Play and Creativity: developmental issues

SANDRA W. RUSS
Case Western Reserve University, Psychology Department, Cleveland, OH 44106–7123, USA

ABSTRACT

Play and creativity have been linked in numerous ways. Theoretically, pretend play fosters the development of cognitive and affective processes that are important in the creative act. Russ's (1993) model of affect and creativity identified the major cognitive and affective processes involved in creativity and the relations among them, based on the research literature. Central to both play and creativity is divergent thinking. Both cognitive and affective processes in play have been related to divergent thinking in children. In a longitudinal study, quality of fantasy and imagination in play predicted divergent thinking over time. Divergent thinking itself was relatively stable over time. An important question is whether play can facilitate creativity. Play has been found to facilitate insight ability and divergent thinking. Studies have also shown that children can be taught to improve their play skills. Future research studies should: (i) investigate specific mechanisms that account for the relationship between play and creativity; (ii) develop play intervention techniques that improve play skills; and (iii) carry out longitudinal studies with large enough samples to enable the application of statistical procedures such as path analysis.

Key words: pretend play; creativity; divergent thinking; affect

INTRODUCTION

Play and creativity have been linked both theoretically and empirically, in numerous ways. Pretend play has been conceptualised as an arena for the expression of creativity and for the facilitation of creative processes (Fein, 1987; Singer & Singer, 1990; Russ, 1993). Theoretically, play fosters the development of cognitive and affective processes that are important in the creative act. Pretend play involves the use of fantasy and symbolism. Fein (1987) stated that pretend play is a symbolic behaviour in which ‘one thing is playfully treated as if it were something else’ (p. 282). The use of imagination is important in pretend play, as is affect (Singer & Singer, 1990; Russ, 1993).

Krasnor & Pepler (1980) developed a model of play that involved four components: non-literality; positive affect; intrinsic motivation; flexibility. They believed that ‘pure play’ involves all four components, to varying degrees. They also pre-
sented three views of the relationship between play and developmental skills. First, play reflects the developmental level of the child and, therefore, can be used as a diagnostic tool. Second, play provides an opportunity to practice skills. Third, play is a causal agent in developmental change. This brings us to a key question in the play and creativity area: do processes in play simply reflect processes that are important in creativity or do play processes facilitate creative ability? This question is important because it speaks to whether or not play intervention programmes should be developed in order to facilitate creative ability.

In order to theorise about the links between play and creativity, one must be specific about the types of processes involved in creative thinking. Cognitive and affective processes that are expressed and developed in play are important in creativity. In the field of creativity, a distinction is usually made between the creative product and the creative process (Mackinnon, 1962; Golann, 1963). The creative product is the output of the individual, which can be judged as to the amount of creativity. There is a consensus in the field that a product must meet two criteria to be judged as creative. A product must be novel (original, new) and must be good (adaptive, useful, aesthetically pleasing). Experts within the various disciplines are the usual judges of the novelty and goodness of a creation. For a truly creative product to be produced in most fields, the knowledge base of the field must be mastered before old ideas can be integrated in new ways (Wallas, 1926). This puts children at a great disadvantage and makes it unlikely that they will contribute to a discipline in new ways. However, if age norms are considered as a reference point, as is usually the case in assessing children, then we can talk about novel and good creative products for a particular age group. A 9-year-old’s solution to a problem can be judged on criteria of adaptiveness and originality for that one age group. Also, the concept of everyday creativity is very relevant to children. Richards (1993) defined everyday creativity as real-life creativity at work or at leisure. Children are creative in a number of daily activities, including play.

RELATIONSHIPS BETWEEN PLAY AND CREATIVITY

A growing body of research has found a relation between play and creativity. There is a strong theoretical rationale for this relationship. Russ (1993, 1996) postulated that pretend play is important in developing creativity because so many of the cognitive and affective processes involved in creativity occur in play. Russ’s (1993) model of affect and creativity identified the major cognitive and affective processes involved in creativity and the relation among them, based on the research literature.

Divergent thinking is one major cognitive process important in creativity. As defined by Guilford (1968), divergent thinking generates a variety of ideas and associations to a problem. It involves free association, broad scanning ability and fluidity of thinking and has been found to be relatively independent of intelligence (Runco, 1991).

Two affective processes important in creativity are access to affect-laden thoughts and the ability to experience affect states (Russ, 1993). Both the ability to think about affect-laden fantasy and the capacity to experience emotion are import-
ant in creativity. In play, children express affect in fantasy and experience emotion. For example, Fein (1987) concluded that play facilitated the development of an affect symbol system that is important in creativity. Waelder (1933) viewed play as a place in which primary process thinking can occur. Primary process thought is affect-laden cognition (Russ, 1996). Morrison (1988) conceptualised play as an arena in which children reconstruct past experiences and rework old metaphors.

Pretend play should facilitate the development of divergent thinking for several reasons. The expression of emotion and affect-laden fantasy in play could help develop a broad repertoire of affect-laden associations (Russ, 1993, 1996). This broad repertoire of associations and use of emotion to access these associations should facilitate divergent thinking because the involvement of emotion broadens the search process for associations (Isen et al., 1987). Play should also facilitate divergent thinking because in play children practice divergent thinking skills by using toys and objects to represent different things and by role playing different scenarios (Singer & Singer, 1990).

There is a large body of studies that are correlational in nature that have investigated play and creativity. Most of the studies focused on the cognitive processes in play. Substantial bodies of studies have found a relation between play and divergent thinking (Singer & Rummo, 1973; Johnson, 1976; Peppler & Ross, 1981; Clark et al., 1989).

One of the reasons that affective processes in play have been studied less often than cognitive processes is because most of the measures of play have assessed cognitive processes, not affective processes. Rubin et al. (1983) referred to this phenomenon as the cognification of play.

A few studies have found a relation between affective processes in play and creativity. Leiberman (1977) found a relation between playfulness, which included affective components of spontaneity and joy, and divergent thinking in kindergarten children. Christie & Johnson (1983) also concluded that there was a relation between playfulness and creativity. Singer & Singer (1981) found that pre-schoolers rated as high imagination players showed significantly more themes of danger and power than children with low imagination.

Russ (1993, 2003) developed the Affect in Play Scale (APS) to meet the need for a standardised measure of affect in pretend play. The play task utilises two puppets, one boy and one girl, and blocks, with which the child is instructed to play for 5 min. The play task and instructions are unstructured enough that individual differences in the use of affect in pretend play can emerge. There is a well-developed coding system for the play (Russ, 1993). The APS measures the amount and types of affect in play, as well as cognitive dimensions of play such as quality of fantasy and imagination. The APS is appropriate for children from 6 to 10 years of age.

In a series of studies using the APS, affect in play did relate to creativity. Russ & Grossman-McKee (1990) investigated the relations among the APS, divergent thinking and primary process thinking on the Rorschach in 60 Grade 1 and Grade 2 children. As predicted, affective expression in play was significantly and positively related to divergent thinking, as measured by the Alternate Uses tTest (Wallach & Kogan, 1965). All major scores on the APS (cognitive and affective) were
significantly correlated with divergent thinking, with correlations ranging from 0.23 between comfort in play and divergent thinking and 0.42 between frequency of affective expression and divergent thinking. All correlations remained significant when IQ was partialed out. IQ had low correlations with the APS. The fact that intelligence did not relate to any of the play scores is consistent with the theoretical model for the development of the scale and is similar to Singer's (1973) results. Also, there were no gender differences in the pattern of correlations between the APS and divergent thinking. Russ & Grossman-Mckee (1990) also found a relation between the amount of primary process thinking on the Rorschach and the APS scores. Children who had more affect-laden primary process responses on the Rorschach had more affect in their play and higher fantasy scores than children with less primary process on the Rorschach. This is an important finding because it shows that there is some consistency in the construct of affective expression across two different types of situations.

Russ & Peterson (1990), who used a larger sample of 121 Grade 1 and Grade 2 children, replicated this finding of a relation between affect in play and creativity. Once again, all of the APS scores were significantly and positively related to the Alternate Uses Test, independent of intelligence. Again, there were no gender differences in the correlations. With this replication, we can have more confidence in the robustness of the finding that a relation exists between affect in pretend play and creativity in young children.

Seja & Russ (1999) investigated play and creativity in pre-school children, using a pre-school version of the APS. In this study of 33 children from 4 to 5 years of age, the measure of creativity was the Multidimensional Stimulus Fluency Measure (Godwin & Moran, 1990) and teachers’ ratings of daily play behaviour. We found that the affect scores, frequency and variety of affect were significantly related to number of responses and originality of responses on the creativity measure. Interestingly, in this study the cognitive fantasy and imagination scores were not related to creativity. All of the play scores were related to teachers’ ratings of make-believe and imagination in daily play behaviour. The results of this study suggest that, even in very young children, affect in play relates to processes involved in creativity.

LONGITUDINAL STUDIES

Theoretically, pretend play should be predictive of divergent thinking over time. Guilford (1950) expected creative processes to be stable. The few studies in the area support this hypothesis that creative processes in play are predictive of creativity over time. Shmukler (1982–1983) carried out a longitudinal study that found that pre-school imaginative predisposition and expressive imagination in play related to lateral imagination and creativity. Hutt & Bhavhnani (1972) found that creative inventiveness in pre-school play related to later divergent thinking. Clark et al. (1989) also found a relation between divergent thinking and play in pre-schoolers that was predictive of divergent thinking over a 3-year period.

A study by Russ et al. (1999) followed up the Grade 1 and Grade 2 pupils in the Russ & Peterson (1990) sample. The children were now in Grades 5 and 6.
Thirty-one of the original 121 children participated. This was a longitudinal study that explored the ability of the APS to predict creativity over a 4-year period. The Alternate Uses Test was the measure of divergent thinking. In addition, a version of the APS for older children was administered. The same basic task was administered, but the children were instructed to put on a play. In essence, the puppet play task became a story-telling task in the form of a play. The stories were scored with the same criteria as the APS.

As predicted, quality of fantasy and imagination in early play predicted divergent thinking over time, independent of IQ ($r = 0.34$ and $0.42$, respectively). Variety of affect had a low positive correlation with divergent thinking ($r = 0.25$) but did not reach significance. In addition, the APS was predictive of the version of the scale for older children. Most of the APS scores were significantly related to the comparable score on the modified play task. The magnitude of the correlations was quite good for longitudinal data. The strongest correlations were for the affect scores; $r = 0.51$ for positive affect, $r = 0.38$ for variety of affect and $r = 0.33$ for total frequency of affect expressed. Children who had more affect in their play as first and second graders had more affect in their puppet shows as seventh graders. These findings suggest that the cognitive and affective processes measured by the APS are stable over time and are important processes in creativity.

The developmental trends in this study were interesting. In comparing the means of the APS and the Affect in Fantasy task for the older children, the older group showed significantly greater frequency of affect ($t = 4.60, P < 0.01$) and variety of affect categories ($t = 6.29, P < 0.001$). There were no differences in their other play scores. We have not found age differences in the APS scores for children from 6 to 10. Perhaps for these older children who were now telling stories, the nature of the task was sufficiently different in that it called for more affect. On the Alternate Uses Test there were no significant differences between the means of the younger and older children. The relationship between the fluency scores of the younger and older children was $r = 0.30, P < 0.05$ and the spontaneous flexibility scores was $r = 0.46, P < 0.01$. The younger children had the test administered individually whereas the older children had a group administration.

We concluded from this study that the affective and cognitive processes in play in young children were predictive of similar processes in fantasy over a 4 year period. The cognitive processes in play were predictive of divergent thinking over time. The affect in play was not predictive, but the relationship between variety of affect and creativity may have reached significance with a larger sample size. One other important finding in this study was that play did not predict real-life creativity measures of a Creative Activities Checklist or creativity of a story-telling task. The Alternate Uses Test also did not relate to these real-life creativity measures. It is unclear whether this finding is due to the lack of validity of the creativity measures or that play is not predictive of real-life creativity.

A recent study by Russ & Cooperberg (2003) followed these children into high school. We were able to recruit 49 of the original 121 children, who were now in Grades 11 and 12. We administered the adult version of the Alternate Uses Test, two self-report coping measures (Ways of Coping-Revised and Adolescent Coping...
Orientation for Problem Experiences) and the Beck Depression Inventory to small groups. The results were similar to those of the fifth and sixth grade study. The results were that quality of fantasy in Grade 1 and 2 play was significantly related to divergent thinking in high school \((r = 0.28, P < 0.05)\) and imagination in early play was significantly related to divergent thinking \((r = 0.30, P < 0.05)\). When IQ was partialed out, the magnitude of the correlations increased. Variety of affect related to problem-focused coping on the ACOPE \((r = 0.24, P < 0.05)\), as did quality of fantasy \((r = 0.34, P < 0.01)\) and imagination \((r = 0.34, P < 0.01)\). The affect scores in play did not relate to divergent thinking. Divergent thinking itself was stable over time. The correlation between the fluency scores of first and second grade and high school was \(r = 0.44, P < 0.05\). Our conclusion from this study was that the cognitive processes in play (quality of fantasy and imagination) were related to divergent thinking ability 10 years later. When we controlled for early divergent thinking ability, play did not predict later divergent thinking. This finding suggests that the relationship between play processes and creativity is stable over time, but there is no evidence that play facilitated divergent thinking in this sample.

One noteworthy finding in this study was that the frequency of negative affect in play significantly related to depression on the Beck Depression Inventory \((r = 0.31, P < 0.05)\). Children who had more negative affect in their early play had more symptoms of depression 10 years later. It is important to note that in this population, the mean on the Beck Depression Inventory was 6.98. The relationship between negative affect in play and depression could be indicative of a tendency to experience mild dysphoria rather than show signs of clinical depression. Nevertheless, these results suggest that play processes that can be adaptive in one area like creativity can be maladaptive in another.

PLAY AS A FACILITATOR OF CREATIVITY

There is research evidence that play facilitates creativity. Early research on play and creative problem solving investigated play and insight ability. Insight is another cognitive process important in creative problem solving. In a series of studies, Sylva et al. (1976) concluded that play in children 3–5 years of age facilitated insight in a problem solving task. In one study they had three groups of children. One group played with the objects which were later used in the problem solving task. A second group observed the experimenter solve the problem. A third control group was exposed to the materials. Significantly more children in the play and observation groups solved the problem than in the control group. The play group was more goal oriented in their efforts on the task and was more likely to piece together the solution than the other groups.

Vandenberg (1978) refined the experimental methodology of the Sylva, Bruner and Genova studies and used a wider age group, 4–10 years of age. The experimental group played with the materials to be used in the problem solving task and the control group was asked questions about the material. Children were also given hints as to the solution. The play group did significantly better on one of the two insight tasks following the intervention. Six and seven year olds benefited most from the
play experience. Vandenberg concluded that the relationship between play and insightful tool use was mediated by age and task characteristics.

Smith & Dutton (1979) compared the effects of play, training and two control groups on two insight tasks in 4-year-olds. The play and training groups did significantly better than the controls on the first task. The play group did significantly better than all the other groups on the second task, which required motivated effort. There were more motivated solvers in the play condition than the other conditions.

Vandenberg (1980), in a review of the insight and play studies, concluded that all of these studies had the consistent finding that play facilitated insightful tool use and enhanced motivated task activity. Variables of task type and difficulty and age were mediating factors. Vandenberg pointed up the similarity between play and creativity. In both play and creativity, one is creating novelty from the commonplace and has a disregard for the familiar.

What evidence is there that play facilitates divergent thinking? In several important experimental studies, play facilitated divergent thinking in pre-school children (Dansky & Silverman, 1973; Dansky, 1980). In particular, Dansky and Silverman found that children who played with objects during a play period gave significantly more uses for those objects than did control subjects. In the later study, Dansky (1980) found that make-believe play was the mediator of the relationship between play and divergent thinking. Free play facilitated divergent thinking, but only for children who engaged in make-believe play. Also, in this second study, play had a generalised effect in that the objects in the play period were different from those in the test period. These two studies are important because they are experimental studies that show a direct effect of play on divergent thinking.

Dansky’s study was criticised by Smith & Whitney (1987). In a carefully executed study, they failed to confirm the hypothesis that play would enhance divergent thinking in pre-school children. One of the major differences between their study and Dansky’s was the use of a different examiner to administer the divergent thinking task after the play task. They attributed the experimental effect found in Dansky’s study to unconscious experimenter bias during testing. However, another possibility is that the introduction of a new examiner between the play task and the divergent thinking task interfered with the experimental set being induced by the play (Russ, 1993). Thus, there would be no experimental effect on problem solving. Another important point is that there have been a number of correlational studies (Singer & Rummo, 1973; Leiberman, 1977; Russ & Grossman-McKee, 1990) that have found a relationship between play and creativity that did use different examiners for the play and creativity tasks. Nevertheless, Smith and Whitney raised an important note of caution about controlling for experimenter bias as much as possible in play and creativity studies.

Dansky’s (1980) theoretical rationale or hypothesising that play would facilitate divergent thinking was that the process of free combination of objects and ideas involved in play is similar to the elements involved in creative thinking. He speculated that the free symbolic transformations inherent in pretend play helped create a temporary cognitive set toward the loosening of old associations. The focus was on
the cognitive variables as the explanatory mechanisms underlying the relationship between play and creativity.

An important question is whether the expression of affect in play can be shown to have an immediate effect on creativity. Russ & Kaugars (2000–2001) conducted a study with Grade 1 and 2 children that manipulated affect in play and investigated the effects on creativity. Eight children were randomly assigned to one of four groups: a happy puppet play group; an angry puppet playgroup; a free play with puppets group; a puzzle group. The main finding, contrary to prediction, was that there was no effect of experimental condition on divergent thinking. The experimental manipulation of affect was effective for the angry play group but not for the happy play group. There was no facilitation of divergent thinking for any group. Because the experimental manipulation did not work for the happy play group, the hypothesis remains untested for positive affect in play. The experimental manipulation did work for negative affect, but it did not increase divergent thinking. This finding is not consistent with the results of the correlational research that found relations between negative affect themes in play and creativity. It is consistent with the mood induction research with adults that found no effect of negative affect on creativity (Isen et al., 1987). On the other hand, there is a substantial body of research in the adult literature that has found a facilitation effect of positive affect on creativity (Isen, 1999). It is important to carry out a study of positive affect in play that does effectively test the hypothesis that positive affect in play would immediately facilitate creativity.

One interesting finding in the Russ & Kaugars (2000–2001) study was that self-reported experience of feeling emotion during the puppet play was associated with original responses on the divergent thinking task. Children who reported feeling more emotion gave more original responses. This finding is consistent with findings in the mood induction literature. It is possible that experiencing emotion as in mood induction studies will result in immediate facilitation of creativity whereas expressing affect themes and ideation in play is more trait-like and will require more intensive training with a greater number of play sessions to demonstrate an experimental effect.

An important question is whether we can teach children to improve their play skills. There have been play training studies that have shown experimental effects. Smilansky’s (1968) important research in Israel was one of the first studies to demonstrate that teachers could teach play skills. She worked with kindergarten children in Israel for 90 minutes a day, 5 days a week, for 9 weeks. The children who engaged in socio-dramatic play, with help from their teachers, showed significant cognitive improvement when compared with other groups. The teachers helped the children develop their play skills by commenting, making suggestions and giving demonstrations. Smilansky worked with children from low socio-economic status (SES) backgrounds having noticed that many of these children did not have good play skills.

Play training has been found to be effective with mentally retarded populations. Kim et al. (1989) carried out imaginative play training with children with a mental age of 3 years. They had 10 daily sessions of 20 minutes. The trainer modelled
thematic play. The children in the training group showed an increase in quantity and quality of imaginative play.

Hellendoorn (1994) carried out an imaginative play programme for retarded children and adolescents with a mental age of 2–3 years. The programme consisted of eight play themes, each with six consecutive steps. The steps were:

1. functional use of play material, normal daily activity, no evidence of pretence;
2. functional activity directed towards a symbolic person (doll or bear);
3. introduction of a pretence element in a crucial play material becomes make-believe;
4. make-believe extended to symbolic persons;
5. expanding the number of transformations;
6. relating one play theme to another, designing a play story.

The pace of movement through the steps was determined by the level of the child. A new step was introduced only after the child mastered previous steps. When compared with an untreated control group, the children in the play condition had better play skills on a post-training test. The play skills continued to hold after 3 months. The play skills gains did not generalise to play in the daily living environment.

Hartmann & Rollett (1994) reported positive results from a play intervention programme in Austrian elementary schools. The Viennese Play Curriculum involved teachers instructing children in play for 4 hours per week during the school year. Hartmann and Rollett compared experimental classes of low SES children with comparable control classes. They found that the play intervention group had better divergent thinking ability and were happier in school than the control groups.

One of the methodological problems with the Hartmann and Rollett study, and with many other studies in the play training area, is the lack of adequate control groups. Smith (1988, 1994) has consistently raised this issue in reviewing the play intervention literature. Smith stressed that adequate research design requires the inclusion of a control group that involves experimenter–child interaction other than pretend play. Both verbal stimulation and social interaction must be controlled for. He concluded that when this kind of control group is included in the design, usually both the play group and control group improves.

Dansky (1999) reviewed the play tutoring literature and found that ‘more than a dozen studies have shown that play tutoring can increase not just the quantity of play displayed but also the richness and imaginativeness of children’s pretense’ (p. 404). He described these play tutoring studies as usually involving 8–12 small group sessions with an adult who models and encourages participation in social interactive pretence. Usually the sessions are spread out over 3–6 weeks. The pretend activities usually involve everyday activities or fairy tales.

Dansky pointed out, in response to Smith’s criticism about control groups, that many of the studies did have adequate control groups that controlled for the involvement of the experimenter. For example, Dansky (1980) carried out a study with pre-schoolers that involve three groups: a socio-dramatic play tutoring group,
exploration tutoring and a free play group. Both tutoring groups received equal amounts of verbal stimulation and attention from the adult. After a 3-week intervention, the play tutoring group had a greater amount of, complexity of and imaginativeness of pretence in daily free play. In addition, the play group had more imaginativeness on other measures of imagination. Udwin (1983) also found, in a study with adequate control groups, that a play tutored group showed more imaginative play, positive affect and cooperation with peers during free play. Shmukler (1985, as cited by Dansky, 1999) also found similar increases in imaginative play in children in a well-controlled play tutoring study. These children also did better on creativity tests than the other groups. Dansky (1999), after reviewing the literature, concluded that there were consistently positive results in studies with adequate control groups. He concluded that play tutoring, over a period of time, did result in increased imaginativeness in play and increased creativity on other measures.

CONCLUSIONS

The key question posed at the beginning of this article was whether or not play processes only reflect cognitive and affective processes that are important in creativity or also facilitate creative ability. Research studies suggest that play does facilitate creativity. Both one trial studies and play training studies of longer duration have found facilitation effects of play on insight ability and divergent thinking ability. I agree with Dansky’s (1999) conclusion that, even though some of the studies were methodologically flawed, a sufficient number were rigorous in their research design.

There is a large body of studies that have found relations between play processes and creativity. Most of these studies either looked at play in a global fashion or investigated cognitive processes in play. A smaller body of studies, including my own, has found relations between affective processes in play and creativity as well. The few longitudinal studies in the area have found that cognitive processes, not affective processes, relate to creativity over time. No longitudinal study has determined that play facilitated creativity over time.

In the play experiments that investigated causation, the mechanisms that underlie the facilitation effect of play on creativity have not been explored (Dansky, 1999). In the one study in which we investigated affective processes and creativity (Russ & Kaugars, 2000–2001) the hypothesis remained untested for positive affect and was not supported for negative affect.

FUTURE RESEARCH DIRECTIONS

The most important efforts should be in the following areas.

1. Experimental studies that investigate specific mechanisms that account for the facilitation of creativity. For example, does increasing types of affect themes in play such as happiness facilitate creativity? Do different types of play processes facilitate different types of creativity? Both one trial studies and studies that use a series of trials should be carried out.
2. Studies that develop play intervention techniques that improve play skills. There is a good beginning in this area, but much more needs to be done. Results of these studies would be helpful to parents, teachers and child therapists.

3. Longitudinal studies that have a large enough sample size to enable statistical procedures like path analysis to be carried out. In order to determine whether play facilitates creativity over time, studies must have a large enough sample size with repeated measures of play and creativity over time. It is also important that measures of different types of play processes (affect, imagination) and different types of creativity be administered.

Research in the play and creativity area has found a link between these two domains. It is crucial that we help children develop the resources of play and creativity, so that both they and society benefit during their lifetime.

REFERENCES


RUSS, S.W. & PETERSON, N. (1990). The Affect in Play Scale: predicting creativity and coping in children, unpublished manuscript, Case Western Reserve University, Cleveland, OH.


