Int. J. Engng Ed. Vol. 17, No. 1, pp. 17–23, 2001
Printed in Great Britain.

0949-149X/91 $3.00+0.00

Practical Creativity: Lateral Thinking Techniques Applied to Television Production Education*

JOHN ROSENBAUM
Roy H. Park School of Communications, Ithaca College, Ithaca, New York USA.
E-mail: jrosenbaum@ithaca.edu

This article suggests methods for teaching creative television production techniques while simultaneously providing technical training in equipment operation and standard production practices. The suggested methods are four lateral thinking techniques—the random word, simple focus, stratals and the filament technique. In a case study, these techniques were applied in two assignments given to students in an intermediate television production course. Twelve group productions, 42 editing assignments and 42 papers on television aesthetics were completed. Responses to self-assessment items on anonymous questionnaires distributed at the end of the course indicated that most students (between 61% and 100%) felt competent in 13 of 14 equipment operation skills covered in the course. Most students (84%) rated their ability to operate complex video production equipment between 'adequate' and 'strong'. Most of the students (92%) rated the group production assignment between 'some value' and 'extremely valuable'; most (85%) rated the individual editing assignment between 'some value' and 'extremely valuable'; and most (79%) rated writing the paper between 'some value' and 'extremely valuable'. Most students (71%) recommended repeating the experimental assignments in subsequent semesters and almost two thirds (65%) preferred the experimental or a mix of experimental and traditional assignments. The author concludes that lateral thinking techniques can be used successfully to teach creative television production, technical equipment operation, and standard production practices. Lateral thinking can also contribute to education in other fields, such as engineering, which value technical training and creative thinking. Although some students may resist nontraditional approaches, most students will appreciate and sometimes even prefer them.

INTRODUCTION

> Engineers bring mathematics and science to bear on practical problems, molding natural materials and harnessing technology for human benefit. Creativity is often a key component in this synthesis; the spark motivating efforts to devise solutions to novel problems, design new products, and improve existing practices.
>
> Kate Gibney [1]

> With lateral thinking you may not know what you are looking for until after you have found it.
>
> Edward deBono [2]

BROADCASTING and engineering education share similar challenges in imparting current knowledge and professional practices while, at the same time, preparing students to go beyond the present and imagine new solutions to future problems. What has been learned about teaching creative thinking can be applied in both fields. This paper suggests methods for teaching television production which also may be applied in engineering education.

Three major studies of television production education in American colleges and universities since 1988 suggest that the two main objectives of introductory and intermediate television production courses are to train students to operate equipment and to produce standard types of television programs [3–5]. This is the widespread 'practical-practical' approach to television production education. The strength of the practical-practical approach is that it prepares graduates for valued entry positions in television production industries. At the same time, the weakness of the practical-practical approach is that it rewards *imitations* of standard programs, failing to encourage students to go beyond standard practices, to experiment, take risks, and maybe even become *creative* in the process.

Ironically, creativity would seem to be a valuable commodity in television production industries which ceaselessly crave innovative programming to attract audiences who perpetually are looking for novel diversions. In this context then, teaching creativity in television production courses would serve a practical purpose. The ideal goals then would be to teach practical *and* creative skills simultaneously. This combination is the 'practical-creative' approach to television production education. The question is how to do it.

This question has also been asked in engineering education, often in terms of problem-solving and problem-based learning [6]. Gibney [7] describes

* Accepted 2 March 2000.

engineering programs at four schools—Kettering University, Purdue University, Rensselaer Polytechnic Institute, and Stanford University—which incorporate creativity in their courses. Panitz [8] describes three more—McMaster University, North Carolina State University, and Worcester Polytechnic Institute. Another example is the course Invention and Design at the University of Virginia 'intended to help engineering students and students from other disciplines understand technological creativity' [9].

Likewise, in reviews of syllabi for television production courses, both Grant and Leebron [10] and Williams [11] found teaching assignments that took students beyond rudimentary skills. These assignments included imaginative productions, journals, papers, and in-class presentations. According to Williams, 'There are a variety of innovative ways to go beyond equipment instruction within the production courses if the assignments are planned to allow the instructor to focus upon theoretical and conceptual goals' [12]. Williams also suggests three conceptual areas that should be stressed in television production courses: personal, managerial, and aesthetic [13]. Following Williams' suggestion, an innovative method was used to introduce the conceptual aesthetic areas of television production to an intermediate class at Ithaca College. The method incorporated both practical and aesthetic skills in practical-creative approaches to television production education. They were based on a technique used in business and education called 'lateral thinking.'

LATERAL THINKING

The term 'lateral thinking' was conceived in 1967 by scholar Edward deBono during his research in psychology, medicine and computers [14]. By 'lateral' he means 'across the patterns' of normal thought [15]. DeBono theorizes that the brain is designed to organize information into patterns. Once these patterns are established, the brain sticks to them, giving consistent visions of the world [16]. Therefore, we fit what we see into these existing patterns. On one hand this regularity is good because our surroundings look familiar and we feel secure. At the same time it leads to fixed perceptions and rigid thinking. This is one reason that businesses like advertising and television tend to build upon past successes, relying on low-risk creativity which fails to break out of existing patterns [17]. DeBono offers lateral thinking as one way out. 'Lateral thinking has to do with rearranging available information so that it is snapped out of the established pattern and forms a new and better pattern' [18]. But lateral thinking doesn't simply exchange one fixed pattern for another.

> In lateral thinking we seek to put forward different views. All are correct and all can coexist. The different views are not derived each from the other but are independently produced. In this sense lateral thinking has to do with exploration just as perception has to do with exploration. You walk around a building and take photographs from different angles. All are equally valid. [19]

DeBono has devised various lateral thinking techniques:

- the six thinking hats [20];
- the creative pause;
- simple focus;
- challenge;
- alternatives;
- the concept fan;
- concepts;
- escape provocation;
- stepping-stone provocation;
- movement;
- random input;
- stratals;
- the filament technique [21].

The random input technique

The simplest lateral thinking technique is random input. A random word from a dictionary (or anywhere) is introduced into the discussion of a topic and the relationship is explored, no matter how remote it may seem initially. The idea is to discover connections between the word and the topic that ordinarily wouldn't be made, breaking out of existing patterns. For example, the word 'butter' could be introduced into a discussion about television studio directing. Among other things, butter can be used in cooking, spread on bread, and melted by heating it. Television directing involves choosing shots, visualizing sequences, and so on [22]. At first no logical connection is apparent. After reflection, the idea may emerge to try morphing between shots in a sequence. Some connections may be made that don't make any sense and others may appear logical only in hindsight.

> The general principle of the random input is the willingness to look for unconnected inputs and to use these to open up new lines of thinking. [23]

The random input technique holds additional possibilities for creative television production because random pictures can be used as well as words [24]. The value of visual techniques is recognized in engineering education as well. For example, Introduction to Engineering Design students at Rensselaer Polytechnic University use creative visual methods of product development such as morphological charts [25] and undergraduate engineering students at Stanford University take a course called Visual Thinking [26].

In an article on brainstorming strategies, Panitz [27] describes a variation of the random input technique used by chemical engineering professor Richard Felder, at North Carolina State University, who found that:

> Making students combine two apparently unrelated concepts in this manner forces them to think about their problem in a new way.

The simple focus, stratals and filament techniques

In addition to random input, three other lateral thinking techniques appear to have applicability to television production and may be applied in engineering education: simple focus, stratals, and the filament technique.

The idea with simple focus is to look at things which no one else is looking at [28]. This may be done in television production assignments which, for example, ask students to look at elements in the background of an image, not just the foreground. Do they see boom shadows, microphone cables, and other objects no one else noticed?

Another lateral thinking technique which can be applied to creative television production is the use of stratals. DeBono defines a stratal as, '. . . a number of parallel statements or observations that are put together as a whole' [29]. He conceives stratals as unconnected statements on several lines. Here is what a stratal on television studio directing might look like:

- visualizing the program;
- chooses the right shots at the right time;
- mutual respect for crew members;
- clear, specific commands;
- sets the tone in the studio.

The idea is to let new ideas emerge from looking at the stratal as a whole, not as disconnected parts. DeBono uses an analogy to illustrate the process: 'Think of stratals like wetting parts of the paper before painting a watercolor. When you come to the wet parts the paint will flow and form its own patterns' [30]. It also is possible to create layers, or stratals, in a video image during production and also use them later in postproduction in a reflective process of analysis, criticism, and evaluation.

The last lateral thinking technique which holds promise for creative television production is the filament technique. It combines the random word and simple focus techniques within the context of given requirements.

> We then take each requirement separately and totally ignore the actual context of the focus area. We extend from the requirement a 'filament' consisting of ways of satisfying the requirement. We then scan through the parallel filaments and pick out certain items along each strand. We then seek to put these together as a new idea. [31]

In television production, here's how the filament technique might work using the above studio directing example. First, some requirements of good directing would be given: visualizing, calling shots, mutual respect, clarity, and tone. Next students would come up with the 'filaments' needed to meet each requirement, as shown below:

- *Visualizing*: shots, sequences, transitions, storyboards;
- *Calling shots*: good volume, anticipates, flexible;
- *Mutual respect*: takes suggestions, helpful, considerate;
- *Clarity*: brief, precise, uses known language;
- *Tone*: calm, professional, in control, serious.

Then students link elements in the filaments. For example, linking *storyboards*, *anticipates*, *uses known language*, and *in control* may suggest that the director must come into the studio well prepared. Linking *transitions*, *flexible*, *takes suggestions*, and *calm* may suggest that once in the studio the director must be adaptable. The filament technique may also be applied to designing creative television programs by focusing on the structural and aesthetic requirements of television media and then stringing filaments from them.

Applying lateral thinking

Initially deBono intended lateral thinking techniques to be used in business organizations with training programs in creative thinking. This lead to his development of the CoRT Thinking program for schools. CoRT stands for Cognitive Research Trust, which deBono directs in Cambridge, UK [32]. However, he never considered lateral thinking techniques to involve creative artistic expression. In fact, he labels the process 'serious' creativity and explains: 'This is not necessarily the same as the creativity that involves artistic expression. Many artists have told me that they find the techniques of lateral thinking useful to them but I make no claim for lateral thinking as the basis of artistic creativity' [33]. Nevertheless, deBono concedes that he knows of rock bands which have used the random word technique [34].

The serious creativity which results from lateral thinking is consistent with Young's description of creativity:

> Creativity, as I see it, involves three components: skills, newness, and value. It is the *skill of bringing* about something new and valuable (emphasis Young's). [35]

Writing about engineering education, Gibney [36] reaches the same conclusion:

> There may be no definitive definition, but creativity clearly involves the development of something new that proves to be useful.

Creativity involves talent, of course, but it also requires training and practice, according to Young. He also says you need a goal, some idea of your direction, and criteria to judge whether you're heading in that direction. Creativity results in newness and value:

> Creative people do more than break away from the old patterns. They do more than find alternatives. They diverge from familiar patterns, but then they converge on new solutions. They break laws to *remake* them. [37]

METHOD

Four lateral thinking techniques—the random word, simple focus, stratals, and the filament technique—were applied in two assignments given to 42 college students enrolled in an intermediate television production course during the 1992 spring semester. The first assignment required groups of students to produce ungraded 3-minute-long experimental videos and then individually to write a graded 3-page analysis. The second assignment required each student to edit a graded 1-minute-long composite video from the experimental videos.

The first assignment was called 'videoscape exploration', referring to the landscape of the world of television, which Wurtzel and Rosenbaum label 'videospace'.

> Just as the proscenium arch on stage defines the boundaries of reality for the theater audience, videospace is the measure by which viewers judge what exists on television. All the spatial relationships, all the sound cues, the appearance of the performers, the total environment in which the program takes place must be created and conveyed through the videospace. Videospace and its aural counterpart, audiospace, really consist of two interrelated components: the technical aspect of the production and the aesthetic or creative elements. [38]

Likewise, deBono uses landscape metaphors such as maps and streets when explaining how lateral thinking works. For example, he depicts patterned 'point-to-point' thinking as walking along streets in a city and lateral thinking as moving sideways across traffic patterns [39, 40].

In the 'videoscape exploration' assignment students were given three central concepts—sight, sound and motion—to coordinate their work with one of the course texts, Herbert Zettl's *Sight Sound Motion: Applied Media Aesthetics*, Second Edition. This text was seen as an appropriate guide for this experiment because Zettl's goals in applying media aesthetics are similar to deBono's goals in lateral thinking [41]:

> You will gain the opportunity to combine aesthetic elements in nontraditional ways so that your viewers can perceive the world with fresh eyes and ears and from a new and unique perspective. Conversely, a knowledge of the requirements and potentials of applied media aesthetics could also generate new ideas—content that might otherwise have remained dormant. Finally, your familiarity with the formal elements of applied media aesthetics and their respective fields will enable you to exercise your creativity to its fullest.

In terms of lateral thinking, students began the first assignment with a simple focus on the concepts sight, sound, and motion. According to deBono, 'specific' creativity is possible after taking the following first step [42]:

> There is then a systematic and deliberate effort to generate new ideas and new concepts for that defined focus. Here creativity is used as a deliberate procedure for the production of new ideas. There are three aspects to specific creativity: (1) Defining the focus or creative task; (2) Structure for the deliberate application of the systematic lateral thinking tools; (3) Evaluation and implementation of the output of the creative thinking.

The second step was taken as students chose graphics, video inserts, music, sound effects, and so on, focusing on the concepts (requirements) rather than traditional program content. Then they layered aesthetic elements using the video switcher and audio mixer, discovering random inputs in the stratals of audiospace and videospace.

By emphasizing the process and not grading the product, it was thought that students would feel free to experiment, take risks, and not worry if something didn't work. The grading came in on the third step, when students evaluated the output of their creative thinking in the form of a paper. This step employed the filament technique in the sense that students connected the visual and aural threads between the concepts they illustrated in audiospace and videospace.

Students continued along these lines in the second assignment as they edited sequences from the experimental videos. Essentially, the editing assignment was another form of the filament technique, but this time students worked with the raw material of sounds and images instead of words. However, the editing project did not require analysis alone; it also required students to create new sequences of sounds and images from the original tapes.

Evaluation and implementation of the output of the creative thinking (step 3 above) took place in a 3-page analysis paper written by each student.

At the end of the semester, questionnaires were distributed asking students to provide self-assessments of their equipment operation skills, rate the experimental assignments, compare them to traditional approaches, and recommend whether the experimental assignments should be repeated. The questionnaires were completed anonymously by 38 (90%) of the 42 students. A student volunteer collected the questionnaires and placed them in an envelope.

RESULTS

Experimental 'videoscape explorations' were produced by 12 groups of three or four students each, with other classmates acting as crew members. All the videos included the required aesthetic concepts: sight, sound, and motion. Seven groups also developed central themes: contradictions, earth, king, life, mishmash, nonsense, and war games. All the groups demonstrated abilities to operate the required equipment: studio cameras, lighting, key effects on the video switcher, crawl mode on a character generator, a

Table 1. Self-assessment of ability to operate complex equipment

Strong			Adequate			Weak	NR
[18]	3	[39]	[24]	[5]	3	[5]	[3]

N = 38 (90%). Scores are in percentages. Two students checked between levels (outside brackets).

computer paint system, and a digital video effects unit. In addition, all the groups prerecorded sound tracks and video insert tapes.

In the individual analysis papers, students brought out aesthetic elements they discovered when reviewing the experimental videos. Some of these elements were balance, figure and ground, vectors, overlapping planes, perspectives, spatial paradoxes and idea-associative montage. These aesthetic elements are explicated in Zettl [43].

All 42 students in the course completed editing projects, demonstrating basic off-line editing skills. Students were provided philosophical quotations for voice-overs, which they added live in post-production edit suites. The predominant aesthetic techniques employed were what Zettl calls 'idea-associative montage,' with the sound in counterpoint to the images [44].

Questionnaires were distributed at the end of the semester which asked students about many aspects of the course. Only the items relevant to the experimental assignments are reported here.

By the end of the semester most students (between 61% and 100%) felt competent in 13 of the 14 required equipment operation skills. The exception was operating the computer paint system (47%). As shown in Table 1, when asked a similar but more general question, most students (84%) rated their ability to operate complex video production equipment between 'adequate' and 'strong.'

As Table 2 shows, most students rated the three experimental assignments between 'some value' and 'extremely valuable. The combined figures were 93% for the production assignment, 91% for the editing project, and 79% for the analysis paper.

Students were asked if they preferred the experimental assignments over more traditional assignments, which were made in other sections of the intermediate course. Forty-seven percent preferred the experimental approach. Although this response was less than half, 18% of the students who checked 'other' indicated a preference for a combination of both approaches. About one third of the students (34%) preferred the assignments in the other traditional sections of the intermediate television production course.

Finally, most students (71%) recommended repeating the experimental assignments in subsequent semesters.

CONCLUSIONS

Four lateral thinking techniques—the random word, simple focus, stratals, and the filament technique—can be applied in practical-creative television production education to teach both practical equipment operation and creative production. Applying the lateral thinking techniques in production assignments can lead to nontraditional combinations of aesthetic elements. This approach goes beyond practical-practical television production education (equipment operation and standard practices) and explores conceptual areas of media aesthetics. Williams' observation is confirmed [45]:

> Communication professors can incorporate an approach which takes students beyond equipment operation and efficient production techniques to theories and concepts which they can apply to a wide variety of communication situations within many different types of communication facilities.

Lateral thinking can also contribute to education in other fields, such as engineering, which value both technical training and creative thinking. Lateral thinking methods can be used successfully to teach practical technical skills and standard practices while, at the same time, breaking out of old patterns to create something new and valuable. As Adams [46] counsels:

> Creative engineers win in life. Educators need to ensure that students not only develop the necessary skills and strategies but become comfortable in situations with high uncertainty and no 'right' answers.

DISCUSSION

The case study reported here focused on four techniques of lateral thinking developed by de Bono [47]. Other useful contemporary methods for developing creative thinking have been advanced by Adams [48], Ayan [49], Buzan [50],

Table 2. Ratings of assignments

	Extremely valuable		Some value		No value
Producing the video exploration	⟨11⟩	⟨37⟩	⟨45⟩	⟨8⟩	⟨0⟩
Writing the video exploration analysis	⟨8⟩	⟨45⟩	⟨26⟩	⟨8⟩	⟨13⟩
The in-class video editing project	⟨39⟩	⟨39⟩	⟨13⟩	⟨0⟩	⟨8⟩

N = 38 (90%). Scores are in percentages and may not add up to 100% because of rounding.

Gardner [51], Lumsdaine & Lumsdaine [52], Nadler & Hibino [53], Osborn [54], and von Oech [55, 56], to name just a few. These applications can be placed within social, psychological, and educational frameworks provided earlier by Csikzentmihalyi [57], Koestler [58], Maslow [59], Rogers [60], and others.

Regarding the specific case study reported here, some methodological considerations must be pointed out. The conclusions about equipment operation are based on observations during productions and responses to questionnaires completed by students. Responses were similar on the two questionnaire items about equipment operation skills, indicating the reliability of these items. Responses also revealed that students discriminated between their ability levels on different equipment. Their self- assessments were not surprising. Higher percentages of students reported they could operate equipment (such as cameras) which had been introduced in the prerequisite introductory course. Lower percentages said they could operate the more complex equipment (such as the digital video effects unit and the paint system) which were introduced in the intermediate course. However, it must be remembered that these results are based on self-assessments of competencies, not cognitive tests. The results on equipment operation would be more convincing if they were based on objective pretests and posttests rather than self-assessment reports. In addition, the questionnaires were distributed at the end of the semester after students had completed two additional assignments in the course. Even though these assignments also were nontraditional, they could account for some of the skills acquisition self-reported by students.

Finally, observations and responses on the questionnaires indicate that most students perceived the experimental assignments favorably. However, some reshaped the experimental assignments into traditional forms. One group turned its 'Video Exploration' into a kind of newscast on the Gulf War and another produced something like a mini-documentary on nonviolence. Two groups indicated their perceptions of the assignments by titling their productions 'Mishmash' and 'Nonsense.' It should not be surprising that some students may rigidly adhere to familiar television formats and some may perceive experimental assignments as just messing around. Therefore, adopters are cautioned that some students may resist nontraditional approaches. At the same time, most students will appreciate and sometimes even prefer them.

REFERENCES

1. K. Gibney, Awakening creativity, *ASEE Prism* **7**, 7 (1998) pp. 18–23.
2. E. deBono, *The Mechanism of Mind*, Simon and Schuster, New York (1969).
3. A. E. Grant and E. J. Leebron, Introductory video production courses: a field survey, *Feedback*, **29**, 4 (1988) pp. 27–34.
4. S. H. Williams, A field survey of intermediate video production courses and teaching techniques, *Feedback*, **32**, 4 (1991) pp. 8–12.
5. E. Kock and J. G. Kang, Broadcast education in two year colleges: a survey of curriculum and practice, *Feedback*, **37**, 3 (1996) pp. 6–11.
6. Let problems drive the learning, *ASEE Prism*, **6**, 2, pp. 30–34, 36.
7. K. Gibney, *Awakening Creativity* (1996) pp. 18–23.
8. B. Panitz, Brain Storms, *ASEE Prism*, **7**, 7 (1998) pp. 24–29.
9. Paths to invention, *ASEE Prism* **3**, 1 (1993).
10. A. E. Grant and E. J. Leebron, *Introductory Video Production Courses: A Field Survey*, pp. 29–33.
11. S. H. Williams, *A Field Survey of Intermediate Video Production Courses and Teaching Techniques*, pp. 8–12.
12. S. H. Williams, op. cit., p. 15.
13. S. H. Williams, *Innovative Techniques for Moving Toward Conceptually Based Television Production Courses*, p 13. Texas Association of Broadcast Educators spring meeting (28 February 1992).
14. E. deBono, *Serious Creativity: Using the Power of Lateral Thinking to Create New Ideas*, p. 52. HarperCollins, New York (1992).
15. E. deBono, op. cit., p. 15.
16. E. deBono, op. cit., p. 36.
17. E. deBono, op. cit., pp. 45–46.
18. E. deBono, *The Mechanism of Mind*, p. 229.
19. E. deBono, *Serious Creativity*, pp. 53–54.
20. E. deBono, *Six Thinking Hats*, Little-Brown, New York (1986).
21. E. deBono, *Serious Creativity*, pp. 77–209.
22. A. Wurtzel and J. Rosenbaum, *Television Production*, Fourth Edition, McGraw-Hill, New York (1995) pp. 109–143.
23. E. deBono, *Serious Creativity*, p. 183.
24. E. deBono, op. cit., p. 182.
25. K. Gibney, *Awakening Creativity*, pp. 20–21.
26. K. Gibney, op. cit., pp. 22–23.
27. B. Panitz, *Brain Storms*, pp. 28–29.
28. E. deBono, *Serious Creativity*, pp. 91–103.
29. E. deBono, op. cit., p. 184.
30. E. deBono, op. cit., p. 186.

31. E. deBono, op. cit., p. 187.
32. E. deBono, E. The direct teaching of thinking in education and the CoRT method, in S. Maclure and P. Davies (eds.) *Learning to Think: Thinking to Learn*, Pergamon Press, New York (1991) pp. 3–14.
33. E. deBono, *Serious Creativity*, p. 55.
34. E. deBono, op. cit., p. 195.
35. J. G. Young, What is creativity? *The Journal of Creative Behavior*, **19**, 2 (1985) p. 78.
36. K. Gibney, *Awakening Creativity*, p. 20.
37. J. G. Young, op. cit., p. 82.
38. A. Wurtzel and J. Rosenbaum, *Television Production*, Fourth Edition, p. 39.
39. E. deBono, The direct teaching of thinking as a skill, in M. Heiman and J. Slomianko (eds.) *Teaching Skills Instruction: Concept and Techniques*, p. 220, National Education Association, Washington, D.C. (1987).
40. E. deBono, *Serious Creativity*, p. 15.
41. H. Zettl, *Sight Sound Motion: Applied Media Aesthetics*, Second Edition, Wadsworth, Belmont, California (1990) p. 12.
42. E. deBono, *Serious Creativity*, pp. 243–244.
43. H. Zettl, op. cit.
44. H. Zettl, op.cit., pp. 324–328.
45. S. H. Williams, *Innovative Techniques for Moving Toward Conceptually Based Television Production Courses*, p 13.
46. J. L. Adams, *Conceptual Blockbusting: A Guide to Better Ideas*, Reading, Massachusetts, Addison-Wesley (1986).
47. E. deBono, *Serious Creativity*.
48. J. L. Adams, *Conceptual Blockbusting*.
49. J. Ayan, *Aha! 10 Ways to Free Your Creative Spirit and Find Your Great Ideas*, Random House, New York (1997).
50. T. Buzan, *The Mind Map Book: How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential*, London, BBC Books (1993).
51. H. Gardner, *Creating Minds*, Basic Books, New York (1993).
52. E. Lumsdaine and M. Lumsdaine, *Creative Problem Solving: Thinking Skills for a Changing World*, McGraw-Hill, New York (1995).
53. G. Nadler and S. Hibino, *Breakthrough Thinking*, Revised Second Edition, Rocklin, California (1994).
54. A. F. Osborn, *Applied Imagination, Principles and Procedures of Creative Problem-Solving*, Scribner's, New York (1953).
55. R. von Oech, *A Whack on the Side of the Head*, Warner Books, New York (1983).
56. R. von Oech, *A Kick in the Seat of the Pants*, Harper Row, New York (1986).
57. M. Csikzentmihalyi, *Creativity: Flow and the Psychology of Discovery and Invention*, Harper-Collins, New York (1996).
58. A. Koestler, *The Act of Creation*, Macmillan, New York (1964).
59. A. H. Maslow, *The Farther Reaches of Human Nature*, Viking Press, New York (1971).
60. C. Rogers, *Client-Centered Therapy, Its Current Practice, Implications, and Theory*, Houghton Mifflin, Boston (1951).

John Rosenbaum is an Associate Professor in the Television- Radio Department of the Roy H. Park School of Communications at Ithaca College. He has written, produced, and directed for television and radio. He holds a master's and doctoral degrees from Columbia University, where his research interests were in media and education. At Ithaca College his research interests also include international communication. Currently, he coordinates the International Communications concentration and minor at Ithaca College.