

The Role of Posters as a means of Summative Assessment

Dr Colin Howard

University of Worcester
[\(c.howard@worc.ac.uk\)](mailto:c.howard@worc.ac.uk)

Keywords: Posters, student, summative, assessment.

Abstract

This research centres on whether the use of posters as a means of summative assessment can help promote students' learning within an undergraduate research module, compared to that of the more traditionally based written assignment. This interpretative research study used a mixed methods approach for gathering data. This included the use of quantitative module results as well as qualitative data derived from semi-structured interviews and questionnaires. The findings from this study supports the notion that posters do in fact promote student learning and enjoyment when studying the identified research methods undergraduate module. Posters were seen to promote enjoyment when undertaking the summative assessment as well as providing opportunities for promoting deep learning. Further to this, posters can have the ability to promote higher order thinking skills as well as facilitating and informing future learning.

Introduction

Engaging with the process of developing research can often prove difficult for students to comprehend when studying at undergraduate level. Given the sometimes complex nature of research, it can be difficult for students to engage with and understand this (Wysocki, 2008). Many students have commented to the author of this article about how difficult they find learning about this process, when writing their dissertations and working on an undergraduate research methods module at a University in the West Midlands of the United Kingdom. Given such insights coupled with statements by authors such as Craddock and Mathias (2009), who suggest that the means of assessment have an influential impact upon the learning behaviours of students, this research aims to explore how posters, when used as a summative means of assessment linked to an undergraduate research methods module, might help aid students understanding of the research process as well as promoting the development of deep learning within these undergraduates (Biggs, 2003). Unlike conference posters which seek to showcase a piece of scholarly work alongside promoting an interaction with its author, or a publicity poster which are often eye-catching, informative and graphic, the poster used for this summative assessment encouraged students to summarize information in a concise and attractive visual format using a mixture of text, tables, pictures and other presentation formats. The posters were assessed using a student assessment form, which allowed a team of tutors

to grade a poster linked to: the students' ability to articulate and justify a research design for a proposed research project; the standard of visual presentation; how the poster had been referenced and the students' use of Standard English.

Given that research such as Hay and Thomas (1999) suggest that posters are relatively infrequently used in undergraduate programmes, this research also wishes to examine the influence that this somewhat unfamiliar means of communication may have for students compared with the more normally used summatively assessed written assignment.

Literature

There is currently a considerable wealth of literature linked to assessment in Higher Education (Biggs, 2003; Nicols & Macfarlane-Dick, 2006; Craddock & Mathias, 2009). This includes the variety of assessment tools and the value assessment plays in the promotion of deep learning given its alignment with learning outcomes, as well as promoting strategies that can help students learn (Billington, 1997; Biggs, 2003; Nicols & Macfarlane-Dick, 2006; Craddock & Mathias, 2009). However given such a wealth of literature on assessment there is only a limited body of knowledge (for example, Kinikin & Hench, 2012) examining the virtues of posters as an assessment strategy within the field of Higher Education. Perhaps this paucity of research is somehow linked to what Hay and Thomas (1999) suggest as their relatively infrequent use in undergraduate programmes. This is in part being due to individuals being somewhat unfamiliar with them as a means of communication. Given that Walker (2005) suggests that when posters are used they provide for high levels of satisfaction and a feeling of enhanced learning for students who have undertaken them, their infrequent use seems rather surprising.

Though posters have proved a popular means for presenting information at conferences (Moule, Judd & Girot, 1998; Halligan, 2008; Briggs, 2009) posters have also been used, on a somewhat limited basis, as an assessment tool in undergraduate and postgraduate courses (Billington, 1997; Hay & Thomas, 1999; Kinikin & Hench, 2012).

Research by Brown and Knight (1994) has concluded that the value of posters lies in students having to condense their findings. Brown and Knight (1994) also

note that posters require of students a similar effort compared to writing a full written report whilst Akister, Bannon and Mullender-Lock (2000) further suggest that in fact more work is required of students when completing a poster and that this in fact leads to an improved level of understanding of the topic under scrutiny. Jarvis and Cain (2003) feel that the benefits of posters are to be found in making students prioritise and focus on the key evidence required, with their added value being linked to the further skills promoted by such assessment. Conyers (2001 p.38) believes that posters provide a means of encouraging learning amongst students whilst also promoting significant skills linked to information gathering. As well as providing a stimulating assessment tool (Conyers, 2001) and allowing for creativity (Jarvis & Cain, 2003), they also can lead to the ability to ‘integrate critical thinking, information retrieval, and communication skills within the context of diverse subject and content areas’ (Conyers, 2001: 38).

Kinikin and Hench (2012) believe that working on posters are beneficial to students since they develop and improve student’s cognitive skills, such as knowledge comprehension, application, analysis, synthesis and evaluation, as they advance through Bloom’s Taxonomy (Bloom, 1956 cited in Kinikin & Hench, 2012). Bracher, Cantrell and Wilkie (1998) also saw their benefits in increasing learning in terms of requiring students to select and synthesise information. Jarvis and Cain (2003) clearly suggest that posters, compared to essays, develop research and analytical skill alongside active learning. Such claims may be seen to ally to what Biggs (2003: 96) indicates as being promoted by rich learning contexts i.e. that of ‘constructing a base of interconnecting knowledge’ and ‘learner activity’. For Biggs (2003: 96) a rich learning activity involves ‘maximizing student’s awareness of their own knowledge construction, largely by placing them in situations that require them to self-monitor and self-direct their own learning.’

Research by Tanner and Chapman (2012) suggests that creating a poster by students is a hands-on problem based task. Lynch et al. (2012:180) suggests that problem based learning as a form of assessment ‘promotes deep and high quality learning outcomes for students’, therefore it would seem important that the role of posters as a means of assessment is examined for the value they may play in promoting deep learning within students. This would seem significant since deep learning approaches can empower students by encouraging them to be independent and active whilst also allowing for promoting opportunities to take their own independent path in learning (MacFarlane, Markwell & Date-Huxtable, 2006).

Methodology

This small scale study subscribes to an interpretive paradigm therefore allowing to ‘get inside the person and understand from within’ (Cohen, Manion & Morrison, 2000: 22). A mixed methods approach (Denscombe, 2007) using both quantitative and qualitative data was utilised for data collection not only because they complement each other (Wellington, 2000) but also they may lead to methodological and data triangulation (Denzin & Lincoln, 2000) to help secure the reliability and the validity of the findings (Thomas, 2013). Although as Cohen, Manion and Morrison (2000) suggest that research cannot be wholly valid because of the element of subjectivity inherent within studies.

Both qualitative and quantitative data was collected using a questionnaire which had been previously piloted using non-respondent students. Questionnaires were issued to 70 Year 3 BA (Hons) students from seminar groups undertaking the identified research module. Further qualitative views were gathered from semi-structured interviews using five students also undertaking this module. This type of interview was chosen since it allowed me to explore individual perspectives whilst also clarifying misconceptions (Drever, 2003). Both questionnaires and semi-structured interviews sought to explore student feelings towards posters as a means of summative assessment compared to having to write a 1000 word equivalent written assignment, along with how the poster may have promoted their learning linked to research methods.

Quantitative data to inform this study was collected through the summative student assessment scores linked to the poster and these were then compared to the students’ summative assessment grades on a subsequent 2000 word assignment linked to student’s understanding of the research process. For the purpose of this study, purposive sampling was used (Cohen, Manion & Morrison, 2000) since though it gave ease of access to respondents, it also allowed for the targeted gathering of the necessary information, whilst allowing for more in-depth exploration of perceptions and views.

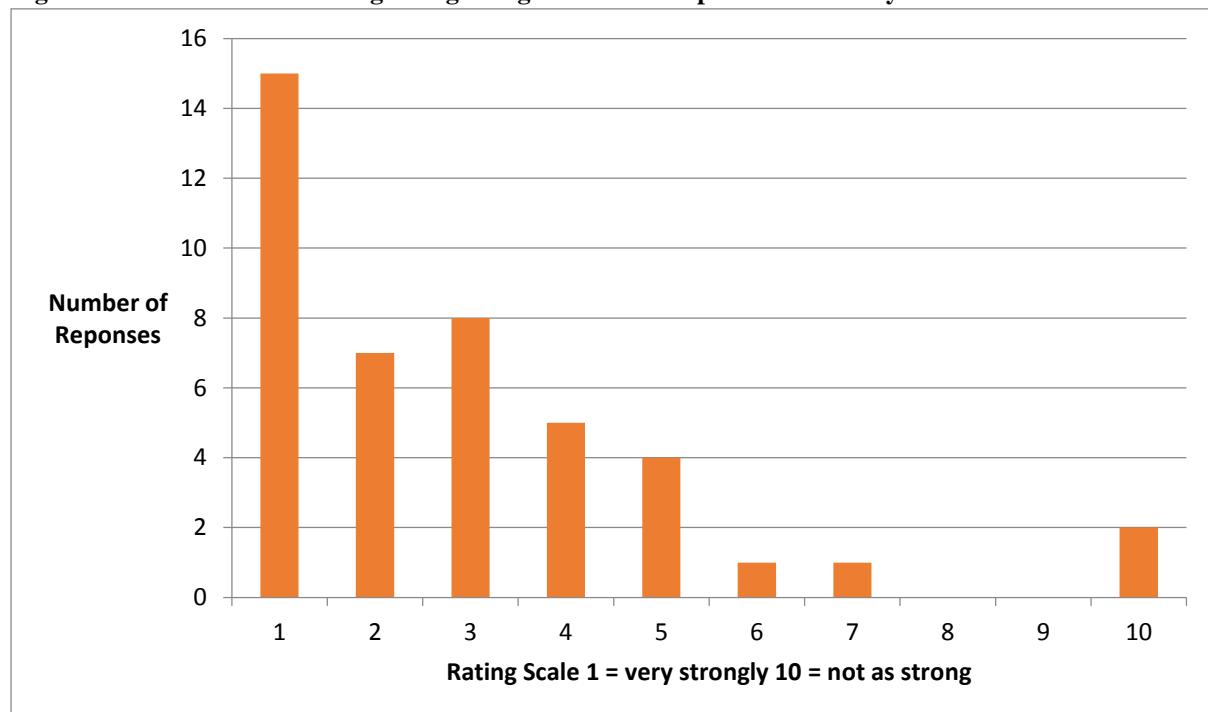
Data analysis involved a prolonged, repeated process of data reduction, data display and verification (Miles & Huberman, 1994). By the use of ‘constant comparative analysis’ (Birk & Mills, 2011:94) the researcher was able to generate an ‘abstract conceptual framework’ (Birk & Mills, 2011:94) which was enhanced by the additional consideration of the derived quantitative data which led to emergent themes which this study will now present. Ethical approval was gained for this study via Academic Development & Practice Unit.

Data Finding

Students, when initially presented with the poster format as a means of assessment, felt very unfamiliar with what they considered to be a form of evaluation that they had not previously engaged with. Students were uncertain how their poster should look regarding the overall layout and content of the poster. However with guidance on how to approach and design a poster during seminars and

tutorials they felt at more ease with this task since they now felt more familiar with this item. The finding from this study indicated that students at the end of this period liked the poster format compared to an essay format, with 79% saying they would prefer it as a means of assessment compared to an equivalent 1000 word essay, as shown in Figure 1. An example of the type of poster submitted as part of the submission requirements can be found in Appendix 1.

Figure 1: How Students Felt Regarding Using A Poster Compared to an Essay for Summative Assessment



Students felt that it had helped them learn about and understand fully the research methods taught. The reasons cited included that: the poster promoted a greater understanding of the vocabulary, it organized their thinking thus allowing for a greater consolidation of the learning, and that it would help in the future since it clarified their thinking regarding their future dissertation and the related research process. Specific quotes from respondents that led to these conclusions being drawn included:

- ‘It helped lay out the terminology and where to put it so it made more sense.’
- ‘It helped me to compartmentalize my thinking as well as consolidating my learning.’
- ‘Helped me develop my understanding of the vocabulary and made me do wider reading to support my assignment and it was useful to put what we have learnt into a relatively brief section to organize our thinking.’

Students felt that the focus of a poster format led to a better understanding of research methods whilst making

it fun, creative and easier to access their ideas due to condensing their thoughts. Specific quotes from respondents that lead to these conclusions include:

- ‘You had to keep things brief so I understood the main points needed and it organized my thoughts more.’
- ‘It was more enjoyable and I liked it being so practical.’
- ‘It was a lot more creative and I was able to visualize my plan/proposal a lot clearer.’
- ‘It is a different form of assessment and allowed you to really organize your ideas in a concise way.’
- ‘It gave me chance to understand the module and therefore informs my writing for the assignment, which increases the ability to get a higher grade.’

As well as the students enjoying and finding the poster assessment beneficial with regard to their learning and understanding, an analysis of the assessment marks clearly indicated that students achieved well with 63%

achieving a grade B or above in this unfamiliar form of assessment.

Comparative data analysed to see if students gained marks in their final assignments showed that 50% recorded an increased in their grade. However these gains were disappointingly not echoed across the whole cohort since 30% went down a least one grade boundary despite engaging in the poster assessment. Though a definitive statement of the factors that caused such levels of underachievement are difficult to arrive at, these results may in part have been caused by the appeal such posters had for visual learners. Unlike the final written assignment the poster provided a visual means of representing their ideas thus allowing for these students to gain a clearer understanding of the topic and hence a higher grade achieved in their assessment. Students also felt that the posters had enabled them to develop their ideas when working on their dissertation later in the year, since the poster's format allowed them to 'organise their thoughts, synthesise thinking' as well as providing 'something to look back at to help with ideas.'

Any negative feedback given regarding the posters were mainly linked to their return date since students felt it gave them little opportunity to fully implement feedback on this assessment in order to improve on their upcoming written 2000 word assignment. Some negative feedback related to the tight 500 word limit placed on the poster's submission. Students felt they required more words in order to successfully add more detail to this submission. Students felt they would have also liked further opportunities to have had even more tutor formative feedback regarding their posters prior to its submission in order to further fine tune their submissions.

Discussion

Students, as suggested by the findings of this study and by the research of Hay and Thomas (1999), feel uncomfortable with the use of posters as a means of assessment due to their infrequent use during a student's academic career. However, as the findings show, once students have become familiar with this format of assessment it is something valued by them and that they wish to see used again. This echoes the findings of researchers such as Walker (2005) who also noted high levels of satisfaction linked to the use of posters. Students also enjoyed the creativity of this summative assessment which was highlighted by the research of Jarvis and Cain (2003). For visual learners it provided a welcome opportunity for them to visualize their plan/proposal allowing for a clearer understanding of the topic.

Alongside these enhanced levels of enjoyment, enhanced learning may be shown by the majority of students achieving high grades when submitting their posters. Students also seem to have valued the opportunity the

poster had given them to inform their writing, which they saw as a means to increase the ability to get a higher grade later on. Such aspirations are confirmed with 50% of students receiving an increase to their successive assignment grade. The posters seemingly through promoting active deep engagement in the learning task (MacFarlane, Markwell & Date-Huxtable, 2006) were also to have a future positive role, with regard to students learning in their dissertations, since its format allowed for future organisation of their thoughts, aided the synthesis of their thinking and provided a template for their future writing.

Such positive findings must be seen to be allied to the poster forming a 'hands on problem based task' (Tanner & Chapman, 2012) for students. Creating a poster, suggested students had to 'compartmentalize their thinking, understand the vocabulary and organise their thoughts' which as Biggs (2003: 96) suggests promotes a rich learning context and allowed for 'interconnecting knowledge and learner activity'. Aspects of deep learning were evident by the active independent role students were now involved in as a result of the posters (MacFarlane, Markwell & Date-Huxtable, 2006). Key skills such as selecting, condensing and organising information in order to successfully display what has been learned may be seen as part of the value added benefitted by engagement with the posters as suggested by Jarvis and Cain (2003). Further to this, the poster would seem to have also developed students' cognitive skills (Kinikin & Hench, 2013) as they were required to advance through Bloom's Taxonomy (Bloom, 1956 cited in Kinikin & Hench, 2012). Thus application was needed in order to make connections between their learning, whilst analysis, synthesis and evaluation were required to identify justify and to create a unique product which showed how they would tackle the research design process given their situations. Students also valued and found meaning in making their poster concise, something also noted by Brown and Knight (1994). As a result of creating the poster presentations, students clearly felt they had a greater understanding of the topic, as echoed by Akister, Bannon and Mullender-Lock (2000) and explained by the increased levels of work undertaken by students in order to successfully complete a poster.

Though students clearly liked the implementation of posters, the main negative feedback received regarding their use was not in fact linked to the poster format itself but the return date for submissions, given the resultant opportunity it allowed for tutor formative feedback to be reflected upon prior to the submission of their future written assignment. Though given the timings of other submissions during the undergraduate course, alongside the number of lectures and seminars needed for students to have been sufficiently taught about the research process, little movement would have been possible given with the submission date for the posters. Ironically

though students wished to have more words allowed on their poster if they were to be increased considerably students might find that they end up writing an essay in the form of a poster instead. But more importantly this would end up losing the clarity of learning demanded and evidenced above as something which seems to be a powerful element of posters.

Conclusion

This research sought to illustrate the positive value of posters as a means of assessment and the role they can play in promoting students' engagement at undergraduate level when making assessed submissions. Posters, through this study, can be shown to not only be engaging but fun for students to complete, especially when compared with written assignments. Though students often are assessed using written forms of assignments this relatively underused form of assessment can play a significant role not only in promoting student levels of satisfaction but often offering a welcome break from the normally used written assignment. Through the targeted use of posters as a means of assessment on undergraduate courses students may be given an opportunity to be creative when submitting their work, something which is particularly beneficial for those visual learners who welcome the opportunity posters give for them to visualise their submissions. Promoting active engagement in this form of assessment by their hands on problem based approaches, posters may further allow students an opportunity to compartmentalize their thinking, thus organising their thoughts through what may be seen as a rich learning context, promoting higher order thinking skills and deep learning. Further to this they have the ability to facilitate and inform future learning as suggested by Biggs (2003).

Though this research would not like to suggest that this form of assessment will be universally beneficial to all students, given the positive benefits of posters highlighted in this study it would seem important for undergraduate course leaders to examine their current patterns of assessment in order to see how posters may complement the range of assessment strategies that are currently used within students assessments. Given the benefits highlighted in terms of promoting higher order thinking skills, perhaps posters could be best utilised in assessments where analysis and synthesis is demanded or problem solving is required. Given that a poster has a physical limited space, an assessment that encourages students to prioritise and focus on content may be considered for its use. Or, finally, an assessment could be used where skills are linked to presentations and how information may be visually displayed. For some students, posters may provide a visual means to achieve and to be creative, as well as being more motivated and able to achieve their best

References

- Akister, J., Bannon, A. and Mullender-Lock, H. (2000) Poster presentations in social work education assessment; a case study. *Innovation in Education and Training International*. Vol. 37 (3), pp. 229-233.
- Biggs, J. (2003) *Teaching and Quality Learning at University*. Maidenhead: Open University Press.
- Billington, H. L. (1997) Poster presentations and peer assessment: novel forms of evaluation and assessment. *Journal of Biological Education*. Vol. 3, pp. 218-220.
- Birks, M. and Mills, J. (2011) *Grounded Theory: A Practical Guide*. London: Sage Publications.
- Bracher, L., Cantrell, J. and Wilkie, K. (1998) The process of poster presentation: A valuable learning experience. *Medical Teacher*. Vol. 20, pp. 522-555.
- Briggs, D. J. (2009) A practical guide to designing a poster for presentation. *Nursing Standard*. Vol. 23 (34), pp. 35-39.
- Brown, S. and Knight, P. (1994) *Assessing Learners in Higher Education*. London: Kogan Page Limited.
- Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFalmer.
- Conyers, V. (2001) Posters: An Assessment Strategy to Foster Learning in Nursing Education. *Journal of Nursing Education*. Vol. 42 (1), pp. 38-40.
- Craddock, D. and Mathias, H. (2009) Assessment options in higher education. *Assessment and Evaluation in Higher Education*. Vol. 34 (2), pp. 127-140.
- Denscombe, M. (2007) *The Good Research Guide for small-scale social research projects*. Berkshire: McGraw Hill.
- Denzin, N. and Lincoln, Y. (2000) *Handbook of Qualitative Research*. 2nd edition. London: Sage.
- Drever, E (2003) *Using Semi-Structured Interviews in Small Scale Research: A Teachers Guide*. Revised Edition. University of Glasgow: The SCRE Centre.
- Halligan, P. (2008) Poster presentations: Valuing all forms of evidence. *Nurse Education in Practice*. Vol. 8, pp. 41-45.
- Hay, I. and Thomas, M. (1999) Making sense with posters in biological education. *Journal of Biological Education*. Vol. 33 (4), pp. 209-214.

- Jarvis, L, and Cain, J. (2003) Project Report: Diversifying Assessment 2: Posters and Oral Presentations in Undergraduate History and Science. *PRS-LTSN Journal*. Vol. 2 (2), pp. 50-72.
- Keeble, H. and Kirk, R. (2007) Exploring the existing body of research In Briggs, A.R.J and M. Coleman (eds.) *Research Methods in Educational Leadership and Management*. London: Sage Publications.
- Kinikin, J. and Hench, K. (2012) Poster Presentations as an assessment tool in a third/college level information literacy course: an effective method of measuring student understanding of library research skills. *Journal of Information Literacy*. Vol. 6 (2), pp. 86-96.
- Lynch, R., Mannix McNamara, P. and Seery, N. (2012) Promoting deep learning in a teacher education programme through self and peer feedback. *European Journal of Teacher Education*. Vol. 35 (2), pp. 179-197.
- MacFarlane, G. R., Markwell, K. W. and Date-Huxtable E. M. (2006) Modelling the research process as a deep learning strategy. *Journal of Biological Education*. Vol. 41 (1), pp.13-20.
- Miles, M. B. and Huberman, A. (1994) *Qualitative Data Analysis*. London: Sage Publications.
- Moule, P., Judd, M., and Girot, E. (1998) The poster presentation: what value to the teaching and assessment of research in pre and post-registration nursing courses. *Nurse Education Today*. Vol. 18, pp. 237-242.
- Nicols, D. and Macfarlane-Dick, D. (2006) Formative Assessment and self-regulated learning: a model and seven principles of good feedback. *Studies in Higher Education*. Vol. 31 (2), pp. 199-218.
- Tanner, P. and Chapman, J. (2012) Poster presentations speak for themselves. *The Language Teacher*. Vol. 36 (3), pp. 15-19.
- Thomas, G. (2013) *How to do your research project*. London: Sage.
- Walker, S. (2005) Poster poster on the wall: whose is the fairest assessment of all? *Journal of Family Therapy*. Vol. 27, pp. 285-288.
- Wellington, J. (2000) *Educational Research*. London: Continuum.
- Wysocki, D.K. (2008) *Readings in Social Research Methods*. 3rd edition. USA: Thomas Higher Education

Biography

Dr Colin Howard has been involved in primary education for 24 years of which over 14 years has been as a successful head teacher. He has a strong research background in educational leadership, the influence that school buildings have upon their stakeholders and teachers' professional identity.

Appendix One

To what extent does structured play enhance children's learning in mathematics?	
Introduction: <p>I have always mathematics as my PPDSS as it is a subject I am very passionate about. My initial interest in the subject can be traced to the Early Years Foundation Stage, at 3 yrs old, particularly interested in how maths is taught in other places. During school experience I thoroughly enjoyed learning maths, having & engaging in various learning activities. I therefore have lots of relevant experience with my subject, learning it within the Early Years and Key Stage 1.</p>	Focus: <p>The specific aspect I will focus my research on is children learning maths through play. Through older experience I have used varied approaches to this, myself and over lots of successful maths activities during play-related play in some schools and not so in others. Therefore, I want to research how most structured play enhances children's learning.</p>
 <p><i>Photo credit: iStockphoto.com</i></p>	Data collection: Tools <p>I will gather data mainly through observation, I will identify a sample group of 10 children and observe them during their choice play and participate in mathematical activities. I have set up 10 play-based photos of the children working with activities to see how many strategies and 40 observations. Furthermore I will interview teachers and 10 parents in the class and provide questionnaires to other staff to gather data on their view of children learning through play.</p>
Ethical considerations: <p>Following the DfES guidance (2001) I will obtain parent consent from parents of the children in the sample group before I begin my research, and my own, that I go ahead to take photographs. Understanding that when I do this, I have the right to withdraw and will tell this to my consent by letting them know I can withdraw, confidentiality and anonymity in photographs, parents and staff, using off-camera and not identifying any participant is also stated. All children participating in the research will have identifiable photo backs as all the main collected materials are anonymous. I will ensure that the data I collect is stored as the purpose of my research project will be used solely and for reference only during my research.</p>	 <p><i>Photo credit: iStockphoto.com</i></p>
Key facts: <ul style="list-style-type: none"> British Educational Research Association (2001) <i>Code of practice for educational research</i>. (2004) Available from: http://www.dfes.gov.uk/researchandstatistics/Guidelines/Assessment/2001/ [Accessed 20/02/2010] Department for Children, Schools and Families (2006) <i>Indicators of Mathematics Proficiency in Early Years Settings and Primary Schools</i>. (2006) Available from: http://www.dfes.gov.uk/earlyyears/indicators.pdf [Accessed 20/02/2010] Hann, R. V. (2005) <i>Developing mathematical thinking in the context of play</i>. <i>Practitioner Research in Mathematics</i>, (Volume 14) (1), 20-25. Available from: Academic journal contents [Accessed 20/02/2010] Hoyle, L. (2005) <i>Supporting mathematical development in the Early Years</i>. 2nd edition. Redditch, Open University Press Thompson, F. (2006) <i>Teaching and learning early number</i>. 2nd edition. Berkshire, Open University Press Wilson, B. (2003) <i>Contextual research: A guide for students researchers</i>. London: Sage Publications Ltd 	Summary of outcomes: <ul style="list-style-type: none"> I am concluding to whether an increase understanding of how structured play enhances children's learning in mathematics, than if a more unstructured would improve children's knowledge of the said, create and carry out various observations, photos, and information for further evidence. My goal is to develop the best professional practice in understanding how children learn mathematics through play and what activities can be integrated into their learning better.

