

Pedagogy, play and conceptual development: Early childhood teachers' and children's perceptions of the environmental scientific concepts embedded in play-based experiences.

Significance – 84

The importance of the dominance of play-based theories of early childhood learning and the assumptions on which such thinking is based is a significant and worthwhile issue to explore. Problematising unquestioned thinking which may have unanticipated consequences for children's learning is an appropriate starting point for a project aiming to make a theoretical and applied contribution to the field of educational research. The researchers draw on related research to provide a rationale for their study in terms of the way in which the teacher's role is frequently under-played in early childhood education.

Approach – 80

The design of the research does not look appropriate to accomplishing the research aims and does not appear to relate to the kinds of related research provided earlier. There are a number of problems – a lack of definition of key terms (eg what constitutes play experiences; children's perceptions) and the feasibility of young children being able to identify and articulate the strategies that they have used to acquire conceptual knowledge. There seem to be a number of taken-for-granted assumptions within the design of the study itself and some vagueness about how the aims will be achieved in terms of the research techniques. In addition there seems to be an all-or-nothing approach to the investigation – that the study will either find in favour of play-based approaches or against – which seems at odds with the espoused theoretical position. It seems more likely given its scope that the study is likely to provide a more contingent and situated set of findings.

Some of the "steps" seem quite abstract and somewhat vague: eg "the strategies they hope children could use to access the knowledge"; "teachers will be asked to describe what conceptual knowledge they believe children acquired through play"; "children will then be asked to identify what they believed they learned from the experience and how they accessed this knowledge". These judgements will largely be made on the basis of viewing video-data. Is this possible?

It is not clear how the data reduction and bivariate data analysis will be undertaken. The researchers provide broad descriptions of processes rather than explanations of their approach with reference to research questions. Will this design allow the researchers to answer their question: "To what extent are children acquiring conceptual knowledge from play-based pedagogies?" Will the data collected allow the researchers to access children's acquisition of conceptual knowledge? The video-taping of single play experiences allows for a pilot study only. The researchers appear to over-estimate what this will show. What did children know before hand? What parameters were put around play design? Why is this being undertaken in environmental science? What other evidence of children's knowledge might be accessed?

National Benefit – 80

The proposed project has potential, but it lacks a convincing research design and associated research techniques that look likely to succeed with respect to delivering against its aims.

Pedagogy, play and conceptual development: An illustrative assessment

This project is proposing to investigate play based learning experiences in early childhood settings, focusing on the acquisition of scientific concepts, using a mix of data collection methods. The research is timely given the current emphasis on early childhood learning and the community interest in sustainability, and draws on a range of suitable underlying theoretical frameworks. It is encouraging that the researchers propose to go beyond individual psychological perspectives and recognise the social dimension of such learning.

The proposal is well written, and is close to fundable, but there are some weaknesses in its current form. The nature of the learning being explored is not well addressed, and the way that teacher intervention might contribute to learning is not explained. The questions are not clear, do not connect well to each other, and address diverse aspects of the learning context. The methods are similarly diverse, and it is difficult to match the data collection to the individual questions/aims.

Essentially the study seems to be about whether children acquire knowledge optimally from unstructured play based experiences, or whether some teacher intervention can enhance the chance of knowledge acquisition. The key issue is what is meant by knowledge and concept development, how they can be measured, or at least described. It is not clear how this is connected to the way these are perceived by teachers and children. The proposal seems to assume that knowledge is the result of the teacher planning for children to learn something, and then arranging relevant experiences. This seems to be in contrast to learning from play with teachers intervening opportunistically, which is another part of the proposal.

The project proposes to focus on the acquisition of scientific concepts. It may have been better to have used concepts that are more usually associated with early childhood learning, but if the focus is to be scientific concept acquisition then what this means needs to be clearly articulated, and how the researchers or teachers would know whether these concepts had been acquired. What are the concepts whose development it is proposed to study? What does theory say about how those concepts are acquired? Is this even possible through play, with or without intervention.

The two questions and five aims on page 2 address a mix of issues, ranging from acquisition of concepts, to teachers' and students' perceptions, to the teachers views of scientific concepts embedded in play, to children's views of their strategies. These are diverse and are not well connected by the proposal. The sophisticated and helpful model of the data collection could well have been matched by a similarly complex and integrated model of the factors and influences on these issues. While teacher and students perceptions may be a factor in knowledge acquisition, how they apply is not clear and needs to be explained.

For example, it is not described why children's perceptions are relevant to the questions and aims. While the use of video stimulate recall is likely to be helpful, it is not clear that very young children can describe the nature of their learning, especially if it is the result of unstructured play. Likewise, it seems that teachers acting opportunistically is a key, but their orientation to doing this, and their knowledge of when and how to do this are not part of the proposal.

Significance: 77

Because it is not clear what new knowledge will be generated by the project, then the potential significance of the findings is hard to determine.

Approach: 79

There is a commendable mix of methods, and the model which outlines the data collection sequence is excellent, but the way they contribute to a coherent set of data needs to be better explained. There is a lack of connection between the theory, the questions and the data collection.

National Benefit: 80

An improvement in learning and in particular of opportunities for all students is very much in the national interest, but this proposal does not convince me that it can contribute to that goal.

Critique on *Pedagogy play and conceptual development: Early childhood teachers' and childrens' perceptions of the environmental scientific concepts embedded in play-based experiences*

Overview of the idea and presentation

This proposal aims to examine young children's learning of scientific concepts in the context of environmental education content and play-based pedagogy). The study addresses an important issue in early childhood education . It asks : How effective is play-based learning /

Overview of the application

Background

The application commences with the presentation of a scenario to illustrate a typical event in an early childhood classroom. the example is excellent and this strategy can be used very effectively. However, I do not feel this scenario was as well utilised as it might have been . As an early childhood specialist I immediately grasped the point but felt the point of the scenario should have been immediately spelt out to define the problem rather than gradually unpacked (this is the difference between an academic paper and a grant). Work was left for the reader The 3 key features I would have liked identified immediately were

- The teacher pedagogical practice involved setting up the environment and then observed. The teacher only responded to child-initiated activity but didn't actively engage in teaching
- The children engaged in low-level dramatic play and conversation rather than engaging scientifically
- Opportunity for scientific learning was fore-gone

The argument than identifies that play-based pedagogy is accepted in Early childhood practice and has strong historical and ideological foundations. A major concern for me is that "Play" is not problematised and accepted as a unified construct when in fact the definitions of play and play-based pedagogy and quite diverse. Much of the word-space is used in addressing theory that supports play-based pedagogy rather then describing the problem

There is an assumption that the reader is an expert

The stated aims are very clear but on reading the method I did not feel that aim 5 could be fully addressed in this proposal

Significance and innovation :

I felt a reasonable statement of significance was made but my concerns were:

- The assumption that there is a single "play-based pedagogy" . A failure to differentiate different meanings of play-based
- The absence of reference to empirical data eg. effectiveness studies (eg EPPE) that examines different forms of play-based pedagogy to child outcome. The referencing is quite limited and local

The arguments made for significance are there is a

- *Need for empirical research-* but I did not feel all the existing research was reviewed. I do however agree this is a "hot area" in which more is needed

The argument for innovation is

- *The study advances focus on play-pedagogy to understand knowledge acquisition* I believe there is a disregard of available data – albeit of a different methodological approach. This should have been included in reviews

- *Early childhood learning is the foundation of life-long learning-* evokes the economic argument (through reference to Schweinhart and Weikart,1999). This is not explained and I feel very much an over-stretched claim for this particular study. This study cannot add knowledge about life trajectories and value-added by pedagogical practice because it does not compare different approaches nor track longitudinally

Score 79/80: Good and important idea but has not explained the story simply and has over-claimed what the study can deliver

Approach:

There is insufficient detail particularly of analyses.

There is a lack of expertise in statistical analysis. The sample size is 5 teachers and 30 children. The data are at best ordinal but mostly nominal but the claim is made that multivariate analysis will be undertaken. This clearly is not feasible

The value of the study is in the richness of the qualitative data and analysis should focus here. The contribution of this study is in describing variation in play-based approaches with the degree of engagement of the teacher in scientific teaching most important.

I would have liked the analyses related to the aims.

Score 74: Inadequate detail of analysis and lack of expertise in statistical analyses.