THE "BIG PICTURE QUESTION" PROJECT: EXPLORATIONS IN TEACHING CREATIVITY WITHIN A FORCE-FIELD RESEARCH FRAMEWORK

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ABSTRACT

This paper describes a semester-long Creativity research project during which experience students the cyclical nature of Creative Problem-Solving by conducting in-depth research addressing a single, major social, cultural or economic "problem". The cyclical nature of Creative Problem-Solving involves, first, divergent thinking via thorough, research of the problem). This is followed by convergent problem-solving based in identification of potential solutions). The "Big Picture Question Project (BPQP)" enacts both processes. Topics to be covered include: 1) how the project concept was evolved; 2) how the project was framed for students; 3) guidelines for project management and mentoring; and 4) student reactions to the project.

INTRODUCTION

Over the past decade, the author has taught a Creativity and Innovation elective in both the MBA program and, more recently, as an upper-division Management elective. The course is based on the author's 25 years of study, research and consulting in the areas of personal and organizational creativity enhancement. Within the current framework of the course, the author has developed "The Big Picture Question Project". This intensive research-based project provokes creative student learning within the framework of creative problem-solving when dealing with complex, difficult-to-understand problems which represent challenges for society to solve and which, are by their nature, controversial. The problems that have been selected by students include ones that have defied solution to date.

The most recent class in which this methodology has been used is a senior-level, restricted access Management elective. Enrollment in the class is restricted to 15 students in insure a high degree of experiential interaction within the class. The session upon which this paper is based should be of interest to those who teach creativity and/or innovation and technology management classes. The BPQP is easily adaptable to other classes as well wherein research-driven problem solving forms a significant focus of the class even when the focus in not on creativity or innovation. In fact, the potential for the use of the BPQP is only limited by the creativity of anyone who might desire to test its salience as a project, problem-based learning tool.

BACKGROUND

I have been a consulting futurist for 25 years. In the process of professionalizing my futurist studies, I have grown comfortable with and appreciative of "big picture" thinking. In my Managerial Ethics and Decision Making class, a full module is dedicated to just this focus as related to managerial and organizational problems of ethics and values. I have also been interested in creativity and creativity enhancement within that same timeframe. My interest in creativity led me to establish the only MBA elective course on Creativity and Innovation and then to revise that course for the undergraduate Management curriculum at Stetson University.

During my studies of creativity and creativity enhancement, two books stand out as having the greatest influence on my thinking and teaching of creativity. First, Morgan's (1993) *Imaginization* shook me into an entirely new frame of reference related to creativity and creative management dynamics. Next, Peter's (2003) revolutionary book, *Re-Imagine*, taught me that "thinking-outside-of-the-box" can take many shapes and forms. Together, these works helped me begin to think in big picture terms about big picture challenges faced within our society.

While "thinking outside of the box" seems almost a euphemistic cliché today, it does have practical meaning for the solution of complex socio-cultural and socio-economic problems that daunt society's leaders and policy makers. A purported quote from Einstein, "you can't solve a problem with the same mindset that created the problem", has long influenced my view of the practical nature of creative problem solving. We must learn to create problem solving climates and cultures that allow us to transcend the limitations of "seeing and understanding" that compromise "out of the box" thinking (Cangemi and Miller, 2007). Within the framework of the current class, such transcendent thinking was encouraged by studying the work of Benson and Proctor (2004) on their Breakout Principle.

In discussing teaching of creativity and various techniques for doing so, Armstrong (1999) notes that it is very important not to structure various activities so that students become more outcome than process oriented in their creative problem solving efforts. I took this warning to heart in the development and management of the BPQP by emphasizing that intense, comprehensive research was the key process that would lead to workable, potential solutions

to the problems under study. I also emphasized that there was no "one best way" to undertake study. While students seemed troubled with the inherent ambiguity of these statements, it did help them to shift attention from developing solutions to studying their problems so as to more fully "see and understand" the nature of the problems they were studying for the project. At the heart of the BPQP is Gow's (2000) call to promote Type A creativity (sometimes called "flow") wherein creativity emerges as a result of "unobstructed experience of the thing observed". With the BPQP, observation comes via intense study of the central research question across multiple disciplines while flow emerges through intense contemplation of the problem in total inclusive of the forces that drive toward problem solution and those forces that restrain problem solution.

PROJECT FOUNDATIONAL DYNAMICS

The "Big Picture Question Project" brings together three separate, yet related, frames of reference wherein students complete comprehensive research on their focal research questions. These frames are identified below and their application in this methodology is described.

THE GENERIC CREATIVITY PROCESS

There are four steps in the widely-accepted, generic model of creative process and problem solving: 1) Preparation; 2) Incubation; 3) Illumination; and 4) Application.

Preparation involves the collection of knowledge, skills, information and experiences that can be applied to any problem-solving endeavor. For the BPQP, preparation occurs as student search inter-disciplinary databases for information, opinion, dialogue and prescriptions relevant to the focal question of their study. In the generic creative process model, ***Incubation*** is the willful withdrawal of conscious attention from the issue or problem under consideration. For the BPQP, incubation was practiced as the students identified their pre-existing notions, opinions or biases about the issue under their study. Once they had identified the limitations on their understanding of the issue, they were encouraged to reduce or eliminate biasing influences on their research. Again, incubatory activities and disciplines were studied via the work of Benson and Proctor's (2004) book, *The Breakout Principle*, wherein the authors offer dozens of methods for inducing deep incubation as well as transcendental thinking frameworks for problem solving.

Illumination represents the "AHA" or Eureka experience that follows and emerges from the combination of Preparation and Incubation. For the BPQP, illumination is actualized as students developed both their more routine and more creative solutions for the problem they studied. In the creative process, ***Application*** is the stage wherein problem solutions are offered and applied to solving the existent problem. For the BPQP, the students applied their solutions by developing strategies for their solution goals and rationales for the strategies they prescribed. Hence, with students' study of their research questions they tangibly and experientially engaged all four of these steps in creative problem solving.

DIVERGENT AND CONVERGENT THINKING

With creativity and creative problem solving, two foundational cognitive processes are enacted and utilized. ***Divergent thinking*** involves the generation of as many problem-salient options or solutions as possible. In practice, divergent thinking is most often enacted through brainstorming. For the BPQP, a slightly different slant was emphasized. Through their research and compilation of their information, students were asked to *not delimit the boundaries of their studies*. Thus, divergent thinking was promoted as students gathered as much knowledge about their topics as possible, while restricting the natural inclination to impose their biases prematurely on the creative problem solving process that is at the core of the BPQP.

Additionally, consultations with individual students often engaged them in "thinking outside of the business and/or management box" that their previous undergraduate studies may have created. By moving them into interdisciplinary disciplines and databases for consideration of their problem, they were encouraged to think more divergently about their research question than might normally have occurred in the usual "what does he (ME) want" approach to research.

Convergent thinking is applied in problem-solving contexts when problem solvers evaluate their available options and select the "best" options or solutions to the problem or issue at hand. This represents within the BPQP, the process of framing selected solution goals, methods and rationale for both solution goals and strategies for achieving prescribed goals. Hence, while there is some predictable overlap between the generic model of creative problem solving and the cognitive processes of divergent and convergent thinking, the different dynamics of each reinforced the breadth and depth of student research and problem solving.

FORCE-FIELD ANALYSIS

Lewin's powerful technique (1951) for studying and understanding complex, dynamics issues and problems is a central framing tool for the BPQP. By delineating and describing the driving and restraining forces that push toward a solution of a problem (driving forces) and inhibit solution of a problem (restraining forces), problem solvers are more adeptly able to develop potential problem solutions based on a holistic understanding of problem dynamics. For the BPQP, students used force-field analysis to frame their understanding of the problems under study and then to prescribe potential solutions to the problem based in their understanding of the competing factors that might compromise problem solution of problems that are, by their nature, difficult to grasp and more difficult to solve.

PROJECT FRAMING FOR STUDENTS

In this section, BPQP management and related topics will be described to frame the basic logistics of setting up the BPQP.

STUDENT SELF-DETERMINATION IN THE PROCESS:

Consistent with the experiential learning value of learner self-determination, students in Management 400 (Managing Personal and Organizational Creativity and Innovation) determined via open class dialogue which performance activities and assignments they would engage in for the semester. From a menu of possible projects and assignments generated in an open brainstorming activity, the BPQP (my idea) was selected as project focus of the semester.

Students weighted the BPQP at 35% of their final individual grade in the class. Hence, the written component of the project accounted for 27.5% and the oral presentation for 7.5% of each student's final grade in the class. It should be noted that I utilize a relative grading scale and students are not in competition with one another for grades in that framework.

Thus, the BPQP was the major project performance dimension for the semester. Other performance dimensions included class attendance, class contribution, individual creativity journals and a creativity website review presentation. Students were also given the choice of working alone or in teams. Only one student chose to work alone, while all others formed dyads or triads. Selecting performance dimensions, weighting those dimensions and deciding on group affiliation were their first creative challenges embedded in the broader focus of the class on creativity and innovation enhancement.

RESEARCH QUESTION SELECTION AND REFINEMENT

The second major creativity challenge students faced was developing and articulating researchable topics and then, in one interrogative sentence, asking the fundamental research question that they would study for the entire semester. Students worked collaboratively to help each other frame the specific research question that most directly represented what they would study. This proved to be a beneficial exercise related to class teamwork, as well as divergent thinking leading to convergent outcomes…their final research questions.

PROJECT REQUIREMENTS

After students chose the BPQP as a performance dimension, I established basic expectations and guidelines for the project, although final expectations were negotiated within the framework of the following specifications as presented in the syllabus and supplementary materials for the course.

- Research is to focus on understanding the full, holistic nature of the problem defined by the fundamental research questions under consideration. Research can be completed in any discipline in which dialogue and study of the research issue is active and current. The BPQP is a research based project and significant investigation of the existing literatures on identified problems forms the foundation for serious study and understanding.
- Force-field Analysis will serve as the framing tool for the BPQP and will allow for holistic understanding of the problem prior to premature rush to problem solution. The force-field analysis will also serve as the foundation for the research paper and presentation (evaluated deliverables) from research for each research team. For the paper, each Driving and Restraining Force must be linked to the literature citation(s) from which you derived the designation.
- Identified problem solutions may be derived either from the existent literature (with substantial justification) or may be inventive and creative so long as your prescribed solution(s) can be based in a rationale for the prescription derived from the Force-field Analysis. Proposed solutions need to meet the following criteria: 1) realistic; 2) affordable; and 3) achievable.
- All research citations must be listed in an Annotated Bibliography that will accompany submission of research papers on the day of presentation. Annotations will include a 50-word statement of how the citation contributed to understanding of the research question under study.
- Each research team or individual will develop and deliver a 25 minute presentation that summarizes their top five most significant Driving and Restraining Forces relative to the research question AND also deliver a summary of their top three solutions to the problem under research.

QUESTIONS UNDER STUDY THIS FALL SEMESTER, 2007

This is where big picture thinking and creativity become most evident as these represent the questions decided upon for the BPQP this semester:

- How does the U.S. **fix** the obesity problem in America?
- How can the U.S. **overcome** the "drug problem" in America?
- How do we **develop** an affordable, workable health care system for the future?
- How do we **change** citizens' mindsets about alternative vehicles and mass transportation?
- How do we **transition** from fossil fuels to alternative fuel technologies?

Clearly these are provocative questions that have yet to be even reasonably considered in our society. Each question has economic, social, cultural and even geopolitical elements related to the nature of the problem under study

and the possible solutions available to address the problems. Yet, through the BPQP, students learned how to grasp all sides of the issues involved in first, "seeing and understanding the problem" and then prescribing potential solutions based in **their own holistic research of the problem.**

GUIDELINES FOR BPQP PROJECT MANAGEMENT

Here are some basic guidelines for mentoring student interest in and performance on the BPQP. I view myself as a partner in the learning endeavor with each group. In retrospect, the groups that did the best research and problem solving were the groups that had the most consultation with my on the progress of their project across the semester.

1) Be prepared to expend considerable class time helping students learn to frame their research questions. It is my studied opinion that management and business students often do not think in "big picture" terms about issues and problems in the real world. Hence, one of our educational tasks is to acclimate them to this type of "seeing and understanding" thus inviting students to expand and elaborate their usual or routine problem solving schemas.

2) Be available beyond class to help students with their research as it progresses. I found it useful to have in-class dialogues every other week so that students could share their progress and impasses related to their research. Most of these dialogues focused on the research process itself rather than on what students were actually discovering about their research question. Given the heavy weighting of the BPQP, using in-class time for such dialogue is worthwhile and appreciated by students. I also found it desirable to schedule at least two out-of-class meetings with each research team or individual to more directly address their progress and learning. As noted above, the groups that went beyond this baseline performed better on their presentations and papers than did those who stuck to the baseline expectation.

3) Once students have defined their research questions, do a fairly thorough, preliminary database search across disciplines to get a feel for the literature as it exists for each of the research questions under study. By doing so, you can help students when they reach an impasse in terms of "finding resources and citations". While I encouraged students to think "outside of the management box", their unfamiliarity with social science databases and sources was apparent and needs to be addressed. Sometimes, I found that just running a search in a non-business database with a research team present helped to focus their studies.

4) Establish a partnership with students so they know they can come to you when their efforts are not moving forward as they may well wish. Beyond the usual problems of procrastination, expect them to experience some frustration as their work progresses. Encouraging them to stay with the task helps them break through blocks to their own ways of thinking which enhances their creative self-efficacy.

5) Get out of your own box and see what happens. Drop your own preconceptions and perspectives of issues under study. Non-routine, complex problems cannot be solved with the typical problem solving methods usually associated with standard business and management problem solving. Learn as they learn.

6) Establish clear evaluative criteria for final deliverables. Mine include: 1) A well-written, well-organized, well-researched Force-field written analysis; 2) Solutions that make sense based on criteria above; and 3) A presentation that teaches us why most of these issues, while solvable, are yet to be even understood in ways that lend means and direction for their solution. While students clamor for clear delineation of minimum paper length and minimum citations, I never give them a fixed number for either. I do, however, clearly state in class and in my syllabus that more work usually produces better work than less or minimalistic work.

STUDENT FEEDBACK

At the conclusion of the class, students were asked to provide feedback on three issues related to their BPQP: 1) What were the greatest challenges you faced during your studies?; and 2) How did the BPQP improve your understanding of creativity or creative problem solving?: and 3) How can the BPQP be improved? Thematic responses are summarized below.

CHALLENGES

- Coordination of schedules within study teams was difficult.
- Undertaking the project with an open mind free of preconceived perspectives was a major challenge.
- Overcoming personal biases relative to the basic research question took considerable effort.
- Finding sufficient information to frame both driving and restraining forces within the Force Field analysis was problematic if one limits study to only management and business databases.
- Managing the huge amount of information on a give research question proved daunting.

CREATIVITY LEARNING AND CREATIVITY IMPROVEMENT

- Exposure to multiple, complex ideas drive innovative thinking and problem solving.
- Incubation and breakout techniques helped drive solutions and strategies to address problems.
- Open-mindedness is a key factor in solving complex problems.
- Going beyond one's current level of problem understanding takes a lot of effort.
- "Why" questions can be used to help generate creative solutions to complex problems.

PROJECT IMPROVEMENT

The primary theme that emerged for this item was that I should have provided more specific direction and structure for the project. That was hardly an unexpected theme given the focus on divergent thinking follow by convergent thinking. Despite this theme, students also recognized that dealing with ambiguity and self-direction contributes to both divergent thinking and understanding as well as to analytical, convergent problem solution.

Overall, students had a favorable view of the project although clearly the amount of work required to do excellent work was a real challenge. It was apparent in listening to students talk about their efforts that, even as seniors, they still are not highly skilled in the management of team dynamics.

Only one of the groups received a low-range A on the project while two groups received mid-range B's and one group and one individual researcher received mid-range C's on the BPQP. While students reported that they had greater understanding of their problems as a result of the BPQP, they also reported frustration that they could not easily specify how any of these problems can actually be solved in the near future. That learning helped students realize why these problems have yet to be solved and how insular or parochial bias often makes sensible dialogue about such problems difficult if not inconceivable. Lastly, students reported a heightened sensitivity to how language is used to shape how problems are "seen and understood" in reality. Again, they recognize that competing or adversarial semantics complicate complex problem solving wherein creative (and often collaborative) solutions are required.

PERSONAL REFLECTION

When I decided to further experiment with this learning technology, I was uncertain how the process would eventuate. That reality was both exciting and disconcerting to me, especially after the students established a heavy evaluation weighting for the project.

I have learned a lot by encountering that risk of uncertainty in this pursuit. My students have been more engaged in the project than I ever imagined. This engagement flows from their realization that every researched issue has prominent relevance to their personal and collective futures. During the exercise on composing a final research question for study, it was evident that the individual students and the class itself was enthralled by the opportunity to study such important issues.

The cross-fertilization and camaraderie in the class was awe-inspiring as the groups helped each other frame and reframe their thinking each week in "open space" time when research was a component of class focus. Most gratifying to me, is that after 25 years, I have "discovered" a learning technology that is intense, experientially-engaging, fun and almost mystical in its possibilities to open young minds to the possibility that almost all problems are "seeable and understandable" even is solutions are difficult to come by. If the nature and dynamics of any non-routine problem are defined by hard work, intrepid research and creative reflection, possible solutions become more probable.

REFERENCES

Armstrong, A. (1999). "Teaching creativity: An "EEE" experiential exercise." *Journal of Management Education*, 23(2), 174-180.

Benson, H. and Proctor, W. (2004). *The Breakout Principle: How to Activate the Natural Trigger that Maximizes Creativity, Productivity and Personal Well-Being.* New York: Simon and Schuster.

Cangemi, J. and Miller, R. (2007). "Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace." *The Journal of Management Development*, 26(5), 401-410.

Gow, G. (2000). "Understanding and teaching creativity." *Tech Directions*, 59(6), 32-35.

Lewin, K. (1951). *Field Theory in Social Science*. New York: Harper & Row.

Morgan, G. (1993). *Imaginization: The Art of Creative Management*. Newbury Park, CA: Sage Publications.

Peters, T. (2003). *Re-Imagine: Business Excellence in a Disruptive Age.* London and New York: Dorling Kinbersley Limited.