

Impact of Pausing for Reflection While Reading to Kids on Their Creativity

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INTRODUCTION

Creativity is the use of the imagination or original ideas, especially in the production of an artistic work. Creativity has been a focus for studying if it can be taught, or if it is a genetic development. There are two main types of testable creative thinking for studying; convergent and divergent. Convergent thinking is the ability to use existing knowledge to solve problems with one best fit answer or solution. By contrast, divergent thinking typically occurs in a spontaneous, free-flowing, non-linear manner, such that many ideas are generated in an emergent cognitive fashion. The issue with creativity, is that it is very complex and can be defined as many different things, all of which require measurements of a multitude of different aspects to understand one's creativity.

DeHann in 2009 discusses the complexity of creativity and uses a variety of studies to conclude that there are many schools of thought that all come back to originality, fluency, and that there is a "creative process" made up of associative and analytical thinking. Some of the common tests for creativity are the Wallach and Kogan, RAT, and Torrance Tests of Creative Thinking (TTCT) (Mednick and Mednick, 1971; Wallach and Kogan 1965). Wallach and Kogan tests are compiled of three verbal assays and two visual tests. The Remote Associates Test (Mednick and Mednick, 1971) is a creativity test that measures the ability to use associates to come up with an answer. The Torrance Tests of Creative Thinking was a simple test for divergent thinking and problem solving. The Wallach and Kogan verbal tests were used in the present study as a measure for creativity.

Since 2000, college students' creativity levels have dropped 40% compared to those before them (Szalavitz and Perry, 2010). This decrease is too fast to be genetic, so this drop-in creativity must be due to environmental changes. It is believed this decline could be due to the daily routine of children growing up today, and the lifestyles imposed on their parents by society. Some of these environmental changes include the shifts towards electronics like iPhones and iPads that parents plopping into the hands of their young children so that the parents can focus on work or other things. This may seem like a solution to loud and whiny children, but it is actually hindering children's ability and opportunity to explore early life with their imagination. Another big aspect of

environmental changes is the expectation of rigorous routines like sports that kids are often subjected to by their parents that restrict the opportunity to think freely. Creativity is an important skill to have because it helps in many facets of life like free thinking, communication, mental health, social situations, financial stability, and stress (Fiest & Gorman, 1998; Mackinnon, 1962; Mumford et al., 2002; Amabile, 1997).

Creativity like many skills can be practiced. It has been long known that reading helps to foster several aspects of creativity like the capacity to ask questions of experience, the freedom of consciousness to accept an element of surprise in discovery, and the vigilant willingness to search for insight and adequate form to surface in consciousness (Carley 2001). The practice of reading and reading to young children is important in both habit forming, but also in the opportunity to think freely and let the imagination run wild (DeHann, 2009; Ginamarie Scott, Lyle E. Leritz, and Michael D. Mumford 2004). The present study addresses the practicing of creativity through reading and being read to in young children.

PARTICIPANTS

A total of 40 participants were intended for this study. The participants were found in central Virginia, some from Farmville and some from Charlottesville. Investigators posted fliers in local businesses and community centers, sent emails to local schools, setup a table at a children's museum in order to obtain participants. The participants were then split into 2 groups randomly of 20 and were aged 6, 7, or 8 years old. The procedure was approved by the Human Research Review Committee.

PROCEDURES

Participants met with investigators to go through a PowerPoint presentation about the study they were going to take part in. After the presentation was completed, parental consent was required to ask the child if they wanted to participate in the study. If parental consent and child assent was obtained, the child was administered a Garton and Gringart (2005) empathy pre-test along with a Wallach and Kogan

alternative uses test aimed at measuring creativity. While taking the tests, the parents filled out a demographics questionnaire form. After all pre-testing was completed, investigators worked with parents to schedule a follow-up visit 2 weeks later.

The participant's parents were provided with 7 picture books written by various authors. The parents were instructed to read one book a night to the child in a two-week span. Parents were required to document the date on which book was read. Of the 40 participants, 20 were instructed to read the entire book to their child under normal circumstances. The remaining participants were instructed to read to a point determined by the investigators, stop, and ask their child two questions written on a label placed inside the book. The parents were instructed to read the questions, wait for a response and continue with the remainder of the story.

After two weeks of time elapsed, the participants returned to meet with investigators for a post-test. Upon arrival, the children were asked again to complete the Garton and Gringart empathy questionnaire, an alternative tasks test as first performed by Wallach and Kogan to measure creativity, and an altruism questionnaire adapted from Litvack-Miller in 1997 was also presented to the children. The questionnaire contained 3 vignettes in which a child generated multiple solutions to the presented problem and then selected a course of action. After completing the follow-up tests, the participants were entered into a drawing to win Barnes & Noble gift card.

The creativity tests were scored for fluency and originality. Originality was computed on a point scale based on the percentage of answers given. The altruism questionnaire was scored on a point system as well as fluency and originality. After completion of the tests, the data was analyzed using a paired t-test between the group that paused for reflection and the control group.

RESULTS

Children in the pause group did not exhibit significantly more creativity fluency in the follow up visit (Fluency by t-test; $p= 0.7592$; mean pause group $38.0841 \pm SE 12.1068$; $n=12$; mean control group $32.9532 \pm SE 11.2667$; $n=13$). Children in the pause group did not exhibit significantly more creativity originality in the follow up visit (Originality by t-test; $p= 0.0541$; mean pause group $51.1283 \pm SE 4.1972$; $n=12$; mean control group $36.5873 \pm SE 5.7751$; $n=13$; Figure 2). The children in the pause group did not exhibit any significant change in the follow-up visit with overall creativity (Total creativity by t-test; $p= 0.3599$; mean pause group $44.6062 \pm SE 8.1520$; $n=12$; mean control group $34.7703 \pm SE 8.5209$; $n=13$; Figure 2).

Children in the pause group did not have significantly higher scores on the multiple-choice section of the Altruism questionnaire (by t-test; $p=0.2158$, mean pause group $2.8541 \pm SE 0.0649$; $n=12$; mean control group $2.7307 \pm SE 0.0719$; $n=13$). Children in the pause group did not exhibit significantly higher fluency in the altruism free think questionnaire (by t-test; $p=0.2151$, mean pause group $0.875 \pm SE 0.1642$; $n=12$; mean control group $1.4230 \pm SE 0.3916$; $n=13$). Children in the pause group did not exhibit significantly more originality in

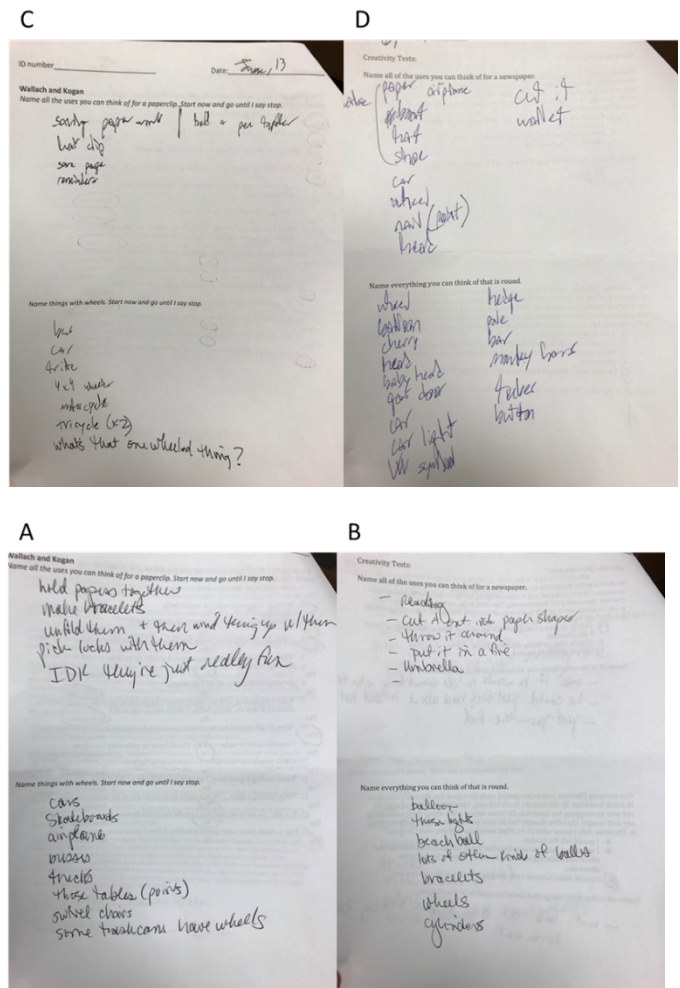


Figure 1 : Representative answers for Wallach and Kogan are depicted for a read through control (A pre, B post) and a pause experimental (C, D) subject. The alternate uses (AU) test is on the top portion of (A-D), and the instances (I) test is on the bottom portion of (A-D). A. Read through group pre-test scores were 5 and 8 for alternative uses and instances respectively. B. Read through group post-test (scores of 5 and 7). C. Pause group pre-test (scores of 5 and 7). D. Pause group post-test (scores of 10 and 15). Higher scores mean more creative.

the free think portion of the altruism questionnaire (by t-test; $p=0.3586$; mean pause group $0.1580 \pm SE 0.0251$; $n=12$; mean control group $0.1226 \pm SE 0.0281$; $n=13$).

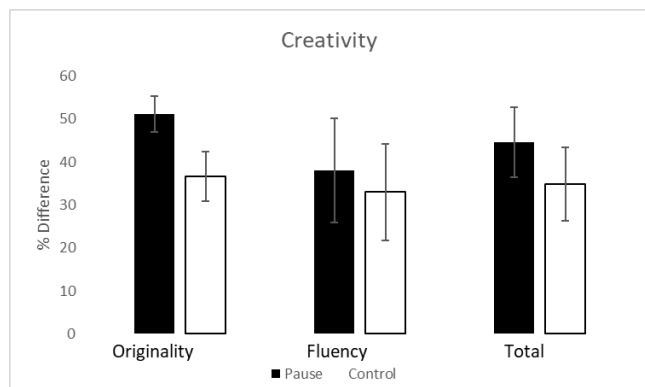


Figure 2 : Measure of creativity as a result of the intervention.

DISCUSSION

We found no significant evidence to show that pausing for reflection while reading has any effect on a child's creativity. The results we obtained in this study are not consistent with other works regarding creativity (Berns et. al 2013), but do show a trend towards significance for creativity especially in originality. If we obtained more replicates for the present study, the results may have turned out more like those obtained in previous studies. We plan to continue this research in the future and hopefully obtain enough participants to have a complete data set.

The results found thus far regarding creativity look promising and with more participants, we are confident the data will show that pausing while reading to children has a positive effect on the child's creativity. Perhaps if we looked at doing a study for longer than 2 weeks, say maybe 4 or 6 weeks in order to see more of a change as changing the way we think takes lots of time. Another thing to consider is that amount of time spent "practicing", as what is really going on in the brain, where potentially the one book or story a night could be extended to 2-3 books or stories. This activity of engaging the brain to think, is a stimulus that helps prepare children for schooling and for communication. If we can prove that pausing for reflection while reading increases a child's creativity, hopefully the number of children that read will increase, which will correspond to a societal and cultural increase in creativity.

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