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The main aim of the present investigation was to highlight middle childhood creativity, and the children's perspective on creativity, in contrast to many, if not most, studies that investigate creativity from an adult perspective and a scholarly definition. This dissertation consists of two quasi-experimental studies, and one interview study. Study I investigated if, and how, state anxiety, brought on by school environment related stressors, might affect children's ability to utilize their full potential in regards to creativity. Low creativity was found to be associated with increasing levels of anxiety under competition conditions. The results indicate that it is advisable to encourage the less creative to believe in, and develop, their creative abilities or they might lose out on dual fronts – both by experiencing increased anxiety in tasks that require divergent thinking and by not being able to express themselves creatively due to increased anxiety. The main focus of Study II, was to investigate associations between motivational orientation and creativity. Results indicate that intrinsically oriented motivation had a positive effect on creativity overall, but also that the intrinsically motivated under competition conditions, tended to reach higher levels of creativity, than their counterparts in a comparison group, suggesting that the experimental situation in itself may have "triggered" mechanisms, perhaps extrinsically oriented state motivation, to enhance creativity. It seems possible, even plausible, that the competition condition encouraged active exploration into creative solutions. Study III investigated middle childhood children's understanding of the creativity construct. The analysis indicate that creativity, to a great extent, means art and artistic expression to children. The children did not seem to consider themselves as being creative in the context of flexible thinking, adaptability and problem solving, unless it included a visual arts perspective. Naturally, children will use their creative functions regardless if they are aware of what the definition of the concept is or not, as was evidenced throughout the study, but it is, worth considering that, when asking children to be creative, we might actually be limiting them, rather than expanding their range of creative expression.

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To Mamma & Pappa

"The truly creative mind in any field is no more than this:
A human creature born abnormally, inhumanly sensitive.
To him...
a touch is a blow,
a sound is a noise,
a misfortune is a tragedy,
a joy is an ecstasy,
a friend is a lover,
a lover is a god,
and failure is death.
Add to this cruelly delicate organism the overpowering necessity to create, create, create..... so that without the creating of music or poetry or books or buildings or something of meaning, his very breath is cut off from him. He must create, must pour out creation. By some strange, unknown, inward urgency he is not really alive unless he is creating."

Pearl S. Buck

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— THANK YOU —

Mamma & Pappa, there are simply no words to describe how much I love you, and how proud I am to be able to dedicate this work to you.

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Hannah och Aliah, you are what matters most — always and forever !

Jessie — for four years of friendship, encouragement and laughter :)

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C

LIST OF STUDIES

I

Levin, C. (2008). *Creativity and Competition in the Classroom.* Manuscript accepted April 2008 for publication in Creativity Research Journal (pending revision).

Creativity is studied, in competitive versus non-competitive settings, in relation to state and trait anxiety.

II

Levin, C. (2008). *Creativity and Motivational Orientation in Middle Childhood.*

The effects of trait motivational orientation on creativity, is investigated under competition and non-competition conditions.

III

Levin, C. (2008). *Childhood Creativity - A Cross-Cultural Perspective.* Manuscript submitted May 2008.

An interview study that investigates middle childhood children's understanding of the creativity construct, within the, so called, four P's of creativity (person, process, product, place).

CONTENTS

INTRODUCTION

"If you would like to be more creative, stay in part a child, with the creativity and invention that characterizes children before they are deformed by adult society"
Jean Piaget

Creativity is a vehicle in the child's world where playfulness, fantasy and reality are seamlessly intertwined. Children learn by experimentation, by manipulating objects, by using their imagination to explore ideas and by testing the boundaries of what is possible. This flexibility of thought is considered to be a major component of creativity and a cornerstone of creative individuals' ability to "cope with the advances, opportunities, technologies, and changes that are a part of our current day-to-day lives" (Runco, 2004).

Creative children, and the school environment does, however, not always go hand in hand. Not because children magically cease to have creative abilities when they enter the classroom, but because there are restrictions on, and preconceived notions of, the ways creativity may be expressed in a shared environment, which relies on a certain amount of orderliness.

Limitations, conditions and constraints, such as schedules, syllabi and norms considering classroom conduct, are often both appropriate and necessary to create a safe and manageable school environment. This may, however, also have a spill-over effect on the creative climate in the classroom, as has been argued by, for instance, Amabile (1996), Reid & McGuire (1995) and Kay (1991).

In an attempt to address some of these limitations, this study on creativity in the school context, provides a) a general introduction to the concept of creativity, including "the four P's" (Rhodes, 1961), that is, person, process, product and press, b) an overview of relational aspects between creativity and other concepts that are of interest for this study, and c) a presentation of the aims of the study. This is followed by descriptions of methods, design and instruments used, leading up to a results section, where summaries of the three studies, that form the foundation for this dissertation, are provided, and concluding with a general discussion of the findings.

The Concept of Creativity

The lexeme creativity can be traced back to the Latin word "creatus", meaning "bringing into existence". A colloquial definition of creativity is typically that of an activity that results in producing something new, or in imagining new possibilities that were not conceived of before. Most scholars choose to conceptualize and define creativity as it pertains to their specific area of research and expertise. This makes it difficult, if not impossible, to find an all encompassing definition.

There is, however, great consensus among researchers that a creative climate is of great benefit to children, and that schools, as well as families, can enhance creativity by promoting activities that give children an active role in learning, with freedom to explore and opportunities to participate in creative activities (e.g. Barnes & Shirley, 2007; Amabile, 1996; Torrance, 1962).

J.P. Guilford (1967), who by many is regarded as the founder of the modern concept of creativity, distinguishes

between convergent production abilities which includes processing given information with an emphasis on achieving the only possible, or the best, result, and divergent production abilities which flows in many directions and in which there is not just one path, or one correct solution.

Most creative accomplishments do, however, require both divergent and convergent thinking. An idea, even if ever so creative, must also be evaluated and scrutinized in regards to viability and originality (Csikszentmihalyi, 1996). From a child's point of view this evaluation might be represented by determining the difference between creating something and copying something.

Teresa Amabile (1996) identifies three components that are of great importance to creativity. The first component is "domain-relevant skills" , which refers to the benefit of having a wide range of skills and knowledge to draw from in the creative process. "Creativity-relevant skills" is the second component, which includes flexibility, understanding of complexities, ability to take counterintuitive measures, playfulness, persistence, self-discipline, independence and an internal locus of control. Third, Amabile considers "intrinsic motivation", as opposed to "extrinsic motivation" that comes from outside sources, a necessity when it comes to reaching the higher levels of creativity.

In lieu of a universal conceptualization and definition of creativity, a framework may provide a suitable base for discussing the concept, and to facilitate comparisons between studies. A commonly used categorization of creativity was introduced by Rhodes (1961). He distinguishes between the creative person, process, product and press ("the four P's"), the latter also known as place or environment. Murdock and Puccio (1993) suggest that the generalizability in creativity research may be enhanced when combinations of,

and interactions among the four P's, are utilized in order to organize, interpret and effectively communicate the results.

The Creative Process

The *Creative Process* is what takes us from the first impulse to create, to the final product of our creativity. Sometimes the inspiration springs from an abstract, sub-conscious level, that is, we may not even be aware of what gave us the urge to create. At other times we might be presented with concrete problems that require solving, and occasionally we make conscious decisions to create purely for our own pleasure.

Various models have been developed over time, to describe the different stages of the creative process. Although different models have different features and scopes, they also have certain common themes, such as imaginative ideas, the maturation of ideas and a critical evaluation of ideas, that is, both sub-conscious and analytical components.

An early model was proposed by Wallas (1926) and builds on the notion that creative thinking is predominantly a sub-conscious process with generative, as well as analytical, components. This model proposes four stages, Preparation, that is, defining and studying the issue, Incubation, allowing the issue to mature in the subconscious, Illumination, the emergence of the new idea and finally, Verification, examining the idea.

Some twenty-five years later Osborn (1953), presented a *Seven-Step Model for Creative Thinking*, which basically expands on the preparation stage in Wallas' model and divides this into, 1) an Orientation stage where the issue is

identified, 2) a Preparation stage where relevant data on the issue is gathered, 3) an Analysis stage in which the data is examined, and 4) an Ideation stage that examines different options to pursue. This is then followed by Incubation, Synthesis and Evaluation stages, that have great similarities with the Incubation, Illumination and Verification stages in Wallas' model. The Osborn model builds, to a great deal, on conscious, analytical processes.

In a modern, commonly used, model the process is organized in five stages (Csikszentmihalyi, 1996) with a balance between sub-conscious and conscious components. Preparation is the first step. This involves sub-conscious or conscious immersion in an issue that spark the curiosity. This is followed by a period of Incubation when sub-conscious mental processes are allowed to make associations and connections freely without interference from reason and logic. Third is the, so called, "Aha!" moment when the insight is brought up into consciousness, to be scrutinized for viability in the fourth step, Evaluation. Finally, the fifth step, Elaboration, the actual creative work, which is probably what Edison referred to when suggesting that creativity is 1 percent inspiration and 99 percent perspiration!

The creative process is, however, not as linear as these models might suggest. It is important to remember that all of these steps do not necessarily occur every time, and that some steps might actually recur several times, leading up to the finalized creative product.

The Creative Product

A *Creative Product* may be described as the outcome of a creative endeavor. In determining what sets a creative product apart from other products, a value assessment,

whether aesthetic, pragmatic, cognitive or ethical, must by default take place. According to Besemer and O'Quin (2006, 1987), the creative product can be appreciated according to three main characteristics, 1) novelty, that is, the originality of the product, 2) resolution, how well the product meets the criteria it was created for, and 3) style (previously called synthesis), the general, subjective, appeal of the product.

The creative product can take any shape, tangible as in visual art projects and inventions, or intangible as in new theories and novel ideas, and the product may be the outcome of an individual effort, or the result from the collaboration in a group.

If one relies on the notion that when a product is creative, it can be identified as such by others within the creative domain that is being investigated, it makes sense to place the creative product within a systems perspective. In the systems model, the domain provides the culturally based rules that the product may be judged by, and the field, experts within the domain, determine whether the product should be considered creative or not (Csikszentmihalyi, 1996).

Amabile's *Consensual Assessment Technique* (CAT), used to assess the creative product in this study, is based on the evaluation by experts, of creative products in three separate dimensions, 1) creativity, 2) skill, and 3) personal liking, that is, categories with characteristics greatly resembling those proposed by Besemer and O'Quin (1987) but allowing for a somewhat broader assessment spectra. A tangible product of creativity is what creativity generally is measured by. It is, however, important to recognize that creativity applies to many aspects of cognitive functioning, and is not limited to artistic expressions (Amabile, 1996).

The Context of Creativity

If the creative process and product, from the Four P's, can be said to focus on the concept of creativity, the creative person and place may be viewed from a contextual perspective on creativity.

Creativity doesn't "happen" in isolation. It builds on the acquired skills, needs and/or knowledge within the domain of the individual. For someone or something to be considered creative, the individual, the idea or the product has to placed in a context where an evaluation of the creative work can take place, that is, creativity must be scrutinized for viability by the individual, as well as within the domain in which it exists (Csikszentmihalyi, 1996).

In the five step model of Creativity, as described in Csikszentmihalyi (1996), the Preparation stage, the sub-conscious or conscious immersion in an issue, depends greatly on the context of the public domain in which the individual functions and the personally acquired knowledge and skill of the individual, that is, creative thinking is predominantly domain and/or situation specific (Han & Marvin, 2002).

The Incubation stage, when sub-conscious mental processes are allowed to make associations and connections freely without interference from reason and logic, and the, so called, "Aha!" moment when the insight is brought up into consciousness, are, by and large, very private, intrapersonal processes. The Evaluation step, when the creative work is scrutinized for viability, must then be undertaken within the public context in which the individual functions, and the final step, the Development step, the actual creative work, depends on a combination of intra-personal and contextual efforts.

The Creative Child

Creativity, as it pertains to the creative child (the *Creative Person*) in middle childhood, that is, in children between the ages of approximately six and twelve, seems to be at a peak developmental stage around the age of 10 (e.g. Smith & Carlsson, 1990; Torrance, 1962). It is hypothesized that this might be due to children becoming increasingly more familiar with, and used to, the school environment, but not yet strongly affected by external pressures in regards to academic performance.

The creative high point in middle childhood is often followed by a period when many children suppress playfulness, imagination and many other behaviors associated with creativity, in their quest to conform to societal pressures in adolescence, leading some to later "go on to be conventional and ordinary adults" as Presbury, Benson, Fitch, & Torrance (1990), put it.

From a developmental perspective, the child in early middle childhood is considered to be at the Concrete Operational developmental stage, that is, the child gradually learns to employ organized, logical thought, becomes less inclined to use transductive reasoning and less egocentric thinking, and is capable of concrete problem-solving, according to the Piagetian developmental theory. This is followed by the Formal Operational developmental stage, when thought becomes more abstract and flexible, the child becomes capable of entertaining multiple hypotheses, and of envisioning several different outcomes when engaged in problemsolving activities (Piaget, 1926).

The middle childhood age span encompasses the concrete, as well as the formal, operational stage, and as individuals develop at different rates, an overlap between the

stages is to be expected. The target age group in this study, that is, eight to twelve-year-olds, was chosen to capture early, as well as late, developing middle childhood children.

The rate at which children develop, has also been found to be somewhat accelerated since the Piagetian developmental theory was proposed, particularly in regards to girls' biological maturation in middle childhood. The question is, however, if this precocious somatic maturation also corresponds with an accelerated development of cognitive efficiency (Schambach, Schneemann, Muller, 1979) and although psychodiagnostic investigations suggest age appropriate results, some tendencies towards elevated IQ, and also an increased risk for psychopathology in adolescence, has been noted in early matured girls (Schambach et al., 1979; Ehrhardt, & Meyer-Bahlburg, 1994). This should, however, not be of consequence to the linearity of the developmental stages in Piaget's theoretical model.

When investigating creativity in children it is also important to remember certain differences in the creative process between adults and children. Where adults, who by default, have a greater life experience to draw from in storing and retrieving information, as well as in evaluating this information, children might be advantaged in their ability to make associations freely without making judgment calls, and by the fact that their playfulness and curiosity comes quite naturally (Isenberg & Quisenberry, 2002). Playfulness during childhood has also been found to predict and facilitate divergent thinking later in life (Russ, Robins, & Christiano, 1999).

Creativity has great positive potential but creative children do not always have a smooth ride through their school years. They are sometimes viewed by teachers and

peers as being highly emotional, difficult, self-centered individuals, often with concentration and cooperation difficulties (Dawson, 1997; Lovecky, 1992), perhaps due to that some personality traits of creative children, and/or the behavioral manifestations of creativity, may appear rather puzzling.

Toying with a multitude of different ideas simultaneously might, for example, seem disorganized, chosing to entertain other perspectives than those which were intended by the teacher could be viewed as disrespectful, the daydreaming child who is in the midst of quiet problem-solving, might appear disconnected, a child's need for solitude as imagination is allowed to flow freely could be viewed as disengagement, and the alternating states, between letting the mind wander and a total commitment to an idea or an activity, can be a source of confusion and frustration to others (Presbury et al., 1990).

Reid and McGuire (1995) adds indifference to common conventions and courtesies, resistance to authorities and rebelliousness, to the list of what might be viewed as negative behavior in creative children, but also propose that these behavioral manifestations have their roots in a lack of challenge and relevance in the curricula, inappropriate instructional approaches, and a climate that encourages conformity and convergent thinking in the classroom.

The Creative Classroom

The *Creative Place* refers to the immediate surroundings, as well as the work climate, of the creative Person, in which the creative Process, leading up to the composition of the creative Product, takes place. Göran Ekvall (1990), has proposed a framework of ten dimensions that are indicative of a creative climate.

All but one dimension, conflict, have a positive association with the creative climate, that is, they are likely to support and enhance creativity in the workplace. Below is a brief description of each, followed by suggestions on how these dimensions might also apply to the children's workplace, that is, the Creative Classroom.

1. *Challenge*

The working climate is dynamic and inspiring, and the workforce is involved in the daily operations, as well as in achieving long term goals. The work feels meaningful and motivating. Creative pupils are naturally curious, they question and challenge, and don't necessarily follow the rules. They need just the right amount of challenge and involvement to sustain interest and motivation in the tasks they are presented with, that is, the challenge has to be well-balanced in regards to individual expectations. If a task appears too easy, it does not act as a challenge, and if a task appears too difficult, the challenge is too high and may be perceived as unrealistic (Malone & Lepper, 1987; Malone, 1981).

2. *Freedom*

Individuals have autonomy to define a great deal of their work. Choice is a key concept in this workplace. In the classroom this might be represented by the freedom to explore ideas and options, to be allowed to play with ideas, to try different alternatives and "new" approaches to "old" tasks, in order to promote a sense of personal control and mastery.

3. *Idea Time*

The workplace allows time for discussing and elaborating on ideas that emerge, that is, individuals are not exclusively tied down by routines and assignments. Children might

occasionally need a “time-out”, in the midst of the often very rigidly structured and scheduled classroom climate, to allow imagination to flow freely, to discuss or ponder “What if....?” , and to look at issues from different points of view.

4. *Idea Support*

New ideas are encouraged, supported and treated with respectful attentiveness. Discussions are held in a constructive and positive spirit of mind. The way an idea is received by others is often crucial to the creative development of the same. Individuals in a creative classroom are receptive to, and supportive of, ideas and suggestions from others.

5. *Trust & Openness*

Individuals are able to advocate their beliefs without the fear of reprisal. Respect for others point of view and open communication are central themes. Most children automatically seek feedback, on ideas and achievements, from teachers and peers. Constructive reflections and perceptive observations, in support of the initiative of the individual, can help to encourage and enhance a creative classroom climate, in which ideas, however outlandish, can be ventilated without the fear of ridicule or belittling, if the practice of seeking to understand, rather than fault-finding, is applied.

6. *Playfulness and Humor*

The workplace has a laid-back atmosphere with lots of humor and laughter. It is fun to go to work. Children are naturally playful (Isenberg & Quisenberry, 2002), they relish in toying with ideas and making associations between things that are not usually connected, and the school environment should provide an excellent venue where learning

through play can take place.

7. *Debates*

The workplace, or classroom, climate encourages open, opinionated discussions, from a great diversity of perspectives.

8. *Risk-Taking*

In a creative environment it is OK to "take a gamble", to try something new even if the results can't be predicted. In the classroom, exploring and experimenting with answers, using imagination and stretching the boundaries of what is possible, supports the development of metacognitive thinking processes (Boyer, 1998), that is, the children's approach to learning, the self-monitoring of comprehension and the self-regulatory evaluation of progress, are enhanced.

9. *Dynamism*

A dynamic organization is eventful and working actively to avoid stagnation. In the classroom this might mean freedom in choosing and planning assignments, interactions on group and individual basis, interactive learning alternatives and, even, to some extent, freedom of "movement" within the classroom and/or school environment.

10. *Conflicts*

This dimension includes elements of personal and emotional tension, sometimes resulting in power struggles, conflicts and negatively charged gossip. For the child this might be represented by a general lack of respect for others' views, ideas and/or physical space and by, deliberate or inadvertent, exclusions from groupings, "cliques", within the school environment.

The Complexity of Creativity

Mihalyi Csikszentmihalyi (1996) has conceptualized creativity as a systems model, that is, as a product of a complex system of interaction between the individual, a field of experts, and the domain of knowledge in regards to a particular culture (Fig. 1).

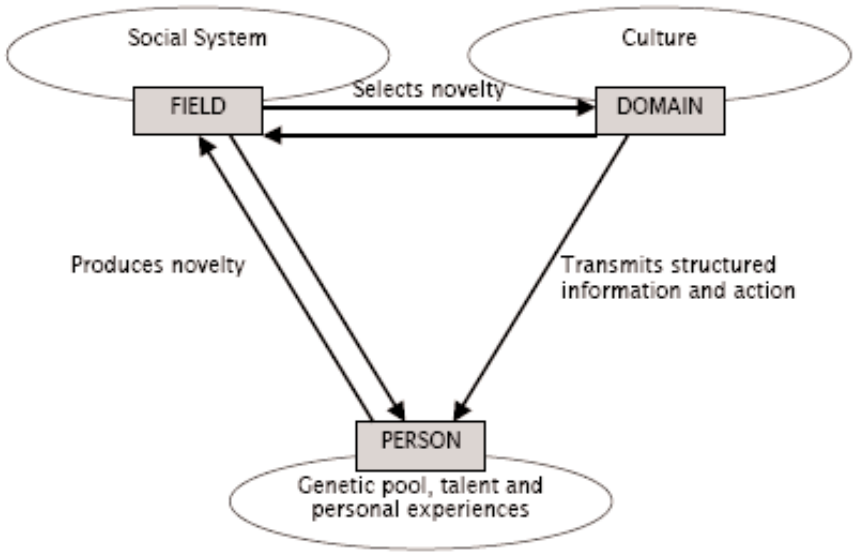

Figure 1. Csikszentmihalyi's Systems Model of Creativity (adapted from Hooker, Nakamura, and Csikszentmihalyi, 2003)

In this model a scientist, for example, may draw upon a pre-existing body of knowledge, or the preferences of the field, in discovering and defining a research problem, as well as researching it and drawing conclusions from it. If the results are deemed to be creative, by the field, they would then join the existing body of knowledge. As Csik-

szentmihalyi (1988) argues, "the actions of all three systems are necessary for creativity to occur".

Csikszentmihalyi's systems theory is to a great extent focused on Big C creativity, that is, on Big C creative individuals whose work is recognized by people in a particular field, and on extraordinary creativity that leads to a transformation of a domain. Beghetto and Kaufman (2007), on the other hand, advocate the inclusion of Little C, or Mini C, creativity, defined as *"the novel and personally meaningful interpretation of experiences, actions, and events"*, and also the intrapersonal judgment of the individual when it comes to determining the degree of novelty and meaningfulness of a creative product.

Although the systems model of creativity, as proposed by Csikszentmihalyi, applies to adult, often extraordinary "Big C" creativity, the systems mechanism can surely also be examined, on a smaller scale, and with the addition of Beghetto and Kaufman's "Mini C" creativity. From a childhood perspective, this may encompass the child who draws on learned skills or talents in creative and problem solving activities, yielding abstract or concrete products, for example, in the classroom. The results are then evaluated, and either rejected or accepted as creative, by the individual and/or others (e.g. peers, teachers) and, if accepted, become part of the general knowledge base of the contextual environment in which it was created, that is, as described here, within the school environment.

As a developmental system, creativity is also influenced by many complex processes, such as, cognitive and affective processes, environmental and educational aspects (formal and informal), as well as, sociocultural and historical contextual aspects (Feldman, 1999), some of which will be explored within this thesis.

Creativity and Anxiety

Spielberger (1972) defined anxiety as *"a specific emotional state which consists of unpleasant, consciously-perceived feelings of nervousness, tension, and apprehension, with associated activation or arousal of the autonomic nervous system"*. In his work he also popularized Cattell's (1966) conceptualization of state and trait anxiety in which the state of anxiety refers to the situation specific process of emotional experiencing, whereas the trait of anxiety refers to "characterological anxiety", that is, the level of anxiety that is experienced on a regular basis, and the general proneness to respond with state anxiety in situations that are perceived as distressing.

The school environment does, no doubt, present a vast array of everyday stressors to the developing child. Conditions within the classroom such as test taking, comparing self to others, time constraints and competitiveness, to name a few, all have the potential to elicit stress and anxiety reactions in some children (Rudolph, Lambert, Clark, Kurlakowski, 2001; Tennes & Kreye, 1985; Phillips, 1978).

In addition to being potentially anxiety provoking stressors, the above conditions and constraints are often viewed as having detrimental effects on children's creativity (Amabile, 1996; Amabile, Hennessey, Grossman, 1986; Kruglanski, Friedman, Zeevi, 1971), and some children may employ avoidant coping strategies when faced with anxiety provoking situations, that is, they are prone to inhibit behaviors such as exploration, risk taking and novelty seeking, which are all main features of creativity, and that may cause them to experience anxiety (Kagan, Reznick, Gibbons, 1989).

It should be noted that the type of anxiety investigated

in this dissertation is not DSM-IV TR diagnosable anxiety disorders, but rather concepts describing the general temperament of the individual, as in the Trait Anxiety measurement, or the situation specific reaction to a stressor, as in the State Anxiety measurement.

Creativity and Motivation

The motivational climate in school is traditionally viewed as being extrinsic in nature, that is, the children are generally believed to be goal oriented in regards to marks/grades, rather than striving for personal satisfaction in having gained knowledge in a subject (Ryan & Deci, 2000; Kohn, 1993).

According to Lepper (1988), motivation can be viewed in two distinct stages: a) choosing to participate in a task and b) choosing to persist in the task, and motivational orientation is often discussed in terms of extrinsic and intrinsic reasons for choosing to participate. Intrinsic motivation refers to the tendency to engage in activities because one finds them interesting, challenging, involving and satisfying, while extrinsic motivation refers to factors such as promise of rewards and punishments, orders from superiors and competition with peers (Ryan & Deci, 2000).

When it comes to creativity and what enhances versus what hinders it, there seems to be consensus among researchers that intrinsic motivation exerts a positive influence on creative abilities (e.g. Prabhu, Sutton, Sauser, 2008; Hennessey, 2002; Shalley & Perry-Smith, 2001; Amabile, Hill, Hennessey, Tighe, 1994).

On the other hand, there is an on-going debate over whether, so called, extrinsic motivation, such as rewards, competition et cetera, is detrimental to creativity (Baer,

2002; Eisenberger & Cameron, 1998; Cameron & Pierce, 1994). A number of behaviorally oriented studies have actually shown that extrinsic motivation may even enhance creativity (e.g. Eisenberger, Armeli, Pretz, 1998; Winston & Baker, 1985; Goetz & Baer, 1973).

A learning environment, such as the school environment, may benefit from an instructional climate that encompasses the motivational framework components Challenge, Control, Curiosity and Fantasy. Optimal levels of Challenge may be reached in activities that are neither too difficult, nor too easy. Second, stimulating Curiosity is essential, both for initially gaining the individual's attention, and for sustaining the interest in the task. Third, learners need to feel that they have a certain amount of Control over their environment, that is, task motivation is enhanced when the individual is provided with the ability to make choices, and fourth, Fantasy, that is, mental images of physical or social situations can aid in evoking feelings associated with power, success, fame, and fortune, but also to help a learner to relate new learning to past experience by conjuring up images of previous successful endeavors (Malone & Lepper, 1987).

Creativity and Culture

Roeper and Davies (2000) propose a view of the development of the creative mind as an outside-in process that occurs in a cultural context, rather than inside-out, where functions are merely reflections of the ability to store, sort, retrieve and manage information, and a prominent cultural, contextual component in regards to children, is the school environment.

Although the cross-cultural comparison in Study III concerns two Western cultures, it has relevance in that the

Swedish society in general is subject to ever increasing similarities with North American social systems such as, for instance, privatization and an emphasis on competitive environments in general. On the other hand, in regards to the school systems, Sweden offers a greater freedom of choice, regardless of social and economic status, than the U.S. (Bergström & Sandström, 2003).

The evaluation/grading system represents another area of dissimilarity between the two cultures. The U.S. school system is based on rigorous testing practices where results are compared to national standards, and report cards are issued twice or four times yearly from first grade and up, whereas the Swedish system is geared more towards individualized goal setting and the achievement of these goals, and grades are reported for the first time at the end of the eighth year of schooling.

Creativity, in the cultural context, is a global language that can transcend *"race, country, culture, and economic level"* (Meador, 1999), and the Association for Childhood Education International (ACEI) emphasize the need for multicultural and global perspective on the concept of creativity.

Creativity in the School Context

At the heart of this thesis lies three basic assumptions. First, creativity needs to be explored, encouraged and exercised like any other desirable human mechanism, for example, muscle strength, memory and motor functions, et cetera. It is a natural ability that needs careful coaching to reach full potential.

Second, the creative process is not the culmination of creativity, an evaluation of the creative outcome does, by

default, also take place. The child deserves the opportunity to share, and receive feedback on their creativity, and one of the greatest rewards of a creative undertaking is, no doubt, knowing that the process is brought to a conclusion, that either brings fulfillment from self-evaluation, or from the approval of others.

Third, creativity can act as a protective factor, and also be used as a therapeutic tool (e.g. Rousseau, Drapeau, Lacroix, Bagilishya, Heusch, 2005; Lin, Lee, Kemper, Berde, 2005; McNamee, 2005; Dell-Clark, 2004). Through therapeutic techniques (eg. play therapy, art therapy, dramatizations) creativity may help a child connect with deeply embedded feelings. Creative activities also provide a universal mode of communication for the child, without having to verbalize these emotions.

Creative works should, however, not purely be viewed as ways of "letting off steam." Quite often creativity is considered merely an emotional outlet, and thus separating it from the cognitive and physical processes, and the cultural contexts, in which the creative process takes place (Duncum, 2001; Freedman, 2000). Different types of motivation for utilizing creativity are needed at different times — sometimes we are “naturally” creative and process oriented, other times we might need a “carrot” to get us going, and sometimes a creative undertaking is a planned, conscious effort, and all of the above must be taken into account in a holistic perspective on creativity.

It is the right of every child to have the opportunity to develop creative thought and expression (Isenberg & Jalongo, 2001), and it is the responsibility of every adult to recognize the ability for creative development in all children (Armstrong, 1998). There is increasing evidence that the nurturing of a child’s imagination, creativity, curiosity, and

playfulness during childhood, is a predictor for creativity in adulthood (Cobb, 1977; Martindale, 2001), and the rapidly developing society of today, and tomorrow, will, no doubt, need creative, flexible, thinkers who can adjust and adapt to an ever changing environment.

In essence, the more we know about the development of creativity in childhood, the better equipped we become at encouraging and nurturing it, and the greater the chances are, that the child will grow up to become creative in adulthood.

AIMS

The aims of this dissertation on Creativity in the School Context were:

1) *To lift childhood creativity, and the children's perspective on creativity from relative obscurity, in contrast to many, if not most, studies that investigate creativity from an adult perspective and a scholarly definition.*

Study III was designed to explore eight to twelwe-year-old children's views on, experiences with, and definitions of, the concept of creativity, through semi-structured interviews.

2) *To investigate possible associations between individual state anxiety levels and creativity, as well as between creativity and trait anxiety, in middle childhood children.*

Study I was aimed at investigating if, and how, state anxiety, brought on by school environment related stressors, might affect the children's ability to utilize their full potential in regards to creativity, from the standpoint that it is not a competitive climate per se, that might affect levels of creativity, but rather the intrapersonal proneness to anxiety within a competitive situation. Trait anxiety that has been found to be related to high creativity in adults, was also studied in regards to possible associations with creativity in children.

3) *To investigate possible associations between intrinsic and extrinsic motivational orientation, and middle childhood creativity.*

The main focus of Study II, was to investigate associations between motivational orientation and creativity, as measured under competition and non-competition conditions.

Extrinsic/intrinsic motivational orientation was investigated as dichotomous variables, as well as, in the form of the motivational components Curiosity, Challenge, Control and Fantasy, in an effort to gain a more nuanced perspective on the relationship between creativity and motivation.

4) *To study middle childhood creativity in regards to the influences of competition conditions and constraints.*

In addition to the above mentioned aims of Study I and Study II, the aim was also to investigate, not only if, but in what way, school environment stressors might affect the children's ability to utilize their full potential in regards to creative functions.

METHOD

Quantitative Design & Measures

In a quantitative research design the aim is to determine the relationship between measured, or manipulated, independent variables, and an observed dependent, or outcome variable, in a population.

The concept of Creativity is at the heart of this project. As it applies to Study I and Study II, Creativity, the dependent variable, is investigated in a quasi-experimental setting, that is, in an experiment group versus a comparison group, as well as in regards to associations with independent variables such as Anxiety, Motivation and Fantasy.

There were no significant pre-experimental differences between competition and comparison group participants on proxy variables related to the study's key outcomes. The study used existing instruments that had already been deemed valid and reliable, and the methods, procedures, and time frames used to collect the data from competition and comparison groups were the same.

Quasi-experimental Normative Group Equivalence Design

The word "quasi" in "quasi-experimental design" can be said to mean "resembling " or "almost". A quasi-experimental design is, in that sense, almost a true experiment. The main difference between a true experiment and a quasi-experimental design, is randomization (Shaughnessy, Zeichmeister, & Zeichmeister, 2003).

In this project, the characteristics of a comparison group

were purposely made to approximate those of the experimental group instead of randomization, a strategy that may be referred to as a Quasi-experimental Normative Group Equivalence Design (Becker, 2000). This is not to be confused with a Non-equivalent Control Group Design, where the experiment group and control group are subjected to pre- and post-test on the dependent variable.

Selection effects between the groups were investigated in regards to variables such as gender and age, as well as with proxy pretests (Shadish, Cook, Campbell, 2002), that is, measurements on variables conceptually related to the outcome, such as fantasy and components of motivational orientation, and between groups differences were found to be non-significant.

Participants

Four elementary schools took part in Study I and Study II. Seven classes that fell within the target age group, 8 – 12 year olds, were invited to participate. 131 consent forms were distributed to parents, of whom 101 responded. Seventy-six individuals , 41 boys and 35 girls with a mean age of 10.09 years, were given parental consent to participate. All participants were fluent in the Swedish language, although almost a third (n = 23) were born to a parent, or parents, from countries other than Sweden.

The 76 participants were divided into two groups, a competition (experiment) group and a non-competition (comparison) group, based on scores from a fantasy inventory as well as age. Thirty-eight participants (16 boys and 22 girls) were assigned to the competition group, and equally as many (25 boys and 13 girls) to the non-competition group. Creativity is not generally viewed as a gender specific ability (Hoff, 2004; Kaufman, Baer, & Gentile, 2004;

Baer, 1999) why no effort was made to match the groups on the basis of this.

The statistical power in the studies could, naturally, have been increased with a greater number of participants, however, it was necessary to strike a balance in regards to, on the one hand, the logistics of keeping the groups isolated from each other, and, on the other hand, the amount of participants and the administration intense completion of the collage making task.

Collage Making Task

The main consideration for choosing this particular creativity measure is that it seems to be a reliable measure of creativity that does not depend on the children having any specialized skills, as well as being an enjoyable creative activity. The materials used in the task, a blank, white paper, a glue stick and a small bag of colored paper shapes, provides for great flexibility in the creation of the product to be judged.

All children were given exactly the same materials, and were allowed to use as many, or as few, pieces of paper as they liked. They were also asked to make a collage that would portray something “silly”. This particular wording in the instructions, was purposely used in order to enable the children to draw on their emotions in creating, rather than being constrained to construct specific, concrete, images (Fig. 2).

A time constraint of 15 minutes was imposed on the competition group. The non-competition group made their collages as a heuristic task, while the experiment group was told that they were competing for prizes for the “best” collages. A selection of these prizes were prominently

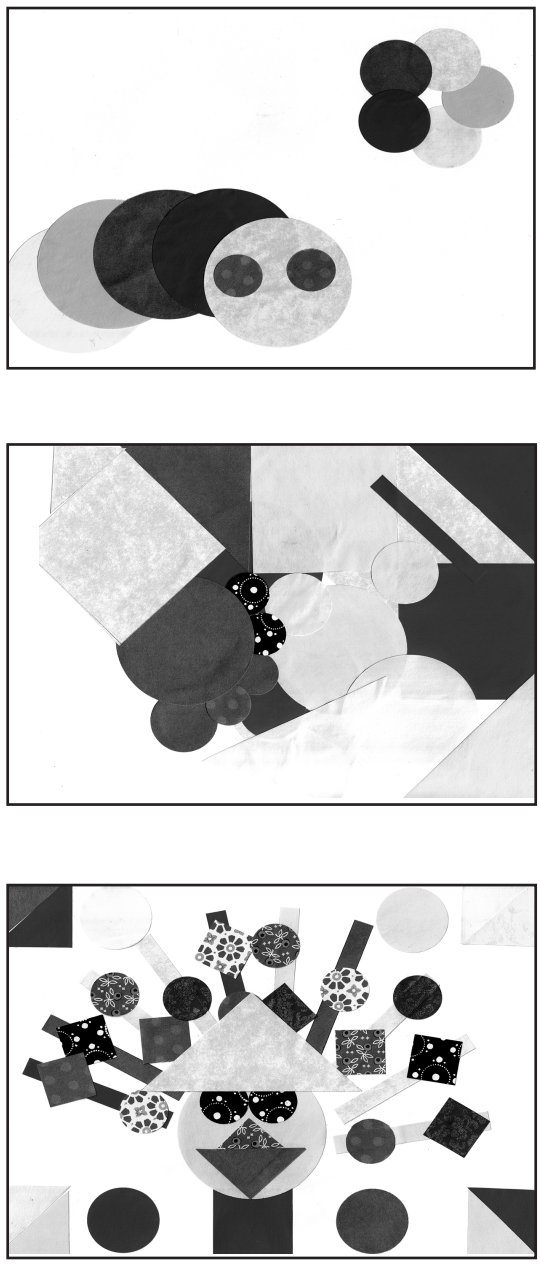

Figure 2. Examples of children's collages.

displayed during the experiment and consisted of small items appealing to a wide range of interests, like balls, Frisbees, jump ropes, books, keyrings, sunglasses et cetera, to ensure that all children could find a prize that would motivate them to partake in the “competition”.

Great care was also taken to isolate the groups from each other. All children were engaged in their respective activities simultaneously, with the aid of teachers as monitors, to avoid contamination. All participating children were rewarded after the experiment was concluded whether they belonged to the competition or the non-competition group.

Assessment of products from the Collage Making Task

The Consensual Assessment Technique (CAT) was developed by Teresa Amabile and colleagues for the assessment of the creativity of products. Inter-rater reliability for seven judges or more have proven to be very high, ranging between .73 and .93 in several studies (Amabile, 1996). In this study the creative products were judged by a panel of eight judges on a) creativity, b) skill and c) personal liking, on a scale from 1 - 7.

In this project the raters, all of them teachers, five at college or university level, one at secondary school level and two at primary school level, were selected based on their experience in the assessment of creative products and asked to use their own, subjective definition of creativity as they rated a) creativity, b) skill and c) personal liking, on a Likert scale ranging from one to seven. They were also instructed to assess the products in relation to one another, as opposed to comparing them with works made by,

for instance, themselves or professional artists.

Repeated Measures Design

A repeated measures design may be described as a study in which an individual is measured more than once on the same variable (Aron & Aron, 2003). The main advantage of the repeated measures design is that individual differences between participants are removed as a potential confounding variable, as the individuals themselves act as controls (Shaughnessy, Zeichmeister, & Zeichmeister, 2003).

State Anxiety was measured in Study I immediately after the introduction of the competition versus non-competition conditions. The second measurement was taken at the close of the activity, just prior to revealing the "winners" in the competition group and the debriefing in the non-competition group, in an effort to discern the effects of the competitive climate on levels of state anxiety, as well as for possible interaction effects between Group, State Anxiety and Creativity.

State-Trait Anxiety Inventory for Children

State and trait anxiety was measured with State-Trait Anxiety Inventory for Children, STAI-CH (Spielberger, 1973), a well documented test for the measurement of trait and state anxiety in children. 20 items over four anxiety dimensions; tension, nervousness, worry and apprehension, are rated by the individual on a three point scale and subsequently scored from one to three, with three corresponding to the strongest level of affect. Test-retest reliability for trait anxiety ranges between .65 for males and .71 for females.

Due to the transitory nature of state anxiety, reliability for this variable is computed through measuring internal consistency with the Cronbach's alpha coefficient, rather than with the test-retest method, showing a .82 reliability for males and .87 reliability for females.

The validity is confirmed by the correlation with two other well documented instruments for the measurement of anxiety in children, *Children's Manifest Anxiety Scale*, CMAS (Castaneda, McCandless, & Palermo, 1956) with a .75 correlation and *General Anxiety Scale for Children*, GASC (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960) with a .63 correlation, as reported in the STAI-CH manual (Spielberger, 1973).

Intrinsic versus Extrinsic Orientation in the Classroom

Intrinsic and extrinsic motivation was measured with an abbreviated version (18 items) of *A Scale of Intrinsic versus Extrinsic Orientation in the Classroom* (Harter, 1980). The scale originally consists of 30 items measuring five dimensions; Challenge, Curiosity, Mastery, Independent judgment and Internal criteria for Success/failure. Items measuring the sub scales Independent judgment and Internal criteria for success failure were not included as Harter (1981) found these to be clustered differently than the other three sub scales Challenge, Curiosity and Mastery.

The items in this instrument are divided into two separate statements, for example "Some kids ask questions in class because they want to learn new things", indicating intrinsic motivation, and "Other kids ask questions because they want the teacher to notice them", indicating extrinsic motivation. Participants must first decide which

statement is true for them and then rate the statement by choosing if it is “Sort of true for me” or “ Really true for me”.

Tests on the factorial validity of the instrument shows that in a five factor pattern only two items have moderate cross-loadings between different factors and item validity shows no floor or ceiling effects. Reliability coefficients on internal consistency from test-retest conditions ranges between .48 to .76, lower values corresponding to retest after one year and higher values from retest within five months (Harter, 1981).

Children’s Fantasy Inventory

Imagination was measured with *Children’s fantasy inventory* (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982), a 40 item questionnaire divided into six subsections regarding intellectual, fanciful, absorption, vividness, active-heroic and scary fantasies, to gain information about children’s fantasy and imagination.

Correlations are noted between this and other imagination inventories such as J. L. Singer’s Imaginative Play Predisposition, .59 and Daydream Ratings, .59 (Rosenfeld et al., 1982). Reliability calculated through test-retest scores yields alpha coefficients between .42 and .70 on the different sub-scales.

Rosenfeld et al. describe Fantasy as being a universal construct that may vary in style between individuals. The measurement for the variable Fantasy, used in this project, was the total mean score from all subsections on the *Children’s fantasy inventory*.

Qualitative Design & Measures

Qualitative designs often focus on gaining detailed information from smaller samples, and may yield information on phenomena that are not easily quantifiable (Smith, 2003). Common methods in qualitative studies are, for example, interviews, focus groups and case studies (Shaughnessy, Zeichmeister, & Zeichmeister, 2003). In Study III interviews were conducted with Swedish and North American children in middle childhood in regards to their understanding of the creativity construct, within the, so called, four P's of creativity (person, process, product, place).

Participants

The target group was children in middle childhood from Sweden and North America. Purposive sampling, as recommended by Smith and Osborne (in Smith, 2003) when conducting an Interpretative Phenomenological Analysis (IPA), was used in recruiting children of both genders and nationalities.

Sixteen children, eight from Sweden (4 boys , 4 girls), and eight from USA, (3 boys, 5 girls), were interviewed by a single interviewer, fluent in the Swedish, as well as the English language. The children range in age from eight to twelve, with a mean age of 10.5, and all were students in public schools.

Semi-structured Interviews

The semi-structured interview is considered the most suitable way to collect data for the purposes of conducting an IPA. It allows the researcher to engage in a dialogue with

the participant and work within a framework of themes that can be explored with follow-up questions as the interview develops (Smith & Osborne in Smith, 2003).

The interview questions, used in this study, were developed by researcher/interviewer and pre-screened for clarity and comprehension with a small group of children within the target age group. The aim was to create a flexible interview schedule with an emphasis on open ended questions, as this has been shown to increase the reliability in interviews regarding linguistic expressions, feelings, experiences and frames of references (Westcott & Littleton, 2005; Lofland & Lofland, 2006). The questions sought to elicit information in regards to the children's understanding of the concept of Creativity.

The interviews were conducted either at the participants home or at a location of their choice and lasted, on average, between fifteen and twenty minutes each. Interviews were recorded digitally and later transcribed verbatim.

Analysis of Interview Material

The analytic approach is an Interpretative Phenomenological Analysis (IPA) which is idiographic in intent, and for the purpose of this study, focused on the individual's cognitive linguistic experience of the concept of creativity. It is a bottom-up, inductive approach, that aims to avoid prior assumptions.

The method was developed specifically for use within health, clinical and social psychology, and is targeted at understanding the experiences an individual has, and the meanings these experiences hold (Smith & Osborne, 2003; Weed, 2005).

The main cornerstones of IPA are a) phenomenology,

that is, it focuses on the researchers capability to become immersed in, and interpret the individual's thoughts and perceptions, b) hermeneutics, that is, the interpretation and understanding of texts, and c) symbolic-interactionism that is, meaning is derived from viewing an individual's account of an experience through a process of social engagement and interpretation.

IPA relies to a great extent on the researcher's ability to interpret the narrative accounts, as the interview transcripts are systematically analyzed in search for superordinate themes (Danaher & Briod, 2005). The approach emphasizes an insider's perspective in the world of the subjects, and the interviews were conducted on two continents, in two languages, by the author who has considerable experience with both cultures.

RESULTS

Summary of Study I

Various studies on school age children have discussed the effect of a competitive climate on creativity (e.g. Hennessey, 2002; Shalley & Perry-Smith, 2001; Amabile, Hill, Hennessey, Tighe, 1994; Eisenberger, Armeli, Pretz, 1998; Winston & Baker, 1985; Goetz & Baer, 1973).

In Study I, *Creativity and Competition in the Classroom*, the focus is not on if creativity is affected by a competition condition, but rather on who might be affected, and how, in regards to intrapersonal levels of anxiety. Creativity was studied, in competitive versus non-competitive settings, in relation to Trait Anxiety as well as repeated measures of State Anxiety. Seventy-six primary school children, 41 boys and 35 girls, (8-12 years) participated.

Trait Anxiety was measured with STAI-CH (Spielberger, 1973) and, approximately two weeks later, State Anxiety was assessed, also with STAI-CH, before and after a collage making activity, in one competition group and one non-competition group.

The collage making task was to make a "silly" collage, using a white piece of paper, a glue stick and a small bag of colored paper shapes. The non-competition group made collages as a heuristic task, while the experiment group was told that they were competing for prizes for the "best" collages, under a time constraint of 15 minutes. Great care was taken to isolate the groups from each other.

All children were engaged in their respective activities simultaneously, with the aid of teachers as monitors, to avoid contamination. All participating children were

rewarded after the experiment was concluded, whether they belonged to the competition or the comparison group.

The collages were assessed according to the *Consensual Assessment Technique*, CAT (Amabile, 1996), by eight independent raters, experienced in the evaluation of artistic products. The products from the collage making task were judged, on a scale from 1 through 7, in regards to a) creativity, b) skill and c) personal liking. The results from the CAT were subsequently used as the measurement of creativity.

Results indicate that neither creativity, nor anxiety, in general, was significantly affected by competition versus non-competition conditions, that is, the mean level of creativity and anxiety did not differ between groups. Low creativity was, however, found to correlate with high state anxiety, and vice versa, at the close of the creative activity, in the competition group.

A significant interaction (Pillai's Trace, F (1, 72) = 4.56, p = .04, Partial Eta Squared = .06, Observed Power = .56) between time, group and creativity was also found. Further investigation revealed that the principal effect (Pillai's Trace, F (1, 36) = 6.62, p = .01, Partial Eta Squared= .16, Observed Power = .71) was located in the competition group, where the high creative individuals reported higher state anxiety on the first measurement than on the second measurement, whereas the low creative individuals reported the reverse, that is, lower state anxiety on the first measurement than on the second.

No correlation between trait anxiety and creativity was found, as has been seen in an adult population (e.g. Carlsson, Wendt, Risberg, 2000; Carlsson, 2002). A plausible explanation for this could be that creativity, as a trait, in children is not as stable as in adults, but rather an ability

that can be enhanced as well as thwarted as it develops.

Summary of Study II

In Study II the effects of motivation on creativity, were investigated under competition conditions in a competition group (n = 38, 16 boys, 22 girls), and under non-competition conditions in a comparison group (n = 38, 25 boys and 13 girls). Creativity is not generally viewed as a gender specific ability (Baer, 1999; Kogan, 1974) why the difference in gender distribution between the two groups should not be a limiting factor. The participants were aged between eight and twelve, with a mean age of 10.09.

Creativity was measured according to the *Consensual Assessment Technique*, CAT, a well established technique that consists of independent experts assessing the products from a collage making session (Amabile, 1996), as has been described under the Summary of Study I.

Motivational components in three dimensions, Challenge, Curiosity and Mastery, were investigated using an abbreviated version of *Intrinsic versus extrinsic orientation in the classroom* (Harter, 1980) and Fantasy was measured with the *Children's fantasy inventory* (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982).

That intrinsically oriented trait motivation is associated with creativity has been well established in numerous studies, this one included (df = 73, r =.27, p = .02). However, when investigate within groups, intrinsically oriented trait motivation was only significantly associated with creativity in the competition group (r =.35, p = .03, a = .05, power estimated at .48), suggesting that the constraint in itself might have "triggered" mechanisms to enhance creativity. It is quite possible, maybe even plausible, that the compe-

tition condition encouraged active exploration into creative solutions, in regards to the task they were faced with.

An unexpected result also emerged in this study in that a competition condition, aimed at evoking a state of extrinsically oriented trait motivation, did not seem to affect creativity in a negative way. Although no clear reason for this phenomenon can be identified at this stage, it is encouraging to find, that creativity seemed to be a resilient mechanism, largely unaffected by the constraints and conditions that were placed on it.

It is perhaps also an indication that many years of research of, and advocacy for, the benefits of creativity in the school environment is paying off, in that children are now better equipped to tap into their creativity, irrespective of what conditions and constraints are placed on them, as compared to a few decades ago.

Summary of Study III

Study III is a qualitative interview study that investigates middle childhood children's understanding of the creativity construct. Sixteen public school children from Sweden (4 boys , 4 girls), and USA (3 boys, 5 girls), ranging in age from eight to twelve with a mean age of 10.5, were interviewed by a single interviewer, fluent in Swedish as well as English.

The analytic approach is an Interpretative Phenomenological Analysis (IPA) focused on the individual's cognitive linguistic experience of the concept of creativity. It is a bottom-up, inductive approach, that aims to avoid prior assumptions.

The semi-structured interview is considered the most suitable way to collect data for the purposes of conducting

an IPA (Smith & Osborne in Smith, 2003). The interview questions were developed by researcher/interviewer and pre-screened for clarity and comprehension with a small group of children within the target age group. The interview schedule was developed with an emphasis on open ended questions, as this has been shown to increase the reliability in interviews regarding linguistic expressions, feelings, experiences and frames of references (Westcott & Littleton, 2005; Lofland & Lofland, 2006).

The analysis indicates that creativity, to a great extent, means Art and artistic expression to children. When the children were asked to *"Be creative!"* they, for the most part, understood this to mean adding illustrations or color to a project. It is also of concern that the children seem to believe that a creative undertaking is not enough in itself, but that it is also expected to result in something "good". On the whole, the children did not seem to consider themselves as being creative in the context of flexible thinking, adaptability and problem solving, unless it included a visual arts perspective.

This is, by no means, to say that the children do not have these abilities. The creative potential is inherent in all children, they will use their full spectrum of creative functions regardless if they are aware of what the definition of the concept is or not, as was evidenced throughout the study, but it is, no doubt, worth considering that, when asking children to be creative, we might actually be limiting them, rather than expanding their range of creative expression.

GENERAL DISCUSSION

We know that the benefits of creativity are plentiful, and include the capacity to accept change and novelty, an ability to entertain new ideas and possibilities, a flexible mindset and a willingness to search for new ways to improve on the already existing. Creative expression is generally also viewed as a therapeutic tool and an emotional outlet — in essence, creativity *"facilitates and enhances problem solving, adaptability, self-expression, and health"* (Runco, 2004). The participants demonstrated throughout the three studies, that comprise this dissertation, that creativity is a prominent part of middle childhood. So, what then has been the specific contributions of this investigation into creativity in the school context?

First, a conscious effort has been made to lift the children's perspective on creativity from relative obscurity, in contrast to many, if not most, studies that investigate creativity from an adult perspective and a scholarly definition.

In regards to children's perspective on creativity, results indicate that the children were more inclined to refer to the same gender as themselves when discussing creativity and also displayed somewhat gender stereotypical views in describing boys' creative activities in terms of constructing, and girls as being involved in arts and crafts, possibly an effect of Cooley's "looking-glass self" concept, in which the child utilize others as mirrors to construct and explain his/her own life world (in Harter, 1999).

It was also noted that very few children actually referred to themselves as being "a creative person", but that those who did displayed a great deal of self-confidence and self-reliance throughout, which is also supported in research

by, for instance, Walker and Boyce-Tillman (2002) who have found a link between creative expression and feelings of increased efficacy and self-confidence.

Creativity was described as a social function in sharing products and imaginative play with others, as well as a solitary endeavor, and for the most part as a positive function. It is, however, of some concern that the children seem to believe that a creative undertaking is not enough in itself, but that it is also expected to result in something "good".

Of concern is also the notion that being creative in the school environment was equated with behaviors that were less than desirable, and that individuality was discouraged, a concern that has also been raised by researchers who have found that children's creative thinking is often trivialized, and, sometimes, actively suppressed (Dacey & Lennon, 1998).

The overarching theme of the children's understanding of the concept of creativity was that it meant artistic expression, and although everything from originality and freedom of expression to imagination and invention was discussed, the vast majority of the children attached the concept of creativity to the visual arts aspect. It was quite evident, that although some children mentioned problem solving as a creative possibility, that a creative endeavor most often had a visual arts component, for example, yes, you can be creative in math, if you use diagrams to illustrate.

On the whole, the children did not seem to consider themselves as being creative in the context of flexible thinking, adaptability and problem solving, unless it included a visual arts perspective, perhaps a reflection of the views on creativity that are entertained by some teachers. In a study by Fryer & Collings (1991), only about half

of a thousand teachers interviewed regarded divergent thinking as a component of creativity.

This is, by no means, to say that the children are not in possession of these abilities. As was evidenced throughout this study children will, no doubt, use their creative functions regardless if they are aware of what the definition of the concept is, or not. Based on the findings it is, however, food for thought that, in specifically asking the children to "be creative", we might actually be limiting them, rather than expanding their range of creativity, since it is quite possible that they will interpret this as a request to improve on their performance, and/or an invitation to express themselves with the aid of visual arts.

The second contribution of this dissertation is highlighting the association between individual state anxiety levels and creativity.

In a meta-analytic study of anxiety by Jean Twenge (2000) it was reported that the anxiety level of the American child has increased dramatically. In the 1980's, the average American child reported more anxiety than child psychiatric patients in the 1950's, and even though these results purport specifically to the American population, it may be a fair assumption that due to the similarity of western societies, investigations may yield similar results in other western countries as well, where a classroom climate with test taking, comparing self to others, time constraints and competitiveness, may potentially elicit stress and anxiety reactions in some children (Rudolph, Lambert, Clark, Kurlakowski, 2001; Tennes & Kreye, 1985; Phillips, 1978). It should be noted that the increasing levels of anxiety reported in the Twenge study impacts all children, that is, the results are not limited to those who might fulfill the DSM-IV criteria for anxiety disorders.

Some children may turn to avoidant coping strategies when faced with anxiety provoking situations, that is, they might inhibit behaviors such as exploration, risk taking and novelty seeking, which are all main features of creativity, that may cause them to experience anxiety (Kagan, Reznick & Gibbons, 1989). In the present study (Study I) high state anxiety was found to correlate significantly with low creativity, and vice versa, at the close of the creative activity in a competition group, suggesting that the individual anxiety level was related to the flexibility of thought and creativity. Repeated measures of state anxiety also indicated that the low creative tended to get increasingly uncomfortable and anxious during the course of the experiment condition and vice versa, also indicating a link between creativity and state anxiety.

These results could also imply that children who were less comfortable utilizing their creativity, perhaps due to not being sufficiently exposed to a creative work environment, might have experienced rising state anxiety levels, which in turn led to an avoidance of the very behavior, creativity, that was being measured.

Third, it was noted that, in regards to intrinsically motivated children, competition conditions may encourage active exploration into creative solutions.

Intrinsically motivated children under competition conditions, tended to reach higher levels of creativity, than their counterparts in the comparison group, suggesting that the experimental situation in itself may have "triggered" mechanisms to enhance creativity. It seems possible, perhaps even plausible, that the competition condition itself may have encouraged active exploration into creative solutions in regards to the task they were faced with, a phenomenon that could be linked to the finding of an association

between creativity and the motivational control and mastery component, concerning personal goal of learning, feelings of self-determination, choice and power, within the competition group, which seems to correspond with Deci and Ryan's (1985) proposition that extrinsic factors that support a sense of competence, without undermining self-determination, should positively support intrinsic motivation, and thus creativity.

Fourth and finally, the results suggest that creativity is a resilient function in regards to the influences of competition conditions, and constraints.

It has long been argued that these factors, particularly in conjunction with the expectancy of evaluation and/or reward, adversely affect creativity (e.g. Amabile, 1996; Amabile, Hennessey, Grossman, 1986; Kruglanski, Friedman, Zeevi, 1971).

However, an unexpected result emerged in this study in that a competition condition, aimed at evoking a state of extrinsically oriented trait motivation, did not seem to affect creativity in a negative way. Although no clear reason for this phenomenon can be identified at this stage, it is encouraging to find, that creativity seemed to be a resilient mechanism, largely unaffected by the constraints and conditions that were placed on it. It is perhaps also an indication that many years of research of, and advocacy for, the benefits of creativity in the school environment is paying off, in that children are now better equipped to tap into their creativity, irrespective of what conditions and constraints are placed on them, as compared to a few decades ago.

Another possibility is that the results may have a cultural connection, in that the sample investigated came from Swedish elementary schools, as compared to earlier studies

made in North America. In the U.S., children are subjected to rigorous testing practices and evaluations from an early age, which may have influenced the children's perception of the experiment condition negatively, and thus their ability to be creative, whereas the Swedish children in a school environment geared more towards individualized goal setting, and the achievement of these goals, may have been less affected by the competitive setting.

On the other hand one might argue that this very fact should have made the American children more used to dealing with this type of work climate, and that they thus should have been the ones least affected by the competition conditions. It could, none the less, in light of these results, be viewed as quite unfortunate that the Swedish society in general, is subject to ever increasing similarities with North American social systems such as, for instance, more frequent formal evaluations in the schools and an emphasis on competitive environments in general.

Describing creativity as a "resilient function" is, by no means, an attempt to discount decades of creativity research by prominent scholars, into factors that may inhibit creativity, far from it. There are, no doubt, numerous factors that may act as "creativity killers" in the classroom and in other environments, this has been evidenced in empirical research (e.g. Hennessey, 2002; Amabile, 1996). However, the context of creativity is never at a status quo, environments and working climate change as new research, new circumstances, new policies and new tools become available, why it is important to, in true creative spirit, keep an open mind and a flexible attitude towards findings that seemingly go against predominant views.

In order for creativity to flourish in the classroom, should we then expend resources to encourage schools to

change long existing practices that may act as limiting factors on creativity in the classroom? Unequivocally, yes — that must be the long term goal. But at the same time, perhaps it is also of great advantage to look for protective factors, and to emphasize efforts to provide the children with the tools and encouragement needed to cope with limiting conditions and constraints in the school context, that they are more than likely to encounter countless times during their lifespan in varying contexts. What this study is offering, is the opportunity to embrace, and build on, the positive results from this investigation.

Methodological issues and Limitations

In considering the results from the three studies, some methodological issues and limitations should be taken into consideration and one cannot discuss methodology in psychology research without touching on the long standing juxtapose of quantitative versus qualitative methods. The aim of the qualitative analysis is to provide rich descriptions of phenomena regardless of frequency, whereas the quantitative analysis attempts to assign frequencies to the features of a phenomenon and test for statistical significance. Proponents of the latter suggest that the main disadvantage of qualitative approaches is that findings can not be extended to wider populations with the same degree of certainty as quantitative analyses, and those who favor a qualitative approach suggest that important observations may be lost in the quest for generalizability.

This dichotomy has its roots in the post WWII emphasis on psychological experimentation at the expense of non-experimental methods (Morawski, 1988; Stam, Radtke, & Lubek, 2000). By the 1960's a reaction to the focus on quantification had started to emerge (Nickerson, 2000) that

called for a broader perspective on psychological research methodology, in which the quantitative method should be regarded as only one possible method among many.

In looking at the general knowledge base in psychology of today, a great number of qualitative and quantitative methods have been utilized, and researchers have contributed findings from such diverse methodologies as naturalistic observations (eg. Piaget, 1926; Vygotsky, 1986), functional brain studies (eg. Saxe, Carey, & Kanwisher, 2004; Stau-der, Molenaar, & Van der Molen, 1999) and psychological experiments (eg. Milgram, 1963; Sherif, Harvey, White, Hood, & Sherif, 1961).

Dawson, Fisher and Stein (2006) propose what they call a *"problem-focused methodological pluralism"* that does not advantage qualitative or quantitative methods a priori, but rather a flexible process to marry the research question with the most appropriate method possible — be it qualitative, quantitative, or a combination of both.

Yanchar (2006), on the other hand, advocates a *"contextual-quantitative inquiry"* in regards to quantitative research instead of *"the eclectic use of whatever method or methods seem to best address particular research questions in context"*. Contextual-quantitative inquiry rests on interpreting quantifiable results in context, emphasizing "trustworthiness" as opposed to discussing internal vali-dity, and focuses on "transferability" rather than genera-lizability of results.

The methodological approach in the present investigation may be described as problem-focused inquiries with the aim to contextualize the psychological processes that are of interest, in Studies I, II and III, respectively.

In regards to Study I and Study II the following limita-

tions should be kept in mind in the interpretation of results and conclusions, a) the samples were limited to Swedish elementary, public schools and b) the samples were limited to children who had parental permission to participate.

Although the dependent variable creativity was investigated under experimental conditions, in competition versus comparison groups, a baseline measure of overall creativity would have greatly aided in the interpretative efforts and the validity of the results. This could have been accomplished by administering an age appropriate, paper and pen, pre- and post test of creativity, such as the *Creative Attitude Survey* (Schaefer, 1971), which in turn could have been compared in regards to agreement with the results from the collage making task.

The difference in gender distribution within the competition versus comparison groups, with more girls than boys in the competition group, and vice versa in the comparison group, was discussed in regards to findings that have indicated that boys might have an advantage when it comes to group assessments of creativity (in Baer, 1998). Based on this assumption, that is, the fact that this took place in a classroom setting which should thus benefit boys, creativity should prove to be higher in the comparison group. Creativity was in fact found to be marginally lower in the comparison group and no association between gender and creativity was found.

A concern was also raised in regards to mean fantasy being higher in the competition group, although the distribution of the dichotomized fantasy variable (high, low) is equal between the two groups. If one assumes that the level of fantasy would have an effect on creativity, and the fantasy variable mean is higher within the competition

group, this should consequently lead to higher creativity in the competition group. However, no association between the fantasy variable and creativity was found, and creativity was not found to be significantly higher in the competition group.

As it pertains to the qualitative Study III the analysis could have been enhanced by the use of a combination of methods, so called, triangulation. The interviews could preferably have been complemented with other qualitative measures, such as passive or participant observational studies of the children's environment, as well discussions in focus groups.

Discussions on validity in qualitative studies often call for co-assessment of the material to ensure the absence of leading questions and to confirm that the findings are "reasonable", however, in this study no co-assessor was utilized. A qualitative approach depends on the ability and the efforts of the researcher, in essence, "the researcher is the instrument" (Patton, 2002), and the Interpretative Phenomenological Analysis approach used in this study emphasizes an insider's perspective in the world of the subjects.

Since the interviews were conducted on two continents, and in two languages, by the author who has considerable experience within both cultures, and a unique insight to the life worlds of the participants that cannot be expected from a co-assessor, the validity must thus be judged on the trustworthiness of the study.

The subjects used in Study III only included Swedish and North American children in middle childhood, hence, a attempt to define creativity from the children's perspective should not be considered beyond these parameters.

Further Research

As previously mentioned, under the section on limitations in regards to the interview study (Study III), a triangulation of methods would add an interesting dimension, as well as improved dependability and validity, to this study of the children's perspective on creativity. A moderated focus group could, for instance, add an interactive dimension, where reactions to attitudes, feelings and beliefs expressed by other participants could come to light. This method also enables participants to question each other, as well as to re-examine their own understanding of the issue at hand. Suggestions for future research also include qualitative studies with children from other continents as participants, as well as expanded cross cultural analyses, to investigate the concept on a global scale.

In regards to the *Consensual Assessment Technique* used in Studies I and II, where experts were asked to assess childrens collages on creativity, skill and personal liking, it would be very interesting to investigate how children would judge the creative works of their peers, in comparison to the expert ratings. This could yield information, not only as it pertains to children's levels of creativity, but also in regards to what the children themselves view as creative.

Considering the finding of no difference in creativity between samples in competition versus comparison groups, which is contrary to what has been found in earlier investigations of this kind, it would also be of great value to be able to measure dynamics and possible improvements in creativity and the creative classroom climate over time. This could be effected through the use of longitudinal studies, preferably with an easy-to-use, teacher administered tool, such as a self-report inventory. The development of such an instrument could be of benefit, not only

to the researcher, but also for teachers, who might want to assess the creativity in their classroom.

CONCLUDING REMARKS

Creativity is a complex construct to study, due in part to its numerous components. Each component may be studied in isolation, but unless it is then viewed in the context that encompasses the individual, it is of limited value. In a holistic perspective on childhood creativity, characteristics such as fantasy, divergent thinking, the capacity for metamorphic thinking, curiosity, personality, temperament, non-conformity, risk taking, and motivation (Tegano, Moran, & Sawyers, 1991), as well as the social environmental context, should be taken into consideration. It has been the aim of this study to take this viewpoint, and also to not only ask if a phenomenon, characteristic, effect or association is present in regards to creativity, but to also try to address why, how, where and who [might be affected by this].

A child's creativity might be negatively affected by limiting factors in a classroom setting, not necessarily by the conditions themselves, but by the individual appraisal of these conditions, and/or inexperience in utilizing their creative assets, in essence, we cannot expect the child to know how to be creative unless creativity is exercised, explored and encouraged in the classroom as an everyday effort. Some children are fortunate enough to receive the nurturing of their creativity from environments other than the school, others need to have this opportunity for creative development encouraged within the school context.

On a practical note, there are many evidence based teaching/learning techniques that can be employed when aiming to develop a creative climate in the classroom like, for instance, setting up creative learning labs, and/or the use of computer technology. Computer based, and/or e-

learning instruction, is widely available as a supplemental tool within the classroom, as well as in the form of free standing educational solutions that can provide an individually tailored, virtual learning environment, for example, from *Plato Learning* (2008) and *Class* (2008).

A creative, lab based, classroom can provide students with an inspiring environment, where they are free to learn about reading, writing, science, social studies and mathematics, all at the same time, and at the time of their choice. In this "organized chaos", learning is taking place throughout the classroom, that is, in an "open space" — a place where students have freedom to explore new ideas and direct their own learning (Greene, 1988).

A hope for the future is a classroom where a children can fill their creative "toolbox" with the self-assurance that comes from being allowed to generate and express ideas, however outlandish, without restrictions and fear of ridicule, the ability to use both divergent, as well as convergent thinking, the confidence to openly challenge existing assumptions and stretch the boundaries of what is possible, and to take this "toolbox" with them as they grow up to become the *"resourceful, imaginative, inventive, and ethical problem solvers"* (Jalongo, 2004) of tomorrow.

SUMMARY IN SWEDISH

Kreativitet i Skolans Värld

Cecilia Levin

Centralt för kreativitetsbegreppet är det nyskapande, att hitta nya lösningar eller perspektiv på redan existerande fenomen eller problem, eller att skapa helt nya ting med nya användningsområden. Kreativitet innefattar även förmågan att acceptera nya ideer, att vara flexibel och öppen för förändring. Förmåga att uttrycka sig kreativt kan även ses som ett terapeutiskt verktyg och ett sätt att ge utlopp för känslor (e.g. Rousseau, Drapeau, Lacroix, Bagilishya, Heusch, 2005; Lin, Lee, Kemper, Berde, 2005; McNamee, 2005; Dell-Clark, 2004), med andra ord, kreativitet kan *"underlätta och understödja problemlösning, anpassningsförmåga, uttrycksförmåga, och välbefinnande"* (Runco, 2004).

Det finns ett flertal olika definitioner på kreativitetsbegreppet, och många forskare väljer att beskriva kreativitet utifrån det aktuella forskningsproblem som behandlas. Trots att definitionen av kreativitet i allmänhet är bred, så finns det en del missförstånd och snävhet i tolkningen, bl.a. gällande vad kreativitet i skolans värld innefattar. I en brittisk undersökning ansåg t.ex. endast hälften av tusen tillfrågade lärare att divergent tänkande var en komponent i kreativitet (Fryer & Collings, 1991).

Inom kreativitets- och skolforskningen råder dock generellt konsensus att en kreativ skolmiljö är bra för barn (e.g. Barnes & Shirley, 2007; Jalongo, 2004; Amabile, 1996; Torrance, 1962). Det anses även att kreativitet hos barn predicerar kreativitet i vuxen ålder (Cobb, 1977; Martin-

dale, 2001). Ju mer vi lär oss om kreativitet hos barn, desto bättre kan vi hjälpa till att undvika att begränsa definitionen om vad som är kreativt i skolan, utveckla metoder som uppmuntrar barnen att använda sin kreativa förmåga, och ge dem möjlighet att växa upp till att bli de *"resursrika, fantasifulla, uppfinningsrika, och etiska problemlösare"* (Jalongo, 2004) som otvetydigt kommer att behövas i framtiden.

Man talar ibland om att högkreativa barn ses som känsliga, svårhanterliga, självcentrerade och ibland rebelliska (Dawson, 1997; Reid & McGuire, 1995; Lovecky, 1992). Detta antagande innebär en kategorisering av barn som hög, respektiva låg kreativa. Perspektivet i de tre studier, som utgör underlag för denna avhandling, är dock att alla barn har enorma resurser av inneboende kreativitet, och att alla barn, när de är kreativa, kan manifestera beteenden som till synes kan verka oorganiserade, ex. att alternera mellan många, ibland motstridiga, ideer, att ta andra perspektiv än de som är vedertagna, eller att "dagdrömma", när dessa i själva verket är tecken på barnets förmåga till flexibelt, divergent tänkande och naturliga inslag i den kreativa processen (Presbury et al., 1990). Den kreativitetsnivå som mäts, i studie I och II, är situationsspecifik och relaterad till effekter av andra personlighetsegenskaper, och skall alltså inte ses som ett försök att kategorisera barn i fråga om generell låg/hög kreativ förmåga.

Kreativitet diskuteras ofta även i fråga om kopplingar till kognitiva och affektiva processer, formella och informella utbildningsaspekter, och/eller inom en sociokulturell och historisk kontext (Feldman, 1999), t.ex. i fråga om motivation, klimat och miljö. I skolmiljön finns det stressorer, ex. testtagning, jämförelser med andra, tidspress och ett prestationsinriktat klimat, som har visat sig

påverka kreativitet negativt (Hennessey, 2002, Amabile, 1996; Amabile, Hennessey, Grossman, 1986; Kruglanski Friedman & Zeevi, 1971).

Dessa stressorer kan även ge upphov till situationsspecifik stressreaktion (state anxiety), i form av nervositet, ängslan, spänning och/eller oro hos barn (Rudolph, Lambert, Clark, Kurlakowski, 2001; Tennes & Kreye, 1985; Phillips, 1978). Det har visat sig att vissa barn använder sig av undvikande beteenden (avoidant coping), när de upplever stress, d.v.s. de hämmar beteenden associerade med kreativitet som, exempelvis, exploration och risktagande (Kagan, Reznick & Gibbons, 1989). Hög kreativitet har även befunnits vara associerad med hög generell benägenhet till stressreaktion (trait anxiety), hos vuxna (Carlsson, Wendt & Risberg ,2000; Carlsson, 2002).

Motivationella aspekter i skolmiljön och dess effekt på kreativitet diskuteras bl.a. i fråga om inre motivationskällor (intrinsic motivation), d.v.s. den drivkraft som kommer från motivatorer relaterade till individens intresse och emotioner och yttre motivationskällor (extrinsic motivation), den drivkraft som kommer från motivatorer i form av belöningar och/eller bestraffningar. Inre motivationskällor anses allmänt ha en positiv inverkan på kreativitet (e.g. Prabhu, Sutton, Sauser, 2008; Hennessey, 2002; Shalley & Perry-Smith, 2001; Amabile, Hill, Hennessey, Tighe, 1994) medan det är mera oklart om vilka effekter yttre motivationskällor, som ex. belöningar och restriktioner, har på den kreativa förmågan (Baer, 2002; Eisenberger & Cameron, 1998; Eisenberger & Cameron; Cameron & Pierce, 1994).

Vissa behavioristiskt baserade undersökningar har även visat att yttre motivationskällor, i vissa fall, kan ha en positiv effekt på kreativitet (e.g. Eisenberger, Armeli & Pretz,

1998; Winston & Baker, 1985; Goetz & Baer, 1973).

Övergripande syften med denna avhandling, *Creativity in the School Context*, är, 1) att lyfta fram barns kreativitet, och barnens egna perspektiv på kreativitet, som en kontrast till flertalet studier som undersöker begreppet ur ett vuxetperspektiv, 2) att studera möjliga relationer mellan situationsspecifik stressreaktion (state anxiety) och kreativitet, samt mellan generell benägenhet till stressreaktion (trait anxiety), hos barn i åtta till tolvårsåldern, 3) att studera möjliga associationer mellan inre respektive yttre motivationskällor och kreativitet, hos barn i åtta till tolvårsåldern, samt 4) att studera effekter av en prestationsbaserad uppgift, på kreativitet hos barn i åtta till tolvårsåldern.

Studie I

Kreativitet och Tävling i Klassrummet

Frågan om ett prestationsinriktat klimat påverkar barns kreativitet har studerats och diskuterats i ett antal undersökningar (bl.a. Hennessey, 2002; Shalley & Perry-Smith, 2001; Amabile, Hill, Hennessey, Tighe, 1994; Eisenberger, Armeli, Pretz, 1998; Winston & Baker, 1985; Goetz & Baer, 1973). Studie I, *Creativity and Competition in the Classroom*, fokuserar på vem som påverkas, och hur, snarare än om påverkan sker, specifikt i fråga om intrapersonell stressreaktion.

Kreativitet studerades, under tävlings respektive icketävlings betingelser, i relation till generell benägenhet till stressreaktion (trait anxiety), såväl som upprepade mätningar av situationsspecifik stressreaktion (state anxiety). Sjuttiosex elever i grundskolan i åldrarna åtta till tolv (M = 10.09), 41 pojkar och 35 flickor, deltog i undersökningen.

Barnens generella benägenhet till stressreaktion mättes med STAI-CH (Spielberger, 1973), medan situationsspecifik stressreaktion mättes två veckor senare, före, såväl som efter, en kreativ aktivitet i tävlings respektive icke-tävlings grupper.

Den kreativa uppgiften bestod i att individuellt skapa ett "roligt" kollage med ett vitt pappersark, ett limstift och färgat papper i geometriska former. Samtliga barn fick identiskt lika utgångsmaterial. Icke-tävlingsgruppen utförde uppgiften som en heuristisk aktivitet utan restriktioner, medan tävlingsgruppen gavs instruktionen att de tävlade om priser för "det bästa" kollaget, samt att de endast hade 15 minuter till sitt förfogande.

Grupperna isolerades från varandra under uppgiftens gång, och båda grupperna utförde aktiviteten samtidigt för att undvika kontamination. Det skall även understrykas att samtliga barn fick "pris" när experimentet avslutats, vare sig de tillhörde tävlings eller icke-tävlings gruppen.

Barnens kollage bedömdes i enlighet med *Consensual Assessment Technique*, CAT (Amabile, 1996), av åtta oberoende granskare med erfarenhet av att arbeta med kreativ produktframställning. Kollagen bedömdes på en skala från 1 till 7, i fråga om a) kreativitet, b) teknisk skicklighet och c) personligt gillande, och resultaten från denna bedömning representerar mätvärden på kreativitetsvariabeln i studien.

Resultaten indikerar att tävlings respektive icke-tävlings situationen inte påverkade vare sig kreativitet, eller situationsspecifik stressreaktion, signifikant. Låg kreativitet visade sig däremot vara associerad med hög situationsspecifik stressreaktion i avslutningsfasen av den kreativa aktiviteten i tävlingsgruppen. En signifikant interaktionseffekt noterades även i tävlingsgruppen, i det att de

lågkreativa tenderade att uppleva stigande stress och oro under experimentets gång, och vice versa.

Ingen association mellan kreativitet och generell benägenhet till stressreaktioner, som befunnits hos vuxna (Carlsson, Wendt & Risberg, 2000; Carlsson, 2002), kunde påvisas. En tänkbar förklaring till detta kan vara att kreativitet hos barn fortfarande är under utveckling, och därmed mottaglig för såväl berikande som hämmande influenser innan den stabiliseras i vuxen ålder.

Ett prestationinriktat klimat som inkluderar kreativ problemlösning behöver således inte nödvändigtvis vara dåligt för barn med väl etablerad kreativ förmåga, men man bör vara uppmärksam på att barn som har svårt att uttrycka sin kreativitet kan behöva hjälp att utveckla denna, annars förlorar de på två fronter — både genom att uppleva en förhöjd stressreaktion i uppgifter som kräver divergent tänkande, och genom att inte kunna uttrycka sig kreativt på grund av ökad stress och oro.

Studie II

Kreativitet och Motivation hos Mellanåldersbarn

Det motivationella klimatet i skolmiljön beskrivs vanligtvis som styrt av yttre motivationskällor (extrinsic motivation), d.v.s. att man oftare är resultatorienterad i fråga om betyg och mål, än att man söker tillfredsställelse i att ha lärt sig något inom ett ämne, d.v.s. att inlärning sker med hjälp av inre motivationskällor (intrinsic motivation) (Ryan & Deci, 2000; Kohn, 1993).

Kreativitet studerades i Studie II, *Creativity and Motivation in Middle Childhood*, i relation till inre och yttre motivationskällor inom ett ramverk av komponenterna Curiosity, Challenge, Control and Fantasy (Malone,1981; Malone

& Lepper, 1987), och under betingelserna tävling (n = 38, 16 pojkar, 22 flickor), respektive icke-tävling (n = 38, 25 pojkar, 13 flickor). Skillnader i gender distribution mellan grupperna bör inte utgöra något hot mot studiens validitet då kreativitet i allmänhet inte ses som en genderspecifik förmåga (Baer, 1999; Kogan, 1974). Deltagarna i åtta till tolvårsåldern (M=10.09), är elever i den svenska grundskolan.

Kreativiteten mättes i enlighet med *Consensual Assessment Technique*, CAT, (Amabile, 1996), en väl etablerad teknik som innebär att oberoende experter bedömer kreativa produkter (se ovan, Studie I). Inre och yttre motivationskällor, samt även de motivationella komponenterna Challenge, Curiosity and Mastery, mättes med hjälp av *Intrinsic versus extrinsic orientation in the classroom* (Harter, 1980). Fantasi, som en tänkt motivationell komponent, mättes med *Children's fantasy inventory* (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982).

Associationer mellan inre motivationskällor och kreativitet har noterats i flera studier, så även i denna. Dock befanns denna association endast vara signifikant i tävlingsgruppen (r =.35, p = .03, a = .05, power estimated at .48), vilket kan ses som en möjlig indikation att tävlingsbetingelsen i sig uppmuntrade till att aktivt söka kreativa lösningar på den aktuella uppgiften. Inre motivationskällor hade även en positiv huvudeffekt på kreativitet (F (1,75) = 5.59, p = .02, partial Eta .07, observed power .65).

Ett oväntat resultat noterades även i fråga om mellangruppsskillnader i kreativitet, eller snarare uteblivna, förväntade skillnader i kreativitet mellan tävlings och icke-tävlingsgrupp. Baserat på forskningsresultat av bl.a. Teresa Amabile (1996) förväntades tävlingsgruppens kreativitet vara signifikant lägre än i jämförelsegruppen d.v.s. hypote-

sen var att tävlingsgruppens kreativitet skulle påverkas i negativ riktning av de restriktioner och betingelser som introducerades. Resultaten indikerar dock ingen signifikant skillnad i kreativitet mellan grupperna.

Man kan här spekulera i att betingelserna i grupperna inte upplevdes som olika, man kan tänka sig att kulturella skillnader gav utslag (tidigare studier i USA vs. denna i Sverige), men förhoppningsvis speglar resultatet även effekten av att många årtionden av kreativitetsforskning, och förespråkande av vikten av ett kreativt arbetsklimat i skolan, burit frukt, i det att dagens barn är mera vana att använda sig av, och har större tillit till, sin inneboende kreativa förmåga, än vad som tidigare varit fallet.

Studie III

Barn och Kreativitet – en tvärkulturell jämförelse

Studie III är en kvalitativ undersökning av mellanåldersbarns förståelse av kreativitetsbegreppet. Sexton barn från grundskolor i Sverige (4 pojkar, 4 flickor), och USA (3 pojkar, 5 flickor), i åldrarna åtta till tolv (*M*=10.05), intervjuades av en intervjuare.

Den analytiska ansatsen är en Interpretative Phenomenological Analysis (IPA), fokuserad på individens kognitiva och lingvistiska uppfattning och/eller upplevelse av kreativitet, utifrån ett s.k. “bottom-up”, induktivt perspektiv, och med utgångspunkt i att, i största möjliga mån, undvika förutfattade meningar om kreativitetsbegreppet.

En semi-strukturerad intervju anses vara väl lämpad för insamling av material som skall ligga till grund för en IPA (Smith & Osborne i Smith, 2003). Intervjufrågorna utarbetades med tyngdpunkt på s.k. “öppna” frågeställningar som anses öka reliabilitet i studier rörande lingvistiska

uttryck, emotioner, upplevelser och referensramar (Westcott & Littleton, 2005; Lofland & Lofland, 1984), samt testades i fråga om klarhet och förståelse på ett antal barn inom studiens målgrupp.

Resultaten av analysen indikerar att kreativitetsbegreppet, till största delen, innebär bildkonst och bildskapande för barnen i studien, oavsett kulturell tillhörighet. Allt ifrån originalitet, flexibilitet, problemlösning och uppfinningsrikedom diskuterades, men placerades oftast i en bildskapande kontext. Vissa barn ansåg även att kreativitet betydde att man måste göra någonting bra/duktigt. Att barnen hade en relativt smal definition av begreppet betyder naturligtvis inte att de inte använder sina kreativa tillgångar — men det är viktigt att minnas, att när man specifikt ber barnen att vara kreativa i sitt arbete, så finns det en risk att man, i stället för att expandera deras uttrycksförmåga, begränsar den till att innefatta bildskapande arbete, och/eller en känsla av att det man åstadkommit måste förbättras.

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Creativity and Competition in the Classroom

Cecilia Levin

Various studies on school age children have suggested that creativity is negatively affected by a competitive climate. This study hypothesizes that it is not a competitive climate per se, that might affect creative performance, but rather the intrapersonal level of anxiety, triggered by competition conditions. Creativity was studied, in competitive versus non-competitive settings, in relation to state and trait anxiety. Seventy-six primary school children, 41 boys and 35 girls, (8-12 years), participated in a creative, collage-making activity, in equal competition versus non-competition groups. Results indicate that neither creativity, nor anxiety, in general, was significantly affected by competition versus non-competition conditions, that is, the mean level of creativity and anxiety did not differ between groups. Low creativity was, however, found to correlate with high state anxiety, and vice versa, at the close of the creative activity, in the competition group. A significant interaction between anxiety, group and creativity was found. This interaction was primarily present in the competition group suggesting that the low creative tended to get increasingly uncomfortable and anxious during the course of the experiment condition and vice versa. No correlation between trait anxiety and creativity was found.

In middle childhood, from approximately six to twelve years of age, most children have sustained contacts with institutions and contexts outside of their families, such as the school environment. According to a 2004 study by Juster, Stafford and Ono at the Institute for Social Research (ISR), American children (6-11 years) spend on average over 30 hours per week in school. European children are reported to spend equally as much time, or more, at school (Education at a glance, 2007).

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The school environment does, no doubt, present a competitive climate and a vast array of everyday stressors to the developing child. Everyday activities within the classroom such as test taking, comparing self to others, time constraints and competitiveness, to name a few, all have potential to elicit stress and anxiety reactions in some children (Rudolph, Lambert, Clark, Kurlakowski, 2001; Tennes & Kreye, 1985; Phillips, 1978).

Competitive activities are also, in addition to being potentially anxiety provoking stressors, often viewed as having detrimental effects on children's creativity (Amabile, 1996; Amabile, Hennessey, Grossman, 1986; Kruglanski, Friedman, Zeevi, 1971).

Creativity is an important tool for social, as well as intellectual, growth to a child in the school environment. A vital function of creativity is self-expression where children are allowed to explore and express ideas and feelings about themselves and the world around them. Through their abilities to imagine they also grow intellectually. The scientist who helped invent the space shuttle may have been the same child who once asked, "What if I could fly?".

This study investigates if, and how, school environment stressors might affect the children's ability to utilize their full potential in regards to creative functions. It is hypothesized that it is not the competitive climate per se, that might affect levels of creativity, but rather the intrapersonal anxiety level within a competitive situation.

Creativity

The lexeme creativity can be traced back to the Latin word "creatus", meaning "bringing into existence". In *Dictionary of Psychology* (1995) creativity is defined as "a term used

in the technical literature in basically the same way as in the popular, namely to refer to mental processes that lead to solutions, ideas, conceptualization, artistic forms, theories or products that are unique and novel".

J.P. Guilford (1967) who by many is regarded as the founder of the modern concept of "creativity", distinguishes between a) convergent production abilities which includes processing given information with an emphasis on achieving the only possible, or the best, result, and b) divergent production abilities which flows in many directions and in which there is not just one path, or one correct solution. He takes a cognitive approach toward understanding and explaining creativity and emphasizes the cognitive process as means to obtain, evaluate, process, store and retrieve the information needed in order to be creative.

Creativity has great positive potential but creative children do not always have a smooth ride through their school years. They are sometimes viewed by teachers and peers as being highly emotional, difficult, self-centered individuals, often with concentration and cooperation difficulties (Dawson, 1997; Lovecky, 1992).

Carlsson, Wendt and Risberg (2000) found that high creative persons scored significantly higher on trait anxiety than their low creative counterparts. This correlation between trait anxiety and creativity was further investigated in a related study by Carlsson (2002). The paradox that creative expression generally is viewed as a therapeutic tool (e.g. Rousseau, Drapeau, Lacroix, Bagilishya, Heusch, 2005; Lin, Lee, Kemper, Berde, 2005; McNamee, 2005; Dell-Clark, 2004) at the same time as creative individuals have been found to have higher anxiety levels is very interesting, and will also be investigated within this study.

Creativity, as it pertains to school-age children of the tar-

get age group in this study, seems to be at a peak developmental stage around the age of 10 (e.g. Smith & Carlsson, 1990; Torrance, 1962). It is hypothesized that this might be due to the child becoming increasingly more familiar with, and used to, the school environment, but not yet strongly affected by external pressures in regards to academic performance.

This study is focusing on creativity as a cognitive process that is characterized by divergent thinking. A collage making task was used as the measurement of creativity. It is, however, important to recognize that creativity applies to many aspects of cognitive functioning, and is not limited to artistic expressions, although the product of creativity, is what creativity generally is measured by (Amabile, 1996).

Competition

Teresa Amabile (1996) has extensively investigated the effects of evaluation, rewards, competition and constraints on creativity. In her research she distinguishes between heuristic and algorithmic creative tasks where an algorithmic task has a clearly identified path to a goal, whereas an heuristic task is undertaken without prejudice.

Based on empirical findings, Amabile considers constraints that are placed on creative tasks, such as competition, deadlines and/or specific requirements, to be detrimental to creativity in general. She does, however, add that there are individuals who have consistently high rates of creativity under such conditions, but only if the creative demand “has been rendered algorithmic”.

Common sense tells us that many creative feats have been accomplished under both stressful, competitive and

“non-algorithmic” conditions. The athlete on the verge of defeat who finds a novel way of beating an opponent, the writer with a deadline who meets and exceeds the editors literary demands, the singer who needs just the right amount of adrenaline to give a world class performance or the officer in the line of fire who must utilize great flexibility of mind to keep the troops out of harms way.

In light of these somewhat contrasting scenarios, this study will examine creativity from a standpoint that the effect of a stressor/constraint on creativity is determined by the individual appraisal of, and reaction to, the same and is thus not a general effect of the stressor itself. Amabile (1996) agrees that “it appears that the negative effects [of constraints] depend on certain individual-difference traits”. This study investigates how State and Trait Anxiety might affect creative performance in competitive versus non-competitive situations.

Two groups of school children participated in the experiment. One group created collages in the form of a competition regarding who would make the “best” collages, while another group made their collages as an heuristic task, that is, the task did not have a clearly identifiable goal or a straight path to a solution.

State and Trait Anxiety

Spielberger (1972) defined anxiety as "a specific emotional state which consists of unpleasant, consciously perceived feelings of nervousness, tension, and apprehension, with associated activation or arousal of the autonomic nervous system". In his work he also popularized Cattell’s (1966) conceptualization of state and trait anxiety in which the state of anxiety refers to the situation specific process of emotional experiencing, whereas the trait of anxiety refers

to "characterological anxiety", that is, the level of anxiety that is experienced on a regular basis and the general proneness to respond with state anxiety in situations that are perceived as threatening.

In this study, Spielberger's *State Trait Anxiety Inventory* (1973) was used to measure these constructs. State anxiety was measured twice; before the creative activity and after the creative activity in both groups. Trait anxiety was measured on a separate occasion.

Aims of the Study

Various studies on school age children have suggested that a competitive climate is detrimental to creativity. This study hypothesizes that it is not the competitive climate per se that might affect creative performance, but rather the intrapersonal anxiety level within a competition condition. The main aim of this study is to address who's creativity might be affected and how, rather than if a competitive climate in itself, is detrimental to creativity.

METHOD

The study was designed as a quasi-experimental study with creativity as the dependent variable and repeated measures of state anxiety. It was approved by the regional ethics committee in Lund on December 15th 2004 (# H4 790/2004), consent forms were distributed to, and collected from, parents of all participating children.

Participants

Four public, elementary schools were asked to take part in the study, and students from seven classes that fell within

the target age group, 8 – 12 year olds, were invited to participate. 131 consent forms were distributed to parents, of which 101 responded. 75 % of the responding parents gave consent for their children to participate, thus leaving 76 individuals (41 boys and 35 girls), with a mean age of 10.09 years. All children were Swedish-speaking, although almost a third (n = 23) had one, or both, parents from countries other than Sweden.

The participants were divided into two groups, a competition group and a non-competition group. The groups were matched on the basis of their scores from a fantasy inventory as well as age. Thirty-eight participants (16 boys and 22 girls) were assigned to the competition group and equally as many (25 boys and 13 girls) to the non-competition group. Creativity is not generally viewed as a gender specific ability (Baer, 1999; Kaufman, Baer, & Gentile, 2004) why no effort was made to match the groups on the basis of this.

The statistical power in the studies could, naturally, have been increased with a greater number of participants, however, it was necessary to strike a balance in regards to the logistics of keeping the groups isolated from each other, the administration intense completion of the collage making task, and the amount of participants.

Instruments

The following instruments were used to obtain information in regards to the variables of interest, that is, fantasy, creativity, trait anxiety and state anxiety.

Children's Fantasy Inventory

In the selection of group matching variables, concern was

raised regarding the level of fantasy, as it may be correlated to the level of creativity, and consequently this variable was chosen as one of the means to create equal groups in addition to age.

The construct was measured with *Children's fantasy inventory* (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982), a 40 item questionnaire divided into six subsections regarding intellectual, fanciful, absorption, vividness, active-heroic and scary fantasies, to gain information about children's fantasy and imagination. Correlations are noted between this and other imagination inventories such as J. L. Singer's *Imaginative Play Predisposition*, .59 and *Daydream Ratings*, .59 (Rosenfeld et al., 1982). Reliability calculated through test-retest scores yields alpha coefficients between .42 and .70 on the different sub-scales.

State-Trait Anxiety Inventory for Children

State and trait anxiety was measured with *State-Trait Anxiety Inventory for Children*, STAI-CH (Spielberger, 1973), a well documented test for the measurement of trait and state anxiety in children. 20 items over four anxiety dimensions; tension, nervousness, worry and apprehension, are rated by the individual on a three point scale and subsequently scored from one to three, with three corresponding to the strongest level of affect.

Test-retest reliability for trait anxiety ranges between .65 for males and .71 for females. Due to the transitory nature of state anxiety, reliability for this variable is computed through measuring internal consistency with the Cronbach's alpha coefficient, rather than with the test-retest method, showing a .82 reliability for males and .87 relia-

bility for females. The validity is confirmed by the correlation with two other well documented instruments for the measurement of anxiety in children, *Children's Manifest Anxiety Scale*, CMAS (Castaneda, McCandless, & Palermo, 1956) with a .75 correlation and *General Anxiety Scale for Children*, GASC (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960) with a .63 correlation, as reported in the STAI-CH manual (Spielberger, 1973).

Consensual Assessment Technique

Creativity was measured according to *Consensual Assessment Technique*, CAT, a well established technique that consists of independent experts assessing the products from a collage making session. Inter-rater reliability for seven judges or more have proven to be very high, ranging between .73 and .93 in several studies (Amabile, 1996). In this study the creative products were judged by a panel of eight judges on a) creativity, b) skill and c) personal liking, on a scale from 1 - 7.

All three categories were used to measure consensus between the experts but only the creativity measure was chosen to represent creativity in this study in order to avoid confounding. The raters, all of them teachers, five at college or university level, one at secondary school level and two at primary school level, were selected based on their experience in the assessment of creative products.

The main consideration for choosing this particular creativity measure is that it seems to be a reliable measure of creativity as well as an enjoyable creative activity. Each child received the exact same materials for the collage making activity; a blank, white paper, a glue stick and a small bag of colored paper shapes. All subjects received identical instructions to make a collage that would portray

a feeling described as “silly”. The word “feeling” was purposely used in order to allow the subjects to draw on their emotions in creating, rather than being constrained to construct a specific, concrete image.

The children were allowed to use as many, or as few, pieces of paper as they liked, and a time constraint of 15 minutes was imposed on the competition group. The non-competition group made their collages as a heuristic task, while the experiment group was told that they were competing for prizes for the “best” collages. A selection of these prizes were prominently displayed during the experiment and consisted of small items like balls, Frisbees, jump ropes et cetera. All participating children were rewarded after the experiment was concluded whether they belonged to the competition or the non-competition group.

Procedure

Experimenter met with participants twice. Trait anxiety was measured with the trait portion of STAI-CH in conjunction with an initial distribution of forms on demographic information in the form of a parent questionnaire and the *Children’s fantasy inventory* (Rosenfeld et al., 1982). Three additional inventories, the *Intrinsic versus extrinsic orientation in the classroom* (Harter, 1981) and questionnaires concerning after-school activities and imaginary friends (Hoff, 2003), that will be reported elsewhere, were also administered at this time.

On the second occasion, which took place approximately two weeks later, state anxiety was measured twice, before and after the collage making activity, in a competition group and a non-competition group. Great care was taken to isolate the groups from each other. All children were

engaged in their respective activities simultaneously, with the aid of teachers as monitors, to avoid contamination.

The first measurement of state anxiety was taken immediately after the introduction of the competition versus non-competition conditions. The second measurement was taken at the close of the activity, just prior to revealing the "winners" in the competition group and the debriefing in the non-competition group, in an effort to discern the effects of the competitive climate on levels of state anxiety.

RESULTS

All variables were normally distributed. Two extreme outliers were found among the fantasy inventory scores in which answers were marked unusually high, but in a consistent manner, why it was decided to treat them as valid. They were dealt with in accordance with recommendations in Using Multivariate Statistics (Tabachnik & Fidell, 2000) and placed within the material, as the second highest scores. The level of significance was set at $p < .05$.

Group

Distributions of the group matching variables, age and high versus low fantasy, did not differ significantly (p's > .05) between groups. Means and standard deviations for age was $M = 10.13$, $SD = 1.02$ in the competition group ($n = 38$) and $M = 10.05$, $SD = 1.01$ in the non-competition group ($n = 38$). Both groups had an equal number of high and low fantasy scorers with $M = 18.32$, $SD = 11.51$ in the competition group and $M = 14.29$, $SD = 10.54$ in the non-competition group.

Gender

Gender differences were not found to be significant (p's > .05) in regards to the distribution, or means, of the variables Fantasy F (1,74) = 1.99, t (74) = -1.41, Creativity F (1,74) = .32, t (74) = -.57, Trait Anxiety F (1,74) = 2.22, t (74) = -1.49, or either of the two measures of State Anxiety, F (1,74) = 1.40, t (74) = -1.18 and F (1,74) = .51, t (74) = -.71 respectively.

Creativity

A variable based on the consensus-judgment on the creativity of the collages, from a panel of eight experts showing high intra-class correlation (Cronbach's alpha = .89), was used as the measurement of creativity. The means and standard deviations of the creativity variable, in competition versus non-competition groups, were M = 3.85, SD = .89 and M = 3.52, SD = .81 respectively.

Creativity and Competition versus Non-Competition

A one-way analysis of variance (ANOVA) between two independent groups, and an independent samples t-test, was performed and revealed that the competition and non-competition group did not differ significantly in regards to distribution, or mean creativity levels, F (1,74) = 2.74, p = .10, t (74) = 1.65, p = .10.

State Anxiety

The mean state anxiety score was recorded at 28.18 (SD = 4.97) in the non-competition group and 29.21 (SD = 6.15) in the competition group, immediately after the informa-

tion about the creative activity being a competition was given to the latter. At the conclusion of the experiment the scores were $M = 28.05$, $SD = 4.56$ in the non-competition group and $M = 28.24$, $SD = 5.72$ in the competition group.

State Anxiety and Competition versus Non-Competition

A one-way analysis of variance (ANOVA) between two independent groups, as well as an independent samples t-test, were applied to the first and second state anxiety measures, and showed that the competition and non-competition group did not differ significantly in regards to these measurements, $F(1,74) = .64$, $p = .43$, $t(74) = .80$, $p = .43$ and $F(1,74) = ,02$, $p = .88$, $t(74) = .16$, $p = .88$ respectively.

Creativity and State Anxiety

The relationship between creativity and the two state anxiety measures was investigated through repeated measures analysis in competition versus non-competition groups, as well as with Pearson product-moment correlation tests.

The second state anxiety measure, recorded as the creative activity came to a close, showed a significant inverse correlation with creativity overall ($n = 76$, $r = -.26$, $p = .03$). Upon further investigation, the correlation was not found to be significant in the non-competition group ($n = 38$, $r = -.17$, $p = .29$.), but in the competition group ($n = 38$, $r = -.33$, $p = .04$.), thus indicating a moderate relationship between high creativity and low state anxiety, and vice versa, when individuals were subjected to competition conditions. Power of the correlations (two-tailed, $a = .05$) was estimated at .60 for $n = 76$, and .50 in the competition group. No significant correlation was noted between crea-

tivity and the first state anxiety measure.

The material was also explored with repeated measures analysis in regards to possible main and interaction effects for a) time, that is, over the two state anxiety measures, b) group, that is, competition and non-competition, and c) high versus low creativity. A significant interaction (Pillai's Trace, F (1, 72) = 4.56, p = .04, Partial Eta Squared = .06, Observed Power = .56) between time, group and creativity was found.

Further investigation revealed that the principal effect (Pillai's Trace, F (1, 36) = 6.62, p = .01, Partial Eta Squared = .16, Observed Power = .71) was located in the competition group, where the high creative individuals reported higher state anxiety on the first measurement than on the second measurement, whereas the low creative individuals reported the reverse, that is, lower state anxiety on the first measurement than on the second (Fig. 1). No significant effects over time, or in regards to creativity, were found in the non-competition group (Fig. 2).

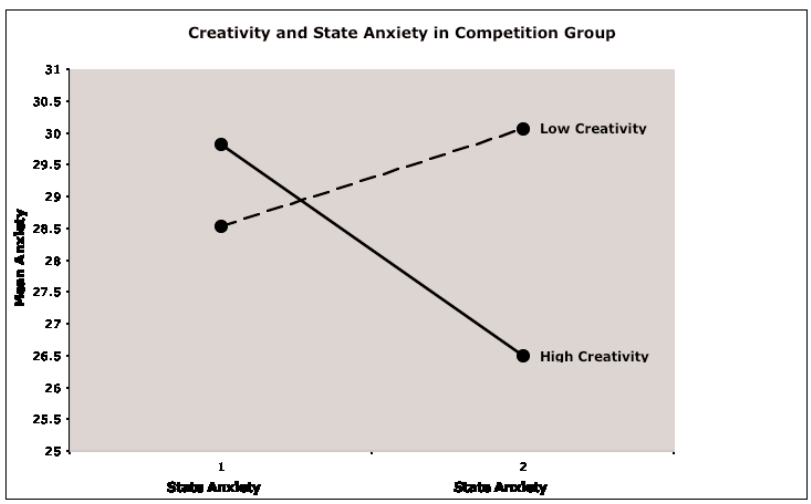

Figure 1. Creativity and repeated measures of state anxiety in competition group.

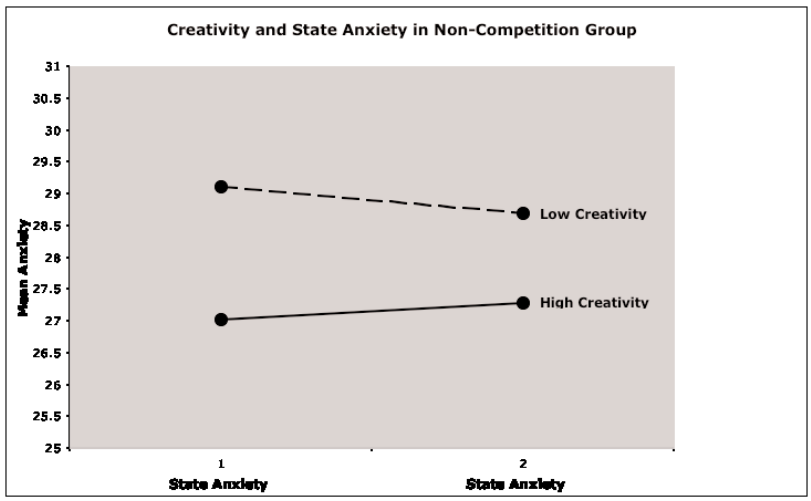

Figure 2. Creativity and repeated measures of state anxiety in non-competition group.

Creativity and Trait Anxiety

To investigate if high creative children score higher on the trait anxiety measure of the STAI-CH than low creative children, a test for correlation between these variables was performed but no significant result was found.

As to be expected, scores on the trait anxiety measure of the STAI-CH correlated significantly with scores on both state anxiety measures, $n = 76$, Pearson r's = .37 and .44, p's < .01 and < .01 respectively.

DISCUSSION

The mean level of creativity was not found to be significantly lower in the competition group than in the non-competition group. The level of creativity was thus not generally affected by the experiment condition, that is, the time constraint and the rewards offered in the competition

group, a finding that seems to contradict results from studies that have shown that these particular factors might adversely affect creativity (e.g. (Amabile, 1996; Amabile, Hennessey, Grossman, 1986; Kruglanski, Friedman, Zeevi, 1971). The aim of this study was, however, not to investigate if creativity in general would be adversely affected by a competitive climate but rather who's creativity might be affected and how, specifically in relation to state and trait anxiety levels.

The mean state anxiety was not found to be significantly higher in the competition group than in the non-competition group. The competition condition as such, did thus not seem to be a significant anxiety provoking factor on the group level. However, in a correlation analysis, between the creativity and state anxiety variables, low creativity was found to correlate significantly with high anxiety, and vice versa, at the close of the creative activity in the competition group, suggesting that the individual anxiety level, rather than the competition versus non-competition conditions, was related to the flexibility of thought and creativity in this study.

A repeated measures analysis was also performed in order to investigate the dynamics of anxiety levels during the course of the experiment. The material was explored in regards to possible main and interaction effects for a) time, that is, over the two state anxiety measures, b) group, that is, competition and non-competition, and c) high versus low creativity. A significant interaction effect was found in the competition group suggesting that the low creative tended to get increasingly uncomfortable and anxious during the course of the experiment condition and vice versa. These findings seem to support the hypothesis that it is not the competitive climate per se, that might

affect creative performance, but rather the individual propensity for high state anxiety, as triggered by competition conditions.

The study found no evidence in support of the hypothesis concerning the link between trait anxiety and creativity that has been seen, in an adult population, in other studies (e.g. Carlsson, Wendt, Risberg, 2000; Carlsson, 2002). A plausible explanation for this could be that creativity, as a trait, in children is not as stable as in adults, but rather an ability that can be enhanced as well as thwarted as it develops, a theory that is supported by research made by many prominent scholars in the field of creativity such as Teresa Amabile (1996) and Paul Torrance (1962).

Limitations

One might argue that the non-significant differences between competitive and non-competitive groups, in regards to the state anxiety measures, could suggest that the atmospheres were not viewed differentially in the two groups and that the manipulation was not effective. This does, however, only apply to the static state anxiety means, and does not take into account the variability of the state anxiety during the course of the experiment, that is, rising state anxiety levels for low creative and vice versa in the competition group.

Conclusions

In addressing the main aim of the study, that is, who's creativity might be adversely affected by a competitive climate and how, it can be said that a competitive climate that requires creative problem solving and flexible thinking might not necessarily be detrimental to creative children.

However, the results indicate that it is advisable to encourage the less creative to believe in, and develop, their creative abilities. Otherwise they might lose out on dual fronts — both by experiencing increased anxiety in tasks that require divergent thinking and by not being able to express themselves creatively due to increased anxiety.

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II

Creativity and Motivation in Middle Childhood

Cecilia Levin

The effects of trait motivational orientation on creativity, was investigated under competition conditions, (n = 38), and non-competition conditions, (n = 38). That intrinsically oriented trait motivation is associated with higher levels of creativity has been well established in numerous studies, this one included (df = 73, r =.27, p = .02). However, when investigated within groups, intrinsically oriented trait motivation was only significantly associated with creativity within the competition group (r =.35, p = .03, a = .05, power estimated at .48), suggesting that the experimental condition might have had a moderating effect on motivation, and thus creativity. Another unexpected result also emerged in this study in that the competition condition, did not seem to affect creativity in a negative way. Although no clear reason for this phenomenon can be identified at this stage, it is encouraging to find, that creativity seemed to be a resilient mechanism, largely unaffected by the constraints and conditions that were placed on it. It is perhaps also an indication that many years of research of, and advocacy for, the benefits of creativity in the school environment is paying off, in that children are now better equipped to tap into their creativity, irrespective of what conditions and constraints are placed on them, as compared to a few decades ago.

Creativity is a concept frequently mentioned in the modern, didactic, research vocabulary. A colloquial definition of creativity is typically that of an activity that results in producing something new and original, or in imagining new possibilities that were not conceived of before. Most scholars choose to conceptualize and define creativity as it pertains to their specific area of research and expertise, which makes it difficult, if not impossible, to find an all encompassing definition.

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There is, however, consensus among researchers that a creative climate is of great benefit to children, and that schools, as well as families, can enhance creativity by promoting activities that give children an active role in learning, with freedom to explore and opportunities to participate in creative activities (e.g. Barnes & Shirley, 2007; Amabile, 1996; Torrance, 1962). Encouraging creative thought and expression can greatly enhance the learning environment, both inside and outside of school (Jalongo, 2004), and research has also shown that children who are in learner-centered environments score higher on measures of creativity (Hyson, Hirsh-Pasek, & Rescorla, 1990; Rushton & Larkin, 2001).

When it comes to creativity and what enhances versus what hinders it, the predominant view seems to be that intrinsic motivation exert a positive influence on creative abilities (e.g. Prabhu, Sutton, Sauser, 2008; Hennessey, 2002; Shalley & Perry-Smith, 2001; Amabile, Hill, Hennessey, Tighe, 1994). On the other hand, there is an ongoing debate over whether extrinsic motivation, such as rewards, competition et cetera, is detrimental to creativity (Cameron, Pierce, Banko, & Gear, 2005; Eisenberger & Cameron, 1998, 1996). A number of behaviorally oriented studies have actually shown that extrinsic motivation may even enhance creativity (e.g. Eisenberger, Armeli, Pretz, 1998; Winston & Baker, 1985; Goetz & Baer, 1973).

Teresa Amabile (1996) identifies three components that, according to her, are of great importance to creativity; 1) domain-relevant skills, that is, a wide range of skills and knowledge provides the greatest amount of sources to draw from in the creative process, 2) creativity relevant skills, including but not limited to, flexibility in the way a situation is perceived and/or analyzed, the understanding

of complexities, the ability to take counterintuitive measures, playfulness, persistence, self-discipline, independence and an internal locus of control, and 3) task motivation, that is, the attitude towards the task and intrinsic motivation, as opposed to extrinsic motivation that comes from outside sources, are of great importance when it comes to reaching the higher levels of creativity.

Intrinsic motivation refers to the tendency to engage in activities because one finds them interesting, challenging, involving and satisfying (Ryan & Deci, 2000). Hennessey, Amabile and Martinage (1989) coined the term *"intrinsic motivation principle of creativity"*, that is, that intrinsic motivation is conducive to creativity, whereas extrinsic is not. This principle has later been revised to include the caveat that when rewards or evaluation are perceived as informational rather than controlling, they don't necessarily undermine intrinsic motivation, or creativity.

Extrinsic motivation refers to factors such as promise of rewards and punishments, orders from superiors and competition with peers (Ryan & Deci, 2000). Harackiewicz, Abrahams, & Wageman (1991), state that not all evaluative situations have a damaging impact and that sometimes the expectation of an evaluation can actually increase creativity. Jussim et al (1992) propose that the preservation of self determination is of great importance to the creative outcome under these conditions. Common sense also tells us that it is entirely possible to enjoy completing mandatory tasks, and thus working to fulfill the expectations of others (extrinsic motivation) as well as for purely personal reasons (intrinsic motivation).

Malone & Lepper, 1987) identifies four sub-groups in regards to motivational orientation, that is, a learning environment, such as the school environment, may benefit

from an instructional climate that encompasses the motivational framework components Challenge, Control, Curiosity and Fantasy. Optimal levels of Challenge refers to activities that are neither too difficult, nor too easy. Second, stimulating Curiosity is essential, both for initially gaining the individuals attention, and for sustaining the interest in the task. Third, learners need to feel that they have a certain amount of Control over their environment, that is, task motivation is enhanced when the individual is provided with the ability to make choices, and fourth, Fantasy, that is, mental images of physical or social situations can aid in evoking feelings associated with power, success, fame, and fortune, but also to help a learner to relate new learning to past experience by conjuring up images of previous successful endeavors (Malone & Lepper, 1987).

Creativity in Middle Childhood

Creativity, as it pertains to the creative child in middle childhood, that is, in children between the ages of approximately six and twelve, seems to be at a peak developmental stage around the age of 10 (e.g. Smith & Carlsson, 1990; Torrance, 1962). It is hypothesized that this might be due to children becoming increasingly more familiar with, and used to, the school environment, but not yet strongly affected by external pressures in regards to academic performance.

The creative high point in middle childhood is often followed by a period when many children suppress playfulness, imagination and many other behaviors associated with creativity, in their quest to conform to societal pressures in adolescence. “They go on to be conventional and ordinary adults” as Presbury, Benson, Fitch, & Torrance (1990), put it.

From a developmental perspective, the child in early middle childhood is considered to be at the concrete operational developmental stage, that is, the child gradually learns to employ organized, logical thought, becomes less inclined to use transductive reasoning and less egocentric thinking, and is capable of concrete problem-solving, according to the Piagetian developmental theory.

This is then followed by the formal operational developmental stage, when thought becomes more abstract and flexible, the child becomes capable of entertaining multiple hypotheses, and of envisioning several different outcomes when engaged in problemsolving activities (Piaget & Inhelder, 1969; Piaget, 1926). The middle childhood age span thus encompasses the concrete, as well as the formal, operational stage, and as individuals develop at different rates, an overlap between the stages is to be expected. The target age group in this study, that is, eight to twelve-year-olds, was chosen to capture early, as well as late, developing middle childhood children.

The rate at which children develop, has also been found to be somewhat accelerated since the Piagetian developmental theory was proposed, particularly in regards to girls' biological maturation in middle childhood. The question is, however, if this precocious somatic maturation also corresponds with an accelerated development of cognitive efficiency (Schambach, Schneemann, Muller, 1979) and although psychodiagnostic investigations suggest age appropriate results, some tendencies towards elevated IQ, and also an increased risk for psychopathology in adolescence, has been noted in early matured girls (Schambach et al., 1979; Ehrhardt, & Meyer-Bahlburg, 1994). This should, however, not be of consequence to the linearity of the developmental stages in Piaget's theoretical model.

Aims of the study

Gardner and Tremblay (1994) posit that it seems meaningful to investigate motivation in terms of state and trait motivation, where the trait of motivation is viewed as *"the relatively stable individual characteristics"* and state of motivation represents the actual motivational manifestation within a specific situation. It is the children's trait motivational orientation, in terms of Malone's (1981; Malone & Lepper, 1987) motivational framework components, Curiosity, Challenge, Control and Fantasy, that is placed in conjuncture with creativity in this study, with a focus on the school environment.

This study takes the perspective that motivation is an intrapersonal function that includes intrinsic as well as extrinsic components of varying valence, that is, as trait motivation. External incentives and/or constraints may be placed on a task, or within an environment, in which case the individual, situation specific, appraisal, the state motivation, determines the reaction to the condition. The focus of the study is to investigate associations between trait motivation, and creativity, as measured under competition and non-competition conditions. Intrinsically oriented trait motivation is directionally hypothesized to have a positive effect on creativity under non-competitive conditions, whereas the extrinsically motivated children are expected to perform more creatively under the experimental, competition conditions.

METHOD

The data for this investigation was collected as part of a quasi-experimental study approved by the regional ethics committee in Lund on December 15th 2004 (# H4

790/2004). Consent forms were distributed to, and collected from, parents of all participating children.

Participants

Four different schools took part in the study. Seven classes that fell within the target age group, 8 – 12 year olds, were invited to participate. 131 consent forms were distributed to parents of whom 101 responded. 76 individuals , 41 boys and 35 girls with a mean age of 10.09 years, were given parental consent to participate.

All participants were fluent in the Swedish language, although almost a third (n = 23) were born to a parent, or parents, from countries other than Sweden. The participants were divided into equal groups, a competition group (n = 38, 16 boys and 22 girls) and a non-competition group (n = 38, 25 boys and 13 girls), based on scores from the fantasy measurement, and their age.

The statistical power in the studies could, naturally, have been increased with a greater number of participants, however, it was necessary to strike a balance in regards to the logistics of keeping the groups isolated from each other, the administration intense completion of the collage making task, and the number of participants.

In regards to the difference in gender distribution within the competition versus comparison groups, with more girls than boys in the competition group, and vice versa in the comparison group, it should be noted that, although some research have indicated that boys might have an advantage when it comes to group assessments of creativity (Baer, 1998), and that based on this assumption creativity should be higher in the comparison group, creativity was in fact found to be marginally lower in the comparison group.

Baer (1998) also found girls' creativity to be negatively affected by extrinsic motivation, whereas boys' creativity remained relatively unaffected. It should, however, be noted that this study found no such evidence of associations between motivational orientation and gender, no effects of gender on motivation or creativity, and no interaction effects between these variables.

Procedure

Two groups of thirty-eight primary school children participated in a creative, collage-making activity. The characteristics of the comparison group were purposely made to approximate those of the experimental group, a strategy that may be referred to as a Quasi-experimental Normative Group Equivalence Design (Becker, 2000). This is not to be confused with a Non-equivalent Control Group Design, where the experiment group and control group are subjected to pre- and post-test on the dependent variable.

The collage-making task did not depend on the children having any specialized skills. The materials used in the task, a blank, white paper, a glue stick and a small bag of colored paper shapes, provides for great flexibility in the creation of the product to be judged. All children were given exactly the same materials, and were allowed to use as many, or as few, pieces of paper as they liked. They were also asked to make a collage that would portray something "silly". This particular wording in the instructions, was purposely used in order to enable the children to draw on their emotions in creating, rather than being constrained to construct a specific, concrete, image.

One group made collages as an heuristic task without constraints and conditions, while the other group, a) was subjected to a time constraint of 15 minutes and b) was

told that they were competing for prizes for the "best" collages. A selection of these prizes were prominently displayed during the experiment and consisted of small items appealing to a wide range of interests,such as balls, Frisbees, jump ropes, books, keyrings, sunglasses et cetera, to ensure that all children could find a prize that would motivate them to partake in the "competition". All participating children were rewarded after the experiment was concluded whether they belonged to the competition or the non-competition group. Creativity was thus measured under externally motivating conditions in the competition group, and internally motivating conditions in the comparison group.

Data on trait motivational components was collected, on an earlier occasion, using 1) an abbreviated version of *Intrinsic versus extrinsic orientation in the classroom* (Harter, 1980) and 2) the *Children's fantasy inventory* (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982).

Instruments

The following instruments were used to obtain information in regards to the variables of interest, that is, creativity, and extrinsic/intrinsic trait motivation in terms of challenge, curiosity, control, and fantasy.

Consensual Assessment Technique

Creativity was measured according to *Consensual Assessment Technique*, CAT, a well established technique that consists of independent experts assessing the products from a collage making session. Inter-rater reliability for seven judges or more have been found to be very high, ranging between .73 and .93 in several studies (Amabile, 1996). In this study, eight independent "raters", who were

deemed to have expert knowledge in regards to the assessment of creative products, were asked to use their own, subjective definition of creativity as they rated a) creativity, b) skill and c) personal liking, on a Likert scale ranging from one to seven.

All raters were active in the teaching profession, five at college or university level, one at secondary school level and two at primary school level. The raters were also instructed to assess the products in relation to one another, as opposed to comparing them with works made by, for instance, themselves or professional artists. The intraclass correlation between raters in this study proved to be high (Cronbach's alpha = .89).

Intrinsic versus Extrinsic Orientation in the Classroom

Intrinsic and extrinsic motivation was measured with an abbreviated version (18 items) of *A Scale of Intrinsic versus Extrinsic Orientation in the Classroom* (Harter, 1980). The scale originally consists of 30 items measuring five dimensions; Challenge, Curiosity, Mastery, "Independent judgment" and "Internal criteria for success/failure". Items measuring the sub scales "Independent judgment" and "Internal criteria for success/failure" were not included (measured) in this study, since Harter has found these factors to belong to a separate cluster from Challenge, Curiosity and Mastery (Harter, 1981).

The instrument was translated from English to Swedish by examiner (bi-lingual), and back-translated from Swedish to English by a different translator. Items were then examined for congruency by three independent raters, followed by revisions, until consensus was reached on all items.

The items in this instrument are divided into two separate statements, for example “Some kids ask questions in class because they want to learn new things ”, indicating intrinsic motivation, and “Other kids ask questions because they want the teacher to notice them”, indicating extrinsic motivation. Participants must first decide which statement is true for them and then rate the statement by choosing if it is “Sort of true for me” or “ Really true for me”. Minimum mean score is one, with a maximum of four. Low scores indicate extrinsic motivational orientation, while high scores represent intrinsic motivational orientation.

Tests on the factorial validity of the instrument shows that in a five factor pattern only two items have moderate cross-loadings between different factors and item validity shows no floor or ceiling effects. Reliability coefficients on internal consistency from test-retest conditions ranges between .48 to .76, lower values corresponding to retest after one year and higher values from retest within five months (Harter, 1981). For this current study, Cronbach's alpha coefficient was 0.87 for the three factor pattern.

The instrument builds on the notion that motivational orientation has an intrinsic, as well as an extrinsic motivation pole. Lepper, Corpus and Iyengar (2005), on the other hand, have suggested that motivational orientation, in regards to intrinsic versus extrinsic, may be viewed as orthogonal constructs rather than two poles of the same dimension but for the purpose of this investigation it is, however, preferable to view the extrinsic and intrinsic motivational components in accordance with Harter’s perspective.

Harter’s dimensions tap, a) task preference (Challenge), b) information-seeking style (Curiosity) and c) reason for

learning (Mastery) which thus seem to reflect similar dimensions as is described in Malone's taxonomy, that is, a) individual expectations (Challenge) b) information seeking concerning why, when, where, who and how (Curiosity), and c) personal goal of learning (Control).

Children's Fantasy Inventory

To gain information about children's fantasy and imagination the *Children's fantasy inventory* (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982) was used. This is a 40 item questionnaire divided into six subsections regarding intellectual, fanciful, absorption, vividness, active-heroic and scary fantasies.

Correlations are noted between this and other imagination inventories such as J. L. Singer's *Imaginative Play Predisposition*, .59 and *Daydream Ratings*, .59. Reliability calculated through test-retest scores is reported to yield alpha coefficients between .42 and .70 on the different sub-scales (Rosenfeld et al., 1982).

Rosenfeld et al. regards fantasy as a universal construct that may vary in style between individuals, and Malone describes this dimension in terms of positive (success) and negative (failure) imaginary outcomes. The measurement for the variable fantasy (Cronbach's alpha.79), used in this study, was the total mean score from all subsections on the *Children's fantasy inventory*.

RESULTS

All variables (Table 1) were normally distributed. Two extreme outliers were found among the fantasy inventory scores in which answers were marked unusually high, but in a consistent manner, why it was decided to treat them

as valid. They were dealt with in accordance with recommendations in *Using Multivariate Statistics* (Tabachnik & Fidell, 2000) and placed within the data, as the second highest scores. The level of significance was set at $p < .05$.

Table 1. Descriptives.

	Overall		Competition		Comparison	
	M	*SD*	*M*	*SD*	*M*	*SD*
Creativity	3.68	.86	3.85	.90	3.52	.81
Trait Motivation	2.87	.47	2.91	.45	2.83	.50
Challenge	2.76	.62	2.78	.63	2.74	.61
Curiosity	3.05	.54	3.15	.57	2.96	.49
Control	2.80	.53	2.81	.53	2.78	.54
Fantasy	15.57	8.56	17.58	9.16	13.55	7.51

Results from independent groups t-test, with normal distribution and an approximately equal variance on the dependent variable, show that the groups did not differ significantly in regards to age (t (74) = .34, p = .74), gender (t (74) = 1.62, p = .11), motivation (t (74) = .26, p = .79) or creativity (t (74) = 1.65, p = .10), why the null hypothesis of no difference between groups, could not be rejected.

Considering results from earlier research by, for instance Teresa Amabile (1996), the finding of no difference between groups in regards to creativity was unexpected. However, merely retaining the null hypothesis is not sufficient to demonstrate equality of groups. Steiger (2004) argues that equivalence testing using confidence intervals is an a suitable method in psychological research, especially for the purpose of demonstrating that an effect is trivial in magnitude. In this study it is of interest to determine

whether or not the levels of creativity, under competition versus non-competition conditions, are similar enough to be considered equivalent.

The mean creativity in the competition group is required to be within a specified zone around the mean creativity of the comparison group which is referred to as the equivalence interval (*E*). An a priori decision must be made concerning the size of the equivalency interval, that is, the minimum difference between two groups that would be important enough to make the groups non-equivalent and an equivalence criterion of + - 20% from the comparison group mean (Hatch, 1996), was chosen, that is, in order to demonstrate equivalency between groups, the competition group confidence interval must fall within + - .7 of the comparison group mean:

H0: m1 – m2 = < *E*L or m1 – m2 = > *E*U
H1: *E*L < m1 – m2 < *E*U

The lower bound of the competition group confidence interval (*m*1 = 3.57) was found to be greater than the lower bound of the equivalence interval (*E*L =2.82), and the higher bound of the competition group confidence interval (*m*2 = 4.12) was found to be less than the higher bound of the equivalence interval (*E*U =4.22). Consequently equivalence between the competition group and the comparison group was concluded in regards to the creativity variable.

The relationship between Extrinsic/Intrinsic trait motivational orientation (EI) and creativity was investigated with correlation analysis, overall (N = 76), controlling for partial correlation of group, as well as within groups. A significant, but weak, correlation was found, (df = 73, r =.27, p = .02), suggesting that intrinsic motivation was associa-

ted with higher levels of creativity, and vice versa.

Creativity was also found to have a weak, but significant, association with the motivational component Control (df = 73, r =.35, p = .002) (Table 2). Power for the correlation between creativity and motivation was estimated at .70, and at .88 for the motivational component control.

Table 2. Creativity and Motivation (N = 76)

Creativity	Pearson correation	Sig. (2-tailed)
EI Motivation	.271	.019*
EIChalllenge	.213	.066
EICuriosity	.081	.491
EIContol	.354	.002*
Fantasy	-.129	.269

A within groups correlation analysis also revealed a weak but significant correlation between creativity and motivation, (n = 38, r =.35, p = .03, power estimated at .48), and a weak but significant correlation with the control component, (n = 38, r =.39, p = .02, power estimated at .68), in the competition group. No significant correlations were found between creativity and motivation in the comparison group.

Intrinsically oriented trait motivation was hypothesized to have a positive effect on the dependent variable creativity under non-competition conditions, whereas extrinsic motivation was thought to have a positive effect on creativity under competition conditions. The continuous motivation variable was thus dichotomized, through a binary split at the median, in order to make possible a comparison

of individuals with either predominantly extrinsic or intrinsic values of the measurement.

A 2 x 2 factorial analysis of variance, comparison group (1) and competition group (2) x extrinsic trait motivation (1) and intrinsic trait motivation (2), was then performed. Figure 1 shows mean creativity as a function of extrinsic versus intrinsic trait motivation, and competition versus comparison conditions.

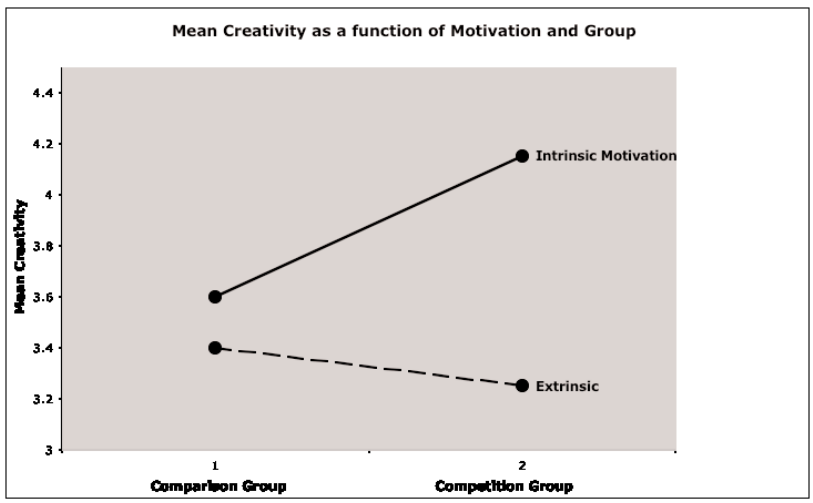

Figure 1. Mean Creativity as a function of Motivation and Group.

A main effect of motivation on creativity was found, $F(1,75) = 5.59$, $p = .02$, indicating that intrinsic motivational orientation had a positive effect on creativity, and vice versa. However, although the ANOVA showed a significant effect, the effect size was small. The Partial Eta Squared for the effect was only .07, that is, the factor by itself accounted for only 7% of the overall variance, and Observed Power was .65. Although a significant interaction effect did not materialize, an ocular inspection of Figure 1 reveals that the effect of group, was greater for the intrinsically motivated children than for the extrinsically moti-

vated children.

The results thus suggest that intrinsically oriented trait motivation had a positive effect on creativity overall, but they also indicate that the intrinsically motivated under competition conditions, tended to reach higher levels of creativity, than their extrinsically oriented counterparts.

DISCUSSION

The aim set forth in this study was to investigate associations between trait motivation and creativity, as measured under competition and non-competition conditions. The variables measuring intrinsically oriented trait motivation and creativity were indeed found to be weakly associated. However, in examining the competition and comparison groups separately, no relationships were found to reach significance unless the competition condition was imposed.

Results indicated that intrinsically oriented motivation had a positive effect on creativity overall, as has been found in other studies (e.g. Prabhu, Sutton, Sauser, 2008; Hennessey, 2002; Shalley & Perry-Smith, 2001; Amabile, Hill, Hennessey, Tighe, 1994), but also that the intrinsically motivated under competition conditions, tended to reach higher levels of creativity, than their counterparts in the comparison group, suggesting that the experimental situation in itself may have "triggered" mechanisms, perhaps extrinsically oriented state motivation, to enhance creativity. It seems possible, even plausible, that the competition condition encouraged active exploration into creative solutions.

This phenomenon could perhaps also be linked to the finding of an association between creativity and the moti-

vational control and mastery component, concerning personal goal of learning, feelings of self-determination, choice and power, within the competition group, which seems to correspond with Deci and Ryan's (1985) proposition that extrinsic factors that support a sense of competence, without undermining self-determination, should positively support intrinsic motivation, and thus creativity.

It has long been argued that competition conditions and constraints, particularly in conjunction with the expectancy of evaluation and/or reward, adversely affect creativity (e.g. Amabile, 1996; Amabile, Hennessey, Grossman, 1986; Kruglanski, Friedman, Zeevi, 1971). However, an unexpected result emerged in this study in that a competition condition, aimed at evoking a state of extrinsically oriented trait motivation, did not seem to affect creativity in a negative way. Although no clear reason for this phenomenon can be identified at this stage, it is encouraging to find, that creativity seemed to be a resilient mechanism, largely unaffected by the constraints and conditions that were placed on it. It is perhaps also an indication that many years of research of, and advocacy for, the benefits of creativity in the school environment is paying off, in that children are now better equipped to tap into their creativity, irrespective of what conditions and constraints are placed on them, as compared to a few decades ago.

Another possibility is that the results may have a cultural connection, in that the sample investigated came from Swedish elementary schools, as compared to earlier studies made in North America. In the U.S., children are subjected to rigorous testing practices and evaluations from an early age, which may have influenced the children's perception of the experiment condition negatively, and thus their abi-

lity to be creative, whereas the Swedish children in a school environment geared more towards individualized goal setting, and the achievement of these goals, may have been less affected by the competitive setting.

On the other hand one might argue that this very fact should have made the American children more used to dealing with this type of work climate, and that they thus should have been the ones least affected by the competition conditions. It could, none the less, in light of these results, be viewed as quite unfortunate that the Swedish society in general, is subject to ever increasing similarities with North American social systems such as, for instance, more frequent formal evaluations in the schools and an emphasis on competitive environments in general.

Describing creativity as a "resilient function" is, by no means, an attempt to discount decades of creativity research by prominent scholars into factors that may inhibit creativity, far from it. There are, no doubt, numerous factors that may act as "creativity killers" in the classroom and in other environments, this has been evidenced in empirical research (e.g. Hennessey, 2002; Amabile, 1996). However, the context of creativity is never at a status quo, environments and working climate change as new research, new circumstances, new policies and new tools become available, why it is important to, in true creative spirit, keep an open mind and a flexible attitude towards findings that seemingly go against predominant views.

Limitations

The following limitations should be kept in mind in the interpretation of results and conclusions, a) the sample was limited to elementary, public schools and b) the sample was limited to children who had parental permission

to participate. Further investigation would also benefit from establishing a baseline of creativity in order to shed light on the dynamics of this variable.

Concerns might also be raised in regards to mean fantasy, as a possible proxy-variable, being higher in the competition group, although the distribution of the dichotomized fantasy variable (high, low) is equal between the two groups. If one assumes that the level of fantasy would have an effect on creativity, and the fantasy variable mean is higher within the competition group, this should consequently lead to higher creativity in the competition group. However, no association between the fantasy variable and creativity was found, and creativity was not found to be significantly higher in the competition group.

The difference in gender distribution within the competition versus comparison groups, with more girls than boys in the competition group, and vice versa in the comparison group, could also be discussed in regards to findings that have indicated that boys might have an advantage when it comes to group assessments of creativity (in Baer, 1998). Based on this assumption, that is, the fact that this took place in a classroom setting which should thus benefit boys, creativity should thus prove to be higher in the comparison group. Creativity was in fact found to be marginally lower in the comparison group, and no association between gender and creativity was found.

Conclusions

That intrinsically oriented trait motivation is positively associated with creativity has been well established in numerous studies, this one included. However, in this study, intrinsically oriented trait motivation only had a significant effect on creativity in the competition group, why

further research into competition as a possible moderator of motivation, and thus creativity, would be an interesting avenue to pursue.

The finding that the experiment conditions with constraints, reward and evaluation expectancy, competition et cetera, aimed at evoking a state of extrinsically oriented motivation, did not appear to affect creativity in a negative way, was unexpected, and although no clear reason for this phenomenon can be identified at this stage, it is very encouraging to find, that creativity seemed to be a resilient mechanism, largely unaffected by the constraints and conditions that were placed on it, in a way, a confirmation of Sternberg's (2002) view that *"children have little reason to decide against creativity"*.

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III

Childhood Creativity – A Cross-Cultural Perspective

Cecilia Levin

This interview study investigates middle childhood children's understanding of the creativity construct, within the, so called, four P's of creativity (person, process, product, place). Sixteen public school children from Sweden and North America, ranging in age from eight to twelve, were interviewed, and the material was investigated by way of Interpretative Phenomenological Analysis (IPA). A common theme throughout the study was that creativity, by and large, means art and artistic expression to children, regardless of cultural sample. It is also of concern that the children seem to believe that a creative undertaking is not enough in itself, but that it is also expected to result in something "good". On the whole, the children did not seem to consider themselves as being creative in the sense of flexible thinking, adaptability and problem solving, unless it included a visual arts perspective. This is, by no means, to say that the children do not have these abilities. Creativity is an inherent potential in all children, they will use their creative functions regardless if they are aware of what the definition of the concept is, or not, as was evidenced throughout the study. It is, however, food for thought that, in asking the children to be creative, we might actually be limiting them, rather than expanding their range of creative expression.

Many, if not most, studies investigate creativity from an adult perspective, that is, from a scholarly definition. Isaksen and Treffinger (1985), for example, define creativity as *"Making and communicating meaningful new connections in order to a) think of many possibilities, b) think and experience in various ways and use different points of view, c) think of new and unusual possibilities, and d) guide in generating and selecting alternatives"*.

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In examining previous research as it pertains to this construct, it becomes obvious that it is difficult, if not impossible, to find an all encompassing definition. There is, however, consensus among researchers that creativity can be of great benefit to children, and that schools, as well as families, can enhance creativity by promoting activities that give children an active role in learning, with freedom to explore and encouragement to participate in creative activities (e.g. Barnes & Shirley, 2007; Amabile, 1996; Torrance, 1962). This study is aimed at viewing the construct from a child perspective.

J.P. Guilford (1967), who by many is regarded as the founder of the modern concept of "creativity", takes a cognitive approach toward understanding and explaining creativity and emphasizes the cognitive process as means to obtain, evaluate, process, store and retrieve the information needed in order to be creative. He views creativity as an ability to use divergent thinking, which flows in many directions and in which there is not just one path, as opposed to convergent thinking that has a pre-determined correct solution.

However, most creative accomplishments require both divergent and convergent thinking. An idea, even if ever so creative, must also be evaluated and scrutinized in regards to viability and originality (Csikszentmihalyi, 1996). There are, however, quite a few misconceptions about what creativity is, in general as well as within the school environment (Jalongo, 1999). In a study on teacher's views on creativity by Fryer & Collings (1991), only about half of the thousand teachers interviewed regarded divergent thinking as a component of creativity.

A commonly used categorization of creativity was introduced by Rhodes (1961). He distinguishes between the cre-

ative person, process, product and press ("the four P's"), the latter also known as place or environment. Murdock and Puccio (1993) suggest that the generalizability in creativity research may be enhanced when combinations of, and interactions among the four P's, are utilized in order to organize, interpret and effectively communicate the results.

As it pertains to this study, process covers the basic understanding of the concept as it applies to the entire creative spectrum, the creative product refers to anything that the children regards as the outcome of a creative activity, any entity, real or fictitious, that the children regards as being creative is included under creative person, and the creative places investigated are home and school creative climate and environment.

Middle Childhood

Middle childhood, from approximately age six to age twelve, is a period of expansive imagination and creativity (e.g. Smith & Carlsson, 1990; Torrance, 1962), but also a developmental stage when the children seek knowledge and an understanding of the world around them. According to Piaget (1969), the cognitive development in middle childhood is initially characterized by concrete operational thought, that is, the children are able to solve concrete problems using logical problem-solving strategies, which later develops into formal operational thought, enabling abstract thinking as well as critical evaluations of oneself and one's achievements.

The middle childhood age span thus encompasses the concrete, as well as the formal, operational stage, and as individuals develop at different rates, an overlap between the stages is to be expected. The target age group in this

study, that is, eight to twelve-year-olds, was chosen to capture early, as well as late, developing middle childhood children.

The rate at which children develop, has also been found to be somewhat accelerated since the Piagetian developmental theory was proposed, particularly in regards to girls' biological maturation in middle childhood. The question is, however, if this precocious somatic maturation also corresponds with an accelerated development of cognitive efficiency (Schambach, Schneemann, Muller, 1979) and although psychodiagnostic investigations suggest age appropriate results, some tendencies towards elevated IQ, and also an increased risk for psychopathology in adolescence, have been noted in early matured girls (Schambach et al., 1979; Ehrhardt, & Meyer-Bahlburg, 1994). This should, however, not be of consequence to the linearity of the developmental stages in Piaget's theoretical model.

At this age, parents continue to be the main source of influence, but the school environment and peers become increasingly more important to the child as the integration of the internal self and the social self become more prominent in self-understanding during this period (Amiot, Sablonniere, Terry, Smith, 2007).

From a linguistic perspective, children of middle childhood begin to develop metalinguistic awareness, that is, the ability to think about language as a system rather than as simply a means of communication. Their vocabulary continues to increase and the ability to communicate difficult information is gradually enhanced (Hoar, 1978).

Cross-Cultural Comparison

Roeper and Davies (2000) propose a view of the develop-

ment of the creative mind as an outside-in process that occurs in a cultural context, rather than inside-out, where functions are merely reflections of the ability to store, sort, retrieve and manage information.

The crosscultural comparison has relevance in that the Swedish society in general is subject to ever increasing similarities with North American social systems such as, for instance, privatization and an emphasis on competitive environments in general. On the other hand, in regards to the school systems, Sweden offers a greater freedom of choice, regardless of social and economic status, than the U.S. (Bergström & Sandström, 2003).

The evaluation/grading system represents another area of dissimilarities between the two cultures. The U.S. school system is based on rigorous testing practices where results are compared to national standards and report cards are issued twice or four times yearly from first grade and up, whereas the Swedish system is geared more towards individualized goal setting and the achievement of these goals, and grades are reported for the first time at the end of the eighth year of schooling.

Another interesting phenomenon is the relatively insular nature of the American society, with many people never having traveled outside North America, as compared to the Swedish. The study will investigate similarities as well as differences between the concept of creativity within the two cultures.

Aims of the Study

Creativity is frequently mentioned in modern, didactic, research vocabulary and there is great consensus among researchers that creative activities, and tasks that encou-

rage creative behaviors, benefit the learning and development of the child.

But what does it actually mean to a child when we ask them to be creative. What does it mean to be creative? What does a creative person do? Who is a creative person? Where can you be creative? How can you be creative? These are some of the questions that are posed to the participants, with the overall aim to investigate the children's understanding of the creativity construct.

METHOD

Semi-structured interviews were conducted with Swedish and North American children in middle childhood. Consent forms were distributed to, and collected from, parents of all participating children. The study was approved by the regional ethics committee in Lund, Sweden, on December 15th, 2004 (# H4 790/2004).

Participants

The target subjects were children in middle childhood from Sweden and North America. Purposive sampling, as recommended by Smith and Osborne (in Smith, 2003) when conducting an IPA, was used in recruiting children of both genders and nationalities.

Sixteen children, eight from Sweden (4 boys , 4 girls), and eight from USA, (3 boys, 5 girls), were interviewed by a single interviewer, fluent in the Swedish, as well as the English language. The children range in age from eight to twelve, with a mean age of 10.5, and all were students in public schools (Table 1).

Table 1. Demographic profile of participants.

#	Country	Sex	Age	1st lang.	2nd lang.
1	USA	M	9	English	n/a
2	USA	F	12	English	Farsi
3	USA	F	10	English	Swedish
4	USA	F	12	English	n/a
5	USA	M	12	English	n/a
6	USA	F	12	English	n/a
7	USA	M	10	English	n/a
8	USA	F	12	English	n/a
9	Sweden	F	11	Swedish	n/a
10	Sweden	M	10	Swedish	n/a
11	Sweden	M	10	Swedish	n/a
12	Sweden	M	12	Swedish	n/a
13	Sweden	F	9	Swedish	Latvian
14	Sweden	M	11	Swedish	n/a
15	Sweden	F	8	Swedish	n/a
16	Sweden	F	8	Swedish	Danish

Interpretative Phenomenological Analysis (IPA)

The analytic approach is an Interpretative Phenomenological Analysis (IPA) which is idiographic in intent, and for the purpose of this study, focused on the individual's cognitive linguistic experience of the concept of creativity. It is a bottom-up, inductive approach, that aims to avoid prior assumptions.

The main cornerstones of IPA are a) phenomenology, that is, it focuses on the researcher's capability to become immersed in, and interpret the individual's thoughts and

perceptions and b) hermeneutics, that is, the interpretation and understanding of texts and c) symbolic-interactionism that is, meaning is derived from viewing an individual's account of an experience through a process of social engagement and interpretation.

The method was developed specifically for use within health, clinical and social psychology, and is targeted at understanding the experiences an individual has, and what meanings these experiences hold (Weed, 2005; Smith & Osborne, 2003). IPA relies to a great extent on the researcher's ability to interpret the narrative accounts, as the interview transcripts are systematically analyzed in search for superordinate themes (Danaher & Briod, 2005).

Instruments

The semi-structured interview is considered the most suitable way to collect data for the purposes of conducting an IPA. It allows the researcher to engage in a dialogue with the participant and work within a framework of themes that can be explored with follow-up questions as the interview develops (Smith & Osborne, 2003).

The interview questions, used in this study, were developed by researcher/interviewer and pre-screened for clarity and comprehension with a small group of children within the target age group. The aim was to create a flexible interview schedule with an emphasis on open ended questions, as this has been shown to increase the reliability in interviews regarding linguistic expressions, feelings, experiences and frames of references (Lofland & Lofland, 2006; Westcott & Littleton, 2005). The questions sought to elicit information in regards to the children's understanding of the concept of creativity (Table 2).

Table 2. Interview schedule.

Domain	Framework questions
Person	Who is a creative person? What does a creative person do? Who is the most creative person that you know ? Who is the most creative person that you know of ?
Process	When you hear the word creativity – what does it mean to you ? Have you ever heard the teacher say "Be creative" or "Use your creativity" ? What does it mean to you when someone says "Be creative" or "Use your creativity" ?
Product	What might a creative person do? What kind of creative things do you do ?
Place	Where are you able to be creative? In what way is it possible to be creative - in school, in the classroom?

The interviews were conducted either at the participants' home or at a location of their choice and lasted, on average, between fifteen and twenty minutes each. Interviews were recorded digitally and later transcribed verbatim.

RESULTS

The analysis was conducted in three stages. In stage one keywords, associations, and statements, from the transcript of the interviews, were identified. These were then, in stage two, clustered to form distinctive themes, aimed at capturing the essence of the concept without over-simplifying it. In the third stage cross-cultural similarities/differences, between the North American versus the Swedish children, were examined.

The Creative Me vs The Creative Others

Most interviewees described partaking in creative activities and using divergent thinking, although very few children actually referred to themselves as being creative. Those who did, however, seemed very comfortable with their creativity, displaying a great deal of self-confidence and self-reliance throughout. *"I don't really care about what people think of me, they think it's [the way I dress] cool but a little wacky – but they wouldn't do it themselves"* (#8) as one girl described her style, and *".....well....I am! Yep, that's me! I write manuscripts and stuff... oh, and I would be the lead-actor to.... "* (#10), as one boy responded to the interviewer's request for examples of the most creative persons he could think of.

In discussing creative individuals, artists, specifically painters, emerged as a central theme throughout, but writers, like JK Rawlings and Astrid Lindgren, actors, Tom Cruise and Brad Pitt for example, and scientists like Albert Einstein, were also mentioned in terms of individuals in possession of specific creative skills. In addition, from a more close-to-home perspective, teachers, friends, moms, dads and siblings were often described as being creative, but in a more general sense, as in enjoying arts and crafts, and in being resourceful in everyday tasks.

The Creative Child vs The Creative Adult

The children did not appear to regard creativity as an age related function. It was reported by the interviewees to come in all shapes and sizes, from the smallest of children and all the way through adulthood. The creativity in

regards to the child was often referred to in terms of being different, being original, for example, *"Yeah, she [a classmate] like stands out. If you put her in a crowd of a thousand she would like really stand out !"*(#2), whereas the children, to a great extent, associated adult creativity with specific, acquired skills (artist, engineer, designer, et cetera) as in *"... my dad....he is an airplane mechanic and he makes airplanes ..... and also my mom's friend, she's an architect so that's creative to because she can like, build like hotels...."* (#2).

Male Creativity vs Female Creativity

The investigation into male versus female creativity, meant a step away from the bottom-up approach otherwise employed, that is, here an active, top-down, effort was made to specifically identify male versus female aspects within the material. The children referred equally as much to creative males, creative females, and non-gender specific creativity, for example,*"... architects have to fit to other peoples needs, and think outside the box for the person they're designing the house for ....."* (#8).

In regards to male versus female adult creativity, no gender based differences were noted within the material. However, in regards to children, the interviewed boys and girls seemed, more inclined to refer to the same gender as themselves, and, in reference to type of creativity, describe boys as constructing, and girls as doing crafts.

"Little C" vs "Big C"

References to both "Little C" creativity, and "Big C" creativity were noted. "Little C" has to do with basic functions such as general problem solving and everyday creativity,

whereas "Big C" is a far more rare occurrence (Nakamura & Csikszentmihalyi, 2001; Runco, 1996). It may be described as a creative feat that has a major impact on other people or environments.

The interviews touched on a wide spectrum of creative components, and the children referred to a multitude of creative aspects throughout. However, the overarching theme of the children's basic understanding of the concept of creativity, was that it meant artistic expression, and they, almost to a tee, attached the concept of creativity to the visual arts aspect.

Interviewer :	Are there any classes, subjects, that are creative? What about history – can you be creative in history ?
#4 :	History ? Well sometimes you like draw people....but that's it ...
Interviewer :	What about in English ?
#4 :	No!
Interviewer :	If you write a story ....
#4 :	Oh, yeah, write a story, yeah, and actually you do draw pictures for like your front page and stuff like that ....
Interviewer :	Can you think of other subjects where you can be creative ?
#4 :	Yeah, science and like, woodshop !
Interviewer :	Science, how so?
#4:	'Cause like in science you can draw like different animals and parts of the body and bones and stuff.

This visual arts focus seemed, however, to diminish when it came to features of "Big C" where originality, divergent thinking and a pioneering spirit took center stage, for example, *"Like our first presidents 'cause they actually did the presidency, like they created the United States basically with our system that we have today. They made laws and stuff like the declaration of independence, and those guys*

probably were discriminated against but they didn't care, they were just being creative and making a better future for you....." (#8).

Learned Skills vs Creative Talent

The underlying assumptions for this thematic distinction is that, a) a skillful individual is capable of using a technique or an ability that originates from personal knowledge, practice, study et cetera, to achieve a goal, for example, *"... he [my dad] is in charge of logistics so he has to be creative and think of different solutions to whatever orders he is dealing with..."* (#12), and b) a talented person is someone who has a natural, inherent, ability to learn new skills and execute these to an exceptionally high standard. Examples of extraordinarily talented creative people from the interviews were J.K. Rowling, author of the Harry Potter books, children's books author Astrid Lindgren and pop art personality Andy Warhol.

Social vs Solitary Function of Creativity

Skills and talent in isolation are not considered enough to promote creativity, social support is also needed to drive the development of a creative idea to fruition (Schirrmacher, 2002; Zimmerman & Zimmerman, 2000; Cszikszentmihalyi, 1988). A social function of creativity may also mean to share the products of creativity with others, *"I usually make cards for people and I use a whole bunch of paper and I cut out shapes and then I put the shapes together yeah...."* (#3), or engaging others in imaginative play, *"Well, when you use your imagination you can become a knight and then someone else can become a dragon and....then you play....."* (#10).

A creative activity does, however, not necessarily require more than one participant. Drawing, arts and crafts projects, and imaginative solitary play or exploration, were all examples given by the children of creative activities that they engaged in on their own. A positive association between solitary-active play and divergent thinking has also been found by Lloyd & Howe (2003).

Concrete vs Abstract Creative Products

In regards to what the children regard as the outcome of a creative activity, a main theme, Art, crystallized. The artistic products described were mostly of a tangible nature, such as drawings, paintings, craft products and textile, wood and metal constructions, but abstract "products" were also mentioned as in, for example, acting, improvisations, humor, dancing and singing.

In discussing whether it could be creative to copy someone else's creations, or if a creative product has to be something that no one else had thought of before, the interviewees were, for the most part, in agreement that copying was not creative, although some children meant that it would be OK to base your own idea on someone else's, as long as the result was a little bit different.

Physical vs Inner Creative Places

Home, a place for numerous arts and crafts and construction projects, was a common denominator for the children when discussing creative places. Discussions about the school environment centered on the creative climate in regards to various subjects, and two distinct sub-categories emerged, 1) subjects that encourage artistic expression, such as language arts, art classes, wood/textile shop,

and 2) subjects that require problem solving, such as science, math and social studies.

Another "creative place" mentioned in the interviews, was the realm of the inner creative world and the ways in which creativity manifests *"..... yeah it's like thinking for yourself"* (#8), but also how a creative activity can aid in allowing emotions to surface;

Interviewer :	So, if you were going to do something creative, when you do something creative , what would that be, what do you do ?
#4 :	I imagine things that I think are creative, so like I just picture different images in my head.
Interviewer :	What do you do with those images – do you share them with others or....
#4 :	Oh, OK, I think I'd say painting 'cause it gets all your feelings out, so yeah I'd just do paint ing..... and like writing different thoughts and stuff.

Positive vs Negative Aspects of Creativity

Most discussions centered around creativity as a positive function, for example, creativity as an emotional outlet, as referenced above, creativity as a teaching tool, and creativity as a generally pleasurable activity. Most of the children had heard their teachers say "Be creative" or "Use your creativity", although quite a few children displayed some uncertainty as to what was expected of them in regards to this, for example, *"....I know what they mean – but like I don't know if it's good what I do..."* (#2) , *"Yes....I did something different, I guess, but it wasn't that great..."* (#8), and, *"Sometimes....that you should do it a little bit better..."* (#11), thus there seemed to be a notion that creativity was supposed to equal something "good".

However, some children also mentioned, as one boy put it,"*the "badness" of creativity!"* (#5). This was referred to in the sense that being creative was a behavior that was less than desirable, for example, in home economics class, *"Don't be creative, if you try to be creative you'll mess up the recipe!"* (#5), or in physical education where the emphasis was on team effort rather than individuality, but also in using creativity for personal gain and menacing purposes, as in, *"Yeah.... like if you're creative about evil schemes to rule the world or something ...."* (#6).

Cross cultural similarities and differences

On the whole, the interviewees responded very similarly regardless of cultural background. They all reported creative persons, referred to creative processes, described creative products and places, although the content on occasion was culturally bound, for example in regards to creative persons.

A few notable differences were, however, found. The North American children seemed very comfortable discussing creativity on a global and historical scale, mentioning a wide range of creative "persons", from teachers to God, through famous artists, writers, inventors and scientists, whereas the Swedish children were slightly more inhibited in their answers, some declining to answer altogether or, for the greater part, staying close to home in suggestions such as "my mom", "my dad" or Astrid Lindgren, although it should be noted that Albert Einstein, as well as James Bond, were also mentioned.

The inner creative "place", that is, the imaginary world, and the social component of creativity was, on the other

hand strong features of the Swedish children's view of creativity, as compared to their North American counterparts.

Discussions of negative aspects of creativity featured only in the U.S. children's interviews, and one interviewee was even convinced that teachers actively discouraged creativity in favor of, the easier to deal with, conformity. An overview of the thematic content in the interviews can be found in Appendix (Tables 3 and 4).

DISCUSSION

The discussion is structured around the, so called, four P's of creativity (person, process, product, place). The person perspective of the Four P's frames creativity as an attribute of the individual. According to trait theories the creative person has a number of defining abilities and attitudes, for example, professional eminence, creative accomplishments, personal preferences and special skills (Santanen, Briggs, & deDevreede, 2002). In this study, any entity, real or fictitious, that the interviewees regard as being creative is included under creative person.

The children did not attach a particular gender or age to the general abilities of a creative person, and described themselves, and others, as utilizing a wide variety of creative functions, such as, but not limited to, divergent thinking, artistic creativity, resourcefulness and originality. The children were, however, more inclined to refer to the same gender as themselves, and to describe boys' creative activities in terms of constructing, and girls as being involved in arts and crafts, indicating a somewhat gender stereotypical view.

This could quite possibly be explained by Cooley's "looking-glass self" concept, in which the child utilizes sig-

nificant others as mirrors to construct and explain his/her own life world (in Harter, 1999).

Very few children actually referred to themselves as being “a creative person”, but those who did, displayed a great deal of self-confidence and self-reliance throughout. This is also supported in research by, for instance, Walker and Boyce-Tillman (2002) who have established a link between creative expression and feelings of increased efficacy and self-confidence.

A slight difference, between manifestations of child versus adult creativity, was also noted in that children were often referred to in terms of being a bit different and original in general, whereas the adult creative person was often associated with specific, acquired skills, for example, artists, engineers, and designers et cetera, which is quite logical, as it takes time to develop the creative skills discussed.

The process perspective of the Four P’s frames creativity as a way of thinking and investigates activities associated with creativity, covering the children’s basic understanding of the concept as it applies to any aspect of the creative spectra. Basic functions such as general problem solving and everyday creativity, "Little C”, were discussed and there can be no doubt that the children are naturally creative in every aspect of the word, this was clearly evidenced throughout.

The main theme of the children’s basic understanding of the concept of creativity, was, however, that it meant artistic expression, and the vast majority of the interviewees attached the concept of creativity to the visual arts aspect. "Big C" creativity, that is, a creative feat that has a major impact on other people or environments, was also featured in the interviews, but with considerably less

emphasis on artistic creativity.

Creativity was seen as a social function in sharing products and imaginative play with others, as well as a solitary endeavor, and for the most part as a positive function. There did , however, seem to be a notion that creativity was supposed to equal something “good”, which is of concern. Of concern is also the notion that being creative in the school environment was equated with behaviors that were less than desirable, and that individuality was discouraged, a concern that has also been raised by researchers who have found that children's creative thinking is often trivialized, and, sometimes, actively suppressed (Dacey & Lennon, 1998).

The product perspective of the Four P’s refers a product that is the result of a creative process. There are a number of proposed definitions of the creative product, for example, that a creative product is novel, that it may serve to solve a problem and that it is uncommon and unusual to name a few (Santanen, Briggs, & deDevreede, 2002). The creative product in this study refers to anything that the children regard as the outcome of a creative activity.

Both concrete, tangible objects such as drawings, paintings, constructed items, and self-designed clothes, as well as, abstract products in terms of imagery and creative performances (acting, improvisations, humor, dancing and singing) were considered creative products.

Copying a creative product was also discussed and the interviewees were, for the most part, in agreement that copying was not creative, although some children meant that it would be OK to base your own idea on someone else’s, as long as the result was a little bit different. This phenomenon was, however, very much age related, in that the younger interviewees were in favor of copying to arrive

at a creative solution, whereas the older the child, the more emphasis was put on originality and self-expression.

The place perspective of the Four P's frames creativity "as an interaction between people and their environments and studies how a person reacts to a particular environment" (Santanen, Briggs, & deDevreede, 2002) and refers here to any environment, abstract or concrete, where the children are able to be creative.

The home environment was a common denominator for the children when discussing creative places, however, the discussion came to center, to great deal, around the school environment and the creative climate in school in which, not surprising, the children found it quite easy to be creative in subjects such as language arts, art class and wood/textile shop. In other subject environments, like science, math and social studies for example, it was evident, although some children mentioned problem solving as a creative possibility, that the creative perspective most often had a visual arts component, for example, yes, you can be creative in math if you use diagrams to illustrate. Another "creative place" mentioned in the interviews, was an abstract creative place, the inner creative world, that can aid in allowing emotions to surface and provide a private "thinking" sphere where ideas can mature and be evaluated, before being brought out in the open.

In the cross cultural perspective, more similarities than differences were found. The most notable differences were seen in regards to discussing creativity on a global and historical scale where the Swedish children were slightly more inhibited in their answers, some declining to answer altogether. This could, however, be due to the fact that the US children were slightly older than the Swedish children, and thus possibly in possession of a more sophisticated

acquired knowledge, and vocabulary.

The inner creative "place", that is, the imaginary world, and the social component of creativity were, on the other hand strong features of the Swedish children's view of creativity, as compared to their North American counterparts, perhaps also a reflection of the age factor, where the slightly younger Swedes more readily attached creative activities to play situations, and fantasy in favor of reality.

Negative aspects of creativity featured only in the U.S. children's interviews, and one interviewee was even convinced that teachers actively discouraged creativity in favor of , the easier to deal with, conformity. Although not a view that was prominently featured in the interviews, this is certainly a cause for concern, and seems like a plausible scenario considering the problems with large class sizes and low teacher to student ratio prevalent in U.S. schools (*Reduce Class Size Now*, 2008).

In regards to the creative "product" no significant differences between the North American and Swedish children were noted. The discussion, in both samples, centered mostly around the children's self or immediate environment, and tangible outcomes were more common than abstract.

Limitations

The participants in the present study only included Swedish and North American children in middle childhood, hence, any attempt to define creativity from the children's perspective should not be considered beyond the parameters of this study. Suggestions for future research include interviews with children from other continents, as well as expanded cross cultural analyses, to investigate the con-

cept on a global scale.

Conclusions

Throughout the study there are clear indications that creativity, for the greater part, means Art and artistic expression to children, regardless of cultural sample. Although everything from originality and freedom of expression to imagination and invention was discussed, it was usually placed within the context of art or design. It is also of some concern that the children seem to believe that a creative undertaking is not enough in itself, but that it is also expected to result in something "good". On the whole, the children did not seem to consider themselves as being creative in the context of flexible thinking, adaptability and problem solving, unless it included a visual arts perspective.

This is, by no means, to say that the children do not have these abilities. Creativity is an inherent potental in all children, they will use their creative functions regardless if they are aware of what the definition of the concept is, or not, as was evidenced throughout the study. It is, however, food for thought that, in specifically asking the children to "be creative", we might actually be limiting them, rather than expanding their range of creative expression.

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APPENDIX

Table 3. Overview of Thematic Content of U.S. Interviews.

THEME	U.S. Interviews							
	1	2	3	4	5	6	7	8
The Creative Me	X	X	X	X		X	X	X
The Creative Others	X	X	X	X	X	X	X	X
The Creative Child	X	X	X	X	X	X	X	X
The Creative Adult	X	X	X	X	X	X	X	X
Male Creativity	X	X	X		X	X	X	X
Female Creativity	X	X	X		X	X	X	X
Non-gender spec.	X	X	X	X	X	X	X	X
"Little C"	X	X	X	X	X	X	X	X
"Big C"	X	X	X	X	X	X	X	X
The Learned Skill	X	X	X	X	X	X	X	X
The Creative Talent	X	X				X	X	X
Social Creativity				X	X			X
Solitary Creativity	X	X	X	X	X	X	X	X
Concrete Products	X	X	X	X	X	X	X	X
Abstract Products			X	X	X	X	X	X
Physical Crea. Places	X	X	X	X	X	X	X	X
Inner Crea. Places				X				X
Pos. Aspects of Crea.			X	X		X		X
Neg. Aspects of Crea.						X	X	

Table 4. Overview of Thematic Content of Swedish Interviews.

THEME	Swedish Interviews							
	9	10	11	12	13	14	15	16
The Creative Me	X	X	X	X	X	X	X	X
The Creative Others	X	X	X	X	X	X	X	X
The Creative Child		X	X	X	X	X	X	X
The Creative Adult	X	X	X	X	X	X	X	X
Male Creativity		X		X		X	X	X
Female Creativity	X		X			X	X	X
Non-gender spec.			X	X	X		X	X
“Little C”	X	X	X	X	X	X	X	X
“Big C”		X				X	X	X
The Learned Skill	X	X	X	X	X	X	X	X
The Creative Talent		X				X	X	X
Social Creativity		X			X	X	X	X
Solitary Creativity		X	X	X	X	X	X	X
Concrete Products	X	X	X	X	X	X	X	X
Abstract Products		X	X		X	X		
Physical Crea. Places	X	X	X	X	X	X	X	X
Inner Crea. Places		X		X	X	X		X
Pos. Aspects of Crea.						X	X	
Neg. Aspects of Crea.								