The Need for Thinking and Problem Solving Skill Development

An Instructional Opportunity for NCLB, School Reform and Libraries

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“I paint objects as I think them, not as I see them.” – Pablo Picasso

Executive Summary

For more than 26 years, Destination ImagiNation (DI) has taught K-12 students the process of using imagination and thinking tools to solve open-ended challenges. To date, more than 1.3 million students from across the U.S. and 40 countries have participated on our educational program. DI is based upon recognized research in learning theory and more than 50 years of research on Creative Problem Solving by individuals, teams and organizations around the world (Isaksen & Treffinger, 2004). The program is grounded in a process that includes goal setting, intrinsic motivation, convergent/divergent thinking, affective behavior and evaluation, and it unleashes creative talents and embraces a diversity of problem solving styles.

We believe children need thinking, verbal and written communication, teamwork, creativity, educational research, and problem solving process skills to compete and thrive in the future. However, the educational sphere is not currently equipped or positioned to teach these skills to students. Through collaboration with local educational agencies (LEAs), charter schools and boards of education, we can restore thinking and problem solving skill development to the curriculum.

The Educational Sphere

Classroom instruction, which is generally focused on the transfer of content instead of the development of the thinking process and metacognitive strategies, fails to teach students how they learn best and how to most effectively process information. Such instruction falls short in addressing the challenges of an ever-changing world. No Child Left Behind (NCLB, the Elementary and Secondary Education Act) provides for Highly Qualified Teachers to teach the core academic subject areas: English, reading, language arts, mathematics, science, foreign languages, civics and government, social studies, economics, arts, history, and geography. Imagination and problem solving process skills, unfortunately, are not considered as core academic or remedial instruction. These omissions are a serious weakness as we face the challenges of a changing world, one that has the potential for exciting new possibilities in education. For instance, as we move through 2010 and beyond, our reliance on broadband communications, advanced user-defined technology and access to multimedia information will play a significant role in virtual learning.

A case can be made that the current overemphasis on standardized testing (Sternberg, 2007) works against instruction that has been recognized as basic to a well-rounded education since the early 1980s (Gisi & Forbes, 1982). Highly Qualified Teachers are, for the most part, content specialists, trained in the language of content, but not in the development of thinking skills or the art of questioning. Students are learning how to be successful repeaters of knowledge, but they are not learning how to apply their knowledge to open ended, real-life challenges. After-school programs and visual and performing arts courses that teach imagination, creative and critical thinking, and teamwork skills are being lost to budget cuts and a focus on test preparation. Positive attribution and positive self-concept are threatened by the testing mentality of educational systems that seek to match all students to universal standards. Sacrificed are those higher levels of learning described by Bloom’s Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956) like synthesis and evaluation. Also lost are important aspects of the Affective Domain described by Krathwohl, Bloom and Masia (1964) such as involvement and commitment.

Much of today’s school curriculum is about content and short-term recall. One positive trend is libraries and schools providing students access to computers and the Internet. Creating complex multimedia projects and compiling information can help develop the higher-order thinking skills of students. Libraries have the research tools and media that enable students to do extensive research. However, students often avoid the benefits of libraries and choose instead the convenience and speed of the Internet’s informational warehouse, and without the proper training, students can be misled or distracted by Internet research results. Search engines, such as Google, use adwords to fund their operations and present search results based on
biased returns, and news organizations supply information in short sound bites so that their audiences do not have to think for themselves. However, assignments that require imagination, such as visual and performing arts and storytelling, and depth of analysis, such as questioning and focusing techniques, are for the most part absent in schools. As a result, students are not taught to take full advantage of the resources available in an information-rich world. For example, as teachers have been diverted from teaching the “basics of tomorrow” (Gisi & Forbes, 1982), librarians—who are trained researchers that selectively gather scholarly works and educational content—have become under utilized.

In his confirmation hearings, Arne Duncan, Secretary of Education under President Obama, called education “the most pressing issue facing America,” adding that “preparing young people for success in life is not just a moral obligation of society” but also an “economic imperative.” “Education is also the civil rights issue of our generation,” he said, “the only sure path out of poverty and the only way to achieve a more equal and just society.” Duncan also expressed his commitment to work under the leadership of President Obama and with all those involved in education “to enhance education in America, to lift our children and families out of poverty, to help our students learn to contribute to the civility of our great American democracy, and to strengthen our economy by producing a workforce that can make us as competitive as possible.” (Duncan, 2009)

The reality in the United States today is that many children are being left behind, trapped in a cycle of poverty. These children are about 10 times more likely to drop out of high school than their peers from high-income families (Cataldi, Larid & KewalRamani, 2007). In 2007, there were over three million individuals between 16 and 24 who were not in school and had not earned a diploma or alternative credential. It seems that our efforts to date, and the applications of resources, have not had the success promised when NCLB was first authorized.

As a result of our current economic challenges across the nation, the resources for education have been reduced. This is, at best, short sighted. “Despite budget shortfalls, now is the wrong time to scale back investments that will yield a long-range and long-lasting payoff in reduced waste and improved efficiency” (Annie E. Casey Foundation, 2009, p. 28). In its 2009 Kids Count Data Book, the Annie E. Casey Foundation noted, “As America moves further into the 21st century, advanced skills and technical knowledge will be required for a healthy economy. We have a responsibility to ensure that our future workforce can compete on a global scale” (p. 52).

**The Future of Education**

Over the past one hundred years, our understanding of the psychology of human development and learning has continuously evolved. Dewey (1938) and Piaget (Phillips, 1969) helped establish the importance of experience and action in learning. Vygotsky (1978) pointed out the role of social interaction in cognitive development, while Bronfenbrenner (1989) described the importance of the social context. Cole (1997) discussed the importance of emotional connection to the development of moral intelligence. Guilford (1967) and Gardner (1983) reminded us that intelligence is not a unitary concept but is exhibited in multiple and varied ways. And, recently Costa and Kallick (2008) gathered the work of several experts in the field writing about 16 characteristics, or habits of mind, that are important to acquire if our schools’ graduates are to be successful.

The United States cannot afford to deny its future citizens and workers the skills needed to innovate and to face change. As VanGundy (1987, p. 358) noted, “Organizational growth and survival can be tied directly to an organization’s ability to produce (or adopt) and implement new services, products, and processes.” We are at a crossroads, and we must recognize that the direction we choose next will impact productivity, innovation and the strength of the nation for generations. We need to refocus our attention toward thinking skills and the creative problem solving process if we want to see innovation in the 21st century. Innovation cannot be wished into existence.

The thinking skills needed to analyze, classify, organize, summarize and discern an overabundance of information provided through various media are not being taught as an integral component of core curriculum. It is widely accepted that all actions begin with a thought. To think means to form an image in the mind, ponder, decide, recall, invent, weigh, imagine, believe and anticipate. Thinking, and especially productive thinking, seems not to be valued by the current educational system. The result is a huge strategic hole in meeting the needs of our future workers and citizens. The original concept of NCLB had powerful potential. Imagine all students experiencing Socratic understanding and the ability to problem solve. However, the reality is that NCLB has forced educational systems to focus not on thinking, and not even real learning, but on testing. But it does not have to be this way. Destination ImagiNation fosters these thinking skills. Our years of experience have demonstrated that we can teach students to think and solve problems while helping them develop and apply their content knowledge.
It is time to implement an instructional approach that engages students, keeps them actively involved in their learning, and favors innovation and creativity. The components of this approach would consist of (1) productivity: students would develop and generate work products and ideas on their own instead of simply following teacher patterns, teacher given ideas, or narrow examples; (2) expression (written and verbal): individual students or groups of students would show their interests, research skills and ability to respond to clearly express their ideas and work products; (3) imagination: students would develop a mental picture of what can be produced through questioning and discovery learning, as opposed to taking a teacher’s example as the prototype for an end product; (4) extension: students would be encouraged to sustain their focus on developing solutions; (5) novelty: students would acquire the process, tools and techniques to enable them to combine their knowledge and experience to bring about fresh, new thought or work products; and (6) teamwork: students would develop social intelligence and an understanding of team dynamics through intrapersonal education.

The Opportunities Ahead

Destination ImagiNation, Inc., an educational 501(c)(3) non-profit organization, seeks to partner with local education agencies (LEAs), charter schools, boards of education and private industries to restore thinking and real problem solving to the curriculum. Together, we must teach content, thinking skills and a full range of mind habits that lend themselves to higher order reasoning. DI teaches students to face challenges with optimism, confidence and a sustained commitment to find and carry out the best solution. The program teaches a process that leads to desired results. It builds emotional intelligence, and it enables students to have a positive self-concept. The DI experience has enabled hundreds of thousands of students to value their imaginative capabilities, learn the problem solving process, work productively in teams and understand the value of sustained commitment to a solution. These skills correlate with proficiency at visualizing, using technology for research, organizing and summarizing, distinguishing key points from a vast array of information, reflecting on studies, behaving appropriately, and risk taking—skills resident in the DI program.

Destination ImagiNation, Inc. is at the forefront of applying learning theory and research to produce tomorrow’s leaders. Our curriculum is organized around real experiences, teamwork, the thought processes involved in generating ideas and options, and focused affirmative judgment. Our instruction promotes complex thinking while promoting socialization and teamwork skills in supportive emotional environments. Success stories abound from alumni who have attributed their life successes to their DI experience. Each school year, we combine educators with subject matter experts to develop open-ended challenges that teach thinking skills, teamwork, emotional intelligence and the creative problem solving process. Our future workforce needs curious, innovative, creative problem solvers who are constantly looking for a better way, individuals who are interested in questions with novel answers, and who value the contributions of others. The DI program is designed to meet that need by providing a curriculum infused with thinking and problem solving skills.

In 2009, the American Enterprise Institute, the Center for American Progress, New Profit, Public Impact, The Annie E. Casey Foundation, and The Eli and Edythe Broad Foundation issued a report entitled “Stimulating Excellence: Unleashing the Power of Innovation in Education.” Here are several excerpts from that report (Center for American Progress, 2009):

Education reform has long seen partisan battles, where advocates often retreat to either side of the aisle in defense of a program, reform or ideology (p.1). The 2009 American Recovery and Reinvestment Act accords increasing importance to entrepreneurship in education, primarily through a $650 million “innovation fund” designed to allow non-profits with a record of increasing student achievement to scale-up their initiatives (p. 3). We should be encouraged and inspired by the current generation of educational entrepreneurs who have captured the public imagination, challenged our assumptions about what is possible in public K-12 education, and provided a higher-quality education to thousands of students (p. 35).

The opportunities ahead of us are extraordinary. Destination ImagiNation, Inc. has more than 26 years experience in challenge-based learning. In the future, we plan on finding new and different ways to use technology, including the development of a virtual Challenge program so youth can more readily learn important skills in fun, engaging ways. We are also developing ways for our programming to be more accessible and more easily implemented in a classroom setting. We believe these efforts can be the catalyst for a greater educational reawakening, one that places practical thinking and problem solving skill development at the forefront.

“I think therefore I am.” – René Descartes
About The Destination ImagiNation Program

The Destination ImagiNation program is firmly grounded in its goals, which are strikingly similar to the goals of the Partnership for 21st Century Schools (2007). DI strives for each participant to:

- Develop a more positive self-concept.
- Comprehend skills, gifts and interests in relationship to self and society.
- Develop the skills appropriate to interact effectively with peers, siblings, parents and adults.
- Increase knowledge in a variety of subject areas.
- Develop thinking, decision making and problem solving skills.
- Participate in activities selected to facilitate and integrate cognitive, emotional and social development.
- Demonstrate responsibility for learning in and out of the school setting.
- Ultimately become responsible, creative, independent and life-long learners.

Destination ImagiNation, Inc. also supports rigorous standards in education. Mid-continent Research for Education and Learning, McREL (http://www.mcrel.org/standards-benchmarks/), has developed a compendium of national standards. DI uses educators to link our Challenges to the McREL research to ensure that our Challenges meet national standards.

The Destination ImagiNation Equation

Central Challenge + Side Trips + Instant Challenges + Tournaments for Appraisal, Recognition, and Celebration + Curricula = Destination ImagiNation (a complete educational package)

Central Challenge: Academically-based; process-driven project emphasizing teamwork, creative problem-solving; creativity, improvisation, time management; sustained development time.

Side Trips: Based on Gardner's Multiple Intelligences Theory (1983); allows teams total creative freedom to showcase additional strengths; sustained development time.

Instant Challenges: Development of an impromptu solution under tight time constraints; showcases teamwork, creative problem-solving techniques; performance, and creative use of materials; time management.

Tournaments: Competitions that are used for assessment, recognition and celebration.

Curricula: Destination ImagiNation Team Program Materials (includes explicit references to thinking skills and teamwork instruction), activity kits, camps, instructional materials, and Teacher and Facilitator lesson plans.

Questioning Techniques Used in Destination ImagiNation

Throughout the program, students are encouraged to develop self-assessment skills. Questions from adults are designed to help students learn to benefit from meaningful feedback. The questions include the following:

- How do you think you did as a team? What did you learn about teamwork by doing this Challenge?
- What did you learn about yourself?
- How well did you manage your time? How might you have used your time more effectively?
- What were the strengths of your solution? Could your solution have been more creative, novel or unique?
- If you were to start over, what might you do differently and why?

Assessments Performed in Destination ImagiNation

In DI, students are expected to discuss the solution process; list new facts learned; perform self-evaluations; display projects and models; evaluate other team member’s contributions; present research; and perform skits and demonstrate new skills.
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References


Note

Since its inception, Destination ImagiNation, Inc. has worked closely with the Center for Creative Learning (CCL) in Sarasota, Florida (www.creativelearning.com). CCL offers a variety of publications, training programs, information support and consulting services on creativity, Creative Problem Solving, talent development and problem-solving styles. Those at CCL believe that all people have important strengths and talents, that people of all ages can improve their creative and critical thinking and problem-solving skills, and that research on style helps people to understand their talents and how to apply them in unique and personal ways. Their work builds on more than five decades of research, development and practical experience in organizations. They work with many educational and non-profit clients worldwide to advance our shared goals.

For further reading and a more in-depth understanding of Creative Problem Solving and Problem Solving Style, we recommend the following two publications:
