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For the love of Lego®: exploring the perceptions and use by academics in higher education

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ABSTRACT

This study investigates the perceptions and utilisation of Lego® among academics in Higher Education, employing semi-structured interviews with eleven participants from a UK institution. Through snowball sampling, a network of participants engaged in incorporating Lego® and Lego® Serious Play® within Higher Education contexts was established. In-depth interviews were conducted to gain insights into their experiences and applications. The findings reveal three primary themes: Pedagogical Impact, Integration and Methodology, and Challenges. Lego® Serious Play® was found to enhance deep learning, student engagement, and critical thinking, yet challenges such as resource limitations, the need for educator training, and resistance to non-traditional teaching methods were also identified. This research underscores the role of Lego® Serious Play® in enabling future skills like teamwork, communication, and creative problem-solving, while promoting inclusivity and diversity in the classroom. The study contributes to the existing body of knowledge and offers practical recommendations for educators seeking to enhance teaching practices, integrate additional tools, and support student success in a complex educational landscape.

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Play; play-based learning; Lego®; Lego® serious play®; higher education

Introduction

The onset of the covid-19 pandemic precipitated significant upheaval in Higher Education (HE) teaching methodologies, catalysing a swift transition from traditional in-person education to remote and online learning modalities (Neuwirth, Jović, and Mukherji 2021). This shift, necessitated by public health obligations highlighted both the resilience and vulnerabilities of pedagogical practices (Nandy, Lodh, and Tang 2021). In the pre-pandemic era, Higher Education Institutions (HEIs) were already confronting the imperative for innovation in teaching and learning to both meet the evolving needs of students, and to also satisfy the demands of a rapidly changing global landscape (Henderson and Shipway 2025). However, the pandemic accelerated this process, highlighting the urgent

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need for pedagogical innovation and educational transformation (Cone et al. 2022). As Higher Education Institutions continue navigating the complexities of the current teaching and learning landscapes, there is a pressing imperative to reimagine educational paradigms, leveraging technology, and to further explore innovative teaching methodologies. This is crucial to enhance student engagement, enable inclusive learning environments, and to cultivate critical skills for the future (Peters et al. 2022).

The post-covid-19 era provides an opportunity for higher education to embrace pedagogical innovation and enact transformative changes that will not only address immediate challenges, but also lay the groundwork for a more resilient, adaptable, and student-centred educational ecosystem (Karakose 2021). The current landscape is complex and demanding, congested with Technology Enhance Learning (TEL) and Artificial Intelligence (AI). It is a landscape where Higher Education Institutions (HEIs) and educators are frequently encouraged to develop teaching and learning strategies that can help facilitate future skills, embrace complexity, and address issues surrounding uncertainty (Tang, Vezzani, and Eriksson 2020). The demand for graduate attributes and future skills is not a new concept for employability and student outcomes for Higher Education Institution's (Balakrishnan et al. 2020). Similarly, the demand for soft skills such as empathy and interpersonal skills are critical, in addition to higher-order cognitive skills (Bezanilla et al. 2019). Incorporating the four C's process is essential, involving critical thinking and problem-solving, creativity and innovation, communication, and collaboration (Susantini, Prahani, and Mahdiannur 2018). For an educator, pedagogical creativity and innovation can create opportunities to facilitate the development of future skills. Employing creative learning methods such as Lego® Serious Play® can establish clear links between existing knowledge and firsthand experiences, prompting educators to formulate their own interpretations (Balakrishnan et al. 2020; Meletiadou 2023), and offers a counterpoint to the increasingly digitized learning environments, enabling embodied cognition and social interaction (Gauntlett 2007; Scharmer 2018). Highlighting how Lego® Serious Play® complements technological advancements by addressing gaps in creativity, critical thinking, and community-building can solidify its potential relevance in a digitally dominant educational landscape.

Lego® is a timeless toy that offers not only fun and playfulness but also enables inclusivity (Schwabenland and Kofinas 2023), and the development of essential skills like creativity, critical thinking, cooperation, and communication, using Lego® Serious Play® (LSP) (A. James 2014; Zenk et al. 2018). Lego® Serious Play® has been lauded for its capacity to enable inclusivity and diversity by providing alternative modes of expression, particularly for individuals who may find traditional, text-based or verbal methods challenging (Gauntlett 2007; A. James and Brookfield 2014). By encouraging hands-on, creative engagement, Lego® Serious Play® supports equitable learning environments, aligning with broader educational efforts to accommodate varied learning styles and promote participation from all students, regardless of their backgrounds or abilities (Henderson et al. 2025; Rasmussen 2016).

The evolution of using Lego® is seen as emblematic of efforts to redefine the connection between play and education, the interplay between the processes and mastering, and the integration of cognition and embodiment (Pirrie 2017). Using Lego® in educational settings is now commonplace (Giddings 2017), as it is a compelling medium for practice, game development and via game-assisted education, such as Minecraft (Zhou

2023). Furthermore, the Lego® Education products adopted in schools are versatile and suitable for incorporation into both traditional learning activities, extracurricular and skill-development activities (Wang and Wang 2017). Notably, there is significantly more variation and versatility in Higher Education associated with methodologies, processes, and practices incorporated (Liang, Yun, and Minato 2021).

The study aims to explore the perceptions and practices of academics in Higher Education who use Lego® in their teaching, with a particular focus on the alignment with the guiding principles of the Lego® Serious Play® methodology. Through semi-structured interviews, participants were probed on various aspects related to their role and experience within the university, including their familiarity with play-based learning approaches. The research objectives include (i) investigating the methods and pedagogical frameworks employed by academics in integrating Lego® and Lego® Serious Play® into their teaching, (ii) assessing their understanding of the unique features and processes associated with Lego® Serious Play®, and (iii) exploring the perceived effectiveness of this approach in enhancing future skills, such as soft skills, which are relevant to contemporary educational contexts. Furthermore, the study aims to identify potential synergies between Lego® Serious Play® and other teaching tools, such as artificial intelligence (AI), and to uncover potentially creative teaching practices emerging from the integration of Lego® Serious Play® within higher education settings.

A review of literature

Theoretical frameworks and pedagogical approaches

The landscape of higher education is enriched by a variety of frameworks and pedagogical approaches that aim to enhance teaching and learning outcomes (Fischer 2015). Play is constructed as a multifaceted and dynamic process, shaped by social, cultural, and psychological factors. Huizinga (1949) conceptualised play as a voluntary activity existing outside ordinary life, governed by rules, and imbued with a sense of freedom and creativity. Vygotsky (1978) emphasized the social construction of play, framing it as a cultural tool that supports cognitive development and symbolic thinking through role-playing and imagination. Sutton-Smith (1997) further argued that play is inherently ambiguous, serving diverse functions ranging from exploration and learning to the negotiation of social relationships. These perspectives highlight that play is not merely a frivolous activity but a complex, purposeful construct that evolved into a multifaceted pedagogical tool that encompasses a spectrum ranging from free play (Karpov 2005) to serious play (Statler et al, 2011). Traditionally, free play has been associated with childhood development, enabling creativity, exploration, and social interaction (Bayly 2023). However, increasingly play is recognised in the value of experiential and hands-on learning approaches, and play has found its place within higher education settings (Henricks 2023).

At one end of the spectrum lies free play, characterised by unstructured, self-directed activities that allow students to explore ideas and concepts at their own pace, enabling curiosity, intrinsic motivation, and creativity (A. James and Nerantzi 2019). Free play aligns with theories of constructivist learning, where individuals construct knowledge through hands-on exploration and reflection (Piaget 1950). On the other end of the spectrum is

serious play, which leverages the structured yet playful engagement of tools like Lego® Serious Play® to facilitate purposeful and outcome-driven learning experiences. This approach accesses the cognitive and social benefits of play, enabling participants to collaboratively solve problems, visualise abstract ideas, and deepen understanding through tactile interaction (Zenk et al. 2018). By positioning play along this spectrum, educators can adapt strategies to meet specific learning goals, combining the benefits of spontaneous exploration with structured creativity to create rich, multifaceted learning environments.

Constructivism is well aligned with Lego® and Lego® Serious Play® because it promotes hands-on, experiential learning and encourages participants to construct meaning through active engagement with Lego® bricks which facilitates both deeper understanding and knowledge retention. There are several constructivist theories, which advocate for learning as an active, student-centred process where knowledge is constructed through experience and reflection (Tangney 2014). According to constructivist theory, learning is an active and constructive process in which learners build new knowledge through their experiences and interactions (Shah 2019). When considering relevant underpinning notions to support this, Piaget (1950) emphasised the importance of hands-on activities in cognitive development, where learners manipulate objects and experiment to construct their understanding of the world. It is worth noting that Piaget (1950) has been criticised for a universal stage model of cognitive development that does not adequately account for individual differences in cognitive development and may overlook cultural variations in learning experiences (Snarey 1985).

In contrast, Papert's (1980) constructionism extends Piaget's (1950) ideas by emphasizing the role of external, tangible artifacts in learning. Papert (1980) argued that learning is enhanced when individuals create meaningful products, such as models, programmes, or other constructs, which serve as a medium for reflection and knowledge construction. In the current context, Papert's (1980) constructionism may hold greater relevance due to its alignment with modern educational practices that emphasize project-based learning, digital literacy, and collaborative problem-solving. The rise of maker spaces, coding education, and technologies like 3D printing reflect constructionist principles, where learners engage with tools to create tangible outcomes. However, Piaget's (1950) foundational insights remain fundamentally crucial for understanding the cognitive processes underlying learning, particularly in designing age-appropriate educational experiences.

The pivotal role of social interactions and cultural context in cognitive development is essential, meaning that learning is fundamentally a social process that is facilitated by dialogue, collaboration, and the guidance of more knowledgeable others (Vygotsky 1978). This social and collaborative framework has had a profound impact on educational practices, particularly in promoting cooperative learning and scaffolding strategies. However, Vygotsky's (1978) emphasis on social factors has faced criticism, particularly for downplaying the role of individual differences and internal cognitive processes. Critics like (Beasley, Friedman, and Rosen 2021; Lambert and Clyde 2003). Furthermore, this framework does not fully address the dynamic and sometimes conflicting nature of cognitive and social processes within learning environments (Ameri 2020). Despite these limitations, it does remain part of the puzzle in understanding the interaction between social context and cognitive development, offering insights into the collaborative nature of learning.

Metaphors, those captivating linguistic devices intertwining disparate concepts, have been intrinsic to human communication for ages (Wilce 2009). This began with their inception in ancient civilisations, where they were wielded as potent tools for conveying intricate ideas. Metaphors have thrived across epochs, from Aristotle's foundational insights to their pervasive presence in literature, religion, and philosophy (Borgmann 1999). Such metaphoric expressions have not only shaped cultural narratives and perceptions but also serve as windows into the evolving human psyche. Delving deeper, modern cognitive science unveils the intricate workings of metaphor comprehension (Perconti and Plebe 2020). Conceptual metaphor theory (CMT) posits metaphors as not mere linguistic embellishments but fundamental cognitive processes (Lakoff and Johnson 1980). They bridge abstract domains with concrete experiences, facilitating comprehension and inference. Conceptual Metaphor Theory has encountered significant criticism from both cognitive linguistics experts and scholars from other disciplines. Despite its broad impact, the Conceptual Metaphor Theory has struggled both theoretically and empirically, and this has consequently raised considerable doubts about the construct's explanatory power (McGlone 2007). Metaphors are deeply entrenched within linguistic and cultural landscapes, reflecting varied worldviews and symbolic systems. This diversity, displayed through cross-cultural studies, highlights their adaptability and significance in shaping human understanding (Farooq and Ijaz 2022). Harnessing metaphors in education enables enriched learning experiences, whilst, in therapy, they serve as therapeutic tools for self-reflection, insight, and emotional healing (Kim 2019; McKay and Sappa 2020). Theoretical and empirical metaphors are often intertwined but both are important for transcending linguistic boundaries, offering profound insights into cognition, culture, and communication, and enriching our comprehension of the human experience.

Theories of storytelling and reflection are pivotal in understanding how narratives and introspection contribute to learning and personal growth (Coulson and Harvey 2013; Hydén 2013). Storytelling is experiencing a resurgence among educators due to its strong alignment with constructivist principles of teaching and learning (Gunter, Kenny, and Junkin 2018). Bruner (1990) explored Storytelling, by highlighting the role of narratives in shaping human cognition, and how we make sense of the world, structure our experiences and facilitate the sharing of knowledge. Similarly, Schon (1991) highlights the importance of reflection in development and learning, both during and after an activity, reflection-in-action and reflection-on-action (Edwards 2017). This enables individuals to critically analyse their experiences, leading to deeper insights and continuous improvement. These theories highlight the power of stories and reflection in creating meaningful learning experiences, enabling critical thinking, and supporting individuals to connect past experiences with future actions. In educational settings, it is widely recognised that these tools support student engagement, comprehension, and the ability to apply learning in real-world contexts (Gunawardena and Brown 2021).

Lego® & Lego® serious play®

Lego®, the iconic interlocking plastic bricks, have found applications in diverse educational settings, extending beyond their common association with early childhood education into higher education (Abt 1970; Gauntlett 2007; Terr 2000). Despite this potential, the adoption of 'play' with Lego®, using Lego® Serious Play® as a teaching

method in higher education, has initially encountered reluctance from both lecturers and students (Wheeler, 2023). However, there is a growing recognition among educators of the benefits that Lego® can bring to the learning environment (Whitton 2018). The Lego® Serious Play® methodology emerged from the Lego® Group in the 1990s with the primary goal of rejuvenating managerial practices, and was utilised by organisations including eBay, NASA, Google, and the International Red Cross to name a few examples (Henderson and Shipway 2024; A. R. James 2013; Kristiansen and Rasmussen 2014). It has undergone substantial evolution, extending its reach into education, where it has found a niche within constructivist learning theories as an 'out of the box' learning methodology, particularly suitable for adult education (Chianese and Stefania 2023). Leveraging cognitive processes and manual dexterity, Lego® Serious Play® enables hands-on expression of ideas, making the subconscious tangible and revealing latent insights while highlighting potential transformational paths (Kriszan and Nienaber 2024).

Lego® Serious Play is a dynamic and multifaceted methodology that harnesses various sensory and cognitive processes to enable creativity, problem-solving, and collaboration (Peabody and Noyes 2017). Blair and Rillo (2016) advocate that the integration of visual, auditory, and kinaesthetic (VAK) elements can engage participants in a holistic experience that enhances learning. However, more recently emerging studies have raised concerns about VAK, due to the oversimplification of cognitive processes, pedagogical limitations and the lack of empirical evidence for the theory (Fallace 2023; Huber and Muller 2023). Undeniably, the hands-on, tactile nature of building with Lego® bricks activates kinaesthetic intelligence, allowing individuals to physically manipulate concepts and ideas (Bab and Boniwell 2016). Concurrently, the auditory component comes into play during discussions and storytelling, where participants articulate their thoughts and listen to others, enabling a rich exchange of perspectives. This engagement not only stimulates different areas of the brain but also promotes a state of 'flow'; a psychological state where individuals are fully immersed and focused on the task at hand (Csikszentmihályi 1990; Zenk, Primus, and Sonnenburg 2022). This immersive experience, characterised by deep concentration and intrinsic motivation, enables participants to explore complex issues and generate novel solutions more effectively (Henderson and Shipway 2024). Through the integration of these modalities, Lego® Serious Play® creates an environment where participants can think, build, and share in ways that are both deeply engaging and profoundly productive (Henderson and Shipway 2023).

The Lego® Serious Play methodology aims to enable creativity, collaboration, and deep reflection through a series of clearly defined stages: framing the challenge, building, sharing, and reflecting (Henderson and Shipway 2024). At its core, Lego® Serious Play® emphasises the importance of etiquette, ensuring that every participant builds and shares their unique perspectives, promoting an inclusive and respectful environment (Blair and Rillo 2016). The process begins with framing the challenge, where participants understand and contextualise the problem at hand. They then move to the building phase, where they construct Lego® models to represent their ideas and solutions. Sharing follows, with each participant explaining their model and its significance. Reflection is a critical decisive step, where insights are consolidated and explored. This reflective process can be further enhanced using the ORID framework (Hogan 2003), which guides participants

through Objective, Reflective, Interpretive, and Decisional stages, deepening their understanding and ensuring that the insights gained are meaningful and actionable (McCann, Barto, and Goldman 2019).

The construction of the Lego® Serious Play® build questions is critical as it aligns directly with the session objectives and sets the stage for reflective questions (Henderson and Shipway 2023). Effective build questions begin with 'Build a model that shows', guiding participants to create tangible representations of abstract ideas (Blair and Rillo 2016). This approach enables deep engagement and critical thinking, essential for achieving the session's goals. Utilising Bloom's Taxonomy (Bloom 1956), educators can unpack these questions to ensure they address various cognitive levels, ranging from basic understanding and application to higher-order analysis and synthesis. For instance, a question might prompt participants to build a model that shows a problem-solving process, encouraging them to analyse and create solutions (Elkelish and Ahmed 2022). By carefully crafting these questions, educators can ensure that the building activity is meaningful, aligns with learning objectives or intended learning outcomes, and enhances the reflective process. This can lead to more profound insights and deeper learning outcomes.

Within the Lego® Serious Play® methodology, the skills build phase serves as a foundational step that prepares participants for the creative and collaborative journey ahead (Kurkovsky, 2015). This phase is designed to familiarise participants with the basic techniques and principles of using Lego® bricks as a medium for expression and problem-solving (Blair and Rillo 2016; Lego® Serious Play 2010). Through a series of structured exercises, participants develop essential skills such as constructing metaphors, storytelling, and articulating abstract concepts through tangible models. These initial activities help to break down barriers, build confidence, and develop a shared understanding of the Lego® Serious Play® process (Henderson and Shipway 2023). By engaging in the three skills build (technical, metaphoric and storytelling), participants not only learn how to effectively use the Lego® bricks but also begin to unlock their creative potential and enhance their ability to communicate complex ideas. This preparatory phase is crucial as it sets the stage for deeper exploration and innovation, ensuring that all participants are equipped with the necessary tools and mindset to fully engage in the subsequent stages of the Lego® Serious Play® methodology.

The Lego® Group decided the Lego® Serious Play® methodology would be made available open source (Lego® 2014; Lego® Serious Play® 2010), allowing individuals and organisations to freely access and enhance the methodology to suit their specific needs and contexts. This openness enables innovation and collaboration, enabling diverse communities to harness the power of Lego® for creative problem-solving and learning (Roos and Victor 2018). However, with the increasing commercialisation of the training, there are concerns about accessibility and equity. This tension between openness and commercialisation highlights the need for balance and to ensure that the principles of inclusivity and empowerment that are central to Lego® Serious Play® are preserved amidst evolving market dynamics. An illustration of this issue is depicted in Figure 1, presenting Blair and Dröge's (2020) logic model which addresses the fundamentally important question 'Is it Lego® Serious Play®?'

Is it Lego® Serious Play®?

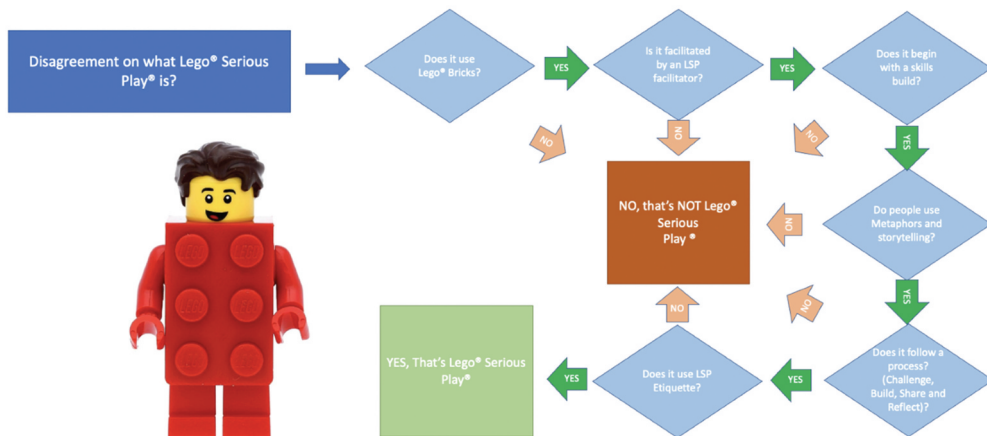


Figure 1. Is it Lego® Serious Play® (Adapted from Blair and Dröge 2020). Image: Lego® Collectible Minifigure Series 18 Brick Suit Guy COL313.

Methods

Snowball sampling is a widely recognised technique for sample selection, particularly employed to identify concealed populations (Robinson 2014). The population sample for this study are the academic staff of the Higher Education Institution ($n = 1516$). The snowball method is contingent on referrals from the initially selected participants to connect with others presumed to possess the desired characteristic (Goodman 1961). In this instance it was staff who had used Lego® within the Higher Education Institution. Snowball sampling, while advantageous in terms of cost-effectiveness and efficiency (Renjith et al. 2021), is constrained by limitations such as non-random selection procedures, potential correlations between network size and selection probabilities, reliance on subjective informant assessments, and confidentiality concerns (Naderifar, Goli, and Ghaljaie 2017).

Table 1 shows the study participants, comprising a diverse range of academic staff from the UK-based Higher Education Institution (HEI). The participants held roles such as professors, associate professor or equivalent grade, Heads of university centres and

Table 1. An overview of study participants.

Pseudonym	Primary Educational Role within UK-based HEI	Years of Teaching Experience
Sarah	Professor	20+ years
Tammy	Head of University Centre	20+ years
Charlotte	Head of University Service	10 years
Simon	Deputy Head of Department	10 years
Carly	Associate Professor	10 years
Tom	Associate Professor	20+ years
Denise	Senior Lecturer	15 years
Claire	Senior Lecturer	8 years
Adrian	Senior Lecturer	8 years
Helena	Senior Lecturer	5 years
Crispin	Lecturer	4 years

services, deputy heads of departments, senior lecturers, and lecturers. The most frequent job title among the study participants was senior lecturer, with four individuals holding this position. Their teaching experience varied from four to over twenty years, with the mean years of teaching experience being approximately 11.82 years. The gender split among participants was 64% ($n = 7$) female and 37% ($n = 4$) male.

Ethics approval was obtained from the Higher Education Institution's Ethics Committee (University Ethics ID 456,632). Data collection comprised semi-structured interviews with participants (see Table 2). These interviews were carried out via MS Teams, recorded, and subsequently transcribed. Prior to recording, participants were briefed on the research objectives and the nature of the data to be captured. They were assured of their right to withdraw from the study at any point, as communicated verbally and through an ethics-approved research information sheet from the Higher Education Institution. Consent was obtained from those who agreed to participate, confirmed by their signature on a consent form (Henderson and Shipway 2024).

The interview process began with warm-up questions about their role, position at the university, teaching experience, and length of service. The primary interview questions focused on their use of Lego®, knowledge of play-based learning, and specific experiences with Lego® Serious Play®. The interview explored their understanding of Lego® Serious Play® methodologies, pedagogies, and processes, particularly the role of skills building, metaphor – theoretical and empirical (McKay and Sappa 2020), and storytelling (Gunter, Kenny, and Junkin 2018). Further, it investigated participants' awareness of Lego® Serious Play® etiquette, the utility of the ORID reflective framework within Lego® Serious Play®, and the potential to enhance future skills and integrate with other teaching tools.

Data from the interviews were analysed using thematic analysis, which involved identifying, analysing, and reporting patterns (themes) within the data (Gennings et al. 2023). This process began with familiarisation, where transcripts were read multiple times to become thoroughly acquainted with the content. The themes were derived through a systematic coding process that began with open coding, where recurring patterns and key phrases from the data were labelled, allowing for

Table 2. Participant questions.

Question Category	Questions
<i>Warm Up</i>	Warm up questions on their role and position in the University, experience, length of service.
<i>Awareness + Experience</i>	Have you heard of Lego® Serious Play®? What experience have you of Lego® Serious Play®? How do you use Lego® in your teaching?
<i>Process</i>	Are you aware of the Lego® Serious Play® etiquette? What process or method is there to Lego® Serious Play®? Do you know what makes Lego® Serious Play® different? What do you understand the skills build is?
<i>Pedagogy</i>	How do you think the build questions should be developed? Do you know the diverse types of play-based learning? What pedagogy do you think Lego® Serious Play® uses? What role do metaphors and storytelling have in Lego® Serious Play®? Within the reflective process, how useful is the ORID framework?
<i>Future Skills + Integration with Other Teaching Tools</i>	Do you think Lego® Serious Play® enhances future skills (e.g. soft skills) for BU2032? How do you think Lego® Serious Play® can integrate with other teaching tools (e.g. AI etc)? What innovations in teaching can you see in using Lego® Serious Play®?

the emergence of preliminary categories (Henderson and Shipway 2024). These categories were then refined through axial coding, a process that grouped related codes to form broader themes capturing underlying meanings. This creative methodology presents similar critiques and limitations to those found in a constructivist paradigm, particularly concerning the generalizability and replicability of the data (Henderson et al. 2025; Wengel, McIntosh, and Cockburn-Wootten 2021). The themes were reviewed and refined to ensure they accurately reflected the data, and each theme was clearly defined and named to convey its significance, relevance to the research objectives, and to ensure researcher bias was avoided (Jones 2022).

Results & discussion

The themes identified were categorised into three overarching domains: (1) Pedagogical Impact, (2) Integration and Methodology, and (3) Challenges. Under Pedagogical Impact, aspects such as the versatility of Lego® and Lego® Serious Play®, its role in metaphorical expression, enabling collaborative learning environments, promoting reflective practice, and developing future skills are highlighted. Integration and Methodology encompassed the integration of Lego® with teaching tools, innovative teaching practices, play-based learning, and opportunities for global collaboration and virtual learning. Finally, under Challenges, the recognition of both the obstacles faced from using Lego® and Lego® Serious Play® in Higher Education is emphasised. The framework displayed in Figure 2 provides an understanding of the multifaceted influence on education, ranging from its direct impact on teaching practices to the broader challenges and opportunities available in educational settings. The discussion is structured around these three main domains.

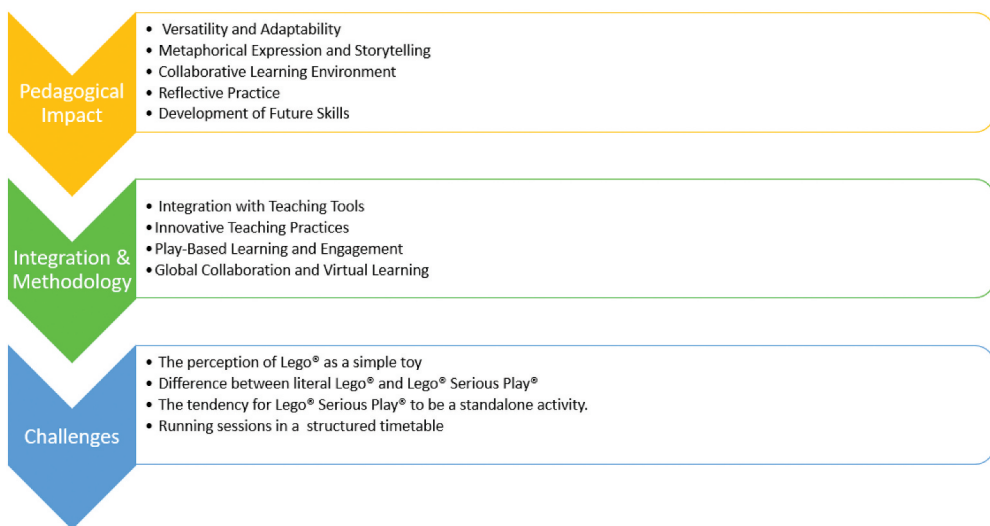


Figure 2. Thematic analysis of participant interviews.

Pedagogical impact

The integration of theoretical frameworks and pedagogical approaches in Higher Education can significantly enrich teaching and learning outcomes, including the application of play as an educational tool (A. James and Nerantzi 2019). Participants displayed varied approaches to using Lego®, with some only employing it as a literal teaching tool (9%, $n = 1$), while others only embraced the immersive and reflective experience offered by Lego® Serious Play® (73%, $n = 8$), with only two (18% $n = 2$) using both Lego® literally and Lego® Serious Play® within their practice. None of the sample had undertaken a Lego® Serious Play® facilitation course with a commercial provider, and all those that were using Lego® Serious Play®, 81% ($n = 9$) either used the open-source Lego® Serious Play® (2010) documentation as their guide or had shadowed a commercially qualified Lego® Serious Play® facilitator at their Higher Education Institution. Shared under a Creative Commons license, Lego® encourages free adaptation, innovation, collaboration, and distribution (Gauntlett 2007; Lego 2014; Lego® Serious Play 2010). Notably, Lego® was utilised across diverse academic levels and disciplines, ranging from foundational courses to postgraduate studies across the Higher Education Institution. Participants appreciated the flexibility, versatility, and adaptability of Lego® and Lego® Serious Play®, enabling them to cater to various learning preferences and backgrounds (Kolb and Kolb 2005; Liang, Yun, and Minato 2021). This was emphasised by Tom who noted:

I mean the great thing is this versatility. I have used it all the way from Level 4 (Undergraduate entry) to Level 7 (Masters postgraduate) and up to PhD level. So, we have used it with students of various stages of the PhD registration to look at the research journey and the ups and the downs.

Real-world applications of Lego® Serious Play® were highlighted, such as its use in breaking unwelcome news in healthcare, climate change and envisioning future organisational structures in tourism. This reflects the origins of Lego® Serious Play® (A. R. James 2013; Kristiansen and Rasmussen 2014). Reflections from Tom also emphasised this when he observed:

I asked them to produce an individual and then collaborative model of a world without tourism. Which is quite interesting and there were lots of black as you can imagine, you know, dark dystopic. They have modelled climate change, so there are houses underwater as far as you can build water with Lego. It was, yeah, it is all big grim, really.

Crispin highlighted the significance of employing a structured approach, particularly when conveying critical information, and in his case using the real-world application of the SPIKE model. The SPIKE model is a widely recognised protocol in medical communication, designed to guide healthcare professionals through the complex and sensitive task of breaking unwelcome news. He noted:

We asked the students to build a model of breaking a terminal diagnosis to a patient using the SPIKE model. It was interesting to see the different representations built and the way the students unpacked their stories in so many ways. Transformational learnings.

Metaphors and storytelling emerged as powerful tools in Lego® Serious Play® sessions, facilitating the communication of abstract concepts and enabling deep discussions. This theme was unanimous across all participants, and the narrative notes the learning

experiences involved in the metaphors and storytelling (Kim 2019; McKay and Sappa 2020). Claire observed:

For me it is a metaphorical element of it. It is about not making something using your creative skill and being able to build a good model. It is about being able to use the bricks to represent something else and the creative creativity that that brings.

Metaphors play a pivotal role in communication and learning, to convey complex ideas through relatable imagery. Educators can bridge the gap between abstract ideas and tangible understanding with metaphors, making learning more accessible and meaningful (Kim 2019; McKay and Sappa 2020). The task of making a brick symbolise anything to the participant further exemplifies this transformative power of Lego® Serious Play®. By encouraging students to assign varied meanings to a simple brick, educators enable creativity, critical thinking, and personal connection. This process illustrates how even the most ordinary objects such as Lego® bricks can be infused with significance, enriching the learning experience, and allowing for deeper engagement with the subject matter (Bab and Boniwell 2016). Through metaphors, learners can navigate and articulate intricate ideas, making the abstract accessible and the concrete profound.

Reflective practices varied among the participants delivering sessions. All participants using Lego® Serious Play® recognised it as a valuable tool for deepening self-reflection and exploring complex thoughts. There were a range of reflective models used and integrated, not just the ORID model (Hogan 2003). This included both Driscoll's model (Driscoll 1994) and Gibbs (1988). Adrian observed:

I suppose it is the reflective practice that Lego® Serious Play® draws out. In practice you know when things go right, and when things go wrong, but it is all about how we reflect and how do we then act on it. And that is a difficult skill because now it is not really taught, and it is done by writing a portfolio piece and you can argue how useful is that because it is you just writing what someone expects to hear. Whereas using Lego® Serious Play® for reflection as part of the methodology develops deep organic, authentic reflection.

Designing reflective questions that align with the objectives of the Lego® Serious Play® session is crucial for transforming implicit, grey knowledge into explicit, tacit understanding, thereby deepening participants' insights, and enabling meaningful learning and growth (Henderson and Shipway 2023; Shipway et al. 2025). Lego® Serious Play® was viewed as effective in enhancing graduate attributes (Balakrishnan et al. 2020) and future skills such as problem-solving, critical thinking, collaboration, communication, and creativity (A. James 2014; Zenk et al. 2018), aligning with the evolving needs of modern Higher Education, and operating in the new normal post covid-19. Tammy asserted '*It's all about communication, collaboration, teamwork and problem-solving skills, which is huge for future skill development*'. In addition to this Sarah noted that:

When we think about complexity in the workplace and 21st century working skills that are going to be needed. We need different ways of unlocking people's potential and one of the things we know from years ago is we know we get better quality decisions. Lego® Serious Play® lends itself to the soft skill development our graduates need to achieve this.

The integration of play-based approaches like Lego® Serious Play® in Higher Education aligns with constructivist theories and enhances the learning experience through active

engagement, metaphorical thinking, and reflective practices (Peabody and Noyes 2017; Shah 2019). This method not only supports cognitive development but also prepares students for the complexities of the modern workplace, equipping them with essential future-oriented skills. As Higher Education continues to evolve, embracing such innovative pedagogical strategies displays the potential to enable a more engaging, meaningful, and effective learning environment (Henderson and Shipway 2024).

Integration and methodology

Participants (73%, $n = 8$) expressed forward-thinking perspectives on the use of play based pedagogies and the integration of Lego® and Lego® Serious Play® with emerging technologies and innovative teaching methods (Peabody and Noyes 2017). Discussions centred on the potential integration of Lego® with various teaching tools, including online forums, augmented reality, virtual reality, AI, and simulations. This demonstrated the potential reach and engagement both in person, online and across blended environments. Envisioned innovations included incorporating Lego® into visual representations on screens and exploring AI-generated scenarios within immersive environments. This highlights the potential for further enhancements to education innovation through Lego® Serious Play®. Claire stated:

A lot of the time I use Padlet and Mentimeter and those kinds of things. I guess if you could have 'builds' integrated into content, you could have Padlet's going on in the background. You could have discussion forums that then go beyond the teaching session. You could also set up something, set up an exercise and leave the padlet running and evaluate understanding and impact with Mentimeter.

Integrating AI with Lego® Serious Play® can revolutionise collaborative learning and problem-solving, combining advanced analytical capabilities with creative, hands-on engagement to enable innovative thinking and strategic insights (Henderson and Shipway 2024). This was reinforced by Tammy who noted:

We need an AI version of what we do in the Lego® Serious Play® workshops. Not that we do not like the workshops. They are fantastic but making it more accessible and having a different way of working around the new normal of blended, asynchronous, and synchronous learning.

The open-source nature of Lego® Serious Play® has laid the groundwork for its evolution through the integration of advanced technologies such as animation, simulation, visualisation, and AI. This evolution reflects a dynamic shift towards more engaging and effective educational practices (Henderson et al. 2025). With the accessibility under creative commons licenses, educators can seamlessly incorporate digital tools like animations to visually convey complex concepts, enhancing comprehension and engagement among learners (Lego® 2014; Lego® Serious Play® 2010). Moreover, the flexibility of Lego® Serious Play® encourages the integration of simulations and visualisations, allowing for immersive learning experiences where students can explore real-world scenarios and spatial relationships using Lego®. By embracing these innovations, visual analytics tools can transform session data into insightful representations, empowering educators to track progress and outcomes more effectively (Ifenthaler and Yau 2020; Romero and Ventura 2020).

Challenges

The challenges of integrating Lego® and Lego® Serious Play® into education are multi-faceted, primarily stemming from entrenched perceptions and practical implementation issues. One significant challenge is the perception of Lego® as merely a child's toy for playing with (Burdette and Whitaker 2005), which can undermine its credibility and acceptance as a serious educational tool. This view can hinder its adoption and limit its potential impact on learning outcomes. Simon reinforced this, noting *'one of the challenges in sharing practice is other academics perception of Lego® being a toy and the literal way many people use it for pleasure, and the differences in use for structure serious play'*. Additionally, there is a tendency to view Lego® Serious Play® as a standalone activity rather than as an integrated component of the broader curriculum being used for example longitudinally. Tom acknowledged this when he observed *'running a workshop takes ideally maybe two or three hours if you were doing it properly. So, it, tends to be something that ends up as a standalone activity'*.

Running Lego® Serious Play® sessions in Higher Education are restricted due to time-tabling but also if they are delivered in isolation, it can restrict effectiveness, as it may not be fully aligned with learning objectives or synergised with other teaching methodologies. Overcoming these challenges requires a paradigm shift that repositions Lego® as a versatile, sophisticated tool capable of facilitating deep learning, critical thinking, and innovative problem-solving (Henderson and Shipway 2023). While participants acknowledged barriers, they also described practical strategies for embedding Lego® Serious Play® in their teaching. For example, some described adapting Lego® Serious Play® activities to shorter time frames by using 'flash micro-builds' within existing teaching (such as lectures rather than seminars), and challenging timetabling norms over time. Others addressed resistance by explicitly mapping Lego® Serious Play® tasks to certain learning outcomes which were already valued within their departments during curriculum reviews and thereby securing greater buy-in from colleagues. In addition, a few participants co-facilitated sessions with students (for example, Peer Assisted Learning Team or Student Reps). These practical strategies both distributed workload and enhanced engagement. In addition to this, educators should be also encouraged to integrate Lego® Serious Play® seamlessly into their pedagogical practices, ensuring it complements and enhances traditional and innovative audio, visual, simulation and AI tools, rather than existing in a silo.

Conclusion

This study aimed to explore the perceptions and practices of Higher Education academics regarding the use of Lego®, with a particular emphasis on Lego® Serious Play®, in their teaching. Through semi-structured interviews, the research examined various facets of the participants' roles and experiences, including their familiarity with play-based learning methodologies. The primary objectives included: (i) investigating the pedagogical frameworks and methods utilised by academics to incorporate Lego® and Lego® Serious Play® into their teaching; (ii) assessing their understanding of the distinctive features and processes of Lego® Serious Play®; and (iii) exploring the perceived effectiveness of this approach in future skills, particularly soft skills, within contemporary educational contexts.

The themes identified in this study findings were categorised into three overarching domains: Pedagogical Impact, Integration and Methodology, and Challenges.

Within Pedagogical Impact, the versatility of Lego® and Lego® Serious Play® is highlighted, along with their role in metaphorical expression, creating collaborative learning environments, promoting reflective practice, and developing future skills (Shipway et al. 2025). The Integration and Methodology domain covers the incorporation of Lego® with other teaching tools, the adoption of innovative teaching practices, the application of play-based learning, and opportunities for global collaboration and virtual learning. Finally, the Challenges domain emphasises the obstacles encountered when using Lego® and Lego® Serious Play® in higher education.

One notable study limitation is the lack of generalizability, and the extent to which the findings can be applied beyond the perspectives of UK-based academics. This relatively small and contextually specific sample may not accurately reflect broader educational populations, including students (Shipway & Henderson, 2024). While the findings provide valuable insights, caution is advised when attempting to extend these conclusions (Henderson et al. 2025), and we advocate further studies across diverse educational settings.

The findings contribute new knowledge by providing a preliminary analysis of how Lego® Serious Play® displays potential to be effectively integrated into Higher Education. By examining various case studies and empirical data, the study identifies specific contexts in which Lego® Serious Play® has been successfully implemented. The research highlights the multifaceted benefits of Lego® Serious Play®, including its ability to enable deep learning, enhance student engagement, and to facilitate a hands-on, minds-on learning environment that encourages active participation and critical thinking (Henderson and Shipway 2024). Furthermore, the study explores the challenges associated with integrating Lego® Serious Play® in academic settings. These challenges include logistical issues, such as the availability of resources and training for educators, as well as resistance from those who may be accustomed to more traditional pedagogical methods (Henderson et al. 2025). As qualitative research methods have evolved to address complex societal and interdisciplinary challenges, creative and participatory methods such as Lego® Serious Play® (LSP) have gained traction in terms of their potential to foster inclusive and collaborative research (Henderson et al. 2025; Shipway et al. 2025). A key strength of LSP is utilising tactile and metaphorical model-building to explore symbolic ideas, enable deep reflection, meaning-making, and dialogue among participants.

The findings offer preliminary insights into innovative pedagogical practices that can enhance learning outcomes and future skills. The study explores how Lego® Serious Play® can be used to develop essential skills such as teamwork, communication, and creative problem-solving, which are crucial for students' future careers (Zenk et al. 2018; Leah et al 2020). The findings also discuss the role of Lego® Serious Play® in promoting inclusivity and diversity within the classroom (Schwablenland and Kofinas 2023), as it provides an alternative means of expression for students who may struggle with conventional verbal or written communication (A. James 2014). Overall, this study not only contributes to the existing body of knowledge on Lego® Serious Play® but also provides practical recommendations for educators looking to implement this creative approach. By doing so, it aims to support the advancement of teaching and learning practices in Higher Education, and to help students to thrive in an increasingly complex and dynamic world.

The future of researching Lego® Serious Play® in Higher Education presents opportunities to deepen our understanding of its impact on learning outcomes, inclusivity, and creativity. First, future studies should explore how Lego® Serious Play® enables collaboration among students from different cultural and linguistic backgrounds, promoting inclusivity in increasingly diverse educational settings. Second, another promising avenue is examining the role of Lego® Serious Play® in supporting neurodiverse learners or those with alternative learning needs, contributing to more equitable pedagogical practices. Third, longitudinal studies could assess the sustained impact of Lego® Serious Play® on students' professional skills, such as teamwork and communication, post-graduation. These explorations align with the broader goals of higher education to create adaptive, engaging, and inclusive learning environments.

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