

Guided play as a pedagogical tool for the early grades



Authors:

Lerato B. Ndabezitha¹ 
Sarah Gravett¹ 

Affiliations:

¹Department of Childhood Education, Faculty of Education, University of Johannesburg, Johannesburg, South Africa

Corresponding author:

Lerato Ndabezitha,
ndabezitha@uj.ac.za

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Background: Research has shown the benefits of play for children's learning and development. Play can also be harnessed for pursuing pre-determined learning goals related to school curricula through 'guided' play.

Aim: The research inquired into the implementation of a pre-service teacher education course on play as pedagogy to evaluate and refine the course's design principles.

Setting: The study was conducted at the University of Johannesburg, involving pre-service teachers within the Bachelor of Education in the foundation phase of schooling.

Methods: The research formed part of a broader design-based research study. The data were collected via questionnaires, interviews, analysis of students' work and a research journal. A combination of inductive and deductive data analysis was used.

Results: The way in which the course was designed and implemented was successful in helping students develop a basic understanding of guided play, although there were gaps in their understanding of their guiding role; student teachers learnt that creativity could be developed through play.

Conclusion: In general, the design principles served the course and its implementation well because students learnt much about guided play. However, a major gap was the insufficient focus on guiding practices. Such practices should receive considerable attention in a pre-service teacher education course on guided play. A stronger focus on the interconnectedness of play and creativity in a course on guided play for pre-service teachers will be beneficial.

Contribution: The research on teacher preparation for using play-based teaching and learning is limited. This study contributes to addressing this gap.

Keywords: guided play; playful learning; pre-service teacher education; creativity; play.

Introduction

A large body of research has shown that play is crucial for children's development and preparing them for life's challenges (Elkind 2015; Whitebread et al. 2017; Yogman et al. 2018; Zosh et al. 2018). However, there is little agreement on the exact characteristics or indicators of play in the literature (Zosh et al. 2017). Nevertheless, indicators of play as put forward by Mardell et al. (2016) are often observed as characteristics of engagement in play: delight (including excitement, joy, satisfaction, inspiration, anticipation, pride and belonging); wonder (which entails the experience of joy, novelty, surprise and challenge) and choice (includes a sense of empowerment, autonomy, ownership, spontaneity and intrinsic motivation).

Play allows children to investigate, explore, experiment, create and predict outcomes (UNICEF 2018). It can also help them to learn to negotiate and form relationships with their peers and to develop self-regulation, self-confidence and self-motivation (Whitebread et al. 2017). Furthermore, a growing body of research has linked play to learning academic skills such as literacy and numeracy (Ferrara et al. 2011; Verdine et al. 2014; Weisberg et al. 2013; Zosh et al. 2014). All of this can be achieved through various types of play, including physical play, object play and pretend play. In general, when the term play is used in relation to children, free play is implied, that is children involved in self-directed free exploration and discovery with no or minimal interference from adults (Masterson & Bohart 2019). In addition, play with its inherent benefits can be harnessed for pursuing pre-determined learning goals related to school curricula through 'guided' play.

Guided play within the school environment serves as the bridge between free (unstructured) play and direct instruction (Weisberg et al. 2013). Using guided play as a pedagogy couples learner agency and teacher guidance. This implies that learners' initiative and self-direction are respected

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and fostered, while the teacher simultaneously guides learners towards a learning goal (Weisberg et al. 2016; Yu et al. 2018). Well-executed guided play involves active (cognitive) engagement (minds-on) of learners and invokes meaning, social interaction, iteration and joy. These align with the science of learning literature on features that comprise optimal learning environments (Zosh et al. 2017) and could therefore be applicable to learners of all ages.

To us, guided play is not unlike what Mayer (2004:15) referred to as 'guided discovery', which implies providing learners with enough freedom to explore on their own and enough guidance to direct their activity in productive directions to the learning goal. Guided discovery involves learners working on learning tasks that allow for exploration and some self-direction, while the teacher provides hints, direction, feedback and modelling to keep the learners on track towards the learning goal. The difference between guided discovery and guided play is that the latter purposefully employs learning tasks that involve playfulness, play activities or playful techniques (Whitton 2018). Playfulness is characterised by a 'particular positive mood state' where the individual is more inclined to behave and think in a spontaneous and flexible way (Bateson & Martin 2013). Such a positive mood state is conducive to learning because it opens 'the gates of neuronal plasticity' (Dehaene 2020:xxiii). Creating a positive mood state through playfulness invokes positive emotions, which are crucial for optimising learning (Dehaene 2020; Immordino-Yang 2015). In teaching, a positive mood state is created through classroom activities and teacher modelling that 'encourage the interpretive spirit, humour, lightheartedness and openness of the curious inquirer' (James & Brookfield 2014:64).

Much has been written on guided play in relation to the roles of the teacher and learners, the features of guided play and the benefits of using guided play in a school setting (Skene et al. 2022; Toub et al. 2016; Weisberg et al. 2016). However, a paucity of research has addressed teacher preparation for using play-based teaching and learning (Diaz-Varel & Wright 2019; Khalil et al. 2022) and even less in relation to pre-service teacher education.

Against this background, the authors of this article conducted a design-based research (DBR) study on preparing pre-service teachers at the University of Johannesburg to use guided play as a pedagogy in the foundation phase of schooling – the first 4 years of formal schooling in South Africa. Plomp (2010) defined DBR in the field of education as:

[T]he systematic study of designing, developing and evaluating educational interventions, – such as programs, teaching-learning strategies and materials, products and systems – as solutions to such problems, which also aims at advancing our knowledge about the characteristics of these interventions and the processes to design and develop them. (p. 10)

Here we report on one phase of the DBR study, which inquired into the implementation of a pre-service teacher

education course on play as pedagogy. The purpose was to explore the student teachers' experience of and learning from the course and to analyse the teacher educators' reflective observations of the course as it unfolded, with a view to use the findings to strengthen the course, but more importantly, evaluate and refine the design principles of the course. In line with Bakker (2018), we use the term 'design principle' to mean 'guidelines, advice or heuristics' (p. 51) in an argumentative form. This implies that the reasons underpinning the principles should be evident in relation to the intended goals to be achieved, so a design principle can be re-enacted by others when and where appropriate. It is beyond the scope of this article to explain the process followed to evaluate the design principles. However, the design principles that undergirded the course are discussed in the following sections and the research findings of the study, discussed later, signal the appropriateness of, and gaps within, the design principles and their implementation.

The article unfolds as follows: after providing an overview of the design principles, the research methods are presented, followed by a discussion of the findings and the limitations of the study, coupled with a recommendation for future research.

The design principles

Design principle 1: Creating significant learning experiences for student teachers, using backward design

In designing the course, we were guided by the core conviction that the course must provide significant learning experiences (Fink 2013) to student teachers. This necessitates backward design, which also incorporates the notion of 'enduring understandings' (Wiggins & McTighe 2005).

The central idea of the phrase 'significant learning' is that teaching should result in learning that is truly meaningful for the learners' lives because of its high potential for lasting and being of value in their individual, social, civic and work lives after completing the course (Wiggins & McTighe 2005). Similarly, enduring understandings refer to important understandings that we wish learners to retain after they have forgotten some of the detail (Fink 2013). The essence of both notions is that the course should be built around ideas, skills and behaviours that have the potential for longevity. Perkins (2014) uses the term 'lifeworthy knowledge' to capture this.

Implementing backward design meant that we started with desired results, what we wanted the student teachers to learn and why, and what we viewed as essential for them to learn about guided play, which would endure beyond the course. We derived this from conversations with experts, exploring the literature on play as pedagogy and examination of the context of the course. For example, we speculated that although the student teachers would have had first-hand experience of playing as children, they would probably not

associate play with teaching and learning. This process resulted in the formulation of course objectives, followed by decisions on the appropriate assessment practices, teaching approaches and the course content (readings and videos). These would enable significant learning experiences, taking account of the other design principles because of the interrelatedness of the principles.

The backward design process resulted in identifying the following themes as central to the course content: the characteristics of playfulness and play, different types of play, and using guided play as a central pedagogy in the foundation phase of schooling.

'Design principles 2 to 4 explain how we envisaged implementing the course (in other words, the teaching and assessment approach), as well as their rationale' (Ndabezitha & Gravett 2023).

Design principle 2: Integrating theoretical coursework learning with practical application

Pre-service teacher education programmes are often criticised for being overly theoretical, meaning that the programmes pay insufficient attention to the practice of teaching, and are therefore far removed from the realities in classrooms (Ribaeus, Enochsson & Löfdahl 2022). Pre-service teachers often have limited opportunities to practise core teaching practices 'in the moment' during the coursework component of the teacher education programme because school practicum is viewed as the site where 'theory' is applied or implemented (Gravett & Ramsaroop 2017). Consequently, implementation of what student teachers learn during the coursework is delayed or not implemented and practised at all. This is because coursework content in teacher education programmes do not necessarily correspond with practices in classrooms where student teachers do school practicum. Also, the assumption that student teachers will be mentored by experienced and positive role models during school practicum is often erroneous.

A design principle was that the course should integrate theoretical coursework learning with the enactment of the learning within the coursework. We wanted student teachers to move from intellectual understanding of the theoretical perspectives explored in the coursework (Korthagen 2017) to enacting these into the practice of playful and guided play teaching, albeit in small ways.

To us, integration of coursework learning and practical application also meant that student teachers should experience playfulness and guided play themselves in the course. Thus, the course presenter had to intentionally create a learning environment characterised by a (playful) positive mood state by invoking humour, surprise, imagination and joy (Whitton & Moseley 2019). It also implied involving student teachers in learning and assessment tasks that invoked playfulness, to give them the opportunity to reignite their sense of playfulness (Diaz-Valera & Wright 2019).

Thus, the course aimed at confronting the perennial issue of enactment – the disconnect between 'knowing that' and 'knowing what' and 'knowing why', head-on. This implied designing learning and assessment tasks for student teachers with thoughtful application of course content within the course. Such tasks would also foster deeper learning.

Design principle 3: Using teaching practices and assessment tasks that foster deeper learning

The course design and implementation focused on promoting deeper student learning. Deeper learning is defined by the National Research Council (2012) as:

The process through which an individual becomes capable of taking what was learned in one situation and applying it to new situations ... The product of deeper learning is transferable knowledge, including content knowledge in a domain and knowledge of how, why, and when to apply this knowledge to answer questions and solve problems. (p. 5)

We wanted to design significant learning experiences for student teachers to enable them to enact course content in applicable ways, coupled with understanding the rationale that underlies application.

A prerequisite for fostering deeper learning is taking account of, and building on, learners' knowledge (Ambrose et al. 2010). We planned to invoke and explore student teachers' prior knowledge of play and to purposefully assist them to link their knowledge and childhood experience when designing guided play activities.

Fostering deeper learning presupposed invoking the features of optimal learning environments (Zosh et al. 2017) that also characterise learning through play, as noticed earlier. Typical learning tasks that are pertinent include those that require collaborative inquiry and exploration, iterative practising of procedures and skills, aided by actionable feedback; application of course content to varied authentic tasks, using 'real-life' cases and role-play to aid meaning-making; and using learning tasks that allow for joyful engagement.

We planned to use assessment for learning iteratively throughout the course to support deeper learning. This implied providing explicit and constructive feedback to student teachers on tasks submitted and allowing them to resubmit some, incorporating their learnings from the feedback.

Furthermore, the assessment tasks were mainly 'authentic', and some included elements of role-play as a form of pretend play. Authentic assessment is appropriate for fostering deeper learning because 'it requires students to demonstrate their deep understanding, higher-order thinking and complex problem solving through the performance of exemplary tasks' (Koh 2022:1).

Although there are many ways in which authentic assessment is conceptualised, we planned to use authentic assessment in alignment with Darling-Hammond and Snyder (2000) who

contended that assessment should be authentic in the sense that it reflects real-life demands of professional practice (such as teaching), which requires integrating and coordinating knowledge, skills and attitudes, and the capacity to apply them in new situations. Authentic assessment requires students to demonstrate their learning often in a way that shows 'real-life' application or by creating a product, which is akin to performance assessment (Koh 2022).

We also drew on the work of Gulikers, Bastiaens and Kirschner (2007) who argued that the relationship between assessment and the work situation or professional practice is mediated by what they termed 'the criterion situation', where the assessment task reflects a real professional practice situation, but at the educational level of the learner, in this case, the student teachers.

An example of planned authentic assessment tasks required student teachers to design and implement (and videotape) play activities related to specific learning goals, accompanied by reflection on how the task was executed.

Design principle 4: Modelling

The last principle that informed the course design and implementation was modelling. Modelling can happen implicitly and explicitly in teacher education (Acquah, Szelei & Katz 2020; Warren 2019). Implicit modelling involves teacher educators modelling teaching methods and strategies that student teachers can use in practice but not drawing their attention to the rationale of using them. The effectiveness of the modelling is diminished because student teachers do not learn why a particular method is used. Therefore, they are less likely to use it in their practice (Lunenberg et al. 2007; Ritter 2012). Effective modelling is explicit and intentional. Teacher educators purposefully model the methods or strategies that they deem useful or effective and wish the student teachers to master (Lunenberg et al. 2007). In addition, the teacher educator explains the underlying thought process that went into adopting a particular strategy by giving a rationale for the choices made, through 'thinking aloud' (Loughran & Berry 2005:194).

Modelling for us meant that the teacher educator should model playful teaching and explicitly model the practices taught in the course. We agree with Loughran and Hamilton (2016:14) that 'modelling teaching as a way of creating opportunities for students to make sense of pedagogical practices and support their professional learning' should be integral to teacher education.

Figure 1 illustrates the interrelatedness among the design principles. This visual representation highlights that although each design principle serves a distinct role in the course design, they are also interconnected.

Research question

The research question of the study is, 'what design principles could constitute a valid, feasible and effective design for a

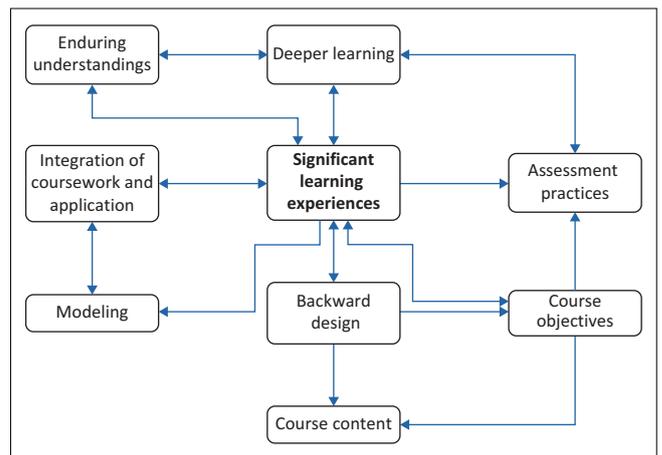


FIGURE 1: The interrelatedness of the design principles for a teacher education course on guided play.

course on guided play as a pedagogy in a pre-service teacher education programme?'

Research methods

Design type

As observed earlier, this research formed part of a DBR study. This study is also characteristic of practitioner research because both the first and second authors of the article were involved in designing the course, which is the focus of the study, and the first author also presented the course and collected the data. Practitioner research involves taking on the role of practitioner and researcher simultaneously to improve practice (Cochran-Smith & Lytle 2011; Farrant 2019). In addition, the knowledge generated through practitioner research should contribute to improving teacher education (Heikkinen, De Jong & Vanderlinde 2016) and should be disseminated so that teacher education programmes can use this knowledge to improve their programmes (Gísladóttir, Guðjónsdóttir & Jónsdóttir 2019). Thus, DBR and practitioner research are compatible.

The data collection and analysis for this component of the DBR study was guided by four interrelated questions: What did student teachers learn about guided play? What were the teacher educators' observations about what and how the student teachers were learning about guided play, as the course unfolded? What course strengths and gaps were identified? What are the implications of the findings related to the foregoing questions for the design principles of the course?

Research participants

All student teachers in the course ($N = 130$) were potential participants, as all of them could have served as information-rich cases. The student teachers were generally 18/19 years of age, female (the typical gender profile of foundation phase teachers) and mainly black African (as per the population classification system currently used in South Africa). They all completed a questionnaire at the onset of the course, which showed that they had not considered the potential value of play for teaching and learning before. Because all the student teachers were potential participants, any of the student teachers could have been chosen as

participants. In the light of this, 20 student teachers were selected randomly from the class list as research participants. This was accomplished by selecting the 5th student from the class list, followed by every 10th student, resulting in a total of 20 selected students.

Data generation

Multiple data generation methods were employed in the implementation phase of the course. Table 1 offers an overview of the data generation methods, the reasons behind selecting each method, the timeframe in which the data were collected and the primary categories that emerged from each dataset.

Ethical considerations

Several measures were considered to address ethical issues in the study. Firstly, we applied for ethics approval from the faculty of education. Secondly, we obtained informed consent from the study participants. This included explaining the purposes and objectives of the study and the ethical process prior to data collection. In addition, we also informed the study participants that the results of the study will be available in a research report. Finally, the identities of the participants were handled confidentially. Ethical clearance to conduct this study was obtained from the University of Johannesburg, Faculty of Education Research Ethics Committee (No. Sem 1-2020-037).

Data analysis

The questionnaires, assessment tasks, stimulated recall interviews and semi-structured interviews were analysed inductively, using the constant comparative method of data

analysis (Maykut & Morehouse 1994; Merriam & Tisdell 2016). It initially involved obtaining a holistic understanding of each data set and observing the main ideas to be used as provisionally identified categories, followed by coding to identify units of meaning. These were sorted into provisional categories. A process of refining the categories followed, which simultaneously involved moving to higher levels of abstraction to eventually arrive at the categories that captured the essence in relation to the questions that guided the data analysis. The guided play video data were analysed deductively using criteria derived from the course literature on the characteristics of play and essential elements of guided play. The categories of the different data sets were brought together (where applicable) to arrive at the themes that serve as the findings.

Presentation of the findings

The way in which the course was designed and implemented was successful in helping student teachers to develop a basic understanding that guided play can be used purposefully to teach curriculum themes. This theme confirmed that student teachers gained a basic understanding of guided play. They learnt that guided play could be used to teach a curriculum theme and to develop learners. The following excerpts from the interviews indicate student teachers' learnings about using guided play to achieve a curriculum goal:

'When I say use play, it does not mean that everything will be easy, and they will just play for the sake of playing. It's difficult because you need to be intentional in your play and align it with aims and objectives so that your learners are having fun, making choices on their own while you can guide them while they play.'
(Stimulated recall interview: student 20)

TABLE 1: A summary of the data generation methods and data sources, as well as the main ideas/categories that emerged from the analysis of each data set.

Data source	Rationale	Timeline	Main ideas from each data set
Questionnaire	To get an understanding of student teachers' existing views of play and using play to teach children	At the beginning of the course	Student teachers did not see the connection between playing, teaching and learning.
University module and teaching evaluation questionnaire	To get an understanding of student teachers' experiences of the course particularly of the teaching, learning and assessments of the course	After the course had been completed	The clear link between assessment tasks and course outcomes is a strength of the course. Regular feedback on assessment was important for achieving the course outcomes. Student teachers reported that they can apply what they have learnt to real-world situations.
Analysis of learning and assessment tasks, which included three guided play videos, written and audio reflections, and a portfolio	To look for evidence of what student teachers learnt in the course	Throughout the course	Student teachers learnt <ul style="list-style-type: none"> • how and why to use guided play activities for the holistic development of children • that guided play can be used to teach curriculum themes • the value of using guided play for learning and development. Student teachers did not understand their guiding role when demonstrating guided play activities.
Stimulated recall interviews about guided play activities	To probe student teachers' thinking and understanding concerning the guided play activities that they designed and implemented based on the videos that they submitted	May – June 2021	Student teachers <ul style="list-style-type: none"> • understand that guided play activities should consider learners' context and age, • observe that a successful guided play activity involves collaboration among learners and the teacher, • conflate guiding of learners with giving instructions, • notice that creativity plays a significant role in designing play activities, and • observe that guided play activities should reflect the characteristics of play in relation to achieving a curriculum goal.
Semi-structured interviews	To explore student teachers' understandings gained, their perceptions of the value of the course and their experience of the course	At the end of the course	Student teachers <ul style="list-style-type: none"> • experienced the course as engaging and interesting • experienced the course as a free and safe space for learning • learnt that guided play can be used for learning and development.
Course presenter journal and teacher educator reflection sessions involving the course presenter and the co-designer of the course	To document the experiences, observations and reflections of the course presenter To enable ongoing reflection on how the course unfolded	Throughout the course	Student teachers <ul style="list-style-type: none"> • mindsets shifted about using play for the purpose of teaching • learnt that collaboration between the teacher and the student is inherent to guided play • did not understand how to guide students during play activities. The course paid insufficient attention to guiding practices for guided play.

'I needed to make sure that my learners would learn because that is the primary purpose of allowing them to play. You are actually teaching differently and how they prefer the most because they play most of the time. As the teacher, you know what you want to teach them.' (Stimulated recall interview: student 15)

The reflections of the course presenter noticed in the teacher educator journal, coupled with the reflection sessions involving the co-designer of the course, confirmed that student teachers' mindsets were changing about using play for the purpose of teaching. Initially, student teachers thought that no learning takes place during play, and that it is only about fun. This information was collected through the beginning of the semester questionnaire.

In addition, student teachers learnt that there is a strong sense of collaboration between the teacher and the student when using play-based activities. Although this is the case, they misunderstood their role in guided play, which is evident in the next theme.

The responses of the student teachers in the end-of-course questionnaire pertaining to the course outcomes (objectives) and assessment identified the clear link between assessment tasks and course outcomes as a strength of the course and that the feedback given by the course presenter helped them to achieve the course outcomes. Also, of those who completed the questionnaire, 92.31% were of the view that they can apply what they have learnt to real-world situations. For instance, student teachers have reported employing play as a study strategy when tackling content-intensive courses such as education studies. They took the initiative to craft their own narratives as a means of enhancing their retention of the material. This relates to the notion of 'significant learning experiences'.

There were gaps in student teachers' understanding of their role during a guided play activity, which is to guide the learner. Student teachers did not grasp their guiding role in play activities. They confused giving instructions to learners with guiding the learners. This was noticeable in the videos that they submitted of the guided play activities that they planned and implemented. In most cases, when it seemed that the learners were not clear on what was expected, the student teachers merely repeated instructions already given to the learners, or they physically demonstrated to learners how to do the play activity. The following excerpts from the interviews confirm this:

'In my play activity learners did not understand what they needed to do. I learned that it is important to repeat and repeat for them to understand.' (Stimulated recall interview: student 4)

'My learners were enjoying the play activity especially the boys and ended up doing their own thing. The boys were supposed to pretend to rescue a friend with scooter following the rules of the road particularly the robot. Instead of doing what was expected of them they enjoyed riding the scooter without following the rules of the road. I had to keep on repeating for them what they need to do.' (Stimulated recall interview: student 7)

'I realised that when learners enjoy the play, they end up not listening to the instructions and it is your job to remind them all the time so that they do what you want them to do.' (Semi-structured interview: student 11)

The reflections of the course presenter noticed in the teacher educator journal showed that she realised that insufficient attention was paid to exposing student teachers through applicable literature to a variety of guiding practices that could be used to guide and scaffold learning during play activities. She was also of the view that she did not model the guiding aspect of guided play sufficiently to student teachers.

Student teachers learnt that creativity could be developed guided play. A finding that was prominent in the interviews was that the course helped student teachers to realise that creativity could be developed through play. Creativity in relation to guided play was not included explicitly in the course. Nevertheless, the link between play and creativity was foregrounded by student teachers. For example, one student teacher said:

'It forced me to think creatively a lot. And I struggled to do so. It's like it was a different world for me I never thought a lot can be achieved with play.' (Stimulated recall interview: student 2)

Another student teacher noticed:

'I found designing play activities very valuable to me because I learned to be creative. Yes, it was very hard to come up with the play activities but at the same time you learn to be creative. Once you are creative as a teacher you will also teach your learners to be creative or you will enhance their creativity while they play.' (Stimulated recall interview: student 5)

Thus, student teachers found the thought process involved in designing play activities to be difficult, but they were propelled to think innovatively, and this enhanced their creativity, as one student indicated:

'I had to really think out of the box mem, and I really struggled to think out of the box it was hard for me. I am not used to thinking out of the box. Designing these play activities made forced me to be creative.' (Stimulated recall interview: student 17)

Discussion

When we reflected on the creativity theme, which was an unexpected finding, we concluded that the learning and assessment tasks used in the course that required the student teachers to apply their learning in play activities and in authentic, novel and playful ways probably served as the impetus for eliciting creativity. This tallies with the view of Bateson and Martin (2013) on creativity, as generating novel ideas, or novel forms of behaviour, or combining and/or applying existing ideas and forms of behaviour in new ways. They explored the link between playfulness and creativity extensively. The core of their argument is that new modes of thought and new forms of conduct often derive from play, and playfulness, which enables the individual to break away from established patterns of thinking and doing, to discover new approaches to dealing with the world. Play is therefore an effective means of encouraging creativity.

The views shared by student teachers on creativity and play convinced us that intentionally including a focus on creativity and the relationship between play and creativity, drawing on applicable literature (Bateson & Martin 2013; Helfand, Kaufman & Beghetto 2016; Resnick 2017; Russ 2003) in a course for pre-service teachers on guided play could add significant value in two ways. It will support the development of student teachers' own creativity – personally and for teaching – and prepare them to use play purposefully to develop creativity of learners, as was mentioned by one of the student teachers. Creativity is one of the skills that are touted widely as indispensable in a fast-changing world (Vincent-Lancret et al. 2020). We agree with James and Brookfield (2014) that educating students (of all ages) 'about how to awaken their creative possibilities and helping them learn how these can be applied in different circumstances is a crucial teaching task' (p. 53). This is even more so for teachers because the work as a teacher is inherently creative (James & Brookfield 2014).

The data showed that the course did not pay sufficient attention to what the teacher's guiding role involves. A clear gap in the course was not realising that the prescribed course literature was insufficient on how to execute guided play. We have learnt that a course on guided play for pre-service teachers with no experience of using guided play as a pedagogy should articulate guiding practices explicitly and support student teachers to learn a repertoire of such practices.

Realising the need for this, Ndabezitha (2022) highlighted four guiding practices, namely observation of learners, asking open-ended questions, providing informative feedback and scaffolding. Teaching student teachers these practices could go a long way to help them understand what guiding involves. We further argue that open-ended questions form the backbone of guiding and student teachers should learn how to use open-ended questions to affirm learners' agency while simultaneously guiding them towards the learning goal. Also, scaffolding, which is another guiding practice, is often performed through skillful questioning and can be performed upwards or downwards (Zucker et al.

2020). Student teachers should learn how to use questions to prepare learners for the play activity, to provide scaffolding, to help learners to keep on track during the play activity, and to elicit reflection – during and after the play activity. Here we draw on Schulz (2021) who argued that reflection is important to crystallise learning during play. She claimed that reflection allows for 'intellectualising' of play experience, and she evoked the well-known John Dewey maxim, 'We do not learn from experience, we learn from reflecting on experience'. This is not a direct quote from any of John Dewey's writings, but a paraphrasing of the gist of his views on experience and education (Lagueux 2014). Nevertheless, intentionally eliciting reflection on the play activity or experience, coupled with feedback on learner responses, allows for reinforcing and consolidation of the learning implicit in the play activity.

Table 2 represents the types of questions that student teachers should learn to use in guided play. These questions could be adapted to suit the age of the learners.

The research confirmed the importance of modelling. However, we concluded that modelling was not optimised, and this was a contributing factor to student teachers not quite grasping the concept of guiding. It was not consistently and intentionally modelled to them. We learnt that modelling of teaching practices needs to be purposefully planned – what to model, how to model and how to explain the thinking that underlies the practices modelled, in 'cognitive apprenticeship' (Collins, Brown & Holum 1991) mode.

Limitations of the study and suggestions for further research

A limitation is that DBR is typically cyclical, involving more than one iteration. What is presented here reports on one iteration, although a second iteration has been planned and implemented (but not researched yet). However, we are of the view that the research on the iteration reported here provided valuable learnings that could be useful to inform pre-service teacher education courses.

TABLE 2: The types of questions to use in guided play.

Pre-play activity questions	Scaffolding and staying-on-track questions	Post-play activity reflection questions
<ul style="list-style-type: none"> • What have you learnt previously that will be useful for what we will be doing today? Why? • What problems have we solved before that are like this one? How are they the same? How are they different? • What tasks have we performed before that are like this one? How are they the same? How are they different? • Explain to your classmate next to you how you understand what you are supposed to do? • What are different ways in which we can do this and why? • Which one of the different ways do you like more and why? 	<ul style="list-style-type: none"> • What would it be like if...? • How would it be different if...? • What would happen if ...? • How can we find out more about ...? • How did you come up with the idea of ...? • What do you think made this happen? • What would be a better way to ...? • What could have caused ...? • What do you think will happen next? • How do you know that ...? • What are your reasons for ...? • Explain to your class-mate next to you what you are doing and why? • What would happen if...? • What would be another way to (draw, explain or say) that ...? • Tell me (us) about what you are doing ...? • Is there another way to try this? • What could be your next step? • What do you think will happen next? • How do you know that ...? • What are your reasons for ...? 	<ul style="list-style-type: none"> • What are some things you did well today? Why were you able to do them well? • What about the task that we did today did you like most? Why? • What did you find difficult in today's lesson, and what did you do to deal with it? • What made you curious today? Why? • What were some things that I did today (as teacher) that helped you to learn? How did they help you? • What were some things that you did today that helped you to learn? How did they help you? • What were some things that you did today that helped your classmates to learn? • What did your classmates do today to help you learn? • How will you use what you have learnt today in future? • What will you tell your parents/sister/grandmother about what you learnt today?

Another limitation, which had positive ramifications, is that the course was implemented when the university offered its courses online during COVID-19, although the course was planned to be mainly a contact course with online elements. Despite the challenges that this presented, the forced online offering helped us to realise that it is in fact possible to offer such a course fully online. The design principles are relevant for a contact course as well as online offering where there is a stable internet and sufficient data to enable the full affordances of well-designed online learning. Nonetheless, we are still of the opinion that contact classes are preferable for optimising peer learning and for providing enactment opportunities, coupled with immediate feedback from peers and the teacher educator. This is important for supporting deeper learning. However, a blended approach (Aleb & Labeled 2021) could combine the best affordances of contact and online teaching and may therefore be preferable.

The student teachers responded positively to the assessment practices in the course. One of the strengths was the clear link between assessment tasks and course outcomes as was mentioned in the university year-end questionnaire. However, our research did not focus pertinently on the assessment practices used. The research on playful assessment is still in its infancy, and Rosenheck and Kim (as reported in Russel 2022) made the case that building on the innovative practices around performance-based kinds of assessment shows much promise for playful learning. Our future research will pay more attention to exploring assessment practices that purposefully combine playfulness/play and authentic assessment in teacher education. This is essential because we agree with Rowntree (1987) who said in his classic book on assessment that 'the spirit and style of student assessment defines the de facto curriculum' (p. 1).

Conclusion

It is beyond the scope of this article to provide detail on the refined design principles and associated course practices arrived at as a result of the full DBR study. In summary, as the findings of the component of the study conveyed in this article show, in general, the design principles served the course and its implementation well because student teachers learnt much about guided play, even though gaps were identified. A major gap was the insufficient focus on guiding practices. We learnt that this should receive considerable attention in a pre-service teacher education course on guided play. The findings also inspired us to see the value of having a stronger focus on the interconnectedness of play and creativity in a course on guided play for pre-service teachers.

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Authors' contributions

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Data availability

Derived data supporting the findings of this study are available from the corresponding author L.N. on request.

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