (E) Expands queer vocabulary and fosters empathy for the LGBTQA+ community - (E) Provides a non-judgmental platform for learning and sharing lived experiences

Classroom discussions and workshop feedback highlighted the impact of reflective questioning in Phase 1. Questions like 'Can play help you overcome your own internal barriers?', 'What do the games you like or dislike tell you about your personality?', and 'How did you feel about the other players during the game and why?' prompted deep introspection. Almost all participants reported lowered inhibitions and the forming of social bonds. One participant noted, *"I have learnt how I and people around me let down their guard, or barriers when playing,"* while another reflected, *"Being an introvert I have social anxiety. But somehow playing games… helped me."* These reflections fostered self-awareness and revealed how emotional and social barriers were being gradually dismantled. Participants reported that play as a participatory teaching method created a low-pressure environment that encouraged bonding and risk-taking— *"The most fun part being faculty also interacting and having fun so it did not seem too pressurising or hectic."* Multiple reflections indicated a growing sense of creative confidence and collaborative learning: *"I never thought I would be able to design a fully-functioning game!"* another reported an increase in the ability to generate ideas *"exploring multiple ideas or doing multiple iteration for the same thing, I used to face problems but throughout those two weeks the idea of exploring a lot of possibilities before playing your move helped me directly in my design process."* Some participants extended these insights to their own design practices, recognising the potential of play as a research tool and for fostering emotional safety in user engagement: *"Play can also be a tool/ research methodology… where [users] don't necessarily feel observed."* Another applied workshop learnings in practical contexts beyond the classroom, such as using games to bond new teams during extracurricular projects. Figure 3 further underscores these outcomes, with participants uniformly rating the workshop highly on its ability to link play to cultures of care and to boost their skills in creating thoughtful, impactful games. These qualitative and quantitative insights indicate that structured reflection, co-creation, and embodied play experiences not only deepen understanding of empathy and inclusion but also translate into more inclusive design mindsets both in and beyond the classroom.

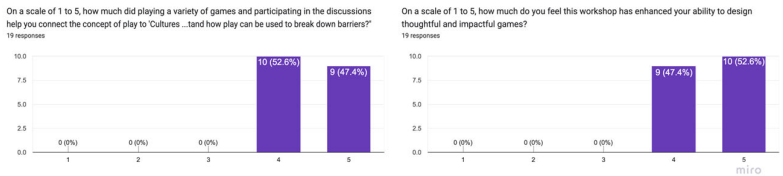


Figure 3. Self-reported measures supporting that the workshop enhanced the participants' understanding & ability

5 CONCLUSION AND RECOMMENDATIONS

The study employed play-based learning and the Experience-Reflect-Create framework as tools within the participatory teaching methodology to develop empathy in novice designers. Playing the games

immersed participants in diverse social dynamics, promoting cooperation, cultural awareness, and openness to reflection. The reflective phase helped participants connect personal experiences with broader inclusivity concepts, deepening their understanding. Finally, game modification and design encouraged players to develop actionable strategies, reinforcing inclusive principles through iterative play. Each game successfully demonstrated how play can address social and emotional dimensions by fostering connection, problem-solving, and collaboration. Participatory teaching methods that integrate play-based learning with co-reflection and co-creation exercises can create learning-rich environments where players experience, reflect, and act on inclusivity, ensuring meaningful design outcomes. However, the small sample size limits the study's generalisability, and it lacks a baseline measure of participants' empathy levels before the workshop. Future studies with control and experimental groups, pre- and post-assessment tools, and long-term tracking of student impact are needed to validate and expand these findings. Additionally, the study recommends the development of educational strategies that integrate play as a core teaching method to foster empathy, inclusivity, and socio-emotional learning within design curricula. To implement this, design educators can (i) embed structured reflection phases alongside gameplay to enhance emotional and perspective-taking skills; (ii) encourage co-design and peer evaluation processes that promote collaborative ideation and critique; and (iii) implement ERC-driven play-based modules across other design disciplines—such as product, service, or interaction design—using mini-prototypes and role-play scenarios with pre/post empathy assessments and longitudinal project tracking to validate the model's broader applicability and impact. Such strategies will help equip future designers to create more socially considerate and inclusive solutions.

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