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Brain/mind research: Optimizing your potential (Secondary level gifted education seminar design)

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Abstract

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Brain/Mind Research: Optimizing Your Potential (Secondary Level Gifted Education Seminar Design)

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Development Project Overview

It is an exciting time to be involved with education. For both the learner and the teacher, empowering new vistas have and are emerging which present possibilities that were generally beyond comprehension even ten to fifteen years ago. As a result of medical research involving study of the human brain, an infinite number of fields are benefitting from emerging incites regarding the functioning of the brain and mind with the body.

Breakthroughs regarding the asymmetrical properties of the two hemispheres in the brain in the early 70's won a Nobel Prize for Roger Sperry of the California Institute of Technology. For his work with brain waves and specialization of function, Robert Ornstein (1972) achieved worldwide recognition. Dr.Paul MacLean (1978) of the National Institute of Mental Health provided the notion of the "triune brain" in 1978, advancing further important considerations for educators. Recent educational practice is responding (albeit slowly) with some farsighted and facilitative measures to provide for the optimization of these physiological concepts regarding the learner. As one reviews the literature

of education over even the past five years, the strides in adapting and personalizing learning experiences to these important biological findings is striking and inspiring. The educator can view these revelations as dynamic and infinite opportunities for development.

It is the objective of this project to design a seminar for gifted high school students which will address the evidence from the literature regarding needs of students in their current and future development. In optimizing potential, it is felt that increasing student awareness of various areas of cognitive/affective/ intuitive/physical development can broaden their perceptions of option, of personal possibilities.

Analysis of Factors Affecting Curriculum

> The key to understanding how people interact in their environment may be in knowing how the brain works, what behavioral actions are coupled with specific brain functions and how brain processes can be assessed in educational institutions (Perrone & Pulvino, 1981).

Brain/mind research has indeed helped expand our view of human innate intellectual capacities. Cattell

(1971) developed a definition of intelligence as " . . . a composite or combination of human traits, which includes a capacity for insight into complex relationships, all of the processes involved in abstract thinking, adaptability in problem solving, and capacity to acquire new capacity." This last phrase is one that will be particularly addressed in this development seminar. The wonderful ability human beings have to actually change (increase) their own capacities is one that could be especially empowering, not only to gifted students, but to all. With the goal of minimizing self-limiting behaviors which diminish our capacities, it is felt that we can become more than we imagined possible.

Barbara Clark, in Growing Up Gifted (1983), offers a definition of giftedness that is biologically rooted, with a high level of intelligence that results from the advanced and accelerated integrations of functions within the brain, including physical sensing, emotions, cognition, and intuition. Expressed through abilities in cognition, creativity, academic aptitude, leadership, or the visual and performing arts, gifted individuals are those who are (or show promise of)

performing at high levels of intelligence. These students require services, or activities, not ordinarily provided by the schools in order to fully develop their capabilities. This definition, then, relies on intelligence as whole brain function. Clark has specified that intelligence cannot be confined to cognitive function, as was often the perception in the past, and she develops an educational model which is directed at integrated brain function. This includes cognition, emotion, intuition, and physical sensing as the four domains of the learner.

Clark (1983) also cites research which shows that gifted learners, based on biological differences, have increased brain growth in these areas: ". . . the growth of dendritic spines, increases in the complexity of networks of synaptic connections among neurons, (which allows for more accelerated thought processing) and the division of neuroglial cells." The neurons are themselves biochemically richer, which allows for more complex patterns of thought. The gifted student gets more use out of the prefrontal cortex of the brain, allowing more future planning, insightful thinking, and experiences. The gifted also are believed to move into

the alpha wave state more quickly and stay in it longer than average learners, allowing ". . . more relaxed and concentrated learning, higher levels of retention, and more integration of hemispheric modalities" (Lozanov, 1977). Further, there is believed to be more "coherence and synchronicity of brain rhythms more often, allowing heightened concentration, focused attention, and in-depth probing and inquiry" (Millay, 1981) in the gifted.

Robert Sternberg, in Beyond IQ (1985), has developed a triarchic theory of intelligence which looks at:

1. intellectual, information-processing thought "components" which are the structures and mechanisms comprising intelligence.

2. the use of "experience" in mediating between one's internal, mental world and the external world (and then adapting quickly enough to have more energy remaining for novel situations).

3. what makes people smart in their everyday "contexts," having to do with adapting to, shaping of, or finding a better environment.

Sternberg sees "insight" as a key in giftedness, looking

at major accomplishments in such areas as science, music, art, philosophy, which were the result of nearly instantaneous insights on the part of the "masters" who were responsible. In other words, he maintains, it is how one thinks, a quality of thought; not what one knows or how much one knows or how much one can assimilate.

Euphenics, a new genetic concept, supports the view that the environment can be optimized to bring out potential traits.

> In human terms, we might say that everyone is gifted, in the sense of having special potentials in the genetic repertoire, but that most of these gifts are not elicited in our environment. If the learning environment is stimulating and tolerant, a great array of skills, talents and capacities can be developed (Ferguson, 1980).

Barbara Clark (1983) adds that once we have ". . . integrated our view of reality, and established the underlying connectedness of each to all, we will then have a new meaning of giftedness. The gifted, the talented, the "intuned," and the illuminated will then

be merged . . . ."

Many educational models are available which aim at development of the right hemisphere, the left hemisphere, or integration of the two in whole-brain approaches. In referring to the mental areas dealt with by each hemisphere (for which the literature seems abundant at this time), a simple breakdown would include: logic, language, numbers, analyses, and sequencing for the left side of the brain; and rhythm, music, color, imagination, daydreaming, 3-dimensionality and spatial awareness for the right (Buzan, 1983).

Even though "hemispheric specialization in processing stimuli" (Cooke, Haipt, 1986) is often cited in the various models and approaches, it is generally felt that, in learning, the integration and engagement of both sides of the brain is the desired goal. It is the students' holistic responses to stimuli in the curriculum that teachers generally seek to elicit as represented in this paper. When the processes and functions of the right brain are facilitated, for example, self-esteem increases, the performance of left-brain skills are enhanced, and students choose to explore greater numbers of content areas in greater

depth (Samples, 1975).

Synthesis of Factors into a Needs Statement: Models

"An interest in the brain requires no justification other than a curiosity to know why we are here, what we are doing here, and where we are going" (MacLean, 1978).

In view of such interests of her own regarding hemisphericity, Madeline Hunter states (1976) some very specific suggestions for educators. Her findings:

> 1. clearly mandate the responsibility for presenting information in such a way that students can practice integrating it from both hemispheres . . .
> 2. suggest that whenever a student is not 'getting it' teachers should augment the stimulus they are already using with one to the other hemisphere . . .
> 3. adopt practices that could increase students' facility in the use of each hemisphere singly and in concert (Cooke, Haipt, 1986).

In addressing the characteristics of the gifted individual and drawing from the literature on this topic, it serves the purposes of this development

project to select those characteristics which serve as a rationale for developing the curriculum that is to follow. Briefly, some of these characteristics (and/or needs) include: "More effective behavior than contemporaries, resulting from more efficient use of: perceptual systems, conscious thought, data between subconscious and conscious operations, behavior delivery systems; and more extensive amounts and diversity of stored information" (Perrone and Male, 1981).

Clark (1983) develops additional characteristics such as:

-- little tolerance for boredom
-- need for think periods
-- need for supportive climate
-- sensitivity to environment
-- need for opportunity to share
-- more enthusiastic and impulsive
-- able to integrate
-- internal locus of evaluation
-- perceiving freshly
-- concern with outside and inside worlds
-- ability to defer closure and judgement
-- get excited and involved with novelty of design

-- openness to experience and new ideas

-- ability to tap and release unconscious and preconscious thought

-- a richer fantasy life and involvement in daydreaming

-- synesthesia abilities (tasting color, seeing sound)

-- explore potentials when given a new solution to a problem

-- preference for complexity, asymmetry, open-endedness

-- unfrightened by the unknown, the mysterious, often attracted to the puzzling

-- courage to let go of certainties, to be different, to be concerned with truth, to be certain of one's own feelings and thoughts and trust them

-- personal ability to risk, question, imagine, and perform originally.

Referring to the special brain patterns found in the gifted, George Leonard has stated that such a brain can never be "filled up." With its neuron makeup indicating that ". . . the more it knows, the more it

can know and create, perhaps we can say that the ultimate creative capacity of the brain may be, for all practical purposes, infinite" (Leonard, 1975). Marilyn Ferguson (1980) adds that a very likely posture would be that creativity does not need to be ". . . developed in man, but simply liberated."

Clark (1983) also includes reference to Abraham Maslow's work in 1962 regarding self-actualization or the reaching of one's highest potential. With gifted children having ". . . tremendous potential toward self-actualization," and polls indicating that society now prizes self-actualization above all else (Ferguson, 1980), how does one teach toward its development? Clark characterizes the classroom which encourages ". . . transpersonal communication, diversity, self-exploration, introspection, interaction, and quiet contemplation, as the classroom where self-actualization will likely occur."

Robert Marzano (1986), director of research with the McREL model for learning about learning and thinking, states that these strategies represent a ". . . restructuring or change from teacher-centered responsibility for learning to student-centered

responsibility." With the curriculum development project attempted in this paper, it is felt that McREL's breakdown of ". . . content thinking, reasoning, and learning-to-learn" skills will be emphasized and incorporated throughout the course of study. Another appropriate model is W.J.J. Gordon's Synectics (1961), where metaphor is used extensively to ". . . build a bridge between the hemispheres," carrying knowledge from the right brain of images so that it can be recognized by the left as being ". . . like something already known." With its emphasis on making the strange familiar and the familiar strange, the exercises in "transcending paradox" address the particular fancies of the gifted learner as cited above.

The elements of Clark's Integrative Education Model (1983) will also provide structure for the direction being taken. These elements include: relaxation to enhance crosstalk between the hemispheres, centering to allow for focus and coherence of brain waves for emotional balance, imagery as an integrative tool which exercises one of the brain's highest intellectual processes (imaging), verbal and physical affirmation, positive energy for the nurturing of biochemical

exchanges, complex experiences which challenge, and activation of the right hemisphere through use of the brain's intuitive abilities as "another way of knowing." As she quotes Carl Sagan, ". . . mere critical thinking without creative intuitive insights is sterile, doomed. The path to the future is the corpus callosum, through the activation of both hemispheres." David Spangler (1984) also refers to "other ways of knowing, as rational/logical knowing (for which scientific knowledge is a tool), mystical/intuitive knowing (as a form of knowing unto itself), artistic knowing, and physiological knowing. These don't have to be proven by any of the others, but can augment each other. Any need to blend leads both to bad mysticism and bad science." It is through holistic attention to these elements that Perrone and Male (1981) state that ". . . greater awareness can be achieved. Through data derived from experiences, rather than based on what's read, heard or seen, the individual's subconscious data is more vivid and accessible." Therefore, "stimulating environments, learning-by-doing, self-awareness, self-regulation, alternatives, and evaluative feedback are all necessary for talented students, now and in the future." They go

on to predict that, in our future society, biofeedback will be well understood and used, that there will be less biases and stereotypes accepted, and that individuals will have command of several languages. Socially, people who can facilitate communication and collaboration will be valued more than people who can direct the efforts of others. In athletics, those who can teach others will be more valued than those who entertain, as will be true with music and art. Perrone and Male also feel that achieving excellence through ". . . self-direction implies being knowledgeable and having the social and psychological freedom to act in a manner that is personally satisfying and socially meaningful."

In Alexander and Muia's (1982) holistic approach to curriculum for the gifted, it is also stressed that experiences are to be made relevant, and that experience itself (as in perceiving, communicating, loving, decision-making, knowing, patterning, valuing, and creating) is frequently the best teacher with gifted learners. These students are capable of reflective processing of external conditions and consequences balanced against internal desires and motivations.

Superlearning (Ostrander & Schroeder, 1979) is another approach with important implications for the gifted course being designed, even though it was not designed for gifted education specifically. Based on research by Lozanov in 1977 in Bulgaria, it not only accelerates the learning process but is shown to increase the retention factor dramatically as well. It is based on three principles; joy and absence of tension, unity of the conscious and unconscious, and suggestive interaction with a caring teacher. The use of music (generally classical) with the second principle is its most identifying factor. Three programs based on this same concept include Superlearning, Suggestopedia, and Optimalearning, all of which demonstrate significant improvement in memory in every content discipline. Suggestopedia research shows that material was mastered in two to three months (with a higher level of retention) that under former methodology took over a year to learn (Clark, 1983).

Superlearning also makes notable use of biofeedback. As a tool for releasing a person's potential (the instrument and process do nothing to the person), it is felt that biofeedback has tremendous

potential for education. With training, students develop awareness of physiological states associated with pleasant feelings and can train themselves to use such states in reducing anxiety, anger, and fears that interfere with learning (Mulholland, 1973). Clark (1983) cites biofeedback as an important concept for actualizing the integrated and responsible learner and in truly facilitating a holistic education, one of mind and body together.

Transpersonal Education (Hendricks & Fadiman, 1976) is another source with important concepts for the balance of the gifted student. Based again on Maslow's work with self-actualization and transcendence, one goal is the further development of intuitive abilities. The goals of these exercises are a ". . . greater sense of wholeness, of purpose, of inner direction, and outer responsible caring" (Clark, 1983).

Science concepts, coupled with principles of psychological development, offer challenging connections for the bright student in The Homing Process: A Unifying Model for the New Paradigm by Richard Ruster (1987). Its precepts, which revolve around quantum physics, will provide additional course

options for those students so inclined.

Another program that has unlimited possibilities for the learner and for this seminar format is the Whole Mind Learning Project in Minnesota. It draws upon a variety of cross-disciplinary research and is based upon recent data on brain processes and information processing. Students learn they have voluntary control over their own thoughts and intuitive insights which can be used to improve school performance. Beyond academic gains, applications for whole mind learning have also proven to be successful in health, business, artistic, athletic, music, and science realms (Hunter, 1986).

Finally, in this review of literature directed at a needs assessment on which to base implementation, the reader could gain much from the perusal of Marilyn Ferguson's "Assumptions of the New Paradigm of Learning." From her chapter on education in The Aquarian Conspiracy: Personal and Social Transformation in the 1980's, these highlights serve as goals for this gifted education course offering:

1. learning as a process, a journey, with a flexible structure focusing on how to learn

2. concern with potential and transcending

perceived limitations

3. divergence and confluence

4. education seen as a lifelong process with the teacher as a learner along with (and from) the students. As Ferguson synthesizes: ". . . the old assumptions generate questions about achieving norms, obedience, and correct answers. The new assumptions lead to questions about how to motivate for lifelong learning, how to strengthen self-discipline, how to awaken curiosity, and how to encourage creative risk in people of all ages." These are certainly worthy goals for the curriculum design to follow.

For more about the teacher as learner, Williams (1983) offers in Teaching for the Two-Sided Mind that teachers are products of a system that emphasizes linear, verbal processes, and many have missed the opportunity to develop some of their right-hemisphere capabilities. Fortunately, however, those basic powers of the mind are not lost by disuse. They can be reclaimed at any time.

Synthesis of Factors into a Needs Statement: Local Parameters

The Charles City Community School District

presently operates a gifted education program for grades two through eight. Designed initially to extend one grade level higher as each new school year began, much difficulty was encountered in arriving at a suitable format for the high school level. With a mass of worthwhile enrichment opportunities currently offered there within the content disciplines, no real answers were clear as to a gifted education format which could supplement an already-excellent curriculum in a meaningful way. There also has been the additional aspect of extremely full schedules for the bright students who would be targeted by such a gifted education course offering.

The concept being developed in this paper is a format for providing bright students with exposure to recent research and programs aimed at maximizing human potential. Chosen to augment subject-area interests and extra-curricular activities already selected by the individual student, these approaches will be offered in a generic fashion for student adaptation and application as they perceive to be appropriate.

The course development is based upon forty-five contact hours with students. It is quite likely that a

local community college will offer college credit to juniors and seniors for this course, and their guideline for a 3-unit class is forty-five contact hours per semester.

Actual class meeting times will need to be flexible from year to year in order to accommodate the schedules of participating students, but the format of 2 hours per week during a given semester will be the underlying intent. This leaves 9 contact hours, and it is suggested that these could be in the form of a retreat at some other location. Student input will be considered in determining whether the retreat will serve its purposes best toward the beginning of the course (as in developing trust and a sense of community among participants) or serve best as a closure activity (possibly for the purpose of presenting student projects in a more relaxed and celebratory setting). Another option in planning the retreat may be to split it into two extended sessions, one at the beginning and one toward the end, to facilitate both retreat goals listed above.

Since a minimum of eight students is required in order for a course to "be developed" with the community

college the seminar format which follows is based on enrollment of eight students.

As a dimension of the Autonomous Learner Model, Betts and Knapp-Kercher (1985) have developed a seminar model for gifted education which concurs with goals for this course development. The seminar approach will facilitate the important aspect of student participation, although the basic content portion of the course will provide background information offered as a foundation by the teacher. The seminar model is based on production of ideas and projects. Students progress from the "student" category and are viewed as learners. This denotes more independence, based on adequate preparation, with less direction from outside sources. "A learner understands the process of learning, the importance of skills, concepts and attitudes for learning, and the dedication which is required to become autonomous." (Betts, 1985).

In a seminar, the learners pursue projects in small groups, select and research a suitable topic, are given time to prepare their seminar presentation, and actually present their project to other members of the program, as well as to other interested school and community

members. The three components of the seminar are presentation of factual information, discussion and/or activity, and closure (Betts, 1985).

> Several approaches to learning are particularly suited to the seminar format. The exploration of ideas and concepts involves the student in reflective, critical, and creative thinking. The interdisciplinary and conceptual nature of the seminar and the nature of the gifted learner suggest that dealing with abstract ideas at a high level of complexity is an appropriate and differentiated learning process for the gifted student" (Kolloff & Feldhusen, 1986).

The task of the instructor, then, is seen as assisting students in high-level performance through goal-setting activities, and encouraging/assisting them in achieving those goals.

The content portion of this seminar will provide a basis for making student topic selections, continuing throughout the course until the concluding student presentations.

It is important to note that student choice

underlies the philosophy of the seminar. Clark (1983) states that this perception of responsibility for, and control over one's life is the ". . . single most important condition for success, achievement, and well-being." The perception of choice heightens the "inner locus of control" in the learner, the degree of which is believed to be in direct correlation to success in later life. Gifted children have more inner locus of control at an earlier age than the average learner. When the world is seen as an entity to be acted upon, not one in which the individual is helpless and everything happens to you, such a perception serves as one of the ". . . triggers for developing high levels of intelligence." Clark believes, that inner locus of control is (or is not) established during the first two months of life.

Implementation

The implementation of the seminar design is based upon the following goals:

1. to facilitate identity and self-esteem issues whereby the learner will increase his/her familiarity with his/her own particular strengths, weaknesses, learning style and individual perceptions.

2. to provide opportunities for exploring and practicing various tools for self-improvement which are felt to be facilitative of the educational process and reflect recent brain research findings.

3. to challenge students to improve their performance or accelerate their learning in an appropriate area(s), selected by the students, with student-recorded progress, feedback and evaluation.

4. to incorporate multi-disciplinary approaches (in exploratory fashion) which provide students with exposure to a variety of fields and/or concepts with which they may not be familiar.

5. to foster self-concept development by aiding the student's convergent process of defining/finding a personal course of action that "fits."

6. to practice learning systems which could provide options for all students and in other areas of the school, and to brainstorm effective ways of sharing these with interested others.

7. to personalize the scientifically-based concepts of learning potential by student-development, in seminar-fashion, of a project which expands some aspect of the course, for presentation toward the end of

the semester.

8. to provide for positive change within the individual through increased motivation. This enables the student to achieve personal development for self satisfaction rather than for such extrinsic rewards as grades or approval.

The three divisions of this Brain/Mind Research Seminar, then, are:

1. the study of the CONTENT concepts, approaches, and experiences. The overall areas of study for this portion would be drawn from the following list of concepts and processes:

Physiology of the brain

Hemisphericity

Triune brain

Holographic theory of the brain

Learning style instruments

Self-concept, self-esteem development

Stress and relaxation techniques

Mind-clearing

Biofeedback

Importance of thought in creating reality

Health

Performance

General

Memory/mneumonics techniques

Visual thinking, imagery

Superlearning, Optimalearning, Suggestopedia

Drawing

Creativity

Dance

Drama

Writing tools

Journalling

Mind-mapping

Changes in societal perceptions

Paradigm shift

Quantum physics

"Beyond War"

Global Brain

Developing of Potential

Athletics

Leadership

Psychology of Winning

Natural highs

Other

An expanded outline of curricula for student choice and teacher utilization appears as Appendix A.

Clearly, this represents a vast amount of information. All areas are included here to provide a broad range of possibilities for teaching such a course. A possible format would be dividing the list in half for each of two semesters. This provides exposure to each of the concepts over the entire school year. If this is not possible, one must acknowledge that there will be only enough time to superficially deal with each approach or concept. Nevertheless, such a program would prove worthwhile for the learner.

2. Content is personalized through student CHOICE of an area on which to expand in greater depth. An overview of topics related to those in Section 1 will be provided at the beginning of the course. This will enable students to have "incubation time" for selecting an area of personal development (a product) which is regarded worthwhile in their present situation. Extended references for topic selections are included in Appendix A. Students may find other current materials not included in this source.

3. Seminar PRESENTATIONS in which the student(s)

will share his/her findings culminate the program. Projects may be adapted through the creativity of the learner and the dictates of the topic chosen.

Products may be as varied as the showing of measurable personal improvement in a particular skill (such as relaxation response), reading/retention speed, memory capacity, creative problem-solving, notetaking ability, or drawing skills. Pre- and post-tests will be administered to demonstrate skill improvement, unless some other form of evaluative indicator of progress is more appropriate. Other products may include: visualization skills to improve athletic performance; relaxation techniques to relieve stress; or results experienced from Suggestology methods. Twenty-one consecutive-day-trials may be a method employed for attitude improvement regarding a subject perceived as uninteresting, for example development of broader tastes in music appreciation, relationships in which difficulties are experienced, or improving self-esteem through doing something nice for someone with no thought of reward. "Even learning to juggle is used as a metaphor for the willingness to take risks and make mistakes in the pursuit of a goal" (Beckway, 1984).

Evaluation

Pre- and post-tests, based on material presented during each lesson, will be used throughout the course. These can be administered informally, to serve as motivation for learning and provide evaluative feedback afterward. These will model the use of evaluative measures and the value of feedback for each student presenting a seminar project. Two days before the final presentation each student will be responsible for submitting appropriate evaluation forms to be used regarding his/her presentation. An introduction and outline of presentation will also be turned in two days in advance. These will include forms for self-evaluation, audience evaluation, and evaluation by the teacher. As with all feedback instruments used during the course, anecdotal responses will be requested for subjective, qualitative evaluation within these forms. (An introduction and outline of presentation will also be turned in two days in advance.)

The learner's grade for the course will be derived from four areas, which coincide with the four domains of the learner (Clark, 1983). The scores from quizzes given over the content material covered will represent

the cognitive domain. The affective domain will be represented by a percentage figure arrived at by the students when assessing atitudes about the degree of participation in the seminar. The grade corresponding to the intuitive domain will be based on the journal kept throughout the course. A determination will be made based on the evidence of growth or introspection. The physical/sensing domain will be represented by the grade received on the students' project presentation and its application to the course objectives. The percentage figures for the last three areas will be confirmed through a student interview with the teacher. This will provide an opportunity for student input that is essential in the Integrative Model.

Several evaluation instruments can be appropriate for use in final evaluation of the course. The formative purpose of program improvement is based on feedback. Refer to Appendix for "A formative evaluation process for the evaluation of gifted and talented programs" (Carter & Hamilton, 1985).

For summative evaluation, see Appendix entries by Betts (1985), by Struve (1982), and by Renzulli (1975). Also included are the following instruments from A

guidebook for evaluating programs for the gifted and talented (Renzulli, 1975): "The Class Activities Questionnaire" (Steele, 1969) and the "Student Attitude Toward Independent Study Questionnaire (Satis-Q)" (Renzulli & Gable, 1975).

Further evaluation, both formative and summative, would be to submit forms to both students, parents and teachers which would list each of the goals for the course. They would be asked to rank the extent to which they feel each specific goal was met by the course. The rating scale below each goal/question would be as follows (Hall, 1980):

5	4	3	2	1
To a great extent		Somewhat		To a very limited extent

Also in the Appendix is a sample of Hall's (1980) "Gifted class rating scale" to be filled out by the course teacher.

Related Parting Thoughts from Futurists

Many authorities have commented on the need for cultivating the talents of the most able youth. They particularly emphasize the future effects of appropriate educational experiences. Some of the most notable are cited.

> No matter how extraordinary the results obtained in such processes, the ultimate purpose of this work is not to demonstrate spectacular new powers . . . Human capabilities are obviously much greater than we generally assume. As we begin to realize some of these capabilities, we move into fascinating realms, full of their own possibilities . . . What will count in the long run is not just what we learn to do but what we are willing to be. The most promising adventure is worth joining only if it eventually contributes to the common good (Leonard, 1978).

Toffler (1981) emphasizes the freedom derived from personal development:

> The responsibility for change, therefore, lies with us. We must begin with ourselves, teaching ourselves not to close our minds prematurely to the novel, the surprising, the seemingly radical. This means fighting off the idea-assassins who rush forward to kill any new suggestion on grounds of its impracticality, while defending

> whatever now exists as practical, no matter how absurd, oppressive, or unworkable it may be. It means fighting for freedom of expression--the right of people to voice their ideas, even if heretical.

Brown (1979) posits the untapped potential of human intellect: "Human beings possess capabilities of mind that are literally beyond genius."

Other authors highlight the human drive to improve:

> "What is so attractive about the promises of the new learning systems is they connect the drive for inner expansion with the drive for satisfying outward performance. . . . They could help move us from much of the stress and distress of our times . . . The urge to reclaim the ability to act, the ability to matter to ourselves and others is energizing another American trait--self reliance . . . The only true elite that has ever existed has been the elite of those who genuinely tried. Membership is paradoxically open to all, and its healthy destiny is to become less and less of an elite as more and more people fulfill what human

beings can become when they wholeheartedly try (Ostrander & Schroeder, 1979).

Leonard (1969) emphasizes the drive toward the positive:

> Life has one ultimate message, Yes! repeated in infinite number and variety. . . . To affirm, to follow ecstasy in learning--in spite of injustice, suffering, confusion and disappointment--is to move more easily toward an education, a society that would free the enormous potential of which man is easily capable.

Authors addressing the importance of intuition in education challenge with questions:

> "Can education change so that students can become present-day seers? . . . change in the direction we envision requires commitment, a willingness to abandon self-interest and the comfort of well-entrenched methods. Education obviously <u>can</u> be changed. Will it change? (Noddings & Shore, 1984).

Ferguson (1980) highlights weaknesses in our system of the past:

> It's about how the learner came to be unfree . . . about our culture's great learning educational system that emphasizes being 'right' at the expense of being open . . . The fear of learning--and transformation--is the inevitable product of such a system. This is the poignant human paradox: a plastic brain capable of endless self-transcendence, equally capable of being trained into self-limiting behavior.

A revered educator champions the inner wisdom of the individual:

> Ten Imperatives for gifted and talented children, powerful enough to transform lives and society:
>
> 1. Don't be afraid to fall in love with something and pursue it with intensity.
> 2. Know, understand, and take pride in your strengths.
> 3. Practice, develop, exploit, enjoy your greatest strengths.
> 4. Learn to free yourself from the expectations of others and to walk away

from the 'games' they impose upon you.

5. Free yourself 'to play your own game.'

6. Find a great teacher or mentor who will help you.

7. Don't waste energy trying to be well-rounded.

8. Do what you love and can do well.

9. Learn the skills of interdependence.

10. Give freely from the infinity of your creativity (Torrance, 1986).

Summary

In reviewing the previously stated objectives of the seminar, the emphasis on personalization tools and methods for the learner to access his own wisdom and integrity emerges as most central. Insight into how we learn best can do much for the development of potential and renewal of inner drives which motivate the autonomous lifelong learner.

Considerations found in the literature indicate the importance of a positive and empowering learning environment for optimal brain function. Removing the fear-based motivations related to the teacher's-answer-as-the-only-right-one can itself allow

more optimal access to both the normal and further reaches of our intellectual and creative potentials. This can also restore the feeling of individual integrity and unlimited possibility within our bright young people.

Decentralization of authority and the permission to search for one's own truth can serve to reconnect us in ways we have experienced real departures from within the educational process. The intimacy and personal responsibility of the seminar in the educational setting contribute to these objectives. The intended seminar would likely be quite different with respect to actual topics for in-depth coverage each semester that it is offered, reflecting student choice and interest. The expanded curriculum suggestions in Appendix A provide starting points to assist each class with the choices to be made and responsibilities to be taken by the learner-as-individual, thereby enhancing inner-locus-of-control. Even at the group level, resonance should be sought through the meeting of individual agendas and needs. Optimization of potential within a senior high learner could be the most we can do to enhance future possibilities for all of us.

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Leonard, G. (1975). The ultimate athlete. New York: Viking.

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Struve, N. (1982). The beautiful brain. Waterloo, IA: Teacher Center.

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APPENDIX

Table of Contents for Appendix

Outline of Curriculum Expanded in Appendix A

for Brain/Mind Research: Optimizing your Potential

I. Physiology of the brain

II. Hemisphericity

III. Triune brain

IV. Holographic theory

V. Learning style instruments

VI. Self-concept, self-esteem development

VII. Stress and relaxation techniques

VIII. Mind-clearing

IX. Biofeedback

X. Importance of thought in creating reality

XI. Health

XII. Performance

XIII. General

XIV. Memory/mneumonics techniques

XV. Visual thinking, imagery

XVI. Superlearning, Optimalearning, Suggestopedia

XVII. Drawing

XVIII. Creativity

XIX. Dance

XX. Drama

XXI. Writing tools

XXII. Journalling

XXIII. Mind-mapping

XXIV. Changes in societal perceptions

XXV. Paradigm shift

XXVI. Quantum physics

XXVII. "Beyond War"

XXVIII. Global Brain

XXIX. Developing of Potential

XXX. Athletics

XXXI. Leadership

XXXII. Psychology of Winning

XXXIII. Natural highs

XXXIV. Other

Appendix A

Expanded Curriculum Outline

I. Physiology of the brain

A. Resource: PBS series, "The Brain," 1984. Available through AEA, excellent, one hour each. Series includes:

1. Brain: enlightened machine
2. Brain: learning and memory
3. Brain: rhythms and drives
4. Brain: states of mind
5. Brain: stress and emotion
6. Brain: two brains
7. Brain: vision and movement
    a. motivation as each is viewed could be assignment to create some kind of model illustrating the dynamics described in each video (can have partners). (mime, human sculpture, art, metaphor, creative dramatics, poetry, dance . . .)
    b. possibilities for opening retreat
    c. recreate synapses, dendrites, axons, impulses, by assigning students parts to act out.

B. Resource: The Brain and Its Magnificence AEA--17 min., 1985. (metaphor of computer.)

1. motivation: Be prepared to express (in any medium) your agreement or disagreement with the computer as a metaphor.

C. Resource: books on the brain:

1. Russell (1979). The Brain Book. New York: Hawthorn.
2. Restak, R. (1979). The Brain: The Last Frontier. New York: Doubleday.
3. Buzan, T. (1983). The Brain User's Guide. New York: Dutton.
4. The Brain: A User's Manual, (1981). Perigree Books.
5. Hooper, J., & Teresi, D. (1986). Three Pound Universe. New York: MacMillan.
   a. In your group, decide on other symbols which could be used for the brain in our existence.

D. Resource: model of the human brain

1. motivation--students may choose any art medium to reproduce, incorporating labels.

E. Resource: Animal brains (in formaldehyde)

1. student collected; leave brain stem attached.
2. observation of differences/similarities between human brain and that of:
   a. fish
   b. swine
   c. cow

F. Resource: brain surgeon, surgery, techniques
   1. Mentor experience/individual field trip
      a. Mason City, Waterloo
      b. Iowa City, Rochester

G. Optional: Do research into brain disorders. Categorize your findings according to those which are congenital and those resulting from injury. Interview a doctor on some aspect that you wonder about. Interview a parent of a brain-injured child.

H. Draw a mind map of the brain.

I. Following B. Clark's (1983, p. 21-23) citing of Paul MacLean's use of the hand to create an analogy for the brain, practice this and deliver to someone who is interested. Then show them "test anxiety" using the hand in the

same way.

J. Research and examine an EEG and a CAT Scan. What other forms of instrumentation are used diagnosing problems in the brain?

II. Hemisphericity of the Brain

A. Resource: "The Brain: Two Brains" PBS, 1984, AEA, 60 min.

1. motivation: illustrate the differences between the two hemispheres so that they would be very clear to an unfamiliar audience.

2. Draw a "conceptual" map of the brain using the concepts of hemisphericity, etc.

3. Create a skit showing hemisphericity and then integration within the brain.

4. Decide on a symbol that represents the dichotomy of the hemispheres.

B. Resource: teacher's collected file of right/left hemisphere literature

1. make a compilation; synthesize.

C. Resource: Books addressing hemisphericity concept:

1. Buzan, T. (1983). Use Both Sides of Your

Brain. New York: Dutton.

2. Williams, L. V. (1983). Teaching for the two-sided mind. Englewood Cliffs, NJ: Prentice Hall.

3. Ornstein, R. (1972). The psychology of consciousness. ch. 3. New York: Viking.

4. Cooke & Haipt. (1986). Thinking with the whole brain. Washington, DC: National Education Association.

5. Andrews, M. F. (1980). The consonance between right brain and affective, sub-conscious, and multi-sensory functions. Journal of Creative Behavior 14. (2) 77-87.

D. Exercises to illustrate right/left brain thinking.

1. Rotalo, S. K. (1982). Right-brain lesson plans for a left-brain world. San Luis Obispo, CA: C. C. Thomas.

2. Vitale, B. M. (1982). Unicorns are real: a right-brained approach to learning. Rolling Hills, CA: Jalmar.

3. Zdenek, M. (1983). The right-brain

experience: an intimate program to free the powers of your imagination. New York: McGraw-Hill.

4. Vitale, B. M. (1986). Free flight: celebrating your right brain. Rolling Hills, Ca: Jalmar.
5. Barrett, S. L. (1985). It's all in your head: a guide to understanding your brain and boosting your brain power. Minneapolis: Free Spirit.
6. Samples, B. (1976). The metaphoric mind. Menlo Park, CA: Addison-Wesley.
7. Kettering, J. G. (1980). Teaching the whole child: hemispheric brain research. (unpublished paper).
8. Gorovitz, E. S. (1982). The creative brain II: a revisit with Ned Hermann. Training & Development Journal, 12, 74-88.

E. Ask for student processing (journalling, poetry, art) of their experiences after exercises such as:

1. Houston, J. (1982). The possible human: A course in enhancing your physical, mental & creative abilities. Los Angeles: J.P. Tarcher.

2. Houston, J., & Masters, R. (1972). Mind Games. New York: Viking.

3. Wonder & Donavan (1984). Whole brain thinking: working from both sides of the brain to achieve peak performance. New York: Ballantine.

4. (1982). Brain games: 134 original scientific games to reveal how your mind works. New York: Schocken.

5. Raudsepp, E. (1977). Creative growth games: 75 fascinating games to expand and unleash your originality. New York: HBJ.

6. Albrecht, K. (1980). Brain power: learn to improve your thinking skills. Englewood Cliffs, NJ: Prentice-Hall.

7. Ostrander, Schroeder (1979). Superlearning. New York: Delacorte.

8. Clark, B. (1986). Optimizing education: the integrative education model in the classroom. Columbus: Merrill. ch. 9.

F. Assign students to try some of these exercises with a classroom of children in younger grades and report their experience.

III. The Triune Brain

A. Resource: National Institute of Mental Health literature by Dr. Paul MacLean, 1980-87.

1. motivation--illustrate the concept by incorporating at least 2 other mediums.

B. Resource: Starlab Laboratories

1. assignment: find out how cylinders are designed and constructed for projection in the Starlab Domes

a. Learning Technologies, Inc., 435 Newtonville Ave., Newton, MA 02160. 617-547-7724 or

b. Tri-Ed Enterprises, Inc., P. O. Box 37506, Omaha, NE 68137. 402-346-1884.

2. design a Starlab cylinder to illustrate the triune brain (and brain physiology in general).

a. propose idea to Starlab for production with yourself as Developer.

C. Motivation:

1. draw a conceptual map of the brain based on the Triune theory.

2. act out the aspects of each aspect of the triune brain.

D. Resource: Beebe, R.V.D. The evolving angel: educating the triune brain. Dromenon.

1. React to the following concepts from this article:

a. "If we fail to educate the dreamer, the 'angel' of the prefrontal lobes which allows us to deal with multiple possibilities, we may significantly reduce our chances of survival."

b. "We seem to want to leave the primitive reptilian and limbic brains behind, forgetting that 'primitive' derives from primary: first."

IV. Holographic Theory of the Brain

A. Resource: Demonstration of holography.

1. High school teacher may be recruited to set up the making of a hologram by demonstrating use of school's laser equipment.

a. check for comprehension of metaphor as a thinking tool.

b. Students write a description of process to check perception at this point.

B. Resource: Supplement with readings about the nature of holography.

1. Caulfield, H. J. (1984). The wonder of holography. National Geographic, 165. 364-377.
2. Edelson, E. (1979). The bizarre new world of holography. Popular Science, Mar., 87-91.
3. Keziere, R. (1986). Magical visions with a human touch. Macleans, 99, 515. 50.

C. Resource: Read articles explaining holography applied to the brain/mind.

1. Hooper & Teresi (1986). 3lb. Universe p. 345-351.
2. Russell, P. (1979). The Brain Book. ch. 11, The holographic theory of mind.
3. Pietsch, P. (1981). Shufflebrain. Boston: Houghton Mifflin. (entire book on holographic theory).
4. Pribram, K. (1979). Holographic memory. Psychology Today. 2/79, 71-84.
    a. Check students comprehension of this concept through oral discussion and writing.

V. Learning Style Instruments

A. Resource: video film and booklet (AEA): Cray-Andrews, M. (1986). Mind's view: how children think and learn. Maynard, MA: Gabriel Systems. (based on Gregorc's Guide to Style (1982).

1. relate to teacher-student interactions
2. relate to parent-child interactions

B. Resource: Administer a learning style indicator(s). The following are options:

1. Gregorc's (1982) Delineator and/or Transaction Ability Inventory. (5 minute administration).
2. Torrance's Test on Styles of Learning "Your Style of Thinking and Learning" (1980).
3. The Kiersey Temperament Sorter (based on:
4. Myers-Briggs Inventory) (1980) interpret from book. Kiersey, D. & Bates, M (1978). Please understand me. DelMar, CA: Prometheus. and/or McCaulley, M. & Briggs-Myers, I. (1985). A guide to the Development and Use of the Myers-Briggs

Type Indicator. Palo Alto, CA: Consulting Psychologists Press. (integrative, Jungian) and/or Myers, IB. (1980). Gifts differing. Palo Alto, CA: Consulting Psychologists.

5. Canfield & Lafferty. (1970). "Learning styles inventory." Detroit: Humanics Media. (15 minute administration time).
6. Dunn, Dunn & Price (1978). Learning style inventory. (LSI). Reston, VA: Reston. (30 minute administration).
7. Hill, J. E. Cognitive style interest inventory. (50 minute administration).
8. Kolb, D. (1976). Learning style inventory. feeling, watching, thinking, doing 5-10 minute administration--integrated, Jungian.
9. Schmeck, R. R. Inventory of learning processes. 20 minute administration.
10. Ramirez and Casteneda. Child rating form (older students can rate themselves).
11. McKenney & Keen (1974). Preceptive/ Receptive-Systematic/Intuitive scale.

C. Use in class for insights, processing: Lawrence,

G. (1982). People types & Tiger Stripes: a personal guide to learning styles. Gainesville, FL: Center for Applications of Psychological Type, Inc.

1. Interpret findings/reations using a blend of mediums and at least one other partner.

D. show video "Each One Teach One" by Maxine Greene.

1. react in journal entry that day.

E. See for overview:

1. Partridge, Rebecca. (1981). Learning styles: a review of selected models. Journal of Nursing Education, 22. (6) 243-248. and

2. Taggart, W. (1982). Decision styles education: an innovative approach. Organizational Behavior Teaching Journal, 7, (2) 17-24. and

3. Dunn, R. & DeBello, T. (1981). Learning style researchers define differences differently. Education Leadership. 2/81, 372-375.

F. Reflect on how these exercises contribute to self-concept, self-esteem in journalling with applications from now until end of semester.

VI. Self-concept, self-esteem development motivation:

A. Reflect on how the learning styles inventories' information and insights contributes to self-concept and self-esteem. Include applications and reflections on this in your journal-writing over the remainder of the semester.

1. group activity-create a skit which dramatizes some aspect of learning styles related to self-concept.

B. Motivation: Apply the 21-consecutive-day trial concept (affecting habit perception formation) to one of the following, or create an application of your own:

1. Do something nice for someone for 21 days in a row with no expectation of reward for it. They need not even know who has done it. (Beckway, 1984).

a. teacher cards

b. (try "relative cards," "neighbor cards," "sibling cards"

2. Attempt to improve your attitude toward something (as a subject) you think is

boring by devoting 30 minutes per day to it (for 21 days, withholding negative judgement during this time).

3. Develop a broader sense of music appreciation by listening to a new style(s) of music for 30 minutes per day.
4. Attempt to improve your relationship with someone in your family by doing one nice thing every day for them, without telling unless asked.

C. Pick a favorite affirmation that you could benefit from hearing, hang it in your room, put it in your wallet, tape one inside "locker, etc."

D. Resource: Bach, R. (1970). Jonathan Livingston Seagull. New York: MacMillan.

1. plus video by same name
2. plus song by the same name (Neil Diamond, (1977). "Love at the Greek" CBS.
3. Resource: Frazier, K. "We can learn to fly!" Challenge by Good Apple. pp. 18-19.
   a. Write about what you and Jonathan have in common, and then where you differ.

b. Express your impressions of the book through art, poetry, and/or music.

c. Choose a symbol for (or write about) the importance of believing in yourself.

VII. Stress and relaxation techniques

A. Resource: PBS video (AEA, 1 hour). "The Brain: Stress and Emotion."

B. Resource: B. Clark (1983). pp. 21-23, shares Paul MacLean's analogy of the brain through using the parts of the hand. Demonstrate "test anxiety" based on this.

C. Harmin, M. & Saville, S. (1977). AEA. A peaceable classroom: activities to calm & free student energies. Minneapolis: Winston Press. "learning to dissolve tension by giving in to it"--pp. 25-8. "breathing to regain the center the self." p. 67. "side-stepping negative energy." p. 84.

D. O'Rourke, R. (1976). Yes, We can help kids relax. Learning. 18, 25.

E. Galyean, B. (1980). Mediating with Children. (article).

F. Cautela, J. R. Relaxation: a comprehensive

Manual for adults, children, and children with special needs. Champaign, IL: Research Press. cues, data sheets, exercises, etc. AEA.

G. Lockett, N. (1985). It can be managed: Stress-awareness affects coping. ISEA.

H. Lupin, M. (1977). Peace, harmony, awareness: A relaxation program for children (& teachers). Allen, TX: DLM.

I. Dhiravamsa (1982). The dynamic way of medication Wellingborough, UK: Turnstone.

1. In what ways could a passive activity like mind-clearing be considered dynamic?

J. Benson, H. (1975). The relaxation response. New York: Avon.

1. Describe the 5-minute mind-clearing technique that "has helped millions cope with fatigue, anxiety and stress."

K. Kaercher, D. (1984). How you can help your child cope with stress. Better Homes and Gardens, Aug., 114.

L. Richards, M. C. (1964). Centering in pottery, poetry, and the person. Middletown, CT: Wesleyan University.

VIII. Mind-clearing

A. Harmin & Saville (1977). A peaceable classroom. "activities for mind-clearing" p. 29-44. (clearing emotional energy, etc.).

B. Morris, J. (1976). Meditation in the Classroom. Learning Dec., p. 17-27.

C. Galyean, B. (1980) Meditating with Children: Some things we learned. Association for Humanistic Psychology.

D. LeShan, L. How to meditate. ch. 8. many approaches to try.

E. "Meditation" ch. The Relaxation & Stress Reduction Workbook.

F. Rubottom, A. E. (1972). "Transcendental Meditation and its potential uses for schools." Social Education. Dec., 851-857.

G. Driscoll, F. "T. M. as a secondary school subject." Phi Delta Kappan. Dec., 1972. 236-237.

H. Dillbeck, S. & Aron, A. (1979). "The T. M. Dillbeck, M. program as an educational technology: research and applications. Educational Technology. Nov., 7-13.

I. "Young meditator's EEG's different while

learning." Brain/Mind Bulletin.

J. Lockett, N. (1985). It can be managed: Stress-awareness affects coping. ISEA.

K. Benson, H. (1975). The relaxation response New York: Avon.

IX. Biofeedback

A. Resource: arrange a demonstration and chance to use a biofeedback machine.

1. Write a grant to purchase one for classroom use (Haman Potential Center?).

2. Keep records of your personal progress in managing tension with it as a tool.

3. Write a description of the process for the school newspaper. Try to interest others in trying the technique.

B. Resource: Jeffrey-Smith, L. A. & Hicks, M. A. "Biofeedback: The stress alternative." (measures EMB activity).

C. "Biofeedback assists modern medicine." Minnesota Suburban Newspapers, 1986.

D. Clark, B. (1983). Growing up gifted. Columbus: Merrill. See pp. 402-404. re: use of biofeedback in education.

1. How could this be implemented in our school?

E. Benson, H. The relaxation response. See pp. 78-80. about use of biofeedback in reducing tension.

2. Write your own rationale for having biofeedback equipment available for students in the school setting.

a. Write a grant that would provide for purchasing biofeedback equipment for school use.

F. Barrett, S. L. (1985). It's all in your head. Minneapolis: Free Spirit. pp. 113+.

X. Importance of thought in creating reality

A. Resource: PBS video, AEA, 1 hour: The brain: states of mind.

B. React to this quotation from Miller (1969). Emotions and malignancy out of Hendricks & Fadiman (Eds.) (1976). Transpersonal Ed. P. 109:

Cellular electric current can be made to occur in protoplasm 'by the very art of thinking.' Thought alone can therefore, by the stimulus to induce an electric current to flow down

any nerve to the affected tissue--demonstrating that thought is a source of energy. The Involuntary Nervous System is not necessary involuntary . . . it is more under our conscious control the previously believed.

C. Resource: McKim, R. Thinking Visually: a strategy manual for problem solving. Belmont, CA: Lifetime Learning. "foresight & insights" pp. 127-132.

D. Bershad, C. & DiMella, N. (1976). AEA. The changer and the changed: a working guide to personal change. Boston: Management Sciences for Health.

   1. steps to work with: assess need for change define problem, set goal, collect information, design action plan, build a supportive environment, evaluate and revise, and maintain your behavior.
   2. based on a problem you have or create, write about its solution on the basis of this book's steps for change.

E. Maltz, M. (1966). Psycho-cybernetics. New York: Pocket.

1. select a chapter that sounds interesting and outline it for the message from this self-improvement book that was the first of its kind.

F. Perkins, D. N. The mind's best work.

G. Comment on similarities and differences in two articles in Brain/Mind Bulletin:

1. "Commentary: choosing our self-fulfilling prophecy" and "Hypnosis: science takes another look at effectiveness of the healing trance." (June, 1987, p. 2).

H. Bach, R. (1979). Illusions: the adventures of a reluctant messiah. New York: Dell.

I. Bach, R. (1970). Jonathan Livingston Seagull. New York: MacMillan.

1. compare/contrast the messages of Bach's two books.

J. Bry, A. (1978). Directing the movies of your mind. New York: Harper Row.

1. comment on "Create the life you want for yourself," ch. 5, and "Everything you ever needed to know to solve your problems." ch. 11.

K. Fritz, R. (1984). The path of least resistance: principles for creating what you want. Salem, MA. (excellent; possible use as text).

L. Patent, A. M. (1984). You can have it all: the art of winning the money game and living a life of joy. Piermont, NY: Money Mastery.

XI. Health--Physical

A. Resources: Bry, A. (1976). Directing the movies of your mind: visualization for health and insight. New York: Harper Row.

1. review ch. 3 "The what and why of creating movies-of-the-mind" to present a synopsis of what is at the heart of this approach to visualization for health and success.

B. Benson, H. (1979). The mind/body effect New York: Avon.

C. Edwards, S. (1982). Listening to the body talk. MacLeans Magazine. Sept. 13, p. 54.

D. Glassman, J. (1985). Beating the odds. New Age Journal, Nov., 25-29+.

1. What hope does this article offer the cancer patient?

E. Neff, D. V. (1985). Healing through your

chakras. East/West Journal. May, 54-58.

F. Thompson, B. (1986). Are you your own best doctor? East/West Journal. Oct., 54-60.

G. Wechsler, R. (1987). A new prescription: mind over malady. Discover, Feb., 50-61.

1. What points would you use from this article to convince a person that holistic medicine, based on the chemical and neurological links between the brain and the immune system, is an important approach?
2. Describe how they say the immune system talks to the brain. Good article!

H. Bloom, P. (1987). Soul music: The medical community is beginning to rethink the role music can play in facilitating a healthy body and mind. New Age Journal. Mar., 58-63.

1. What is the theory behind music as self-healing?

I. Weil, A. (1985). A radical look at health and healing: why alternatives work. East West Journal, Mar., 32-38.

J. Monte, T. (1985). Seven steps to health: what

we learn from people who've made amazing recoveries from terminal illness. East West Journal, June, 47-52.

K. Mental health

1. Resource: PBS video, AEA--1 hour. "The brain: madness."
    a. discuss schizophrenia
        1. extension--Sybil & Three Faces of Eve in book and/or film format.
2. Resource: Struve, N. (1982). The beautiful brain. Waterloo, IA: Teacher Center. pp. 51, 52.
    a. Discuss what is meant by psychosomatic illness? Is it related to hyperchondria?
    b. Are physical instruments used in assessing any mental disorders?
        1. electroencephalograph?
        2. CAT scan?
    c. Create a dictionary showing at least 30 kinds of phobias.
    d. Survey at least 30 people and ask what their fears and phobias are. Synthesize your findings into a chart. Compare

with the 5 most common phobias encountered in psychiatry.

e. Research methods that are used successfully in overcoming phobias.

1. "60 Minutes" segment on phobias.

2. Other literature on phobias.

3. French, K. Truth's healthy consequences: confiding makes the heart grow stronger. New Age Journal. Nov., 60-62.

4. Siegel, B. S. (1986). Love medicine: if negative emotions can cause disease, why shouldn't positive ones cure it? New Age Journal. 48-52.

XII. Performance

A. Athletics

1. Resources: Garfield, Ch. (1984). Peak Performance: Mental techniques of the World's greatest athletes. Los Angeles: J. P. Tarcher.

Goal-setting techniques

Voluntary relaxation

Mental rehearsal to perfect in mind

Maintaining feelings of peak performance

Letting go--turning over controls to your peak performer

a. Select one area to concentrate on yourself, chart.

2. Boucher, N. (1986). In search of peak performance. New Age Journal. Feb., 45-47+.

3. Leonard, G. (1975). The ultimate athlete. New York: Avon.

a. the energy body--what does this refer to?

b. Describe the 7 new games for the sports adventurer.

4. "Getting physical." Preventing Burnout/ Learning to be assertive. 86-97.

5. Lowry, D. (1985). From autumn lightning: the education of the american Samuras. Boston: Shambala.

a. How does this relate to your concept of martial arts?

6. Ostrander & Schroeder (1979). Superlearning. ch. 10 & 11. "Super performance in sports."

a. What are the elements used in this

important approach?

XIII. Creating reality (General)

A. Resource: Bandler, R. (1985). Using your brain for a change: neurolinguistic (NLP) programming. Moah, VT: Real People.

1. What is NLP?

2. Describe briefest therapy in ch. 2.

3. Survey other students, using the listening tests NLP suggests, and tally how many are "visuals," "kinesthetics," and "auditories."

B. McCormick, D. (1984). NLP: a resource guide and review of the research. 1984 Annual Review: Developing Human Resources.

1. This paper is loaded with references to find out more about NLP. Find two of them and report back.

C. Ferguson, M. (1982). NLP: a science for increasing "beneficial choices." Brain/Mind Bulletin, June 21, 7 (11), 1-3.

XIV. Memory/Mnueumonics techniques

A. Resource: PBS video--AEA, 1 hour: "The brain: learning & memory."

1. interpret through medium of your choice.

B. Sommer, B. (1978). The mind's eye. ch. 8, mneumonics.

C. Lorayne, H. & Lucas, J. (1974). The memory book. New York: Ballantine. 26 chapters of tricks for remembering 26 different kinds of information "the alphabet and picturing letters" "long-digit numbers," "names & faces," etc.

D. Shiffrin, R. (1969). A flow chart of the memory system. Review of Educational Research, 41, (5) 179-193.

1. Find another way to show the memory process visually. (mime, skit, art, music, poetry, computer graphics, etc.).

E. The mystery of memory. (1981). Newsweek. June 1, pp. 89-90.

1. Note their "tricks to improve memory."
2. Teach them to someone.

F. Hunter, I. (1962). Memory: facts and fallacies. Baltimore: Penguin.

1. What does Hunter say about "imaging" in ch. 6?
2. Outline his suggestions for improving, ch. 7.

G. Barrett, S. L. (1985). It's all in your head. Minneapolis: Free Spirit. "Mneumonics" in "Memory and Learning." (excellent, possible use as text.

H. Buzan, T. (1983). Use both sides of your brain. New York: Dutton. See chapters on "memory" and "key words," pp. 43-85.

I. Buzan, T. (1983). The brain user's guide. See memory exercises, pp. 37-42.

XV. Visual thinking, imagery

A. Resource: McKim, R. (1972). Experiences in visual thinking. Monterey, CA: Brooks/Cole.

1. Describe the difference between seeing exercises and drawing exercises in this book.

B. Sommer, R. (1978). The Mind's eye. Palo Alto: Dale Seymour. (AEA). (How visual thinking can improve memory, deepen conscious experience, and create more humane environments.

"Visualization training"--ch. 9.

"Image Therapies"--ch. 10.

"Mental Maps"--ch. 11.

C. Yabroff, W. The Imagery of Type: Empowering

Typology through guided imagery. San Jose, CA: unpublished paper. "Journey to the superior function" imagery scripts.

D. McKim, R. Thinking Visually: a strategy manual for problem solving. (AEA). Belmont, CA: Lifetime Learning. "foresight & insight" pp. 127-132.

E. Bry, A. (1978). Directing the movies of your mind: visualization for health and insight.

F. Sisk, D. (1986). The guided fantasy. (and) Visualization: an effective problem-solving tool. Gifted Children Monthly. Feb., 17-18.

1. How does Dorothy Sisk relate visualization to problem-solving?

G. Marshall, B. (Ed.) (1971). Imagery: the language of my inner world. Experiences in being. Belmont, CA: Brooks/Cole. (AEA).

H. Ostrander & Schroeder, (1979). Superlearning. "Visualization and autogenics exercises." ch. 18 (also ch. 17, 19).

I. Ullman, M. & Zimmerman, N. (1979). Working with dreams. New York: Dell. ch. 8, "Picturing our predicaments.

J. Galyean, B. C. (1983). Mind Sight: learning through imaging. Guided imageries for people of all ages. Long Beach, CA: Center for Integrative Learning. (loaded with exercises).

K. Zdenek, M. (1983). The right brain experience: an intimate program to free the powers of your imagination. New York: McGraw-Hill.

L. Harman & Rheingold (1984). Appendix: "Using the imagination to free the person." (affirmation exercises.) Higher creativity.

XVI. Superlearning, Optimalearning, Suggestology

A. Resource: Ostrander, S. & Schroeder, L. (1979). Superlearning. New York: Delacorte.

1. Write a book review of this approach. Relate to your own learning (now) college, and beyond), to coaching children, to athletics, to pain control, to memory, to speed of learning.

2. What is meant by "bio-rapport" in ch. 16?

B. Ostrander, S. & Schroeder, L. (1970). Psychic discoveries behind the iron curtain. Englewood Cliffs, NJ: Prentice-Hall. ch. 22. "Suggestology" and "Supernormal powers of the

mind revolutionize education."

1. Prepare a report on these two practices from Bulgaria in the 60's.

XVII. Drawing

A. Resource: Edwards, B. (1979). Drawing on the right side of the brain. Los Angeles: J. P. Tarcher.

1. What is B. Edwards strategy in having right-handers draw with their left hand?
2. Try as many of the exercises in this book as you can, and keep in a portfolio to record your progress.

B. Resource: Edwards, B. (1986). Drawing on the artist within. Los Angeles: J. P. Tarcher.

C. Resource: Carson, J. (1984). Tell me about your picture: art activities to help children communicate. Englewood Cliffs, NJ: Prentice-Hall.

1. (notice the springboards to individual processing through art).

D. On not being able to paint.

E. McKim, R. (1972). Experiences in visual thinking. ch. 20, 21, 22. exercises in

drawing.

F. Lanners, E. (1973). Illusions. New York: Holt, Rinehart & Winston. "tricks in seeing."

G. Bronowski, J. (1978). The visionary eye. Cambridge, MA: MIT.

1. Art students need to browse through this book of much variety re: the visual and the arts (including music).

H. Hicks, John (1986). The visual society. (book, course and literature offered through Drake University--review).

XVIII. Creativity

A. Resource: 25 minute film, AEA: Bass, S. (1968). Why man creates. Santa Monica, CA: Pyramid Films.

1. brainstorm other "surprises" one could encounter in cracking open an egg.
2. develop individual posters illustrating the final lines regarding "I am unique."
3. use "Where do ideas come from?" (1982) based on this movie to analyze its separate messages more closely. Article suggests other activities also. (1982).

Where do ideas come from? G/C/T. 9-10, 31-33.

B. Resource: Koestler, A. (1964). The act of creation. New York: Macmillan. (Many ideas regarding the sources of human creativity and its relation to intuition).

1. motivation: How does Koestler tie the conscious and unconscious processes to scientific discovery, artistic originality, and comic inspiration? (Noddings & Shore, 1984). p. 197.

C. Resource: Perkins, D. N. The mind's best work.

1. What does Perkins have to say about figuring out how people are creative?
2. compare this to his speaking notes from ITAG, 1986.

D. Compare the messages of:

1. Despert, J. L. (1975). The inner voices of children. New York: Simon & Schuster.
2. Pearce, J. C. (1986). Magical child. New York: Bantom. (also Magical child matures and The crack in the cosmic egg by J. C. Pearce).

E. Stewart, Doug (1986). Thinking sideways. New Age Journal. May, 32-37+.

F. Parnes, S. J. (1975). Aha! insights into creative behavior. Buffalo, NY: Creative Ed.

G. Parnes, S. J. (1972). Creativity: Unlocking human potential.

H. Biondi, A. M. (1972). The creative process. Buffalo, NY: D.O.K.

I. Biondi, A. M. (1974). Have an affair with your mind. Buffalo, NY: Bearly Limited.

J. I. C. E. notebook.

XIX. Dance

A. Resource: PBS video (AEA, 1 hour).

1. The brain: vision and movement.

2. The brain: rhythms and drives.

a. Create something using rhythms and movement which illustrates the point of the video(s) above.

B. Resource: Baylor, B. (1982). Sometimes I dance mountains. New York: Scribner.

1. Create something visual that shows us your way.

2. Create something auditory which shows us

your way.

C. See "Spirit Song," a dance production at Luther College. contact Betty Blake, faculty dance instructor.

1. Choose your way to react to or interpret this production

a. Interview it's creator, Mrs. Blake re: her inspiration for the dances.

2. Describe its effect on you

a. in a journal entry

b. as though you are a journalist writing a news article reviewing the performance.

XX. Drama

A. Books on creative dramatics:

The magic if: Stanislovsky for children.

Give them roots and wings.

Creative dramatics for the classroom teacher.

Coming to our senses.

Spolin, V. (1963). Improvisation for the theater: a handbook for teaching and directing techniques. Evanston: Northwestern.

B. UNI "creative drama" consultants: Dr. William Waack, Price Lab School and Dr. Greta Berghammer,

UNI (See packets of handouts from both of these drama professors).

C. Way, Brian (1967). Development through drama. London: Longmans, Green & Co.

D. Piggins, C. A. (1984). Learning to act, acting to learn. Learning. Feb., 55-6.

E. Schwartz, S. (1975). Involving students in the drama process. English Journal. May, 32-38.

F. Wilder, R. A space where anything can happen. Robington, CT: New Books.

G. Heathcate, D. Drama as context. (children in dealing with life through drama). (learning how to learn through drama).

XXI. Writing tools

A. Rico, G. L. (1983). Writing the natural way: using right-brain techniques to release your expressive powers. Los Angeles, CA: J. P. Tarcher.

1. What are the five lines of distinction between the steps for this writing process: clustering, recurrence, re-vision, image and metaphor, creative tension, the trial web, rhythm of language.

2. Practice this writing process for 21 consecutive days. Share an account of your experience/progress.

B. Buzan, T. (1983). Use both sides of your brain. New York: Dutton.

1. How is Buzan's approach to mind maps (p. 86-116) similar to Rico's.

2. Try Buzan's approach with studying for your other classes, tests.

XXII. Journalling

A. Progoff, I. (1975). At a journal workshop. New York: Dialogue House. (a classic in the field; steps for following the process.)

1. outline Progoff's main points for journalling.

2. keep a journal for at least 21 consecutive days.

B. See packet on journal writing, Des Moines conference, April, 1987. Practice, do, WRITE daily!

XXIII. Mind-mapping

A. Buzan, T. (1983). Using both sides of your brain. New York: Dutton. pp. 86-116 regard

mind-mapping with note-taking, study skills, writing, etc.

B. Rico, G. (1983). Writing the natural way. Los Angeles: Tarcher. Includes a chapter on each stage of mind-mapping when motivated to write.

1. What is the difference between linear and associative processes when referring to the brain/mind?

XXIV. Changes in Societal Perceptions

A. Examine the notion of a worldview and how it is formed in the individual.

1. Drum, J. & Otero, G. (1986). Global designs: World views. Teachable moments. Muscatine, IA: The Stanley Foundation.

a. create your own symbol that would communicate to others your assumptions about how we can live together on this planet.

2. Polette, N. (1982). 3 R's for the gifted. Littleton, CO: Libraries Unlimited. "Gifted learning module #5: Developing a world view" pp. 161-176.

a. Proceed through the exercises and comment on the author's strategy in developing a world view.

3. The Tarrytown Letter, March, 1982. "Scientific theories suggest a light at the end of the tunnel." 2-18.

a. Comment on Kuhn's, Prigogine's, Pribram's, Bohm's, and Land's theories as related to each other in this article.

4. Harman, W. & Hurley, T. (1982). Conscious and unconscious mental processes: implications for learning. (Berkeley colloquy paper).

a. How do the authors relate a shift in the basic premises underlying society to education? What do they mean by deep intuition?"

XXV. Paradigm shift

A. Resource: Barker, J. A. (1984). Discovering the future: the business of paradigms. Minneapolis: Filmedia (10740 Lyndale Ave. So., Minneapolis, MN 55420). 34 minutes, $400,

excellent video; includes feedback instrument for group leader.

1. Recall the examples of paradigm shift over the past 20 years that are given in the film.
2. Can you add any others to this list?
3. Explain how a paradigm (a set of rules and regulations that defines boundaries) screens information coming into our minds.
   a. Think of examples of this that you've known about.
   b. Agree or disagree with statement "Perception is everything."
4. Can you predict any major paradigm shifts we may experience in the future?

B. Resource: Kuhn, T. (1962). The structure of scientific revolutions. Chicago: University of Chicago Press.

1. Why does Kuhn (the creator of term "paradigm shift") say that scientific revolutions are a necessity? (ch. IX).

C. Resource: Harman, W. & Rheingold, H. (1984). Higher creativity. Los Angeles: J. P. Tarcher.

1. What are the 3 kinds of paradigm shifts that appear to be in the process of occurring right now? (p. 79).

D. Resource: Peat, F. D. (1984). Looking glass universe.

1. How does the duck/rabbit illustrate a paradigm shift? (p. 25).
2. Peat says that the laws of nature change with each new paradigm. Do you agree that science is, in a sense, subjective? (p. 33).

E. Resource: Nagler, M. N. (1981). Peace as a paradigm shift. The Bulletin of the Atomic Sciences, Dec., 49-52.

1. Comment on the idea of peace as a paradigm shift.
2. Write an article for the school newspaper about this idea.
3. Compare with "Beyond War" literature; similarities, differences?

F. Resource: Ruster, R. (1987). Homing Process: A Unifying model of the new paradigm. Boulder, CO.

1. Compare Ruster's notion(s) of changes in

perception to those above. What does he have to say about the individual's perceptual changes?

XXVI. Quantum Physics

A. Leonard, G. (1978). The silent pulse: a search for the perfect rhythm that exists in each of us. New York: E. P. Dutton.

1. What is meant by stating that all matter and energy reduce simply to a "frequency?"

B. Wilson, R. a. (1985). Quantum leaps. New Age, June, 52-55+.

1. What is the basic message from physicist David Bohm?

C. Capra, F. (1986). Fritjof Capra traces the growth and future of an emerging new paradigm since The Tao of Physics:the Harmonist. 20-26+.

D. Capra, F. (1975). The tao of physics: An exploration of the parallels between modern physics and eastern mysticism. New York: Bantam. (reference; difficult reading, but two good chapters on the new physics.)

E. Capra, F. (1986). Intuition: wisdom and the limits of logic. Audio taping of a symposium

in Berkeley, CA, Feb. 22-23.

1. Have class listen to tape and compare their written expression of Capra's main message.

F. Zukov, G. (1979). The dancing WuLi Masters: an overview of the new physics. New York: Bantam. (very difficult reading).

G. Rothman, T. (1987). A "what you see is what you beget" theory. Discover, May, 90-99.

1. Synthesize the radical idea of this article on the importance of man's perception in the new physics.

H. Stewart, D. (1986). The chaos connection New Age Journal, April, 16-19.

1. Describe chaos theory.

I. Ruster, R. (1986). audio tape describing "phase exchange" from Quantum Reality.

1. Describe and give examples of "phase exchange."

J. Schwimme, B. (1986). video tape describing quantum physics and personal applications to the individual. Oakland, CA: Bear and Co.

1. Portray your interpretation of this message through art, drama, poetry, photography,

human sculpture.

K. Ruster, R. (1987). Unifying Model of the new paradigm.

XXVII. "Beyond War"

A. Resource: Waverly and UNI have chapters of "Beyond War." Speakers from their group(s) will come to class and deliver their very important message quite effectively.

1. Write a review of their presentation and message for the school newspaper.
2. Brainstorm ways that this class could be instrumental in getting such a message to more people in our town.
3. Follow "Beyond War" events and projects in case there are some that the class could participate in.

B. Iowa resource: The Stanley Foundation, 420 E. Third St., Muscatine, IA 52761. 319-264-1500. (Has much literature available.)

C. National resource: Las Palonias de Taos, Box 3400, Taos, New Mexico 87571. 505-758-9456.

D. "Beyond War" movie--approximately 45 minutes. (excellent). See Esther Hessburg, 415 3rd Ave NE,

Waverly, IA 50677. 319-352-3368.

E. "Visions of Peace" project and former winning essays. See E. Hessburg, above.

F. "Global Brain" video by Peter Russell, 35 minutes, excellent. Available for $30 from Penny Price Productions, 7260 Hillside St., Hollywood, CA 90046.

G. Price, J. R. (1984). The planetary commission. Austin, TX: Quartus.

XXVIII. Global Brain

A. Russell, P. (1983). Global brain: speculations on the evolutionary leap to planetary consciousness. Los Angeles: J. P. Tarcher.

1. What is "gaia"?

2. Group discussion and processing of Russell's concept leads to individual question of local and individual responsibility in such a process. Brainstorm other effective arenas to show video:

B. Russell, P. (1984). "Global brain" video which illustrates the message of the book, as advertised for order, p. 239.

C. How similar is this message to that of "Beyond

War?" Where do the two overlap?

D. Joseph, L. (1987). Gaia: the earth goddess: the earth is alive and well. The Harmonist, 2, (1) 42-47. (excellent).

E. Lovelock, J. E. (1979). Gaia: a new look at life on earth. London: Oxford University Press.

F. Pearson, J. (1982). Gaia: an atlas of planet management. London: Gaia Books.

G. Spangler, D. (1976). Revelation: the birth of a new age and (1984). Emergence. Elgin, IL: Lorian.

XXIX. Developing of Potential

A. Bry, A. (1978). Directing the movies of your mind. ch. 12, "The mind can do anything."

B. Bloomfield, H. H. (1985). The achilles syndrome: transforming your weaknesses into strengths. New York: Random House.

1. comment on ch. 6. "Empowering yourself."

C. Campbell, D. (1974). If you don't know where you're going, you'll probably end up somewhere else. Allen, TX: Argus.

D. Hayward, J. W. (1987). Ordinary magic: discovering our basic goodness through the practice of

mindfulness. New Realities. Jan., 38-39+.

XXX. Athletics

A. Resource: PBS video (AEA, 1 hour.) "The Brain: vision and movement."

B. Gallwey, Tim. Inner Tennis.

Gallwey, Tim. Inner Skiing.

Gallwey, Tim. Winning the inner game of work. New Age. Sept., 1985.

C. What is educational kinesiology? Read handout by Dr. Paul Dennison.

D. Rohe, F. (1974). The zen of running. New York: Random.

1. What message could you give to others from this simple book?

E. Leonard, G. (1975). The ultimate athlete. New York: Avon.

F. Garfield, C. (1984). Peak performance.

XXXI. Leadership

A. Heider, J. (1986). The tao of leadership. New York: Bantam.

1. Define "tao" from the concepts in ch. 1.

2. What is meant by the "group field," ch. 11.

3. Comment on "the paradox of letting go,"

ch. 43. Apply this to other areas besides leadership.

4. What are the 3 leadership qualities of ch. 67?

5. What is "the reward" of ch. 81?

B. Brown, Jolene (Nov., 1985). "Leadership." Sponsored by Charles City Farm Bureau Women, this workshop was very broad in scope and universal in application. See collection of Mrs. Brown's handouts on exercises contributing to leadership.

C. Khatena, J. (1981). Leadership assessment record.

1. Have class members take this and process findings.

D. Betz, D. (1981). Cultivating leadership.

1. What are the 7 characteristics included?

E. National Association of School Counselors. Leadership Techniques.

1. Try these simple group techniques, taking turns leading.

F. Los Angeles City Schools, Programs for Gifted. ch. 7: "Leadership: a survey of literature."

1. Loaded with good references. Each student

select a different source to review re: aspects of leadership. Evaluate and assemble into one list of favored concepts.

G. Addison, L. (1979). Simulation training for gifted girls. Gifted Child Quarterly. Summer, 2, 288-295.

XXXII. Psychology of Winning

A. Motivation: Have half of the class take a test individually, and half as a group. (Romey, W. D. (1980). Teaching the gifted and talented in the science classroom. Washington, DC: NEA., p. 30-31.

1. Compare the group score with the best of the individual papers. Reflect on competitiveness vs. cooperation.

2. Look through scientific papers in several issues of Scientific American & Science magazine. Tally the number of papers by a single author vs. the number written by more than one. Speculate on the merits of collaboration.

B. Waitley, Denis (1979). The psychology of winning: 10 qualities of a total winner. New York: Berkley.

1. Listen to the set of 10 tapes that reinforces

the concepts in this book.

2. Choose an area to concentrate on in your own life. Answer the self-appraisal questions that are in each section of the "Notes on listening, thinking and doing."

C. Outline the important points in Denis Waitley's other books; review the notes from his 1986 seminar in Des Moines.

D. McCormick, D. W. (1984). Neurolinguistic programming: a resource guide and review of the research. The 1984 Annual: Developing Human Resources. 267-281.

1. Relate NLP to the Psychology of Winning.

2. Review Bandler, R. (1985). Using your Brain for a Change: Neuro Linguistic Programming. Moab, VT: Real People Press.

E. Patent, A. M. (1984). You can have it all: the art of winning the money game and living a life of joy. Piermont, NY: Money Mastery.

XXXIII. Natural highs

A. Resource: Weil, A. (1972). Natural mind: a new way of looking at drugs and higher consciousness. Boston: Houghton Mifflin.

1. What does Weil say is the "only solution to the drug problem?

B. Weil, A. (1983). Alternatives to taking drugs. Chocolate to Morphine: understanding mind-active drugs. Boston: Hougton Mifflin.

C. Rosenfeld, E. (1973). The book of highs: 250 methods for altering your consciousness without drugs. New York: Quadrangle.

D. Houston, J. & Masters, R. (1972). Mind games.

1. Summarize the last chapter, as far as the state of mind suggested for leading mind games.

E. Andersen, M. S. & Savary, L. M. Passages: A guide for pilgrims of the mind. New York: Harper Row.

F. deRopp, R. S. (1968). The Master game: pathways to higher consciousness beyond the drug experience. New York: Delta.

1. Can you find a suggestion that you would offer others from this practical guide?

G. Zinberg, N. E. (1977). Alternate states of consciousness. New York: Free Press.

H. Weil, A. (1980). The marriage of the sun and

the moon: a quest for unity in consciousness.

I. Hyde, M. O. (1986). Mind drugs. Outline "Now the good part begins: alternatives to drug abuse.

J. (Summer, 1987). "Addiction" issue of Parabola. 128 pp.--entire issue loaded with concepts re: addictions, natural & unnatural highs.

1. Each student report on an article from this issue over the semester.

XXXIV. Other

A. Motivation: It has been stated that nobody studies espistomology any more. Study an explanation of epistomology in the encyclopedia and share whether you think we've been studying espistomology in this course.

B. Motivation: Do a cluster/mind map of everything you know about the brain.

C. Schilling, D. e. (1986). Managing motivational needs of the gifted and talented. G/C/T, May, 2-5.

1. How are self-esteem needs different from self-actualization needs?

D. The Bulletin by Institute of Noetic Sciences, 475 Gate Five Rd., Sausalita, CA 94966-0097.

(Box 97). Fascinating research, reports on grants for special studies, etc.

E. Cook, H. & Davitz, J. (1975). 0 Seconds to Mind expansion. New York: Random. (excellent book of exercises on wide variety of topics. Good as possible text.)

Appendix B

Note: Brain/Mind Bulletin: News from the Leading Edge is a publication that should be useful as a resource for this seminar. Published every three weeks, it is comprised of condensed reports of the latest news in fields such as medicine, psychology, education, technology, chemistry, etc. An index is available for quick reference with issues from 1975 through 1980. The index for the remaining volumes will be available for use in December, 1987. The publisher also has Theme Packs available for purchase, in which montages of articles are grouped by topic and year. The Charles City Gifted program has copies of nearly all of the back issues of this publication for student use. The articles are written in short "news" fashion, with contact persons listed in order to write for more in-depth information. It is felt that browsing assignments within back issues would broaden horizons.

Seminar Worksheet Betts (1985)

What area are you interested in pursuing for your seminar:

_____Futuristic _____Advanced Knowledge

_____General Interest _____Controversial

_____Problematic

Brainstorm possible topics within your selected area:_____

_____

_____

_____

_____

_____

Develop a title and describe your seminar: _____

_____

_____

Complete a description of your plan for each stage of the seminar:

Presentation of factual information_____

_____

_____

_____

_____

Discussion and/or activity _____

_____

_____

_____

_____

Closure_____

_____

Describe briefly the following areas concerning the preparation, development and presentation of your seminar:

Resources needed _____

_____

_____

Resources available _____

_____

_____

Possible problems _____

_____

_____

Appropriate audience _____

_____

_____

Evaluation plan _____

_____

_____

Complete your action plan:

Tasks	Person Responsible	Date Due	Comments

Appendix D

Planning outline for actual project presentation

Content/concept:

Objective/learning experience:
Students will...

Resources/materials needed:

Procedures/activities/tasks/experiences/techniques:

Evaluation/feedback/student assessment:

Appendix E

Addendum to Evaluation

". . . a world of diversity even within a classroom . . . dictates the great need to personalize rather than individualize instruction" (Shane, 1977). Another tool for evaluation which is felt to have much potential with educational programs (Minner & Beane, 1985) is the Q-Sort developed by William Stephenson (1953). Based on statements collected over the course of the seminar, both negative and positive, the final sorting by the students could be a form of summative feedback for the teacher. With statements sorted in 7 to 10 categories ranging from "least true about me" or "most disagreed" to "most true about me" or "most agreed," the students have a chance to record their subjective perceptions in a manner which can be quantified through factor analysis. Q-sort instruments are available which have been developed including statements registering general feedback regarding a course, with the statements ranging from negative to positive. For information regarding pre-made Q-sorts which would be suitable for use in a secondary-level Talented and Gifted course, contact Steven R. Brown,

Department of Political Science, Kent State University, Kent, Ohio 44240. Further, a Q-sort regarding attitudes toward the mind, potential, etc. could be created prior to the course and used as a pre-and post-measure of attitude change.

References

Minner, S. & Beane, A. (1985). Q-Sorts for special education teachers, Teaching Exceptional Children, 17, 279-281.

Shane, H.G. (1977). Curriculum Change toward the 21st Century. Washington DC: NEA.

Stephenson, W. (1953). The study of behavior: Q-technique and its Methodology. Chicago: University of Chicago Press.

Appendix F

A Formative Evaluation Process for the Evaluation of Gifted and Talented Programs

1. Hold meeting with decision maker (individual with administrative responsibility) to plan evaluation.
2. Identify potential evaluation objects from program elements.
3. Identify potential evaluation objects from target group input.
4. Decision maker identifies objects of evaluation.
5. Select objects in consultation with decision maker.
6. Select criteria in consultation with decisiion maker.
7. Choose qualitative criteria (process-oriented) in consultation with decision maker.
8. Conduct content analysis.
9. Choose quantitative criteria (outcome-oriented) in consultation with decision maker.
10. Develop research design.
11. Collect and analyze data.
12. Write report of findings.

13. Obtain decision maker's response.

14. Develop program components found to be deficient.

15. Improve evaluation procedures and measures found to be faulty (Carter & Hamilton, 1985).

Appendix G

Student Evaluation of Brain Study (Struve, 1982)

1. What topic(s) appealed to you the most and why?

2. What difficulties in researching did you encounter?

3. What references or books did you use that were new to you?

4. Did you enjoy the opportunity to further the study of the brain? Why or why not?

5. With whom did you share the products, activities, and experiments?

6. What additional topics could be added to this group? (Your suggestions are very important and will serve as the basis of new units!)

7. Any additional comments you would like to make?

Appendix H

Teacher Evaluation of Brain Study, (Struve, 1982)

1. Please remark about the overall effectiveness of the unit.

2. What seemed to be the most difficult area for the students to understand?

3. What aspects of the unit were most enjoyable for the students?

4. What sessions needed to be further explained or researched by yourself before you could present the lesson?

5. How helpful were the narratives preceding the student activities?

6. Was too much or not enough material provided for each session? Please respond to the pacing and organization of the material.

Teacher Evaluation of Brain Study, cont.

7. How did you select students for the extended learning activities?

8. What observations did you make about the challenge, interest, and higher level thinking aspects of these extenders?

9. Were the extended units worthwhile?

10. What additional topics would you suggest for development in the extended learning unit?

11. Do you think you will teach this unit again?

12. Using your system of evaluation, how would you rate this unit?

13. Additional comments you would like to make. . .

ALPHA PROJECT – EVALUATION OF STUDENT GROWTH

NAME _____ GRADE _____

TEACHER _____ SCHOOL _____

AREAS OF STUDY (Check all that apply)

__ Language Arts/Humanities __ Science __ Personal and Social Development

__ Social Studies __ Music __ Other (Specify) _____

__ Mathematics __ Art __ Other (Specify) _____

Brief Description of The Content of The Study _____

_____

Beginning Date _____ Ending Date _____ Number of Days ____

OBJECTIVES (List in order of importance)

1. _____
2. _____
3. _____
4. _____
5. _____

ACTIVITIES (Briefly list what the student did to accomplish these objectives. Underline any activity that you consider to be relatively unique)

COGNITIVE OBJECTIVES Check the highest level for each written objective

1	2	3	4	5	6
Knowing / Remembering	Comprehension: Translating, Interpreting, Extrapolating	Application (of learned material to concrete situations)	Analyzing (breaking down into component parts)	Synthesizing, Creating	Evaluating , Judging

AFFECTIVE OBJECTIVES Check all that apply

A	B	C
Developing interest in and commitment to a topic, area of study or learning in general	Developing skills that lead to better relations between people.	Developing attitudes and values toward ideas, causes, social issues, etc.

ACCOMPLISHMENT OF OBJECTIVES

In the spaces below please indicate the degree to which you think each objective has been accomplished by :

1. Placing a check mark (✓) in the appropriate space for the cognitive objective.
2. Placing the corresponding letters (A,B,C) in the appropriate spaces for each of the affective objectives.

Not At All	A Little	About Half	A Great Deal	Completely

RESOURCES (Reference Books, Films, People, Etc.)

PRODUCT (Briefly describe any projects, stories, plays, filmstrips, etc. that resulted from this study. Attach samples if available.)

Prepared by: Dr. Joseph S. Renzulli - The University Of Connecticut (1975) Bureau Of Educational Research

Sponsored by; Superintendent Of Public Instruction - State Of Washington

Appendix J

STRUCTURE OF THE CLASS ACTIVITIES QUESTIONNAIRE (CAQ)*

The CAQ assesses five major ***Dimensions*** of instructional climate, as noted in the left-hand column. Each of these dimensions is composed of a number of ***Factors*** which in turn are usually represented by several items in the questionnaire. (The Cognitive Dimensions are based on Bloom's Taxonomy.)

DIMENSIONS	FACTORS	BRIEF DESCRIPTIONS (Items not shown)
LOWER THOUGHT PROCESSES	1. Memory:	Activities calling for recall or recognition of information presented.
	2. Translation:	Activities calling for paraphrasing or expressing information in a different symbolic form.
	3. Interpretation:	Activities calling for recognition of relationships and seeing implications of information.
HIGHER THOUGHT PROCESSES	4. Application:	Activities calling for selection of appropriate methods and performance of operations required by problem situations.
	5. Analysis:	Activities calling for recognition of the structure of material, including the conditions that affect the way it fits together.
	6. Synthesis:	Activities calling for the generation of new ideas and solutions.
	7. Evaluation:	Activities calling for development and application of a set of standards for judging worth.
CLASSROOM FOCUS	8. Discussions:	Student opportunity for and involvement in class discussion.
	9. Test/Grade Stress:	High pressure to produce teacher-selected answers for a grade.
	10. Lecture:	Teacher role is information-giver with a passive, listening role for students.
CLASSROOM CLIMATE	11. Enthusiasm:	Student excitement and involvement in class activities.
	12. Independence:	Tolerance for an encouragement of student initiative.
	13. Divergence:	Tolerance for and encouragement of many solutions to problems.
	14. Humor:	Allowance for joking and laughter in the classroom.
	15. Ideas Valued:	Ideas are seen as more important than grades.
	16. Ideas Enjoyed:	Subject matter is seen as interesting and enjoyable.
	17. Teacher Talk:	Proportion of class time consumed by teacher talk.
	18. Homework:	Weekly amount of outside preparation for class.
STUDENT OPINIONS	19. Qualities:	Students' view of the best things about the class.
	20. Deficiencies:	Students' view of things that need changing about the class.

* Steele, 1969

Appendix K

SATIS–Q
STUDENT ATTITUDE TOWARD INDEPENDENT STUDY QUESTIONNAIRE

by

Joseph S. Renzulli (1975)
Robert K. Gable

Bureau of Educational Research
University of Connecticut

THIS IS NOT A TEST
. . . there are no right or wrong answers . . .

Directions:

On your *answer sheet* please record the following information in the blank spaces:

1. Your school in the space marked "School"
2. Your grade in the space marked "Grade"
3. Number of years in the ISP in the space marked "Test"
4. Subject areas you have studied in the space marked "Instructor"

DO NOT WRITE YOUR NAME ON THE QUESTIONNAIRE OR THE ANSWER SHEET. NO ATTEMPT WILL BE MADE TO IDENTIFY PERSONS COMPLETING QUESTIONNAIRES.

Following is a list of factors which are important in the effective operation of the Independent Study Program (ISP). Please rate the program on each of the factors by darkening the appropriate space on your separate answer sheet. Use what you would consider to be the ideal program as a standard of excellence in making your ratings. Keep in mind that there are no right or wrong answers to any of these questions. Your honest opinion about each factor will be the best answer.

If the program is EXTREMELY POOR with respect to the factor darken space A on your answer sheet.

If the program is BELOW AVERAGE with respect to the factor darken space B on your answer sheet.

If the program is BELOW AVERAGE with respect to the factor darken space C on your answer sheet.

If the program is ABOVE AVERAGE with respect to the factor darken space D on your answer sheet.

If the program is EXCELLENT with respect to the factor darken space E on your answer sheet.

Prepared for the Independent Study Program for Gifted Students, Hamden-New Haven Cooperative Education Center, 1450 Whitney Ave., Hamden, Connecticut 06517.

A - Extremely Poor
B - Below Average
C - Acceptable
D - Above Average
E - Excellent

1. Extent to which the ISP has influenced you to attend college.
2. Extent to which your ISP studies have influenced the area that you would like to major in if you go to college.
3. Extent to which your ISP studies have influenced your career choice.
4. Extent to which ISP has helped you develop skills in decision making.
5. Extent to which ISP has helped you in making choices.
6. Extent to which ISP has helped you to develop a sense of control over your future.
7. Extent to which ISP has made you more excited about learning.
8. Extent to which ISP has increased your motivation to learn.
9. Extent to which ISP has helped you to become a better evaluator of your own work.
10. Suitability of the method by which students are selected for the program.
11. Opportunity to select topics for study which are of interest to *you*.
12. Opportunity to pursue topics to the extent that you desire.
13. Degree to which the objectives of the program were in agreement with your personal objectives.
14. Effect of the ISP on your study habits.
15. Extent to which ISP has helped you to think critically.
16. Extent to which ISP has helped you to organize your thoughts.
17. Extent to which ISP has helped you to focus your thoughts.
18. Extent to which the ISP has helped you to become acquainted with own thinking, working, and learning styles.
19. Appropriateness of the way the ISP is organized.
20. Extent to which ISP has helped you to develop more individual responsibility.
21. Your overall rating of the ISP in terms of fulfilling your immediate educational needs.
22. Extent to which you have mastered your objectives as a result of being in ISP.
23. Degree to which you are challenged by ISP.
24. Opportunity for interaction with your ISP teachers.
25. Opportunities to meet with consultants or experts in the field(s) in which you are studying.
26. Opportunities for you to express your ideas and feelings.
27. Extent to which ISP has helped you to develop your self-confidence.

Answer questions 28 through 39 by:

> Darkening space A if you think the ISP is the best answer.
>
> Darkening space B if you think the regular school program is the best answer.
>
> Darkening space C if there is no difference between the ISP and your regular school program.

28. Which holds you more responsible for work?
29. In which do you try out ideas more?
30. In which do you use your time to best advantage?
31. In which do you express more creativity?
32. Which provides better teachers with highest ability?
33. In which do teachers take the greatest personal interest in you?
34. In which are teachers more enthusiastic about their subjects?
35. In which do you put forth the greatest effort?
36. Which challenges you the most?
37. Which do you think is more effective in preparing you for courses that will follow the course(s) you are now taking in ISP?
38. Which do you think is more effective in preparing you for *acceptance* into college?
39. Which do you think is more effective in preparing you for *the work that you will do* in college?

Appendix L

Sample Items--Gifted Class Rating Scale (Hall, 1980)

Directions: The teacher completes the scale for a self-rating of the class. The evaluator observes the class, talks to the teacher, examines lessons, and then rates the class as to how much each item seems to occur in the gifted class in question. For example, if item is not observed at all circle 0, seldom 1, sometimes 2, regularly 3, frequently 4, most of the time 5. If item is not applicable to class level or class in question circle "N". Care should be made to consider what the teacher and students report as well as what is observed. When in doubt it is best to circle "N"-not applicable rather than make a "wild guess". A comparison of the two ratings is made.

AFFECTIVE CLIMATE

7. There is a willingness on the part of students to respond, take part, and volunteer.

Not found	Seldom	Sometimes	Regularly	Frequently	Most all the time	Not Applicable
0	1	2	3	4	5	N

COGNITIVE CLIMATE

10. Questions asked are of the following type: What possible reasons? What might happen if? What can they do with this? etc.

Not found	Seldom	Sometimes	Regularly	Frequently	Most all the time	Not Applicable
0	1	2	3	4	5	N

11. Evidence of logical reasoning, analysis, thinking through problems, or proving a point is shown.

Not found	Seldom	Sometimes	Regularly	Frequently	Most all the time	Not Applicable
0	1	2	3	4	5	N

14. Questions such as: What would you do if? If no one else knew, how could you find out? Can you develop a new way? Pretend or imagine you are _____ , are utilized.

Not found	Seldom	Sometimes	Regularly	Frequently	Most all the time	Not Applicable
0	1	2	3	4	5	N

17. Questions such as: What reasons would you favor? Which book do you consider to be of greater value? Evaluate the ideas in terms of _____ , are utilized.

Not found	Seldom	Sometimes	Regularly	Frequently	Most all the time	Not Applicable
0	1	2	3	4	5	N