

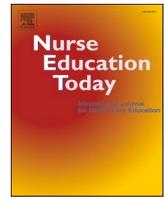
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## Review

# The use of LEGO® SERIOUS PLAY® within nurse education: A scoping review

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## ABSTRACT

**Objectives:** The purpose of this review is to map how LEGO® SERIOUS PLAY® is currently utilised within education and to explore the benefits it may offer to the education of new nurses.

**Design:** A scoping review which utilises a 5 stage methodological framework in order to encapsulate a broad range of evidence relating to the use of LEGO® SERIOUS PLAY® within a variety of educational settings.

**Data sources:** Databases searched included CINAHL, Academic Search Premier, PsychInfo, Scopus as well as Proquest Dissertations and Theses and the British Library's Electronic Theses Online Service. Additional sources were also sought through review of the reference lists of relevant articles.

**Review methods:** Retrieved articles were screened for relevance and compiled in a charting table to summarise the key components and findings of each source. Qualitative content analysis was then utilised to address the identified review questions.

**Results:** A total of 11 texts were reviewed consisting of 1 conference paper, 6 research reports and 4 conceptual articles. These explored the use of LEGO® SERIOUS PLAY® across a broad range of disciplines including nursing, play therapy, occupational therapy and marketing.

**Conclusions:** The scoping review highlights that LEGO® SERIOUS PLAY® offers a number of benefits that can be utilised within nursing education, particularly in relation to supporting reflection, formation of professional identity and the development of resilience. These results highlight a gap in the evidence concerning the use of LEGO® SERIOUS PLAY® within nursing education and thus the need for further exploration.

## 1. Introduction

LEGO® SERIOUS PLAY® (LSP) methodology was initially developed by the LEGO® group to provide a strategic planning and development tool for the companies within the LEGO® group. Since its initial inception in 1996 the methodology has developed further and in 2010 was released as a community tool under the Creative Commons License Deed. The methodology of LEGO® SERIOUS PLAY® brings a small group of participants together in a shared physical space with a facilitator and a range of LEGO® bricks. Participants will then construct models in response to questions posed by the facilitator, these models are then shared with the rest of the group as everyone takes turns sharing the models' story. The process itself is underpinned by a number of well explored educational theories such as constructionism, constructivism, flow and social cognition (Kristiansen and Rasmussen, 2014). The overall purpose of the methodology is to create an engaging

and playful environment in which participants can creatively explore and reflect on their existing knowledge so that they can then develop new ideas and perspectives.

The current incarnation of LEGO® SERIOUS PLAY® is primarily a tool for facilitating the sharing of ideas and their collaborative communication within a business development type setting. Despite its initial business orientated focus, however, it is beginning to enjoy a degree of success and interest as both an educational and research tool (Gauntlett, 2007; Hayes, 2016; McCusker, 2019). Given that the methodology of LEGO® SERIOUS PLAY® focuses on promoting open discussion and exploration of ideas and concepts (Kristiansen and Rasmussen, 2014) it can be incorporated into a wide range of educational programmes. At present however, only a limited amount of research has taken place exploring its use as an educational tool and how best to implement it for the best results.

A typical LEGO® SERIOUS PLAY® session starts with the

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participants undertaking a short series of warm-up activities. This gets them used to physically manipulating and building with the bricks and quickly moves them to the point of using them to represent abstract concepts and ideas through the models they build, and the stories ascribed to them. In the warm-up activities generally innocuous topics are chosen, starting with something like, 'build a tower or bridge' and progressing to something like 'build a model that represents your ideal summer holiday'. Once these base skills are established, the topic of the session itself can be introduced. This should start with the participants building a personal model first, of what posed question means to them or what their interpretation of something is, for example, 'build a model that represents key nursing attributes'.

Following every build stage there is a round of storytelling, where each person gets to share the story attached to their model. These stories are told uninterrupted by the builder, everyone must share, and they can only share the story of the model rather than just stating their point or any ideas they have. This is important as it ensures everyone gets to speak equally and share their thoughts and that they are talking about their own model, rather than what someone else has shared. Building on these initial personal models' facilitators may have participants combine key aspects of their own models to form a larger shared model. This requires the group to undertake a period of negotiated model building whereby everyone's key parts need to be combined and in a way which preserves their ascribed narrative. This can take some time as participants negotiate the shared model and its narrative. The shared model can then be used in further rounds of building as participants are asked to build associated models, such as things they think might impact the shared understanding, or what other factors may be linked to it (Fig. 0).

The purpose of this review is to explore the available literature

relating to the use of LEGO® SERIOUS PLAY® as an educational tool within nurse education. Given the scarcity of research around the use of LEGO® SERIOUS PLAY® in education, a scoping review approach was taken. This approach lends itself well to instances where there is limited research on a subject as it allows the consideration of a much broader range of evidence (Thomas et al., 2017). Scoping reviews focus on the exploration of the literature in order to map out the extent and key features of the phenomena – rather than seeking to provide a definitive answer or robust guidance for practice (Thomas et al., 2017). Additionally scoping reviews serve as effective tools for seeking to identify and interrogate gaps in knowledge (Peters et al., 2020). The methodology used will be an adaptation of the five-step framework described by Arksey and O'Malley (2005).

## 2. Stage 1 – the research question

The central focus of the scoping review was to establish how LEGO® SERIOUS PLAY® (LSP) is being used to support the development of students within an educational context. The choice to focus broadly on its use within education, rather than specifically on nursing education, was taken following an initial review of the nursing literature which revealed only a single result. Whilst widening the search to healthcare education, in general, did supply a few more results, it was felt a wider focus would enable better exploration of the key themes. To expand on this and explore this in more depth two further questions were developed. The second question sought to explore the advantages of using LSP as an educational tool with a view to understanding what its use had achieved. The third and final question set out to explore if there were any factors either within the LSP methodology and/or educational



Fig. 0. Example of LSP build.

settings that might constrain its use as an educational tool. The final review questions are shown in Fig. 1.

### 3. Stage 2 – identification of relevant literature

A three-step approach was taken to find literature relevant to the review question. First, an initial search of CINAHL and Academic Search Premier was undertaken using the basic PCC (Population, Concept, Context) terms identified from the main question (See Table 1). The retrieved articles enabled the initial search terms to be expanded based on their associated keywords. This revised list of search terms was then used in the second step to undertake a wider and more rigorous search of CINAHL, Academic Search Premier, PsychInfo, Scopus, Proquest Dissertations and Theses and the British Library's Electronic Theses Online Service. The final step of this process was to search the reference lists of all selected articles. The search process is summarised in the PRISMA shown in Fig. 2. The types of evidence to be included needed to be intentionally broad to encompass a wide range of different forms of evidence. The focus of the review is to explore and map out how LSP is being used or could be used as an educational tool. This means that there may be instances where its use and application has been discussed within published literature or at conferences based on its perceived merits rather than findings of a formalised study. Whilst such discussion-based material might be unsuitable for robustly underpinning clear practice guidelines or protocols, it is suitable for the purpose of exploring the phenomena in context. For these reasons articles were not restricted to research reports and all database search results were considered for inclusion. No restrictions were made based on geographical location to maintain the broad-brush approach to mapping out the data, though articles were restricted to English language only.

### 4. Stage 3 – study selection

Initial selection took place by reviewing the article title to determine its relevance for inclusion based on the criteria set out in Fig. 3. The abstracts of the selected articles were then read to ensure suitability against the same criteria, all those selected at this stage then went on to be read in full. There was an attempt to conduct the review with a focus on healthcare students, however, the initial search returned too few results to make this viable. As a result of this, the criteria were broadened to include articles relating to the use of LSP in any kind of educational context. A very definitive distinction was made in relation to exploring the use of the LSP methodology rather than simply the use of LEGO® in an educational context. As noted above, LSP is a well-defined and specific process that has been designed to facilitate discussion and exploration of ideas. This means that there will be a greater level of congruence between the way it is used by different practitioners in different environments, thus making comparison of findings easier. The core purpose of LSP is exploration through storytelling and metaphors, so even if used in widely different contexts, the central goal of exploring ideas remains.

**Table 1**  
PCO terms.

Population	Concept	Context
Student* OR Learner*	LSP	Education OR Learning OR Development

### 5. Stage 4 – charting of the data

Following stages 2 and 3, there were a total of 11 articles identified as relevant to the review questions. These articles are summarised in Tables 2 and 3 for the research-based texts and descriptive texts respectively.

### 6. Stage 5 – collating and reporting

A total of 11 articles were identified at the end of the selection process ranging from a variety of different disciplines. Only four of the selected articles originated from a healthcare background and of these only one had a nursing focus. A further six articles were drawn from a range of different disciplines: engineering, fashion, design, and computer sciences. There was a single article which explored the use of LSP as a tool to support the development of students in a more general non-subject specific way. A total of seven of the selected articles were reports of research undertaken by the authors in which the studies were clearly defined. The final four articles were descriptive articles wherein the authors discussed their experiences of using LSP and how its use could best be applied to an educational context. As noted above, these conceptual articles were included as this is a scoping review and such perspectives are important when exploring the extent of the subject in question (Anderson et al., 2019).

Of the seven research-based articles three of them exclusively took a qualitative approach (Hayes and Graham, 2019; McCusker, 2019; Peabody and Noyes, 2017). The largest of these was a phenomenological study undertaken by Peabody and Noyes (2017) which had a sample size of 29 participants. McCusker (2019) presented a case study of a workshop of 9 international educators, whilst Hayes and Graham (2019) used situational analysis with a small group of 16 nursing students. The remaining studies utilised a range of mixed methods approaches to capture a range of data (Dann, 2018; Geithner and Menzel, 2016; Kurkovsky, 2015; Seifert and Tseng, 2017). Seifert and Tseng (2017), Dann (2018) and Geithner and Menzel (2016) both made use of existing scoring tools to capture quantitative data pre and post intervention with LSP. Geithner and Menzel (2016) then expanded on this with qualitative evaluations, whilst Seifert and Tseng (2017) used a 'guided autobiography' method to analyse the life stories presented by the participants. Hayes and Graham (2019) made use of focus groups within their qualitative study, whilst Peabody and Noyes (2017) made use of phenomenological interviews. All studies were based on small sample sizes

Review Questions
1 – How is LEGO® SERIOUS PLAY® being used with students in education?
2 – What are the reported advantages of LEGO® SERIOUS PLAY® as an educational tool?
3 – What are the constraints of the use of LEGO® SERIOUS PLAY® in an educational context?

**Fig. 1.** Review questions.

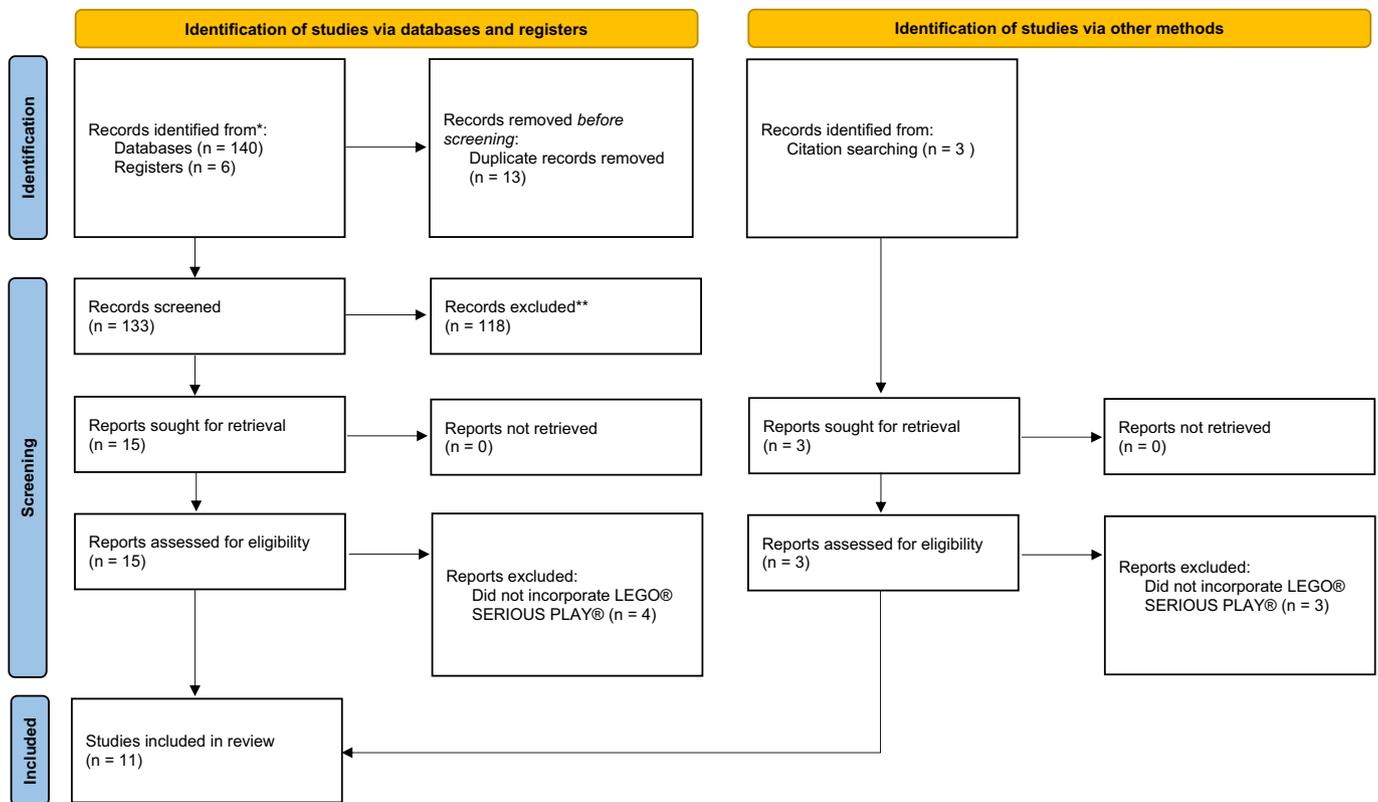


Fig. 2. PRISMA.

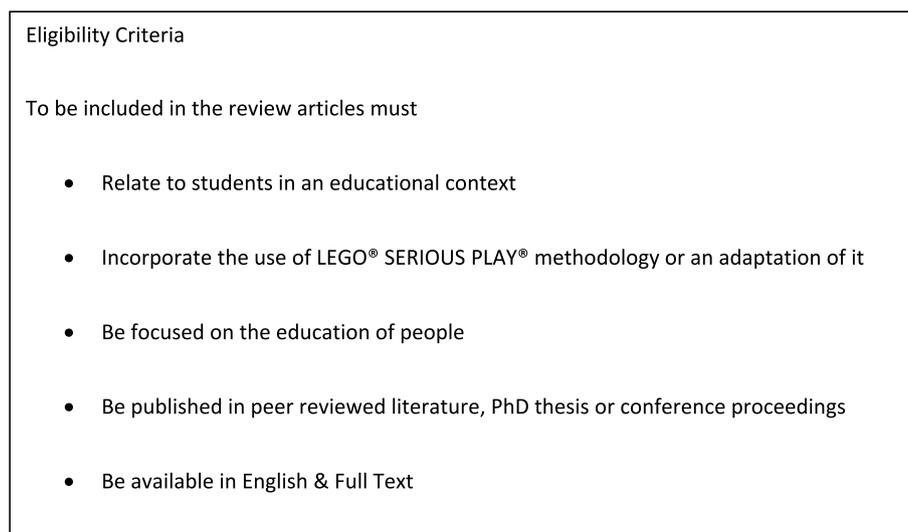


Fig. 3. Eligibility criteria.

ranging from as little as 16 students (Peabody and Noyes, 2017) to a maximum of 47 (Geithner and Menzel, 2016).

### 7. How is LEGO® SERIOUS PLAY® being used within education

In all of the selected literature, LSP was used to generate discussion and exploration of experiences and perspectives between participants. This is congruent with the design principles of LSP (Kristiansen and Rasmussen, 2014) albeit with a more educational, rather than strategic development focus. There were common threads relating to how LSP was being used and the purpose of its selection as a method.

#### 7.1. LSP as a reflective tool

The most common application for LSP noted was as a tool to promote reflection, either by providing a reflective space/opportunity, or through the development of reflective skills. Six articles cited reflection as an intended purpose, goal or outcome of their use of LSP. Four of these articles explored this within the context of healthcare education, specifically occupational therapy (Peabody and Noyes, 2017), nursing (Hayes and Graham, 2019), play therapy (Peabody, 2014) and paramedic practice (Hayes, 2018). The remaining two drew upon explorations of LSP mediated reflections in learner identity (Seifert and Tseng, 2017) and arts based programmes (James, 2013). A summary of these

**Table 2**  
Research report summary.

Author/s	Year	Aim/Purpose	Population & Methods	Outcomes
Hayes & Graham	2019	Explore the notion of social constructionist approaches to learning	Situational analysis was used with nursing students (n = 16) to explore the process of critical introspection through use of LEGO® SERIOUS PLAY® - Data was captured using two focus groups.	Students reported that LEGO® SERIOUS PLAY® enabled them to engage in deep learning and reflection around their learning journeys so far. They also noted that LEGO® SERIOUS PLAY® enabled them to interpret and express their learning journey more clearly
McCusker	2019	To explore the use of LEGO® SERIOUS PLAY® for facilitating a workshop for international educators	Case study of a small group of international educators who took part in a LEGO® SERIOUS PLAY® session to explore the concept of global education.	LEGO® SERIOUS PLAY® demonstrated ability to cross cultural and traditional barriers - particularly aided by the use of metaphor. This lead to the development of shared understanding and appreciation. LEGO® SERIOUS PLAY® provides an effective discussive medium that enables diverse ideas and viewpoints to interact.
Dann	2018	Introduce LEGO® SERIOUS PLAY® as a tool for teaching through experiential learning - presents three cases studies of different design	Presented 3 studies where LEGO® SERIOUS PLAY® has been used to promote student learning. Study 1 (n = 108) used self-reported survey items. Study 2 captured data via a post-class reflective task. Study 3 (N = 330) used self-reported instruments, observation data and collaborative field observations.	Highlights its importance as a tool for supporting metacognitive reflective tasks as well as thinking and listening approaches, also removes the hierarchical power structures of open discussion based on reaction time and confidence to speak etc. All this in tern means that during the course of a 3 h session students can explore in-depth and complex subjects. All of this is promising for the proposed development of a professional identity exploration model
Kurkovsky	2018			

**Table 2 (continued)**

Author/s	Year	Aim/Purpose	Population & Methods	Outcomes
		To test if student learning is better through us of LEGO® SERIOUS PLAY®	Quasi-experimental student where two groups of students (n = 20) complete a similar task, the test group using LEGO® SERIOUS PLAY® whilst the control group used more traditional methods.	Increase in participant rated learning in 'comprehension', 'application' and 'analysis' (p < 0.05) and 'evaluation' but lower significance (p < 0.1). Students noted a more enjoyable experience with LEGO® and reported it helped it stick in their minds. The physical representation appear to aid understanding and the ability to explain and translate ideas. Noted some student may remain sceptical and that this must be identified and challenged
Tseng	2017	Explore the effectiveness of an LEGO® SERIOUS PLAY® intervention as a reflective tool to speed up the development of narrative identity in disadvantage students	Longitudinal experimental study of students (n = 45) - used mixed methods by comparing pre, post and follow-up tests for 'narrative coherence', 'themes of agency and communion', resilience and vulnerability indicators' and 'adaptability outcomes'. Life stories where also analysed using a 'guided autobiography' method	Clear indication that the variables measured to a reasonable degree of significance in post test scores. This indicates that LEGO® SERIOUS PLAY® has a positive impact on the development of narrative identity. The overall improvement in the scores appears to demonstrate an increased degree of agency and communication. In addition to this there is an associated increase in self-awareness and ability to develop new insights.
Peabody & Noyes	2017	To explore the use of LEGO® SERIOUS PLAY® as a reflective tool	LEGO® SERIOUS PLAY® was utilised as an alternative learning too for post graduate occupational therapy students (n = 29) undertaking a module of reflective practice. Phenomenological interviews where utilised to capture the experiences of those taking part, both students and faculty.	Noted acceleration in group cohesion and bonding, along with growth. The student voice was also amplified and it enable emotional meaning making

(continued on next page)

Table 2 (continued)

Author/s	Year	Aim/Purpose	Population & Methods	Outcomes
Geithner and Menzel	2016	To utilise LEGO® SERIOUS PLAY® to improve technical and soft skills during a simulated business activity	Studied student (n = 47) who each took part in a 6 h LEGO® SERIOUS PLAY® session. Utilised mixed methods by combining self-reported perceptions of skill level with observations, reflections and evaluations during and after the LEGO® SERIOUS PLAY® session.	The whole process reported good outcomes on all metrics, but LEGO® SERIOUS PLAY® was only part of this so initially it is hard to directly attribute success. LEGO® SERIOUS PLAY® did get high satisfaction levels from its use as a reflection method. Specifically with regard to LEGO® SERIOUS PLAY® it identifies the positive impact it can have on teamwork, reflection and communication and calls for more research to specifically look at these areas.

are presented in Table 4.

LSP was widely utilised to encourage a deeper level of reflectivity amongst participants (Dann, 2018; Geithner and Menzel, 2016; James, 2013; McCusker, 2019) than traditional professional and academic approaches. Although it was reported to facilitate this deeper level of reflectivity it is important to note that none of the studies utilised any form of comparison to support this claim. Its suitability for this endeavour was linked to the participative nature of LSP as a shared process between participants. With a focus on the development of a shared narrative through the negotiation of diverse perspectives of those participating (Geithner and Menzel, 2016; McCusker, 2019; Peabody, 2014). Building on this, LSP was also utilised as means to promote self-exploration and awareness in order to support transformational learning and the renegotiation of existing knowledge (Hayes and Graham, 2019; Peabody and Noyes, 2017). This open exploration was also employed to help in the development of a strong sense of self-identity (Barton and James, 2017; Peabody, 2014; Seifert and Tseng, 2017), as well as group identity and cohesion (Barton and James, 2017; James, 2013; Peabody and Noyes, 2017). The purpose of this was to strengthen resilience (Hayes, 2018; Seifert and Tseng, 2017), self-efficacy (Seifert and Tseng, 2017) and metacognition (Barton and James, 2017).

7.2. LEGO® SERIOUS PLAY® as an exploratory learning tool

The second most common application of LSP amongst the selected articles was as a teaching methodology for an aspect of a programme or course of study. None of the articles utilising LSP for this purpose originated from a healthcare context, instead, they came from marketing (Dann, 2018), arts (Barton and James, 2017) business development (Geithner and Menzel, 2016), global education (McCusker, 2019) and software design (Kurkovsky, 2015). In all instances, LSP was found to be beneficial in supporting learning within a classroom context. A summary of these uses is found in Table 5.

Exploration of complex concepts and knowledge was a key driver for the use of LSP as an instructional tool (Barton and James, 2017; Dann, 2018; Kurkovsky, 2015). The physical component of model building was regarded as a key component in this as it enabled easy expression and

Table 3

Descriptive texts summary.

Author/s	Year	Aim/Purpose	Finding/Key Arguments
Hayes	2018	To argue that LEGO® SERIOUS PLAY® can be used as a tool to support reflection in paramedics and thus act as a ‘catalyst for behavioural change’	Highlights key underpinning principles of LEGO® SERIOUS PLAY® and how these make it a tool that can aid reflection and promote a deep and shared understanding of a challenging topics as well as promoting group cohesion
Barton & James	2017	The stated aim was to explore if LEGO® SERIOUS PLAY® could be utilised to help students uncover ‘stuckness’ and identify solutions through self- and co-enquiry as well as acting as a means to provide more enriched learning. Had a clear focus of the role of threshold concepts and how LSP could be used to explore these.	Presents experiences of delivering a range of LEGO® SERIOUS PLAY® educational interventions. Links LEGO® SERIOUS PLAY® to liminality and its use in helping students to develop skills to move through this (self-awareness and enquiry). It also enabled learners to see the bigger picture and explore the interconnectedness of their experiences, this feeds into their concepts of identity and place within the bigger whole
Peabody	2014	To present an adaptation of LEGO® SERIOUS PLAY® that has been used to aid in group supervision and individual supervision for play therapy practitioners, focusing on professional identity	LEGO® SERIOUS PLAY® is successful in providing a language by which to explore individual and group understanding. It is particularly helping in the exploration of professional identity within the supervisor context. More work is needed to explore this further.
James	2013	To present the case that LEGO® SERIOUS PLAY® is an important tool for supporting ‘multisensory approaches’ to reflection both on creative courses and a wider range of disciplines	Notes that LEGO® SERIOUS PLAY® can deepen reflection and make recollections more memorable. LEGO® SERIOUS PLAY® is a helpful tool that enables people to think differently about their own experiences. It places a greater focus on the subjective nature of learning and negotiations of concepts. It also can contribute to the greater sense of community between participants as they understand more clearly the experiences and perceptions of others.

Table 4

Reflective uses of LSP.

Study	How LEGO® SERIOUS PLAY® was used
Hayes and Graham (2019)	To support nursing students in reflecting and making sense of their learning journey
Hayes (2018)	To promote resilience amongst paramedical students through shared exploration of challenging experiences
James (2013)	To support multisensory approaches to reflection on creative arts courses
Peabody and Noyes (2017)	To develop and strengthen critical reflection skills of occupational therapists
Peabody (2014)	To support group and individual clinical supervision for play therapists
Seifert and Tseng (2017)	To speed up the development of narrative identity in order to promote learner resilience and self efficacy

iteration of ideas (Barton and James, 2017; Kurkovsky, 2015). Case studies (Kurkovsky, 2015) or simulated activities (Geithner and Menzel, 2016) were utilised to provide focus of the LSP activities in some articles whilst in others participants were drawing on their own experiences (Barton and James, 2017; Dann, 2018; McCusker, 2019). In all

**Table 5**  
Exploratory learning uses of LSP.

Study	How LEGO® SERIOUS PLAY® was used
Barton and James (2017)	To help student uncover 'stuckness' in their learning and identify solutions
Dann (2018)	To promote experiential learning
Geithner and Menzel (2016)	To support the development of technical and soft skills as part of a simulated business activity
Kurkovsky (2015)	To create a more interactive and enjoyable learning experience
McCusker (2019)	To enable group discussion between a diverse group of participants

instances, however, there was the overarching assumption that each participant had some fragment of knowledge that could be shared and combined to support learning for all participants. Improved group cohesion was also a driver in selecting LSP as an approach to learning within an occupational context (Dann, 2018; Geithner and Menzel, 2016). McCusker (2019) used LSP to promote group cohesion amongst culturally diverse participants which also helped to overcome power imbalances and language barriers.

### 7.3. What is the reported benefit of LEGO® SERIOUS PLAY® as an educational tool?

A key application of LSP noted within all the selected literature was its ability to support a deeper understanding of complex issues and diverse perspectives (Barton and James, 2017; Hayes, 2018; Kurkovsky, 2015; McCusker, 2019; Peabody and Noyes, 2017). Several inherent factors associated with the LSP methodology emerge from the literature in support of this. Firstly, the representation of ideas as physical objects affords individuals the opportunity to 'play' around with their own concepts and position them in relation to those of others (Dann, 2018; McCusker, 2019). This positioning is undertaken both physically using the built models (distance and position), but also conceptually through the narrative attached to them. These narratives are metaphor laden and enable other participants to interpret and investigate them in relation to their own evolving narrative (Barton and James, 2017; Hayes, 2016). This is often an iterative process and is aided by the construction of shared models that need to represent the shared understanding of those involved. This process of sharing and renegotiating the meaning in this way aids in the wider understanding of complex issues, as well as the perspectives and interpretations of the other participants (Barton and James, 2017; Hayes, 2018; Kurkovsky, 2015; McCusker, 2019; Seifert and Tseng, 2017). Hayes and Graham (2019) also noted that this process provided a scaffolding effect that enabled learners to slowly build upon their understanding concerning a particular topic, idea or concept.

Building on the above, it is noted that the preservation of complexity enabled participants to have a greater appreciation of their own thinking, that of those around them and the wider context within which it sits (Hayes, 2016; McCusker, 2019; Peabody, 2014; Seifert and Tseng, 2017). Advancing this further, Hayes (2018) articulates how this deep level of cognition and empathetic understanding can be useful when exploring critical incidents and significant events in a professional context. Seifert and Tseng (2017) note a similar benefit to exploring personal experiences. In both instances the effect is increased resilience in the face of adversity, improved self-efficacy and a deeper understanding of self (Hayes, 2016; Seifert and Tseng, 2017). The importance of identity was also noted and LSP offers an opportunity to explore identity as a transformational process (Barton and James, 2017; Peabody and Noyes, 2017).

Increased group cohesion and team building was highlighted as another common output of the LSP methodology (Dann, 2018; Geithner and Menzel, 2016; Seifert and Tseng, 2017). In some instances, this was an intended outcome of the intervention itself and the activities utilised were designed in such a way as to promote this endeavour. In other

instances however, it was highlighted as a beneficial side effect (McCusker, 2019). A key driving component of this accelerated group cohesion appeared to arise from the levelling effect that LSP had on the potential power imbalances, hegemonies, and participatory aptitudes of those taking part. Dann (2018) noted how LSP served as a conduit for the expression and discussion of ideas between diverse groups. James (2013) found a similar advantage and adds that it also works well where there are differences in the first language of participants. Extending this somewhat, McCusker (2019) adds that it also served as a catalyst for discussion between radically diverse cultural participants.

As noted above, many of the selected scripts sort to utilise LSP for the purpose of facilitating reflection amongst participants. Both Barton and James (2017) and Geithner and Menzel (2016) set out to utilise LSP as a means of building reflective skills in their participants. Complimentary to this, James (2013) also notes that it can also serve to deepen reflective skills within participants as well as the meaning that they derive from it. Hayes (2018) also supports this notion and argues that there is merit in utilising LSP as a tool for developing affective domain knowledge and skills. The work of Peabody (2014) in relation to the utilisation of LSP within a professional supervision context also adds weight to the argument that it is an effective reflective tool. Both Peabody (2014) and James (2013) noted that another contributing factor to this is that LSP is a participatory process in which everyone has to take a turn, thus limiting or even negating passive participation.

### 7.4. What are the constraining factors for the use of LSP in an educational context?

A common constraining factor noted in several of the selected articles was the perception of the LSP process by both students and faculty (Dann, 2018; James, 2013; Kurkovsky, 2015). LEGO® is commonly regarded as a toy that children play with and as such some participants may consider it to have little value within an educational setting (Kurkovsky, 2015; McCusker, 2019). This perception is perhaps not helped by the fact that LSP methodology is difficult to describe and articulate in conversation and the benefit is largely only appreciated through participation. McCusker (2019) comments that such concerns are largely short-lived once people have engaged with the process.

The exploratory structure of LSP means that the discussion and exploration are organic and goes where it goes. As such this is the most widely discussed constraint within the selected literature. Barton and James (2017) note that there is often a challenge in steering learning towards a particular concept or idea. They explain that this made it difficult if there were particular threshold concepts they wanted students to identify within the session. Instead, they found students tended to focus on less defined and more woolly concepts and emotions. Whilst these in themselves may have value, they may not align with the intended learning outcomes of the planned session. Dann (2018) also highlights this challenge and cautions that LSP activities need to be created with close attention to ensuring they are constructively aligned to the purpose of the course. This is particularly important given that LSP is a serious investment of time within a programme, as an individual session with a small group will take a number of hours (Barton and James, 2017). Further to the above, it is noted that LSP is reliant on the answer or solution to the questions posed and will always be limited by the scope of those participating in the process (Dann, 2018). The facilitators' role is limited to the delivery of the process and as such is not to provide added insight, interpretation or meaning. This means that it has decidedly limited application in situations where educators are seeking to utilise it for knowledge transfer.

### 7.5. Strengths and limitations of the review

In keeping with the purpose of a scoping review, the discussion above has explored the available literature in order to map out how LSP is currently being utilised within education. This is a very broad

approach that has taken into consideration conceptual literature, as well as published research. Whilst this offers the advantage of bringing together the current understanding, the inclusion of the conceptual texts does bring its limitations. The quality and robustness of the research included in the scoping review has not been interrogated as it would have been in a systematic review. Whilst this fits with the purpose of exploring and mapping out the topic of LSP in education, it does limit the robustness of any generalisations or conclusions drawn from the review. This is further compounded by the lack of literature available in relation to this topic as well as the small sample sizes used in the research presented. There is also a possibility that poignant work may not have been included because it was not available in English or it was not returned within the search. Whilst the selected literature all supported the use of LSP as an educational tool and highlighted its advantages, these findings were largely non comparative and self-reported. What has been achieved however, is a consolidation of emerging thinking around the use of LSP within education. This in turn will serve as an effective point of departure for further exploration and study.

### 7.6. Considerations for nurse education and future research

Modern healthcare delivery is complex and challenges practitioners on an intellectual, emotional and even moral basis (Keeling and Templeman, 2013). This means that nursing preparation programmes need to challenge students to grapple with complex knowledge and concepts concerning the intricacies of their future role. LSP appears to offer itself as a tool to support participants in exploring these complex issues in a rich and meaningful way that leads to a deeper and shared understanding. The literature explored within this review did not offer any form of comparative analysis between LSP and more traditional approaches that might be used to encourage deep reflective explorations amongst learners. It did however provide compelling arguments that the features of the LSP process strongly supported the exploration of complex concepts and reflective investigation of experiences and ideas.

The reviewed literature highlights a number of benefits to utilising LSP that would be advantageous to any educational context. The building of models to represent ideas offers a mechanism by which participants can explore complex ideas and experiences in a non-reductionary and inclusive way. From a nursing perspective, this is important as nurses work within highly complex systems that are both difficult to navigate and challenging to describe. Within LSP the act of undertaking the build itself appears to support individuals to think more deeply about the topic they are exploring as they construct their model. This is often an iterative process as they set out by building something to represent the first part of their idea and then expand on this by finding a way to incorporate another aspect and then another etc. In doing so they are able to create a highly complex representation of their ideas. The merits of being able to deeply explore your own understanding of a concept or phenomenon are themselves significant enough to have applications within nursing education but the sharing component of LSP makes this even more compelling.

Following every build, participants will take turns to share the story of their model, uninterrupted, with the other participants. This is a vital step in the process, and it ensures that everyone is afforded the opportunity and space in which to share their ideas and thoughts about the build challenge. The obvious advantage here is that this prevents one or two individuals from dominating the group and sets everyone on a more level playing field. This means that everyone participating gets the opportunity to explore the perspectives and ideas of all participants rather than those of the more vocal group members, this is important within nurse education as it promotes richer and broader sharing of ideas. Furthermore, this back and forth sharing of the stories associated with each person's models appears to work well across cultural and language barriers (Ref). This has obvious applications when facilitating learning between overtly diverse groups such as students from different countries, but it could also be beneficial in supporting the exploration of ideas

between sub-cultural groups such as different professions or students from diverse backgrounds. This ability to bridge the gap between different cultural groups and backgrounds could be particularly beneficial for nursing given the diversity of students entering nurse education programmes.

One of the later stages of the LSP methodology is often to construct shared models that incorporate the key elements of each individuals build. This is also an iterative process that requires all participants to agree on the narrative of the shared model in a way that remains true to the meaning ascribed to the component parts by their original contributor. This can be challenging as the group may need to ameliorate some fairly diverse and perhaps oppositional ideas into a shared narrative. To do this, learners need to really understand the perspectives presented by the other participants and seek out the commonalities between everyone's contributions. This is an important skill for nurses to learn as they will often have to work with diversely different perspectives as well as patients with beliefs and values vastly different to their own. So by doing this not only would students be developing this ability to be comfortable with competing ideas, but it also broadens their own understanding of the nuances of the topics being discussed. A key feature of the LSP process here was the ability for them to play around with the models to combine them in different ways. During the session, this playing around will take place physically by repositioning the different models, but also conceptually. Each model or part thereof acts as a physical metaphor which is a kind of shorthand for the complex set of ideas the participant has previously presented. So repositioning or reconnecting different parts allows participants to explore how these differing complex concepts could fit together.

One of the key findings from the review is how beneficial LSP can be as a tool to support reflective processes, introspection, and the development of professional identity. Nursing, like all healthcare roles puts people in situations that can be challenging and demanding from a psychological and emotional perspective. Dealing with such instances demands a practitioner who is not only comfortable with their abilities and knowledge but can also flex to meet the dynamic demands laid before them. It also requires them to have a good level of emotional resilience and a repertoire of skills to help them care for their own health and wellbeing as well as those around them. Whilst traditional forms of education offer the opportunity to equip people with the raw skills and knowledge needed, they can fall short of teaching students how to deploy them in a practice setting (Ranjbar et al., 2017). Through the LSP process, nursing students may be able to wrestle with the intricacies of clinical practice and formulate shared interpretations of how to meet the diverse and complex challenges of being a professional.

The need for exposure to clinical practice in the development of student nurses' professional identity is very clear (Attenborough and Abbot, 2018; Clements et al., 2016; Ewertsson et al., 2017; Mazhindu et al., 2016; Traynor and Buus, 2016) but this alone is not enough. Experiences gained in practice need to be made sense of, and student nurses need support to help them to do this, particularly early on. Role-models can help with this sense making process and also form a core and vital role in supporting the student to ameliorate their experiences and develop their professional identity (Baldwin et al., 2017; Ranjbar et al., 2017). Part of the challenge in developing professional identity is that it represents more than just the acquisition of new knowledge and skill. It requires a degree of transformation and growth, representing a significant and irreversible change on the part of the learner (Borgstrom et al., 2010; Keeling and Templeman, 2013). This is a transformational process and needs to be supported in a way that affords students the space to explore their own knowledge, as well as those of others. LSP is well suited to this endeavour and offers an environment and language which transcends traditional barriers such as power imbalances, language, and culture.

## 8. Conclusion

LSP is a tool that was designed for supporting collaborative and engaging discussions within a business orientated context. Literature is emerging that supports its use within an educational context, but this is currently limited in both its quantity and scope. The evidence explored within this review highlights a range of ways in which the use of LSP could be beneficial to nursing students. LSP is a tool that could be used to better facilitate the exploration and discussion of complex ideas and concepts, particularly between diverse groups. Furthermore, it can also be utilised to deepen the reflective process and provides a mechanism that can support meaning making on both an individual and group level. More work now needs to be undertaken to explore more specifically what place LSP might take in the development of nurses and how it can be used as a tool to support transformational learning for future nursing professionals. The two most prominent gaps within the LSP literature with regard to its use within nursing education are the lack of exploration specifically within a nurse education context and the lack of comparative studies comparing the use of LSP to other forms of education.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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