

Developments in Business Simulation & Experiential Exercises, Volume 9, 1982

DEVELOPING CREATIVE THINKING THROUGH EXPERIENTIAL LEARNING

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ABSTRACT

Creativity and innovation are desirable skills but they are not developed in traditional courses. This paper presents a series of experiential learning activities designed to help students achieve behavioral objectives for a course in creative problem solving. A list of behavioral outputs for business school graduates is also presented.

INTRODUCTION

The Accreditation Research Committee of the American Assembly of Collegiate Schools of Business (AACSB) has suggested a method of evaluating the formal education programs of schools of business using measures of cognitive and non-cognitive "outputs." A list of these outputs or traits, grouped by skills and abilities, attitudes, and personal characteristics is given in Appendix I.

An examination of the items in this list indicates that many of them can be and are being taught and learned in traditional courses in schools of business. Some of these traits, however, cannot be taught or learned in traditional courses with standard teaching methods: these skills, abilities, attitudes, and personal characteristics can be developed only through experiential learning.

The inclusion of imagination/innovation (Item 10, Appendix I) and creativity (Item 18, Appendix 1) suggests that these are desirable skills that should be possessed by business school graduates. Logical thinking leads to the conclusion that these skills are necessary if organizations are to adapt successfully to changing environments: new conditions often require new ideas. Traditional courses and teaching methods are not designed to develop these abilities in students. These skills and abilities can be taught can be learned but only in courses or course elements that stress them explicitly. Increases in imagination or creative thinking do not often occur unless some learning/teaching activities focus on this objective.

If schools of business are going to be able to achieve the AACSB objectives and produce students who have many of the traits listed in Appendix I, some new courses or course elements must be added to their programs. Some schools have courses in creative thinking which are not associated with the business programs (e.g., State University College of New York at Buffalo) while other schools have courses in creative thinking in their schools of business (e.g., the University of Cincinnati, Western Illinois University).

The purpose of this paper is to present and discuss some methods of developing imagination/innovation, creativity, and a number of related skills, abilities, and attitudes through experiential learning activities, i.e., teaching methods which are focused directly on this objective.

TEACHING CREATIVITY

Creative thinking may be defined as "the total thinking process involved in the production of an idea, concept, creation, or

discovery that is new, original, useful or satisfying to its creator or someone else. Creative problem solving may be defined as the process of bringing about useful change by producing new combinations of existing elements and putting them into action. The terms creative thinking and creative problem solving are so similar that they may be used interchangeably.

The experience of many teachers indicates that creative thinking or creative problem solving can be taught and can be learned by students. Extensive research and experience in teaching creativity indicate that:

1. All people are creative to some degree.
2. All people have some blocks to their creativity and, therefore, have the potential to be more creative by removing these blocks.
3. Attitudes can be learned which increase creative output.
4. Creative mental skills can be developed just like other mental abilities.
5. Educational programs which deliberately and consciously set about teaching creative thinking not only increase the problem-solving skills of students, but also increase their self-confidence and their leadership ability.

(This research is reported in references [2] and [3] and in many articles in the Journal of Creative Behavior.)

McKinney [1] has suggested that a course in creative thinking should have at least the following elements:

1. Raising students' awareness of creativity and its importance for society and for personal development. As students become aware of the possibility of becoming more creative they come to believe that they can, with effort, become more independent, original, and creative thinkers.
2. Increasing students' understanding of the nature of creativity, creative persons, common barriers to creative thinking, and the creative process. An understanding of creativity should include a description of the attitudes, values, skills, motivations, and personal characteristics of the "creative personality."
3. Presenting techniques for creative thinking. The basic cognitive abilities which allow a person to produce original idea combinations must be presented and practiced. These include verbal and ideational fluency, flexibility of thinking, originality, perceptual sensitivity and awareness, visualization skills, ability to predict consequences, and planning skills. Additional deliberate for "forced" creative thinking techniques should also be introduced. These include brainstorming, attribute listing, morphological

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analysis and synthesis, synectics, idea checklists, and general forced relationship methods.

4. Putting the new knowledge, skills and abilities, and attitudes into practice in everyday life. Students are encouraged to explore new interests, to experience new surroundings and activities, to be open and receptive to new ideas, to generate and capture their own ideas, and to use creative techniques in solving their own problems.

McKinney suggests that these elements should be taught largely by a "discovery by doing" method or experiential learning. Treffinger and Huber [4] have suggested a set of behavioral objectives for courses in creative problem solving to guide the development of experiential learning activities. These behavioral objectives are summarized in Appendix II.

EXPERIENTIAL LEARNING ACTIVITIES

Table 1 lists a series of assignments which are used in a course in Creative Thinking and Problem Solving. These activities follow many of the suggestions made by McKinney and attempt to bring about the accomplishment of the behavioral objectives suggested by Treffinger and Huber. There are a number of other elements in the course, but these assignments provide the best examples of experiential learning used as a device in developing creative thinking among students.

While students may be told about the blocks to creative thinking that they must try to overcome or what processes to use, the most successful way to develop creative thinking and creative behavior is through experiential learning. If the instructor wants students to behave in ways which are quite different from their usual behavior, the students must be given assignments which require the unusual behavior.

For example, students and most persons avoid looking for problems to solve. Therefore, assignments 1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1, 4-2, 5-1, and 6-1 all ask students to look for five problems from either their work (school) or home (campus) environments. These activities cause students to achieve behavioral objectives 1 and 2 (from Appendix II) to be sensitive to problems and to be able to define problems. These assignments also serve another purpose: students generate a long list of problems to use in other course assignments.

A second major behavioral objective in courses in creative thinking is to get students to break away from habit-bound thinking (Objective 3, Appendix II). While traditional teaching methods can with difficulty get students to break some habits, this objective is achieved much more easily with experiential learning activities. Assignments 1-4, 3-3, 5-3, and 7-2 are specifically directed at getting students to break away from habits of behavior or thought and many other assignments encourage this behavior.

Table 2 presents a summary of the behavioral objectives (from Appendix II) that may be achieved through the experiential learning activities in Exhibit 1. Many of the activities are designed to achieve only two, three, or four of the objectives while many others are designed to achieve most of them.

When using experiential learning activities the instructor does not control the specific activities of the students. When students

are told to do something new or different, they must make a conscious effort to behave in ways they have never behaved before. Most, but not all, of these experiences are positive ones (in the author's experience in several classes). If the experience proves to be negative in any way, the instructor must encourage the student to try again in another assignment.

Students must be rewarded - praised for trying new experiences or for breaking away from habit bound thinking even if the results are not positive or "successful." It is the trying of something new and different the willingness to try -- not the success or failure that is important. But "success" a positive experience will encourage the student to continue to try to change his or her behavior. A "failure" a negative experience will discourage the student unless the instructor provides some positive reinforcement. This is one of the ways in which teaching with experiential learning is different from traditional methods.

BEHAVIORAL OUTPUTS

A course in creative thinking and problem solving of the type described briefly here can develop imagination/innovation and creativity in students. But the results can be much greater. From the list of cognitive and non-cognitive outputs or traits this course might develop many of the skills and abilities, attitudes, and personal characteristics (specifically items 2, 10, 11, 12, 16, 17, 18, 19, 25, 26, 29, 43, 44, 48, 57, (tolerance for ambiguity), 58, 66, 67, 73, 74, 76, 82, and 87. Many of these traits may be developed in other courses as well.

SUMMARY

There are many output traits skills and abilities, attitudes, and personal characteristics that might be possessed by graduates of schools of business. Many of these traits can be developed in traditional courses with traditional and experiential learning methods. Some of these traits such as imagination/innovation and creativity cannot be taught or learned in traditional courses using traditional teaching methods. It is suggested here that these traits can be developed through experiential learning activities either in courses specifically designed for this purpose or as course elements in other classes. A list of assignments was presented to provide examples of the types of activities involved. These activities were analyzed briefly to indicate the behavioral objectives that might be accomplished by using them.

In conclusion, it is stressed that creative thinking can be taught. It can be taught best with experiential learning activities. These activities can be used to get students to achieve a wide range of behavioral objectives related to creative thinking and problem solving.

TABLE 1

ASSIGNMENT #1

1. List five problems (challenges or opportunities) related to your job or work environment. Describe each in two or three sentences.
2. List five problems (challenges or opportunities) related to your home/personal/club/community environment. Describe each in two or three sentences.
3. Find three or four definitions of creativity. Compare and contrast each definition with each other

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one. How are they alike? How are they different?

4. Eat something different this week. Eat something quite different from anything you have ever eaten before. Write about what you ate and your experience.

ASSIGNMENT #2

1. List five more problems (challenges or opportunities) from your work (or school) environment. Describe each in two or three sentences.
2. List five more problems (challenges or opportunities) from your home/personal/club/community environment. Describe each in two or three sentences.
3. Restate any one of the problems from the above lists in 10 different ways.
4. Set a personal goal in any area - to be accomplished by (date). This should be something you have wanted to do, but have not taken the time to do it. Describe the goal in a short paragraph and indicate what you intend to do to accomplish it.
5. Many puzzles are presented as if they had only one answer; they have many possible answers. Here is one such puzzle.

Which of the following letters does not belong with the others?

i j o x t

Think of and list as many different answers as you can.

ASSIGNMENT #3

1. List and describe five more problems (challenges or opportunities) from your work or school environment.
2. List and describe five more problems (challenges or opportunities) from your home/personal/club/community environment.
3. On a regular trip to or from some place you go regularly, go a different way a way you have never gone before. Take note of what you see that you have never seen before. Write a short paragraph describing what you did and what you saw.
4. List 25 ideas for changes that might improve a college textbook.

ASSIGNMENT #4

1. List and describe five more problems (opportunities or challenges) from your work or school environment. Look for problems you may have been avoiding.
2. List five more problems (challenges or opportunities) from your home/personal/club/community environment. Look for problems you have been avoiding. Describe each one.
3. Find examples of six different blocks to creative thinking (blocks listed on a separate handout). Write a short paragraph to describe how the block prevented you or someone else from solving a problem.
4. Work on the "What is the Missing Number" Problem on the attached sheet. (Not attached to this exhibit.)

ASSIGNMENT #5

1. Try to find five more job related situations that may contain a problem (an opportunity or a difficulty). Briefly describe the "mess" for each one.
2. Choose any problem (opportunity or difficulty) that you have mentioned - above or in previous assignments - a list of all the fact finding questions you would like to have answers to concerning that situation. Choose a situation that permits many questions, not one that is too simple.
3. Read something different this week (not what you read for a commentary). Read something that would not be customary for you. For example, read a magazine you have never read before or a short

book on a subject you have never read about before. Write a paragraph or two (or even three) describing what you read, what you learned, and how you might use any new information or ideas you found.

4. Get together a small group 3,4 or 5 people-either at work, at home, or anywhere, and teach them the rules of brainstorming. Hold a brainstorming session on some problem - trying to find solution ideas - you can agree to work on. Write a short description of the experience. What difficulties did you have? What successes did you have? What else happened?

ASSIGNMENT #6

1. Find five more home/personal/community/organization situations that may contain a problem. Briefly describe the "mess" for each one what is good that could be better? Or what seems to be wrong?
2. Restate any one of the problems above in 10 different ways. Start each statement with "In what ways might I."
3. Individually brainstorm defer judgment 25 or more solution ideas for any problem you choose -any of the many you have listed on previous assignments or this one.
4. Using the technique in Session 31 (p.47, CA) choose any problem you have listed before and generate -using deferred judgment - a list of evaluative criteria (try for 25). Work backward from the criteria to produce alternative solutions, ideas for the problem (try for 25).

ASSIGNMENT #7

1. Observe structure (how something is constructed or put together), substance (what something is made of), color, texture, shape, size, odor, sound, and taste in the objects you encounter in the world around you. What new things do you find at work? At school? At home? Anywhere you go? Try to find 10 observations of things familiar to you that you have never analyzed or "experienced" before. Write a sentence or two to describe each observation.
Optional: Do any of your observations help you to see how something might be changed or improved by changing one or more of its characteristics?
2. A. Do something different free choice. Do something you have never done before (but don't take any silly chances or do something dangerous or illegal). Write a short paragraph describing what you did.

OR

- B. Identify a habit you have and try to break it or change it. Describe the habit and your efforts to change or break it in a short paragraph.
3. Look for examples in yourself or others of how habits of thinking or fears of some kind limit solutions to problems. Describe each example briefly (but long enough so that I understand what you are talking about.)
4. Describe an idea for a television show which you believe would draw a large audience (if done well) but which, to your knowledge, has never been done before. This can be a series, a limited series, or a single show special presentation for either commercial or public television.

ASSIGNMENT #8

Do at least five of the following:

(They are all fun so you might want to do more than the minimum.)

1. Write a 20-word telegram telling a friend what this course is all about.
2. Suggest a single word that you make up to describe each of the following:

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- a. a supper made of leftovers
 - b. butts and ashes left in a container after a long evening
 - c. crumbs in bed
 - d. a crowd rushing onto a football field before the end of the game
3. Write five imaginary newspaper headlines that you would like to see in tomorrow's newspaper.
 4. Cut out five cartoons from newspapers or magazines and write new joke lines for each one.
 5. Name and briefly describe three inventions which you believe would be most useful to the world.
 6. Consider the last two or three movies you have seen. Choose one and give it what you consider a more appropriate title. Explain why your new title is more appropriate.
 7. Briefly describe what front-page news stories might be involved in the following situations or items:
 - a. two people meeting on a street corner
 - b. a child's toy
 - c. a glove
 - d. a safety pin found in a mailbox

ASSIGNMENT #9

1. Find 10 examples of ways that people (you or others) have solved a problem or accomplished an objective by using one or more of the manipulative verbs (SCAMPER) or (CREATIVITY) from the checklists.
2. Read reading #5 in MIND and try to generate solution ideas for a problem using attribute listing. It is probably easier to solve "thing" problems than people problems with this technique.
3. After the class session on forced relationships and reading #6 in MIND, use the Matrix in any way you choose to generate ideas to solve a problem.
4. Use the handout worksheet set to attack any problem you choose. Complete all parts of the worksheet for any single problem.

ASSIGNMENT #10

1. Simile Completion
The simile "Money is like promises,..." can be completed by saying "...easier made than kept." Think of a way to complete each of the following:
 - a. Time is like money,
 - b. The world is like a great staircase,
 - c. Money is like manure,
 - d. A woman, like a melon, (Or, A man, like a grapefruit,)
 - e. Advice is like kissing
 - f. Love, like a cough,
2. Other assignments which are not listed here.

ASSIGNMENT #11

1. Using deferred judgment (brainstorming) generate some ideas for improving this course. These need not be completely worked out (see #2 below), but they should say enough that I can understand what you mean.
2. Choose five of the ideas from your list (in answer to #1 above) and develop them further. Explain what the idea means, how it might improve the course, and how it might be done.
3. Write a short paper - one or two pages answering the following questions:

In what ways are the ideas in this course in conflict with the ideas in other courses (any other courses)?

In what ways can you resolve the conflicts?
4. Take any problem as it arises and try to work it out as quickly as you can using the green Creative Problem Solver (Pocket Organizer). Choose something that is not a trivial or meaningless problem even if it is a small problem.

TABLE 2
A SUMMARY OF BEHAVIORAL OBJECTIVES ACHIEVED
THROUGH EXPERIENTIAL LEARNING

| Assignment (from Exhibit 1) | Behavioral Objectives (from Appendix 2) |
|--------------------------------|--|
| 1-1,1-2 | 1 and 2 |
| 1-3 | Awareness and understanding of creativity |
| 1-4 | 3, 8, possibly 5 and 6 |
| 2-1, 2-2 | 1 and 2 |
| 2-3 | 2, possibly 3 |
| 2-4 | 6 and 7 |
| 2-5 | 3,4,5, and 8 |
| 3-1, 3-2 | 1 and 2 |
| 3-3 | 3 and 8 |
| 3-4 | 1-4, 7-10 |
| 4-1,4-2 | 1 and 2 |
| 4-3 | Awareness and understanding of blocks to creative thinking and 1, 2, 3, 4, 5, 6, and 8 |
| 4-4 | 3,4,5, and 8 |
| 5-1 | 1 and 2 |
| 5-2 | Questioning ability and 2,5, and 8 |
| 5-3 | 3, 4, 5, 6, and 8 |
| 5-4 | 2, 3, 4, 5, 6, 7, 8, 9, and 12 |
| 6-1 | 1 and 2 |
| 6-2 | 2, perhaps 3 |
| 6-3 | 3, 4, 5, 8, and 9 |
| 6-4 | 3, 4, 5, 8, 9, and 10 |
| 7-1 | 1, 2, 3, 4, 5, 8, 9, and 10 |
| 7-2 | 3 |
| 7-3 | Awareness and understanding of blocks to creative thinking and 8 |
| 7-4 | 1 through 10 |
| 8 | 1 through 10 |
| 9-1 | 3,8, and 9 |
| 9-2,9-3 | 1,2,3,4,5,8, and 9 |
| 9-4 | 1 through 11, especially 11 |
| 10 | 1 through 11 |
| 11 | 1 through 12 |

APPENDIX I

COGNITIVE AND NON-COGNITIVE TRAITS GROUPED BY SKILLS AND ABILITIES, ATTITUDES, AND PERSONAL CHARACTERISTICS

Skills and Abilities

1. Qualitative Ability
2. Analytical/Problem Definition and Analysis
3. Resources Management
4. Interpersonal Relations
5. Communications
 - a. oral
 - b. written
6. Listening
7. Reading
8. Decisiveness
9. Learning Ability
10. Imagination/Innovation
11. Risk Tolerance
12. Judgment
13. Ability to Generalize
14. Leadership
15. Application of Knowledge
16. Ability to Identify Alternatives
17. Questioning Skills
18. Creativity
19. Implementation Skills
20. Objectivity
21. Organizational Skills

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- | | |
|--|---|
| <ul style="list-style-type: none"> 22. Persuasiveness 23. Memory 24. Reasoning Ability 25. Problem Solving Ability 26. Ability to Synthesize 27. Assessment of Reasonableness 28. Ability to Set Priorities 29. Mental Ability <ul style="list-style-type: none"> a. organization of thinking b. discriminatory thinking c. decision making skills d. concentration 30. Negotiation Skills 31. Ability to Exercise Authority 32. Ability to Deal With Government Regulations | <ul style="list-style-type: none"> 75. Self-Discipline 76. Sensitivity 77. Humility 78. Self-Respect 79. Self-Starter 80. Empathy 81. Desire to Expand Personal Influence/Power 82. Flexibility/Adaptation to Change 83. Intelligence 84. Common Sense 85. Competitiveness 86. Energy 87. Self-Confidence/Esteem Ego 88. Perseverance 89. Resiliency |
|--|---|

Attitudes

- 33. Respect for Authority
- 34. Motivation
 - a. desire to work b. willingness to work
- 35. Realism
- 36. Entrepreneurial vs. organizational ambitions
- 37. Level of Expectation
- 38. Functional vs. General Management Orientation
- 39. Balance of Rights and Responsibilities
- 40. Appreciation for
 - a. economic values b. private enterprise
- 41. Global Perspective
- 42. Meritocracy Awareness
- 43. Risk/Benefit Sensitivity
- 44. Goal Orientation
- 45. Citizenship
 - a. social responsibilities b. loyalty/commitment
- 46. Belief in Human Worth
- 47. Appreciation for Legislative Process
- 48. Optimism/Positivism
- 49. Sense of Tradition
- 50. Contribution vs. Exploitation Ethic
- 51. Desire to Expand Personal Influence
- 52. Need Achievement
- 53. Compatibility of Personal and Corporate Ethics
- 54. Career Orientation
- 55. Competitiveness
- 56. Positive Understanding of Corporate Goals
- 57. Tolerance
- 58. Commitment to Results
- 59. Long Range Viewpoint
- 60. Personal/Career Values (balance)
- 61. Profit Motive/Value
- 62. Sense of Responsibility

Personal Characteristics

- 63. Honesty
- 64. Maturity
- 65. Grooming
- 66. Mental Alertness
- 67. Inquisitiveness
- 68. Manners
- 69. Emotional Stability
- 70. Sincerity
- 71. Social Skills
- 72. Objectivity (Integrity)
- 73. Sense of Humor
- 74. Perceptiveness

Source: AACSB Accreditation Research Committee, 1979

APPENDIX II

BEHAVIORAL OBJECTIVES FOR COURSES IN CREATIVE PROBLEM SOLVING

Upon completing a course in Creative Problem Solving, a student should:

1. be sensitive to problems
 2. be able to define problems
 3. be able to break away from habit-bound thinking
 4. be able to defer judgment
 5. be able to see new relationships
 6. be able to evaluate the consequences of her/his actions
 7. be able to plan for the implementation of ideas
 8. be able to observe carefully and discover facts
 9. be able to use effective techniques for discovering new ideas
 10. be able to refine strange ideas into useful ones
 11. be able to describe and use a systematic approach to problem solving. Upon request, the student should be able to define and illustrate each of the following stages in creative problem solving: fact-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding.
 12. be able to describe the influence of interpersonal relationships on problem solving and to illustrate problems associated with interpersonal relationships in effective creative problem solving
- Source: [4]

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