

Behavioural differences exhibited by children when practising a task under formal and playful conditions

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Play is viewed as central to learning in the early years despite a lack of empirical evidence to support this. Most research has concentrated on adult definitions of play which fail to capture the intrinsic quality of playfulness. To achieve this it is necessary to elicit children's definitions of play. The research discussed in this paper utilises children's definitions of play to create formal and playful practice conditions to demonstrate the links between playfulness and learning. In addition, analysis of videotaped observations indicates behavioural differences according to whether children participate in playful or formal practice conditions. These findings support a behavioural threshold and fluency theory of play. Children in the playful condition exhibited more fluent and purposeful problem solving behaviours than children in the formal condition. Implications for practitioners in educational settings are outlined.

WITHIN EARLY YEARS EDUCATION play is viewed as essential for learning and development (Bergen, 1988; Bruner, Jolly & Sylva, 1976). As well as generally facilitating learning and development, many claims are made for play promoting different aspects of learning: social and emotional development (Singer, 2006; Smilansky & Shefatya, 1990); social development and language (Garvey, 1991; Sachs, 1980); creativity (Dansky, 1980; Lieberman, 1977); problem solving (Sylva, Bruner & Genova, 1976) and attitude to learning (Hyland, 1984; Moyles, 1989). As a result, play has been seen as the main mode of education for young children and has underpinned early childhood programmes since the initial kindergarten developed by Froebel (1792–1852, cited in Wood & Attfield, 2005). Play is firmly embedded within current curricula initiatives for young children across the UK. The Foundation Stage provides a framework for early years practitioners working with children from birth to 5 years in England, and the Foundation Phase serves children from birth to 7 years in Wales. These frameworks provide advice and information on all aspects of prac-

tice across the curriculum for practitioners to support children's learning and clearly advocate play as a principal mode of action. (Department for Education and Skills, 2007a, 2007b; Welsh Assembly Government, 2003).

Play has proven difficult to define. Category (e.g. Piaget, 1951; Smilansky, 1968), criteria (e.g. Rubin, Fein & Vandenberg, 1983) and continuum (e.g. Pellegrini, 1991) approaches all have limitations (Howard, 2002) and it has been argued that the complexity of play will always defy definition (Garvey, 1991; Moyles, 1989). A lack of an agreed definition of play has implications for research that has attempted to demonstrate the impact of play on learning and has led to dichotomous views in relation to its developmental potential. Whilst there are those who state that play is essential for learning there are others who believe it is not (Christie & Johnson, 1983; Fein, 1985; Meadows & Cashdan, 1988; Smith, 1986) and the evidence base to support claims that play aids development is limited (BERA, 2003). The failure to pinpoint exactly what we mean by play also potentially limits our ability to develop theoretical accounts of the phenomenon.

In order to provide empirical support for the relationship between play and learning many experimental studies have focused on play and problem solving, including both convergent and divergent tasks (Dansky & Silverman, 1973, 1975; Pepler & Ross, 1981; Simon & Smith, 1983; Sylva et al., 1976). However, these studies have suffered from methodological weaknesses, for instance isolating play as the causal determinant in improved performance and experimenter effects (Smith & Simon, 1984; Smith & Whitney, 1987). To demonstrate learning through play, research needs to capture and measure the impact of the internal, affective quality of play; playfulness, rather than the role of exploration.

Playfulness is argued to be an attitude of mind which indicates the approach taken to an activity (Dewey, 1933; Lieberman, 1977; Moyles, 1989; Schwartzman, 1982). Previous definitions of play have focused on adult interpretations of the observed act of play and may not have identified the unique quality of playfulness. Play means different things, to different people, in different contexts (Howard, 2002). Whilst two activities might look the same to an outside observer, the way they will be experienced by a individual will depend on their own views of that particular activity. Saracho (1991) uses the example of a professional carpenter versus a hobbyist. To understand why an activity is approached with a playful state of mind we must ask the players themselves about their experiences. We need to focus on children's own views of their play activity and the cues they use to determine play as their mode of action (Goncu & Gaskins, 2007; Howard, 2002; Sutton-Smith, 1997; Takhvar, 1988).

Children's views of play – the Contextual Apperception Procedure

There has been surprisingly little research on gaining the views of young children and how they might define play, indeed it has been a long held view that children do not distinguish between play and work (Depart-

ment for Education and Employment, 2000; Manning & Sharp, 1977; Isaacs, cited in Smith, 1988). Only a limited number of studies on children's understanding of play have been conducted although scholars are internationally representative (Howard, 2002; Howard, Jenvey & Hill, 2006; Karrby, 1989; Keating et al., 2000; King, 1979; Parker, 2007; Robson, 1993; Rothlein & Brett, 1987; Wing, 1995).

The majority of these studies have employed either observation or interview methodologies both of which can be problematic with young children. Observations may be open to subjective interpretation. Participant observation may result in the observer influencing the play situation. Using structured observation schedules may result in only the selected behaviours being observed and other important behaviours being ignored (Rolfe, 2001; Tudge & Hogan, 2005). Interviewing may be problematic due to young children's limited linguistic abilities. It involves sustained concentration and high cognitive load for children to interpret questions, recall activities and talk about them. There may be issues concerned with power relations between young children and adults. Group interviews may overcome this but may lead to other issues relating to the most vocal children influencing the group (Brooker, 2001; Westcott & Littleton, 2005).

A photographic categorisation method has been employed in three studies – the Contextual Apperception Procedure (Howard, 2002; Howard et al., 2006; Parker, 2007). This is a two-part procedure. The first part requires children to sort photographs into those that represent play and those that represent work. The second part supports the sorting activity by asking children to justify their choices for a smaller number of photographs. The photographs utilise different cues within the environment to reflect play and work situations. The method is based on the idea that perception is determined by the categorisation of cues from the environment and that environmental cues may affect children's perceptions of play

(Bruner, Goodnow & Austin, 1956; Pellegrini, 1985). The method is quick to use, involves minimum cognitive load and does not necessitate a certain level of linguistic ability. Photographs are used rather than pictures as for young children these capture reality and require less hypothetical thought (Kose, Beilin & O'Connor, 1983) and the game like procedure is attractive to a young participant sample (Sturgess & Ziviani, 1996). Furthermore, assessment of reliability is possible through repetition of the activity (Parker, 2007).

As with previous studies (e.g. King, 1979), findings from Howard (2002) revealed that children clearly distinguish between play and work activities in their classroom environment. Play activities may be: outside, construction, sand or involve role play whilst work activities involve writing, reading and using paper. Some activities seem to be ambiguous such as painting and drawing. This was also found by Keating et al. (2002) and Wing (1995). Children determine whether an activity is play or not depending upon the cues present and these can be separated into emotional and environmental cues (Howard, Bellin & Rees, 2003). Emotional cues involve the amount of choice a child has, whether an activity is voluntary and whether it is under the child's control and self-directed. Environmental cues include: adult presence, where the activity takes place and the nature of the activity. Activities deemed as play are, therefore, freely chosen, voluntary, controlled and directed by the child, have little or no adult involvement and do not take place at a table. Howard et al. (2006) also found that 'peers being present was an indication of play although this was not replicated by Parker (2007).

Utilising children's cues to impact on learning

The cues used by children for defining play highlight the child being in control and self-directed. These accord with the internal affective qualities of play identified by Dewey (1933) and Moyles (1989) which determine

the attitude or approach a child takes towards an activity – whether it is playful or not. This has important implications for researchers attempting to demonstrate the impact of play on learning. By utilising children's cues to define play, research can potentially capture and measure this internal affective quality of play or playfulness.

Thomas, Howard and Miles (2006) conducted a study to compare children's problem solving and learning in a playful and formal practice condition using the cues identified by children. In this study the problem solving task was time taken to complete a jigsaw puzzle, a familiar activity to children thereby separating out play from exploration. The sample consisted of 30 children aged 3 to 5 years of age in two primary schools. The procedure was in four stages. A pre-test task was conducted and children were timed completing a puzzle. They were then assigned to either a playful or formal eight-minute practice condition where they completed puzzles. After the practice phase they were re-timed for completion of the test. This was repeated one week later to isolate learning from practice effects. Standardised instructions were used throughout the procedure. Effectiveness was measured by comparing pre-test and post-test times. The cues manipulated in the experimental conditions were the voluntary nature of the task (children were invited or told to participate), where the practice took place (floor or table) and adult presence (present or not).

Results showed that there were no significant differences between the children's pre-test scores in the different conditions. However, comparison of scores between the playful and formal practice conditions at first post-test showed a differential improvement in children's performance. Children in the playful condition improved by a mean score of 39.68 seconds, whereas children in the formal condition improved by a mean score of 14.73 seconds. This significant improvement was also found for the delayed post-test

in favour of the playful practice condition. Improvement in the playful practice condition was 72.56 seconds and in the formal condition 28.2 seconds.

Similar results have also been found for other areas of learning. Radcliffe (2007) used the same procedure with a mathematical activity – threading beads. Results again showed no difference between the children's pre-test scores. However, comparison with post-test scores showed that children who had been in the playful practice condition improved on their pre-test time whilst children in the formal practice condition took significantly longer to complete the task.

These empirical data tell us that playfulness has potential to help children learn. However, it is important to understand why playful practice is so much more effective than formal practice in these experiments. The next section reports an observational study based on the methodology of Thomas et al. that was designed to yield qualitative data that might help inform theoretical accounts of these empirical data.

An observational study of behaviour exhibited during playful and formal practice conditions

The study replicated the procedure used by Thomas et al. (2006) as described above, but incorporated videotaped observations of children's behaviour during the procedure. This extension of the original procedure was designed to further develop an understanding of how playfulness may help children to learn more effectively. The sample consisted of 32 children aged between 3 to 5 years of age in three early years settings. Again, jigsaw puzzles were used to isolate play from exploration and practitioner, parental and child consent was gained to video each child during the procedure to enable further fine grain analysis of behaviour. In addition, an experimenter blind to the pre- and post-test phases of the procedure conducted the delayed post-test in order to eliminate experimenter effects.

As with the previous studies children in the playful practice condition performed significantly faster in the post-test and delayed post-test phases ($t(16)=3.15$ $p<0.05$ and $t(14)=3.24$ $p<0.05$).

The Leuven Involvement Scale (LIS; Laevers et al., 1994) was employed to measure children's level of concentration during a selected part of the practice phase (under both playful and formal conditions). Involvement is concerned with a child's concentration and persistence with a task and there is evidence to indicate that a deeper level of involvement results in a greater learning experience (Csikszentmihalyi, 1979; Laevers et al., 1994). For each child, the LIS was applied to one three-minute segment of the videotaped observation of each child. This segment commenced two minutes into the practice phase in order to give the child time to settle into the activity. An unrelated t -test showed a significant difference in involvement scores between children in the playful and formal practice conditions with children in the playful practice condition scoring higher ($t(28)=3.47$ $p<0.05$).

Detailed analysis of the children's behaviour was carried out using the Observer Video-Pro package (Noldus Information Technology, 2003). The following categories for analysing the behaviours were defined: gaze behaviour, facial expressions, vocalisations, language used, hand movements, posture, whole body movements, hand movements, puzzle solving strategies, help given, completion (practice only) and choice (practice only). Using these categories enabled a detailed description of behaviours during the pre-test, practice, post-test phases of the procedure for each child. Analysis of delayed post-test behaviour was only possible in two of the three settings ($N=18$ children).

Comparison of behaviours exhibited by children in the pre-test phase of the procedure showed a range of behaviours between the different practice conditions with no obvious patterns. This is probably a reflection

tion of individual styles and ability to do jigsaw puzzles. Analysis of behaviours during the different practice conditions showed considerable differences. In the playful practice condition all the children were moving constantly, either fidgeting or changing position, for example, sitting, kneeling and lying. In the formal practice condition children showed little movement and stayed sitting down.

In terms of problem solving behaviours, again there were differences between children in the two conditions. Children in the playful practice condition engaged in less off-task talking and more purposeful problem-solving and decision-making. This was determined by purposeful sequences of behaviour such as *look-rotate-correct placement* or *look-rotate-undo incorrect placement* or *look-rotate-pick up-not place*. Children in the formal practice condition were more distracted, spending more time engaged in off-task talking, focusing away from the task and engaging in less purposeful decision-making utilising behaviour sequences such as *look-rotate-look* or *search-look-rotate*. They also engaged in more instances of persevering behaviour such as persevering with incorrect placements. Overall, there was less fluidity in problem solving behaviours and decision-making by the children in the formal practice condition. This was also reflected in their affective behaviour. Children in the formal practice condition exhibited more negative affective behaviour such as frowning and sighing. Children in the playful practice condition demonstrated positive affect with more smiling, positive vocalisations and cheering. (See Figure 1, overleaf, for an example of coded behaviours observed in the playful and formal practice phases.)

In the post-test phase there was a continuation of the behaviours evidenced during the practice phase. Children in the playful condition were more focused, less talkative and more purposeful with increased correct problem-solving than the children in the formal practice condition. The main differ-

ence between the practice and post-test behaviour of children in the playful practice condition was that in the post-test phase the children displayed less whole body movements as they became focused on solving the task quickly.

Discussion and conclusion

The findings discussed in this paper indicate that the observable act of play can be distinguished from the internal, affective qualities inherent in adopting a playful mode of action. These affective qualities can be understood by identifying the cues children themselves use to define playful activity. The experimental conditions employed here, manipulate these cues to create formal and playful practice conditions and findings suggest that a playful mode of action has the potential to impact on learning. This, in turn, has implications for practitioners working with children in educational settings, particularly in relation to their role as co-operative play partners. It would appear that there are differences between the way in which children and adults view play and there is considerable value in utilising children's views of play. This is in keeping with current policy based on the United Nations Convention on the Rights of the Child and is embedded within Every Child Matters (HM Government, 2003). It also enables researchers to identify the internal affective quality of play, namely playfulness, rather than just the observable act of play itself and to isolate playfulness as a variable in experimental studies.

Children who have practised tasks under playful rather than formal conditions have demonstrated significantly greater improvement in performance across a range of activities. Behavioural differences have also been exhibited by children in the different practice conditions which indicate greater on-task behaviour, deeper involvement in the activity and therefore a greater learning experience. In addition, during playful practice children try out a range of purposeful behaviours, whereas in more formal condi-

Figure 1: Examples of behaviour of children in the formal and practice conditions.

Child A: Playful practice condition <i>Pre-test time: 141 seconds,</i> <i>Post-test time: 107 seconds</i> Practice phase (sitting, constantly fidgeting) 348.96: talk about puzzle, to self, help 352.00: no talking 356.28: rotate piece 359.48: search for a piece 361.80: rotate piece 364.52: correct placement 367.32: look at piece 370.80: correct placement 373.04: pat puzzle, positive 376.96: search for a piece 380.64: pick up, not place 382.16: search for a piece 383.72: look at piece 385.56: correct placement Post-test phase (fidgeting and still) 28.48: search for a piece 30.24: look at piece 31.84: rotate piece 33.76: correct placement 36.20: look at piece 38.84: rotate piece 40.96: correct placement 42.44: look at piece 43.52: correct placement	Child B: Formal practice condition <i>Pre-test time: 228 seconds,</i> <i>Post-test time: 315 seconds</i> Practice condition (sitting still) 164.36: look at piece 165.04: no talking 166.52: rotate piece 169.96: persevere with incorrect placement 171.76: talk about something else to adult, distraction 171.92: focus on adult 178.92: focus on puzzle 186.64: focus on adult 187.20: persevere with incorrect placement 188.36: focus on puzzle 196.56: rotate piece 200.16: rotate piece 202.72: rotate piece 202.72: no talking Post-test phase (still) 197.08: talk about something else to adult, distraction 200.00: correct placement 202.16: look at piece 205.92: persevere with incorrect placement 209.52: undo incorrect placement 211.40: no talking 212.20: look at piece 216.88: correct placement
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tions they use fewer purposeful strategies and repeat behaviours even if they are unsuccessful. These findings provide support for a behavioural threshold and fluency theory of play. Building on the work of Bruner (1974) and Sutton-Smith (1997) it has been proposed by Howard and Miles (2008) that playful practice leads to superior performance as it affords children the confidence and motivation to practice a range of behaviours without the fear of ‘getting it wrong’. They propose that if an activity is perceived as play, behavioural thresholds are lowered and as a result more actions become poten-

tial candidates for execution. A playful mode of action results in an increased behavioural repertoire.

These findings have implications for play practice in educational settings. Using children’s perceptions of play enables practitioners to create playful environments (Howard & Westcott, 2007). It also enables practitioners to view activities differently in that they need not necessarily be seen as play or not play but rather, adapted to enable children to approach them playfully. It also has implications for the role of the adult in play and practitioners could develop their

own playfulness when working with children (Ceglowski, 1997). Children's acceptance of adults as co-operative play partners may be essential if current curricula initiatives that centralise play are to be successful. Support for the relationship between playful practice and performance allows practitioners to be confident in utilising play. In particular, findings show that allowing children the time to be playful, to complete activities in different

areas of classroom and to have time by themselves can be productive and produce positive learning outcomes.

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References

- BERA (2003). *Early Years Research: Pedagogy, Curriculum and Adult Roles, Training and Professionalism* [Electronic Version]. Retrieved 8 April, 2008, from: www.bera.ac.uk/pdfs/BERAEarlyYearsReview31May03.pdf
- Bergen, D. (1988). Using a schema for play and learning. In D. Bergen (Ed.), *Play as a medium for learning and development* (pp.169–180). Portsmouth: Heinemann Educational Books Ltd.
- Brooker, L. (2001). Interviewing children. In G. MacNaughton, S.A. Rolfe & I. Siraj-Blatchford (Eds.), *Doing early childhood research. International perspectives on theory and practices* (pp.162–177). Buckingham: Open University Press.
- Bruner, J.S. (1974). Child's play. *New Scientist*, 126–128.
- Bruner, J.S., Goodnow, J.J. & Austin, G.A. (1956). *A study of thinking*. New York: John Wiley & Sons Inc.
- Bruner, J.S., Jolly, A. & Sylva, K. (Eds.). (1976). *Play: It's role in development and evolution*. New York: Basic Books, Inc.
- Ceglowski, D. (1997). Understanding and building upon children's perceptions of play activities in early childhood programmes. *Early Childhood Education Journal*, 25(2), 107–112.
- Christie, J.F. & Johnson, E.P. (1983). The role of play in socio-intellectual development. *Review of Educational Research*, 53(1), 93–115.
- Csikszentmihalyi, M. (1979). The concept of flow. In B. Sutton-Smith (Ed.), *Play and learning*. New York: Gardner Press Inc.
- Dansky, J.L. (1980). Make-believe: A mediator of the relationship between play and associative fluency. *Child Development*, 52, 576–579.
- Dansky, J.L. & Silverman, I.W. (1973). Effects of play on associative fluency in pre-school-aged children. *Developmental Psychology*, 9(1), 38–43.
- Dansky, J.L. & Silverman, I.W. (1975). Play: A general facilitator of associative fluency. *Developmental Psychology*, 11(1), 104.
- Department for Education and Employment (2000). *Curriculum guidance for the Foundation Stage*. London: Qualifications and Curriculum Authority.
- Department for Education and Skills (2007a). *The Early Years Foundation Stage*. Nottingham: DfES Publications.
- Department for Education and Skills (2007b). *The Early Years Foundation Stage. Effective Practice: Play and Exploration* [Electronic Version]. Retrieved 1 May, 2007, from: www.teachernet.gov.uk/_doc/11293/play%20and%20exploration.pdf
- Dewey, J. (1933). *How we think*. Boston: D.C. Heath and Company.
- Fein, G.G. (1985). Learning in play: Surfaces of thinking and feeling. In J.L. Frost & S.S. Sunderlin (Eds.), *When children play* (pp.45–53). Wheaton, MD: Association for Childhood Education International.
- Garvey, C. (1991). *Play* (2nd ed.). London: Fontana Press.
- Goncu, A. & Gaskins, S. (Eds.) (2007). *Play and development: Evolutionary, sociocultural and functional perspectives*. Philadelphia: Psychology Press (formerly Lawrence Erlbaum Associates).
- HM Government (2003). *Every Child Matters*. Norwich: The Stationery Office.
- Howard, J. (2002). Eliciting young children's perceptions of play, work and learning using the activity apperception story procedure. *Early Child Development and Care*, 172, 489–502.
- Howard, J., Bellin, W. & Rees, V. (2003). Eliciting children's perceptions of play and exploiting playfulness to maximise learning in the early years classroom [Electronic Version]. *Education-line*, 1–9. Retrieved 1 March, 2007, from: www.leeds.ac.uk/educol/documents/00002574.htm

- Howard, J., Jenvey, V. & Hill, C. (2006). Children's categorisation of play and learning based on social context. *Early Child Development and Care*, 176(3 & 4), 379–393.
- Howard, J.L. & Miles, G.E. (2008). *A behavioural threshold and fluency theory of play*. Forthcoming.
- Howard, J. & Westcott, M. (2007). Research into practice. Creating a playful classroom environment. *Psychology of Education Review*, 31(1).
- Hyland, D.A. (1984). *The question of play*. Lanham: University Press of America.
- Karby, G. (1989). Children's conceptions of their own play. *International Journal of Early Childhood Education*, 21(2), 49–54.
- Keating, I., Fabian, H., Jordan, P., Mavers, D. & Roberts, J. (2000). 'Well, I've not done any work today. I don't know why I came to school.' Perceptions of play in the reception class. *Educational Studies*, 26(4), 437–454.
- King, N.R. (1979). Play: The kindergartners' perspective. *The Elementary School Journal*, 80(2), 81–87.
- Kose, G., Beilin, H. & O'Connor, J.M. (1983). Children's comprehension of actions depicted in photographs. *Developmental Psychology*, 19(4), 636–643.
- Laevers, F., Vandenbussche, E., Kog, M. & Depondt, L. (1994). *A process-oriented child monitoring system for young children*. Belgium: Centre for Experiential Education. Document Number.)
- Lieberman, J.N. (1977). *Playfulness. It's relationship to imagination and creativity*. New York: Academic Press Inc.
- Manning, K. & Sharp, A. (1977). *Structuring play in the early years at school*. East Grinstead: Schools Council Publications.
- Meadows, S. & Cashdan, A. (1988). *Helping children learn*. London: David Fulton Publishers.
- Moyles, J.R. (1989). *Just playing?* Buckingham: Open University Press.
- Noldus Information Technology (2003). *The Observer Video-Pro (Version 5)*. Wageningen: Noldus Information Technology bv.
- Parker, C.J. (2007). *Children's perceptions of a playful environment: Contextual, social and environmental differences*. Unpublished BSc Dissertation. University of Glamorgan.
- Pellegrini, A.D. (1985). Social-cognitive aspects of children's play: The effects of age, gender, and activity centres. *Journal of Applied Developmental Psychology*, 6, 129–140.
- Pellegrini, A.D. (1991). *Applied child study* (2nd ed.). New Jersey: Lawrence Erlbaum Associates, Inc.
- Pepler, D.J. & Ross, H.S. (1981). The effects of play on convergent and divergent problem solving. *Child Development*, 52(4), 1202–1210.
- Piaget, J. (1951). *Play, dreams and imitation in childhood*. London: William Heinmann Ltd.
- Radcliffe, E. (2007). *Mathematical development and playful practice*. Unpublished BSc Dissertation. University of Glamorgan.
- Robson, S. (1993). 'Best of all I like choosing time.' Talking with children about play and work. *Early Child Development and Care*, 92, 37–51.
- Rolfe, S.A. (2001). Direct observation. In G. MacNaughton, S.A. Rolfe & I. Siraj-Blatchford (Eds.), *Early childhood research. International perspectives on theory and practices* (pp.224–239). Buckingham: Open University Press.
- Rothlein, L. & Brett, A. (1987). Children's, teachers' and parents' perceptions of play. *Early Childhood Research Quarterly*, 2, 45–53.
- Rubin, K.H., Fein, G.G. & Vandenberg, B. (1983). Play. In P.H. Mussen (Ed.), *Handbook of child psychology, Vol. IV, Socialisation, personality and social development* (pp.694–759). New York: John Wiley & Sons.
- Sachs, J. (1980). The role of adult-child play in language development. In K.H. Rubin (Ed.), *Children's play. New directions for child development* (Vol. 9, pp.33–48). San Francisco: Jossey-Bass Inc, Publishers.
- Saracho, O. (1991). Educational play in early childhood. *Early Child Development and Care*, 66, 45–64.
- Schwartzman, H.B. (1982). Play as mode. *The Behavioural and Brain Sciences*, 5, 168.
- Simon, T. & Smith, P.K. (1983). The study of play and problem solving in pre-school children: Have experimenter effects been responsible for previous results? *The Journal of Developmental Psychology*, 1, 289–297.
- Singer, J.L. (2006). Epilogue: Learning to play and learning through play. In D.G. Singer, R.M. Golinkoff & K. Hirsh-Pasek (Eds.), *Play=Learning. How play motivates and enhances children's cognitive and social-emotional growth* (pp.251–262). Oxford: Oxford University Press.
- Smilansky, S. (1968). *The effects of sociodramatic play on disadvantaged pre-school children*. New York: John Wiley & Sons Ltd.
- Smilansky, S. & Shefatya, L. (1990). *Facilitating play: A medium for promoting cognitive, socio-emotional and academic development in young children*. Gaithersburg: Psychosocial and Educational Publications.
- Smith, P.K. (1986). Play research and it's applications: A current perspective. In P.K. Smith (Ed.), *Children's play: Research, developments and practical applications* (pp.1–13). London: Gordon and Breach Science Publishers.
- Smith, P.K. (1988). Children's play and it's role in early development: A re-evaluation of the 'play ethos'. In A.D. Pellegrini (Ed.), *Psychological basis for early education*. Chichester: John Wiley & Sons.

- Smith, P.K. & Simon, T. (1984). Object play, problem-solving and creativity in children. In P.K. Smith (Ed.), *Play in animals and humans* (pp.199–216). Oxford: Basil Blackwell Ltd.
- Smith, P.K. & Whitney, S. (1987). Play and associative fluency: Experimenter effects may be responsible for previous positive findings. *Developmental Psychology*, 23(1), 49–53.
- Sturges, J. & Ziviani, J. (1996). A self-report play skills questionnaire: Technical development. *Australian Occupational Therapy Journal*, 43, 142–154.
- Sutton-Smith, B. (1997). *The ambiguity of play*. Cambridge, MA: Harvard University Press.
- Sylvia, K., Bruner, J.S. & Genova, P. (1976). The role of play in the problem-solving of children 3- to 5-years-old. In J.S. Bruner, A. Jolly & K. Sylvia (Eds.), *Play – its role in development and evolution* (pp.244–257). Middlesex: Penguin Books Ltd.
- Takhvar, M. (1988). Play and theories of play: A review of the literature. *Early Child Development and Care*, 39, 221–244.
- Thomas, L., Howard, J. & Miles, G. (2006). The effectiveness of playful practice for learning in the early years. *The Psychology of Education Review*, 30(1), 52–58.
- Tudge, J. & Hogan, D. (2005). An ecological approach to observations of children's everyday lives. In S. Greene & D. Hogan (Eds.), *Researching children's experience. Approaches and methods* (pp.102–122). London: Sage Publications Ltd.
- Welsh Assembly Government (2003). *The Learning Country: The Foundation Phase – 3 to 7 years*. Cardiff: Welsh Assembly Government.
- Westcott, H.L. & Littleton, K.S. (2005). Exploring meaning in interviews with children. In S. Greene & D. Hogan (Eds.), *Researching children's experience: Approaches and methods* (pp.141–157). London: Sage Publications Ltd.
- Wing, L. (1995). Play is not the work of the child: Young children's perceptions of work and play. *Early Childhood Research Quarterly*, 10, 223–247.
- Wood, E. & Attfield, J. (2005). *Play, learning and the early childhood curriculum* (2nd ed.). London: Paul Chapman Publishing.

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