Creativity’s Link to Student Success

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**Abstract**

Creativity has come to the forefront of academic inquiry during the past number of decades and its importance in the classroom, while vaguely understood, is often overlooked. This review

discusses the relationship between expressly developing student creativity and its effect on student academic achievement. Research reveals that the development of student creativity leads to increased academic ability through its impact on student motivation. Regarding knowledge retention and application and increased problem-solving capacities, creativity correlates strongly with overall improved cognitive development. Although more research is needed to identify further implications of creativity, as the current research base is considered incomplete in specific findings concerning creativity, data suggest that there exists a need to develop creative skills more directly to satisfy the requirements of current global employment demand.

**General Research Question**

Does current research indicate that developing student creativity affects academic achievement?

**Rationale**

The purpose of this review is to examine the degree to which, if any, promoting and integrating a creativity-based approach to student learning improves or impedes student learning. The aim is to thoroughly discuss the effect of creativity on motivation in students to become self-driven learners, creativity’s effect on the brain and analyze the current demand for more creative based thinking in the current global picture. The focus centers itself around the effects of creativity on the child and adolescent learner and its ability to further student progress in academic performance. The reason for this choice in topic stems from an interest in student achievement and its link to student interest. Our current system of education is tailored for only a small percentage of our population and that its methods are incredibly dated. The teacher as a guide and an instrument to initiate curiosity within students, more than a straightforward communicator of information, is a more prudent approach to education. As such, the author's view of better education is one that would see more significant trans-disciplinarian instruction and guidance and one that would see students delve deeper into their passions while connecting those passions and interests to their future aspirations.

**Theoretical Background**

The review will be written from the critical stance of a school administrator who views the current system of education as successful yet underachieving. The report will serve as an analysis to validate or refute the assertion that creativity plays as important a role in student education as numeracy and literacy, yet receives far less emphasis and attention.

**Relevance to Education**

The current system of education operates mainly on prescribed curricula, and though much success is achieved, many students fail to meet their potential. The author aims to further the argument that creative based learning could drastically increase student achievement across the board and should stand on the same level as numeracy and literacy. If such proof exists, that creativity does in fact radically improve student achievement when fostered and directly taught, the implications for future education would be significant.

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**Introduction**

Many authors and educators tout creativity as one of the most desirable qualities that an individual can possess (Sternberg & Lubart, 1999) and has become one of the most sought-after attributes of the 21st century (Florida, 2004). However, in the current public education system, creativity is often undervalued and in some cases devalued by teachers (Randi & Jarvin, 2006; Westby & Dawson, 1995). Furthermore, research indicates that creativity has taken a back seat to aspects of education such as accountability, testing, and standards (McDonough, 2015). This issue may be attributed to the current global insistence on measurement based outcomes rather than on practices that are implicitly understood as being effective in student learning. With teachers, administrators and education officials under heavy scrutiny, it is hard to justify the introduction of a concept which is not readily testable. The public education system in North America does not have set criteria for the instruction or evaluation of student creativity, and though it has been identified as an essential aspect of education, it continues to lack the support that other important aspects of education such as numeracy and literacy have (Robinson, 2015).

**A Shifting View of Creativity**

While the current perception of creativity places it almost exclusively inside the art classroom, many researchers have concluded that it is second only to intelligence when predicting outstanding accomplishment later in life (Ones, Viswesvaran, and Dilchert, 2005; Milgram & Hong, 1993). This discovery implies that creativity exists in multiple facets of education outside the art classroom (Gonçalves & Fleith, 2013; Gerver & Robinson 2015; Tan, Lee, Ponnusamy, Koh & Tan, 2016).

The trend toward the introduction of creativity specific instruction and learning, has no doubt come about because of recent patterns in international education, with Finland and Singapore, two countries with very different systems, leading the way regarding academic achievement. Singapore, in particular, has introduced specific policies aimed at developing student creativity, though these policies have yielded very few measurable results (Saravanan, 2005). More and more, researchers and educators are coming to understand the importance of creativity and its place in student learning. The ideas of student motivation, autonomy, and purpose-driven instruction are becoming more explicit (Craft, 2005; Craft & Jeffery, 2004; Pink, 2009) as political pressures build on policymakers to improve academic results.

Public demand for private schooling is also indirectly causing the public education system to assess its current implementation of creative based learning as more and more private schooling institutions are appearing. Since 2000, every province in Canada has seen an increase in the percentage of students enrolled in private schools (Van Pelt, Clemens, Brown & Palacios, 2015). This trend is indicative of a global shift toward private schooling as public education in many countries is directly falling behind.

Our current model of education bases itself on a system developed during the industrial revolution as a means of producing workers to fill jobs (Robinson, 2006). This model is outdated. Not only has technology wholly changed how we do things, but has also eliminated many of the jobs for which education historically trained people. The risk we run by continuing with the current education system is tremendous in that we are preparing students with knowledge and skills that were historically relevant, yet we have little idea what the world will look like in the future (Robinson, 2006). If students are not taught to be creative and innovative in a world that demands both of these attributes, they will be ill-equipped to thrive later in life (Robinson, 2015).

Not all education systems have failed to change in the face of this new reality. As previously mentioned, countries such as Finland and Singapore have taken purposeful steps toward altering how they educate students. Finland, for example, has interwoven the idea of creativity and creative instruction into their curriculum for the past 30 years (Saarilahti, Cramond & Sieppi, 2012) and it has resulted in their reoccurring spot at the very top of almost every educational measure and scale. For its part, Singapore has taken a similar stance, and they too find themselves at the very top of the educational world. Admittedly, there is much more at play than the simple integration of creativity into the curriculum to account for both countries phenomenal results. However, if both countries place importance on creativity and both consistently find themselves at the top, there is a robust and possible correlation to be made.

There is a strong argument that creativity belongs in the classroom but not as a foundational skill, but rather one that is taught to some and not to others. Authors such as Freund and Holling (2008), have stated that the place of creativity in the classroom is to "differentiate between high performers" as the correlations between creativity and school performance appear to be "somewhat less than one would hope for" (p.310). Two useful points to be made here are that these same authors indicated that creativity and performance had a much stronger link in younger students than in older students and that many researchers group creativity and intelligence together (Freund & Holling, 2008). These two points are worth mentioning for a number of reasons. Firstly, Albert Einstein once said that education is what remains after one has forgotten what one has learned in school and this may apply here. Over the course of a student's academic life, they are pushed toward thinking and viewing in a certain way which conforms to our expectations for them. Creativity is often fostered in the younger grades as students are encouraged to be expressive, unique and creative. Yet, as that same student grows older, this allowance narrows, and soon they are expected to fall into a specific mold. Many students struggle with creativity in later grades, only because they do not know how to be creative and when given a chance to learn and produce creatively, they are confrontational. To many, the freedom and autonomy afforded by creative learning and teaching do not fit into what they have been told is the educational expectation.

It is pertinent here to include a short commentary on the notion of creativity being a part of intelligence. Alfred Binet, the inventor of what has come to be accepted as the global test of intelligence, the intelligence quotient test, or I.Q. test, said in his later life that his test was not an accurate measure of intelligence. He admitted that its scope was too narrow to assess how intelligent different people were with any precision. Our idea of what constitutes intelligence is so obscure and subjective that it is difficult to precisely state what does and does not belong under its broad category. With both creativity and intelligence being such large ideas and with our continued incapacity to assert where one begins, and one ends, it is difficult to say that intelligence is an essential factor in determining performance while creativity is not. Again, Einstein summed up intelligence with his quote, "Everyone is a genius. But if you judge a fish on its ability to climb a tree, it will spend all its life believing that it is stupid".

**Creativity’s Role in Shaping the Mind**

To accurately examine the effects of creativity on the adolescent brain, an understanding of the cerebral regions targeted by creative development is needed. Unfortunately, the overwhelming consensus of the research indicates that our understanding concerning creativity's exact effect on specific regions of the brain and the processes by which creativity is generated, are not clear (Vartanian, Bristol, Kaufman, 2013). Various studies have stated that creativity is a complicated notion and happens in multiple regions of the brain (Kapur, 2013). Buckner and Krienen, (2013) conclude that each hemisphere of the human brain affects and is affected by creativity and as such the scope of creativity is too broad to be observed in any one region. Further to this, Zaidel (2013) adds that with regards to the cerebral hemispheres, both are "functional in exceptional creativity" with each hemisphere contributing a different facet, thus further complicating the exact process of creative thought (p.389). Aron and associates (Aron et al., 2007) have suggested that "the prefrontal cortex and the basal-ganglia network are involved in overcoming inhibitory neural circuitries, particularly those that impose inhibition on impulsive behavior" (p.11860), critical aspects for creative output. By inference, then, the frontal lobes are involved in some, but not all, aspects of the creative process in the healthy brain (Aron et al., 2007). Also, many findings indicate that the previous belief that only the right side of the brain was mostly responsible for creative thought may be incorrect. Recent functional neuroimaging evidence based on non-artistic behavior points to greater left hemisphere involvement in creativity (Gonen-Yaacovi, De Souza, Levy, Urbanski, Josse, & Volle, 2013). Summarily, current understandings of creativity indicate that it derives from multiple sources within the brain and the development of this ability may relate directly to improved, overall cognitive function. Unfortunately, conclusive findings are insufficient to state any specific benefits (Gonen-Yaacovi et al., 2013). Studies examining the extent to which creative thought and creative activity develop or induce brain activity have suggested mainly that the complexity of creativity lends itself to a vast array of brain function, thus does not directly affect a single area (Adler, 2016).

Creativity activates the brain in such a way as to promote and enhance communication between not only both hemispheres of the brain but also various, significant determiners of cognitive function such as the prefrontal cortex and Sylvian Fissure (van Essen, Glasser, Dierker, Harwell & Coalson, 2012). This communicative demand on cognitive function is crucial in the brain development of youth and adolescents as it is during these early years when brain function and ability are principally carved out and the establishment of neural pathways, created by intracerebral communication, is shaped (Kar, 2013). The formation of grey and white matter within the brain and the establishment of neural pathways occurs primarily between the ages of 0 and 6. It is during this process of brain matter creation that memory capacity, a leading contributor to academic ability, and divergent thinking ability is determined. As such, this process plays a meaningful role in a child's future cognitive functioning (Blakemore & Choudhury, 2006; Bijvoet- Van den Berg, S., & Hoicka, E., 2014).

Creativity, however, requires more than simple recall. It requires divergent thinking, the ability to associate and combine ideas and notions, a capacity for which an infinite number of potentially undiscovered combinations may exist (Silvia, Beaty, & Nusbaum. 2013). By contrast, divergent thinking is sometimes discussed as if it were synonymous with creativity. In cognitive psychology research, however, one of the most critical dimensions of creativity is decision-making, which depends on convergent thinking or the ability to think strategically and to apply logic and discretion to smaller ideas (Simonton, 2015). Furthermore, flexible memory and flow have also been identified as possible components of creativity and by-products of creative thought (National Endowment for the Art, 2015). Memory, in particular, has been proven to improve with creative training and correlations have been made in various studies that link creativity training, memory and academic improvement (Dana Foundation, 2008). As research indicates that creative thought promotes communication within the brain, promoting divergent thought, convergent thought and memory, its importance in early brain development is evident.

Various authors describe the idea of *flow* in numerous studies as a state of mind in which the creative output is the sole focus of the individual, and the brain shuts down other areas of the brain which deviate from this focus such as many of the functions of the frontal cortex (Charlotte, 2015). Bilder (2015) states:

Flow achieves "a clear balance of [the human's brain] stable and flexible regimes. Those states involve high generativity, productivity, flexible memory combination, and successful inhibition of intrusive habits or fixed ways of thinking, and they enable us to connect more clearly to drive action or perception." (National Endowment for the Arts, 2015, p.10)

While the process involved in eliciting creative thought and ultimately flow remains unclear, due to its demand on numerous cognitive functions, this obscurity allows for commentary on the importance of developing creativity as the creative thought may be observed as a whole body workout for the brain. It is important to note at this point that the prevailing view of creativity being solely linked to the arts is a false ideal (Robinson, 2010). Creativity manifests itself in mathematics, science, social science and all other forms of education as it plays a significant role in abilities such as problem-solving, critical thought and leadership (Robinson, 2010). When we take into account the movement of curricular content from memorization to a more application, analysis and justification stance, the importance of developing the abilities as mentioned above becomes clear. As creativity plays a key contributing role in these abilities, its importance becomes even more apparent.

**Creativity's Effects on Learner Motivation**

Creativity and motivation are incrementally linked in that the creative process itself fosters student intrinsic and extrinsic motivation by incorporating student interests and allowing for students to use their strengths and not their shortcomings to complete a task (Robinson 2015). It is well documented that motivation is one of the leading factors in student achievement. The creation of any positive, long-term motivation within students can be regarded as promoting student academic achievement as motivated students learn more than unmotivated ones. In this regard, the naturally occurring motivation which is produced through the creative process becomes a key to student's long-term success. While the body of research underlining the importance of motivation in both the workplace and the classroom is just too large to cite, Kanfer, Chen, & Pritchard (2008), conclude that while our understanding of motivation continues to evolve, we already understand it as the single most significant factor affecting performance. As such, it can be stated that motivation plays an incredibly important role in determining student achievement and that any process which positively influences student motivation will consequently improve overall student academic performance. It is under this logic that creativity finds its place of importance in the classroom.

There are four major steps involved in the creative process, *preparation*, *incubation*, *illumination*, and *implementation* (Sadler-Smith, 2015). In each of these steps, students are encouraged, and in many ways forced, to use their own, personal outlook on the situation or problem to resolve it using their strengths and strategies. Already in this model, the allowance of student strength based performance dramatically increases student motivation, and in their study, Diperna (2006) indicated that lack of student motivation could be fundamentally attributed to student's frustration at being unable to perform using the method of required production. It is reasonable to conclude that any student would not be motivated or successful as a learner unless first instructed in the necessary skills or prerequisite knowledge (Daly, Witt, Martens & Dool, 1997). Here, it becomes clear that the creative process is not meant to replace instruction but instead follow it, in that students can take what is taught, become immersed in a particular aspect of that learning and develop an interest in that knowledge while experimenting and creating with it. Creativity is meant to be integrated into the teacher's role so that the creative process becomes a method by which teachers can further student learning and enhance their instruction (Robinson 2015). This teacher supported, self-directed approach to learning fosters many of the factors which various researchers have concluded as being fundamental in creating motivated learners and furthering the link between creativity and motivation (Robinson, 2010). Additionally, each step in the creative process promotes autonomy and reflection on the topic being discussed and more often than not allows for more in-depth understanding and self-questioning to occur, being both major contributors to student motivation (Pink, 2009; Sibthorp, Paisley, Gookin, & Furman 2008). Numerous studies discuss the effects of choice and autonomy on student learning (Pink, 2009), with the vast majority of studies indicating its positive effects on both motivation and consequently achievement (Sibthorp et al., 2008). It is again the link between the creative process which allows for student, self-regulated learning and its natural production of motivation which is of interest when discussing the necessity and importance of creativity in the classroom as a means of raising student achievement.

Intrinsic motivation exists as the counterpart to extrinsic motivation (Pinder, 2011), with both playing an instrumental role in multiple facets of our society including academic performance (Hidi & Harackiewicz, 2000). However, while there are multiple meta-analysis reports concerning how extrinsic motivation may inhibit learning, (Cameron, Banko, & Pierce, 2001; Eisenberger & Cameron, 1996; Eisenberger, Pierce, & Cameron, 1999; Wiersma, 1992), very few if any exist on the positive effects of intrinsic motivation on academic achievement (Cerasoli, Ford & Nicklin, 2014). Consequently, it is of paramount importance that we further our understanding of how motivation affects student achievement.

As Robinson, Stevens, Threapleton, Vainuite, Williams & Gallagher, (2012) state:

It is only by understanding more about the interaction between motivation and measured levels of cognitive function that we can develop a clearer idea of which processes are affected and how testing conditions can be optimized to minimize any discrepancy between an individual's potential and actual level of performance. (p. 243)

This discrepancy between what is obtained and what could be reached is a continuing question for education as our current system for educating students uses a comparative and standardized form of achievement measurement which does not holistically recognize student achievement versus student potential. Thus, a clear understanding of how motivation, both intrinsic and extrinsic, can lead to higher levels of student achievement is vital in moving forward.

In his book, Pink (2009) describes the importance of three factors when discussing student motivation: autonomy, mastery, and purpose. He argues that when these three factors are put in place, motivation will inevitably follow as students take a keen interest in their learning. Comparing these factors with the outcomes of the creative process indicate the relationship between the two as creativity lends itself to creating the factors described by Pink. Briefly explained, student self-governance in process, procedure, and product allow for sufficient autonomy, the necessity to fully understand a process or knowledge before producing a product promotes mastery, and a student envisioned product with relevance to them gives sufficient purpose. It is important to note that while Pink (2009) states that it is intrinsic motivation and not extrinsic motivation which is vital in student achievement, it is worth underlining Pink’s assessment of extrinsic motivation as being important with regard to single step problems in which little cognitive exertion is required. Fundamentally, he asserts that intrinsic motivation should be created for higher-order cognitive functioning problems with extrinsic motivation and rewards only used for rudimentary tasks, a stance which is supported by various other authors (Robinson, 2015; Twenge, Campbell, Hoffman, & Lance, 2010)

Intrinsic motivation is understood as an internal motivator, requiring little to no prompting by any outside influence, while the extrinsic depends considerably on outside motivators and rewards or punishment (Pinder 2011; Pink, 2009). While the effects of both types of motivation have been examined, neither has been identified as being the clear choice for long-term development when it comes to student achievement with both types exhibiting benefits in different situations (Robinson et al., 2012; Cerasoli et al., 2014). However, what is clear is that intrinsic motivation, an effective means of in-depth learning experiences (Pink, 2009), is often the product of creative activity and as such, the benefits linked to intrinsic motivation may also be encouraged through creative learning. It is important to note that while intrinsic motivation is a product of the creative experience, extrinsic motivation, rather than being a product, mainly exists as the prompt to continue learning when intrinsic motivation is not sufficient. However, extrinsic motivation may come into play as a product of the creative process when the end product of the activity becomes obtainable. Moreover, intrinsic motivation has been linked to growth in moral reasoning. Moral development theory posits that moral reasoning, or the way in which individuals think about moral situations, advances through cognitive maturation, social experiences, and the internalization of societal values, all of which are linked closely to the idea of intrinsic motivation.

Creativity is also strongly linked to motivation concerning *self-efficacy* and *goal orientation*. Along with intrinsic motivation research, these two concepts widely encompass the current prevailing theories around motivation (Margolis & McCabe, 2003). Self-efficacy is understood as an individual's belief in his or her ability to be successful at a specific task (Bandura, 1997). From this understanding, we can look at whether or not a creative approach to education would allow for comprehensive promotion of a student's belief in their ability to accomplish a task. As previously discussed, creativity is the process of producing something original that has a purpose (Robinson 2006), a process which allows individuals to use their strengths and interests to generate their goals while learning additional skills and knowledge along the way. If we accept what research has indicated in that self-efficacy is positively related to motivation (Bandura, 1997; Pintrich & Schunk, 2002), then it would be difficult to argue that creativity does not foster motivational conditions which promote self-efficacy as student confidence in their abilities to be successful increase when given the choice of means and method (Evans & Boucher, 2015).

Goal orientation links closely with self-efficacy in that it is a measure by the individual of their ability based on their performance and mastery of a skill. Empirical studies to date suggest that mastery goals, those that compare current ability to prior ability, relate positively to engagement, study skills, and achievement (Diperna, 2006). Evidence also suggests that performance oriented goals, those which compare an individual's ability to the ability of others, relate positively with achievement (Linnenbrink & Pintrich, 2002). As creativity allows students to engage in their learning through the autonomy afforded by four steps of the creative process, mastery and performance goals can be readily observed and reflected upon by the individual. This process is rarely available within current practices, with the exception of evaluation, as students are not given the opportunity to reflect on what they knew compared to what they know. Concurrently, student reflection is necessary for creating motivation in their learning as it is widely understood that traditional testing methods do not accurately measure student ability outside the specific outcomes tested, as it is constrained to a very narrow output procedure.

These three types of motivation all come together to improve academic achievement in students. Multiple studies have measured motivated learners to far exceed the achievement of unmotivated learners (An, 2015; De Castella, Byrne & Covington, 2013). It is then fair to equate any practice which creates motivation, with motivation itself, as the latter cannot exist without the former. Creativity is such a practice in that it promotes intrinsic motivation, self-efficacy and goal orientation by allowing students to design their learning procedures, processes, and products (Kwek, 2011). Though our understanding of creativity and its direct effects is lacking, through the scope of creativity's impact on student motivation, it may be fair to state that creativity may produce positive effects on student academic achievement by motivating those students to improve and to learn.

**Hesitations in Moving Toward Creative Learning**

Teaching creativity and learning creatively comes with many hesitations that cannot be overlooked. As stated in a previous section, integrating creativity into a classroom in which students are merely unfamiliar or unprepared for such a radical change in learning method often ends with poor results. What can never be overstated is the influence that the teaching style of any instructor has on a student. Davies, Jindal-Snape, Collier, Digby, and Howe (2013) found that pedagogical practices of teachers are among the most important factors shaping student creativity. If teachers promote any ideal within the classroom and use any specific style with which to teach, it can be confidently said that the students in that classroom will value those paragons and come to embrace those styles. However, teachers vary on their opinions of the importance of creativity and even teachers who contest to having high values of creativity often exhibit a devaluing behavior toward students who express themselves creatively (Westby & Dawson, 1995).

In this case, Freund & Holling (2008) conclude the following:

It may be hypothesized that these teachers do not like (or are not able to cope well with) the independence, autonomy, and, sometimes, nonconformity needed to produce creative output in their students too much when they address a whole class of often up to 30, or even more, children respectively adolescents. (p.317)

This being said, variations in classroom procedures, instruction styles and teacher attitudes toward creativity can have drastic implications for the study of the effectiveness of creativity in influencing academic results. However, Freund and Holling (2008), do conclude that reasoning ability and creativity are both strong indicators of GPA, yet creativity less so than reasoning ability. This supports the idea that creativity increases academic achievement. However, once again, this concept reinforces the idea that we cannot, as of yet, precisely separate the ideas of creativity from other brain functions, as the results continue to be skewed when comparing the effects of various concepts on academic results. These positive outcomes can at times help the cause of creativity, yet at the same time hinder it, as we can say that creativity or like processes increase performance but not definitively that creativity itself is responsible.

Add to this ongoing uncertainty, the trepidation which exists with regards to integrating creativity into our already clustered system as students and teachers alike lack the knowledge to fully comprehend what it means to be creative (Randi & Jarvin, 2006). In many situations, creativity is encouraged and fostered, yet students are unable to produce creatively or even think creatively because they have not been shown how to do so. Various studies suggest that a grandfathering in of creativity into the curriculum would be the only practical way to plant creative values into schools firmly. Others, such as Randi and Jarvin (2006), state that creativity can work with an uninstructed group if creative expectations are kept on par with the complexity of the task and if direct instruction is given on what exactly constitutes creativity. This inability to function creatively can have especially damaging implications when taken outside the context of academia and into the workforce where more and more employers are searching for employees with the skills commonly associated with creativity and “outside the box” thinking.

There is also hesitation in what implementing creativity in the classroom could do to further separate high achieving students and underachieving students as well as male students from female students. This concern comes about as research has indicated that females and high achieving students adapt more quickly and efficiently to the integration of creativity in the classroom (Freund & Holling, 2008). It can be argued however that this trend is seen in multiple areas of education outside creativity alone.

**Creativity’s Place in a Changing World**

Over the past number of years, creativity has taken a more present role in the public as workforces have begun insisting on skills associated with the domain and more and more families are electing to withdraw their children from public education. This trend has seen more and more discussion generated concerning our current public education system and whether we are preparing students for their future careers (Robinson, 2006). Saari, Judge & Edwards (2004), found that productive employees were most likely to exhibit job satisfaction due to intrinsic motivators, with which there exists correlation to creativity. Add to this the idea that "The extent to which groups are creative has wide implications for their overall performance, including the quality of their problem solutions, judgments, and decisions" (Bechtoldt, De Dreu, Nijstad & Choi, 2010, p. 622) and the implications of creativity in the workplace begin to become clear and its place as a critical aspect of student learning for the future becomes all the more apparent (McWilliam, & Haukka, 2008). Creativity has also been found to be critical in product development (Brattstrom, Lofsten & Richtner, 2012), and in high-level company decision making (Grabner & Speckbacher, 2016). All these factors add up to creativity becoming more and more important in a changing workplace. With this shift, comes the added expectation that students will have some creative ability when entering the workforce (Robinson, 2006) and it pushes for a re-examination of what and how schools are educating students for the future.

**Conclusion**

Creativity can no longer be treated as a byproduct or afterthought in education. Its importance in student neural development, motivation and influence of future career opportunities give strong credence to the need to bolster our instruction and support of creativity in the classroom. This writer has analyzed the multiple effects of creativity on students and the effects that it has on student achievement. Though, as many studies suggest, the research on creativity is not yet substantial enough to directly state the exact effects of creativity on students, much of the research does show positive connections with many essential aspects of student growth and achievement.

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