

HERALD

IN EDUCATION



Education for Creativity

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The Creative Process

By Wesley A. Many and Margaret A. Many

Carl Rogers (1976) defines the creative process as the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people or circumstances of his life on the other.

This process, whereby one produces information or skills new and oftentimes original, has received considerable attention for an extended period of time. Busse and Mansfield (1980) suggest that over the past thirty years, hundreds of research studies have been conducted relating to the topic of creativity. In spite of the attention devoted to the topic, however, there remains considerable speculation about just what is involved in the creative process and just how the process comes to fruition. It is the purpose of this paper to examine selected theories offered to explain the creative process and to discuss possible educational implications pertaining to these theories.

As early as 1926, Wallas suggested a creative process comprised of four stages. These are:

1. **Preparation.** This is the stage in which the problem is investigated from all possible directions. It is mostly a problem-identification and data-gathering period.

2. **Incubation.** In this stage, the person is not consciously thinking about the problem. Some kind of internal cognitive processing that associates new with old information is occurring without actual awareness on the part of the individual.

3. **Illumination.** This is the stage during which the solution to the problem occurs. It has been referred to as the 'Aha Phenomenon.'

4. **Verification.** This is the stage in which the solution obtained through the first three stages is tested to see if it has validity.

It should be emphasized that while these stages are typically involved in the creative process, they do not occur in any set time sequence. Depending on the nature of the problem and the individual involved, the stages could represent months or perhaps occur in as brief a period as one day.

While the stages are important to an understanding of this explanation of the creative process, perhaps of even greater importance is an awareness of the predominant thinking operation and the personality factor or attitude required at each stage.

Gallagher (1964) suggested that at the preparation stage, the predominant thinking operation required is cognitive memory coupled with a studious and sustained attention on the part of the individual. This particular stage is one typically handled well by the

schools, for teachers can and do present facts as the groundwork for an individual's learning about a particular problem.

In the incubation and illumination stages, the predominant thinking operation tends to be divergent thinking. Personality factors considered desirable for these two stages are risk-taking and tolerance of failure and ambiguity. Gallagher suggests that these two stages are potentially the most troublesome to the educator. Typically, our curricula do not emphasize divergent thinking activities and the very personality factors deemed important during these stages are not encouraged in the traditional educational setting.

The last stage, verification, primarily calls upon convergent thinking skills and logical sequencing abilities. This too, as with the preparation stage, appears to be a stage typically well attended to by our schools.

The stage-sequence explanation of the creative process represents one major theoretical thrust. More recently, however, creative process theory based on brain hemisphericity has appeared. This theory attempts to explain the creative process and other cognitive processes in relation to the human mental systems, processes and organizations. While there is some overlap in their functions, the brain's cortical hemispheres tend to organize and encode information in two different ways. In most people, the left hemisphere of the brain controls an individual's ability to speak, read and write.

It is the half of the brain given to analysis rather than intuitions. It is the rational rather than the metaphoric half of the brain. It is involved with mathematical and verbal functions, and it processes information in a highly organized way (Shuman, 1978).

The right hemisphere of the brain, on the other hand, appears to be devoted to dealing with abstractions, understanding and using spatial relationships and engaging in mental imagery--functions deemed essential to the creative process.

The educational implications contained in the hemispheric theory appear relatively direct. Our curriculum tends to emphasize those activities attended to by the left hemisphere. Too little attention is paid to educational activities that call upon the right hemisphere functions--those more akin to the creative

Too little attention is paid to educational activities that call upon the right hemisphere functions--those more akin to the creative process such as reflection and imagination.

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process such as reflection and imagination.

While the stage-sequential and the brain hemisphericity theories may at first viewing appear very

much unrelated, that is not necessarily the case. Both theories would contend that what we do in the classroom can have an effect upon the creative processing ability of the individual. In essence, both are suggesting certain modifications and emphasis. For example, Neuman (1983) suggests the following when comparing the behaviors which teachers value with the behaviors that creative children find meaningful:

1. Teachers seem to prefer students who do not ask many questions.
2. Most classroom instruction appears geared to children who are able to answer close-ended questions.
3. Teachers are more comfortable with students who are good rational, logical thinkers.
4. Teachers and administrators prefer students who agreeably conform to the rules of the school and class.
5. Most teachers appear to favor students who recognize the teacher and text as final authorities.
6. Activities that involve words and language take precedence over other learnings.
7. Questions that culminate in a single, predictable and definable answer are preferred to those that are unpredictable or controversial.
8. Exercises that can come to a successful conclusion in a relatively short period of time are preferred to those that may require longer periods of time.
9. Learning that results in the verification of answers by authorities is typically emphasized.

It is obvious from an examination of the two theories pertaining to the creative process that the behaviors valued by teachers as presented by Neuman are not those that would provide for greater utilization of the right hemisphere of the brain nor encourage the divergent thinking so essential to the incubation and illumination stages.

It appears that if the nurturing of the creative process is a real objective in our present schools, a first step may well be an assessment of our classrooms in relation to the teacher values and practices that have the potential to deter the very thing we wish to foster. The creative process--do we in our current society truly value its great potential?

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Creativity: The Person and the Setting

By Dr. George S. Holden and Dr. Wesley I. Schmidt

To get to a place you have never been you
must go by a road you have never taken.

--Dorothy in Wizard of Oz

The late Harry Chapin, in his song 'Flowers are Red,' tells the story of a little boy who enters school full of the natural creativity of life and a naive desire to express it. But the teacher says,
It's not the time for art young man
And anyway flowers are green and red.
There's a time for everything young man
And a way it should be done
You've got to show concern for everyone else
For you're not the only one.

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And she further insists,
Flowers are red young man
And green leaves are green,
There's no need to see flowers any other way
Than the way they always have been seen.

But, the little boy really believes
There are so many colors in the rainbow,
So many colors in the morning sun,
So many colors in a flower,
And I see every one.

In this vignette the teacher accuses the little boy of being 'sassy,' and eventually has him stand in the corner until he agrees to 'get it right.' The little boy becomes so lonely and afraid that he eventually learns to conform.

Time goes by and the little boy's family moves to another town. In the new school, the teacher encourages the students to use all the colors. But the little boy has learned his lesson too well and concludes:

Flowers are red
And green leaves are green.
There's no need to see flowers any other way
Than the way they always have been seen.

Chapin's story symbolizes a point of view that appears to be followed by a large segment of society in general and by schools in particular. The story portrays one of the subtle ways that children's creative perspectives become quashed in their infancy.

It exemplifies the belief that an ideal goal of personhood in our society is to effectively suppress our unique joys and differences. We learn that we dare not trust our own reactions to life's new opportunities and experiences because they may not be 'right.' It is better that we rely on the authority of superior persons or a priori systems of thought and behavior.

Other characteristics of this philosophy include the belief that it is better to operate primarily on a cognitive level, because to be emotional is immature and capricious. Mankind should rather operate from a firm set of rational principles, remaining tentative and aloof in interpersonal relations. Unfortunately, this powerful, largely unspoken assumption of modern society, while being valid as a point of view, serves to stifle the creative part of our interpersonal nature. It teaches us early in life to protect ourselves through conformity to rules, concealment of ideas, repression of feelings, and a kind self deception of reality.

Consider 4-year-old Johnny, who wants to play with his 6-year-old sister, Nancy. He picks up one of Nancy's dolls and receives a slap for this trial effort at initiating human contact. Feeling hurt and rejected, he runs to his mother in anger and cries, "I hate Nancy, I hate her!"

Mother hits his rear and scolds, "Now, now. Nice little boys don't hate their sisters. Go out and play by yourself."

Normal little brothers do become angry with normal little sisters--the resulting anger is an expected human emotion. Secondly, his anger was denied and probably turned inward by the 'nice boys do not' injunction. In fact, being told to stop feeling angry is likely to be so frustrating that it will intensify rather than diminish the inward rage.

More importantly, Johnny is learning destructive things about the possibility of creative interplay of self with others. Since he conceptualizes these experiences incompletely, he distorts them into his conceptions about self and others so as to inhibit new ways of interacting openly. He probably learns from

the 'nice little boys don't' part of the statement that he is not a nice little boy when he feels angry with himself and becomes increasingly closed to real feelings about life. He learns to mistrust his emotions because they seem only to get him into trouble, and as a result, he begins to repress them. He learns to mistrust his mother (and dominant persons) because she rejected him when he needed her most. He learns that the way to please his mother (and dominant others) is to deceive her about the way he feels. The 'go play' dismissal causes him to feel that his self and his personal concerns are unimportant to his mother. On top of this, he learns to feel guilty for not being what he is supposed to be.

The above episode exemplifies one of the many experiences that erode the self-confidence and feelings of safety of children such as Johnny. He learned to turn inward for protection, to hide who he is from others, and even repress his deepest feelings from himself. Both Johnny and Chapin's little boy are learning, as eventually many of us have, to turn toward a safe and standard way of life, toward the routine monotony of repetitive behavior, surface communication, and conventional relationships, where the values of the system are greater than values of the self.

A contrasting and creative view of human development holds that the 'ideal' people in our society are ones who are more spontaneous, who are less fearful and more trusting of their own natures and their spontaneity; and because of this, they are more flexible, more closely related to their feelings, more open to experience, closer and more expressive in interpersonal relations, and freer to experience life as a series of actualizing moments instead of a series of conditioned and programmed cells.

This system of beliefs is also widely held, believing that our developing natures will be fostered and tested throughout life. People who live by actualizing and open system beliefs find themselves in conflict with themselves or with others. The first view presented here tends to value social institutions and structures more than it does the person; while the second view tends to value the person more than establishment traditions. Within the school structure, focusing upon its regulations and established methods seems to result in a smoother functioning of organizations and one that is more efficient; permitting emergence of the nonconforming behavior of creativity can be temporarily disruptive and inefficient. So the struggle for acceptance of a freer system is a real one indeed. The critical question that society faces is, "Are these two belief systems mutually exclusive, or can they exist compatibly in this society?"

This question is especially significant in view of the economy and its survival in the 80's. More than 70% of Americans are currently engaged in the delivery of information and human services versus the production of goods, food, and fiber. This fact translates the focus of energy for societal progress from the improved relationships between people-and-things to people-with-people. Productivity, economic survival, and growth are dependent upon openness and creativity in personal relationships rather than primary emphasis upon creativity in the development of goods as experienced by former generations. This understanding is a watershed concept in an understanding of whether to choose an 'open' versus 'closed' system of human relations in our institutions.

The human drive to explore the unknown and attempt the untried solution has been clearly demonstrated in research. The processes of invention have been clearly demonstrated in research. The processes of invention have been clearly chronicled in the physical domain. The recognition of our dire need for creativity in

human relations and service is a uniquely 20th century phenomenon.

It is now believed that all persons have within themselves the potentiality and the motivation for creative expression not only in the physical domain but the social-spiritual domain. This desire to explore and to express ones self creatively, it is now believed, is part of the process of self-actualization existing in all mankind in varying degrees; and it is released only when one feels safe to do so. The creative self as a concept has its greatest meaning when one considers the profound uniqueness of self and of

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its contribution. To focus only upon the development of those parts of self and its substantive products that are shared by all other humans, while important, merely reinforces automation behavior. To be uniquely human is to value those qualities within each of us which are different from all others in much the same way that we value the unique beauty of a sunset, just because it is qualitatively different from all others.

If it is truly believed that creativity is a function of an environment which is safe enough for the naturally creative self or personality to emerge, the 'creative' life cannot be compartmentalized to a think tank, product, or time of day. We are, rather, talking about providing a total human social-spiritual environment in which the individual has a feeling of freedom-in-being.

That total environment will contain elements of both the defined and open views of the good life addressed earlier. What would it be like to cross a large, high bridge, such as the Golden Gate, if it had no super structure? If the bridge had a road bed, but no railings, most people crossing that bridge would walk down the center, fearing to walk near either edge of the road bed. But, if the railings were there, people would feel safer and therefore freer to explore the entire bridge and its beautiful view of the land and seascape. The railings would frequently be tested for firmness to be sure, but they would provide safety

Providing an environment of creativity means making it safe for people to both explore and make mistakes in the pursuit of dynamic and useful goals.

as needed.

Here it can be seen that a classroom that is free of all structure is not the ideal. An unstructured environment can be as threatening to the creative self as one that is too restrictive. Providing an environment of creativity means making it safe for people to both explore and make mistakes in the pursuit of dynamic and useful goals. It means that excess structure and order may unnecessarily protect people from the ambiguity of exploration, however directionless that may sometimes seem, and from the pain of making mistakes. Rather, it is better that we allow creativity to grow out of the natural process of ambiguity and pain.



From Symbol -- To Poem -- To Paragraph

By Lavonne Mueller

All that happens is symbol, and as it perfectly represents itself, it points to the rest.
Goethe

In the beginning, language was pictures. The visual correlative of writing is not only historic but motivating. What better way to start a student in writing than to have him first visualize his thoughts.

I use what I call a symbol technique which is in three stages. I find this process most effective with freshmen and sophomores. My ultimate goal is the paragraph, a unit of writing which I consider a virtual microcosm of the theme. If I can get a student to write a solid, succinct paragraph, I almost always have

luck in getting him later on to expand the paragraph concept into a short, tightly structured theme.

The Symbol: A Starting Point

There are universal shapes to which everybody is sub-consciously conditioned and to which they can respond if their conscious control does not shut them off. Henry Moore

Symbols have shape. An outline of the eagle stands for the United States. The Venus-mirror, the circle with a stem, represents womanhood. The symbol is a visual skeleton of an idea, a shorthand message to get a point across quickly. That is why I have students compose symbols before they write.

Concern for visual thinking is not new. In the early 1900's, Johann Pestalozzi called for the ABC of visual understanding which he boldly put ahead of the ABC of letters. Pestalozzi instructed children to draw angles, rectangles, lines, and arches which, he believed, were the alphabet of the shape of objects, just as letters are the basis of words. Pestalozzi was

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firm in stating:

This lack of instructional means for the study of visual form should not be viewed as a mere gap in the education of human knowledge. It is a gap in the very foundation of all knowledge at a point to which the learning of numbers and language must be definitely subordinated.

The Symbol: A Common Denominator

It is the symbol that we as a group of people hold in common. The public duty of a visual symbol has nearly always been one of creating a community. Perhaps artists have not purposely tried to do this; nevertheless, it has been a result. Certainly a religious unity has been brought about by religious artistic symbols; it is the Bohemian world we embark upon in the works of Degas, Manet and Toulouse-Lautrec. The 'Pop Art' school represents a certain kind of today-funky life style. It is the symbol, then, that casts a shadow; no matter how small the view, the image will tend to represent a common ground--some sense of a human community.

The random realities in the world surrounding an adolescent have no meaning to him until he can see them symbolized, recreated, and set with value. The sunflower is presented as a special kind of awareness by Van Gogh. A pair of broken eyeglasses is converted into literature by James Joyce. The geranium becomes poetry because of Theodore Roethke. Sunflower, eyeglasses, and geranium remain without quality or significance or the sense of community until they are turned into symbols.

If the word, then, is a caption of a symbol, the visual symbol or image is the foundation of language. It is interesting to note that Dr. Paulo Freire, a Brazilian, has developed a successful reading-instruction approach with teaching illiterate peasants. Freire's program often starts with a photograph, such as one with a peasant standing in a field, hoe in hand and a hut in the background. The people talk about these objects in the picture because they are archetypal symbols of the farmer; their observations are expanded into ideas about their feelings. Later their thoughts are tape-recorded and transcribed. Thus, Freire takes his students from sight--to sound--to words.

The Three Stages of the Symbol Technique (plus student examples)

Stage 1

Teacher: We are going to be writing a paragraph about John Kennedy. But before we write, I want you to think of some object that could stand for him.

Student: A rocking chair.

Teacher: Why is that a good symbol of John Kennedy?

Student: Because his back was hurt in the war. And I remember that picture of his rocking chair being moved from the White House after he had been assassinated.

Teacher: Yes, I think that is a good symbol.

Stage 2

Teacher: Here are four poetic forms I want you to consider:

- a. epitaph--an inscription in memory of a dead person
- b. couplet--two lines
- c. tercet--three lines
- d. quatrain--four lines

I want you to use the visual shape of the rocking chair as you would use a word; write a poem in one of the above forms. You will be composing a picture-poem about Mr. Kennedy. And this picture poem will make a statement. You may add another symbol if you like. Please keep in mind that your drawings do not have to be polished; it is the idea I am concerned about.

(Here I display an example by a former pupil so that the students can see how a picture-poem looks.)

Stage 3

Teacher: Now that you have created a visual statement in poetic form, I want you to look at your people and compose a written statement saying the same thing about John Kennedy. Remember the formula for the paragraph: 1 topic sentence, 3 detail sentences (or more) 1 conclusion sentence.

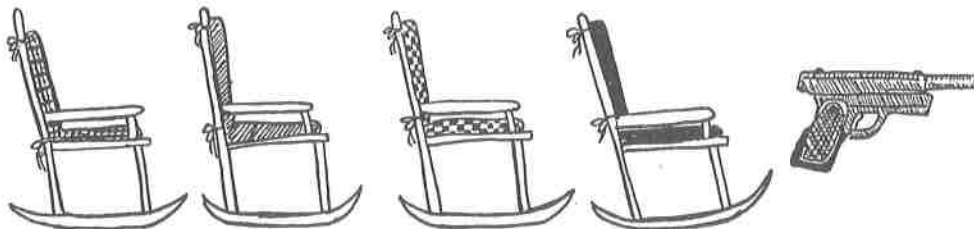
Student example:

John F. Kennedy was a young and courageous President. He suffered greatly in the Second World War. His back was injured as he struggled to help survivors on his boat. Later his back pained him while he was President. When he was assassinated, his rocking chair was carried out of the White House as a final announcement that pain, as the rocking chair, was no longer his concern.

A Final Note

I like the symbol technique because in this process, ideas are materialized, and these 'visual materials' are manipulated as if they were meanings. Since 'symbol sketching' is the idea itself, my approach makes it possible for the thought to operationally come first and in its proper order.

JFK
an epitaph



Instruments and Procedures for the Identification and Assessment of Creativity

By G. Glen Riley

Many instruments and procedures have been proposed and designed for the identification and assessment of creativity or some aspect of creativity in the past four or five decades. Lists of these instruments, often annotated, are frequently provided in workshops and inservice programs. Such lists usually include some reference(s) to the Torrance Tests of Creativity and one or more of Guilford's tests. From there the lists begin to vary depending on the training and background of the person compiling the list.

Over the past ten or twelve years the Journal of Creative Behavior has done an excellent job of compiling rather extensive annotated lists of creativity tests and instruments, but one must examine several different issues of the journal to obtain a comprehensive list. Moreover, there are a number of published tests that are listed in Buros, Tests in Print II, and unpublished tests listed in Tests in Microfiche, that do not appear in any of the Journal of Creative Behavior listings. The author knows of no single all inclusive list of creativity instruments and evaluation procedures that is presently available.

Naturally, a single comprehensive list of all evaluation instruments and procedures associated with creativity is going to be rather long. At first, consideration was given to preparing an annotated bibliography, but it was soon realized that such an effort would be too lengthy for inclusion in this journal; therefore, in the interest of brevity it was decided that no annotations would be included. Generally, there is a reference given with each test which directs the reader to one or more of the annotated lists in the Journal of Creative Behavior, Tests in Print II, or Tests in Microfiche, if one desires more information about the instrument or procedure. For the few tests, instruments, and/or procedures included in the list which are not to be found in at least one of the above annotated listings, a separate reference is provided in the following list.

One should recognize that there is overlap in some of the items of listed. For example, the Kit of Reference Tests for Cognitive Factors has several of Guilford's experimental tests included. In turn, each of these tests, if it is associated with the measurement of creativity, is listed separately. Moreover, it is known that some of the listed titles are early versions of other titles. The intent has been to provide a single comprehensive list of all instruments and procedures that have been used to assess creativity, plus a reference that relates each one to the related literature about creativity.

Each item in the list provides the name of the instrument or procedure. This is followed by the

author's name, if available and the citation. For a complete description of the cited source, the reader should consult the reference section at the end of the article.

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Enhancing the Promise: Maximizing Creativity in Gifted/Talented Children

By Karen Cole

Current definitions of gifted/talented children encompass several areas of ability. For example, the

definition included in the Education of Gifted and Talented Children and Youth Act of 1978 states:

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The term 'gifted and talented children' means children, and wherever applicable, youth who are identified at the preschool, elementary, or secondary level as possessing demonstrated or potential abilities that give evidence of high performance capabilities in areas such

as intellectual, creative, specific academic, or leadership ability, or in the performing and visual arts, and who by reason thereof require services or activities not ordinarily provided by the school (Section 902, PL 95-561, 1978).

Although this definition is perceived by some to broaden the conception of giftedness beyond mere consideration of superior intellectual or academic abilities (Treffinger, 1982), it is still considered to be too restrictive by others (Renzulli, 1978). In his re-examination and expansion of the concept of giftedness, Renzulli offers the following alternative definition:

Giftedness consists of an interaction among three basic clusters of human traits--these clusters being above-average general abilities, high levels of task commitment, and high levels of creativity. Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Children who manifest or are capable of developing an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs (Renzulli, 1978).

While these definitions differ somewhat in breadth, in emphasis, and in the size of the potential gifted/talented population which they might generate, they have two important commonalities (among others). First of all, both definitions identify creativity as an aspect of giftedness. Secondly, both stress the importance of differentiated educational provisions designed to enhance this and other aspects of giftedness.

The major difference between the two definitions lies in the degree to which creativity is conceived to be integrated with giftedness. The federal definition tends to isolate creativity as a particular 'type' of giftedness, as evidenced by the 'either/or' character of the listing of areas of potential high performance. Such an isolation tends to view high intelligence and high creativity as separate abilities or entities. Renzulli (1978), on the other hand, views creativity as an integral part of giftedness. Indeed, in his interactive conceptualization of giftedness, creativity must be present (and at high levels), along with above-average ability and high levels of task commitment, in order for gifted behavior and performance to occur at all (Renzulli, 1978; Renzulli & Smith, 1980).

The differences inherent in these two definitions also reflect an on-going debate on the relationship between intelligence and creativity. Moore (1981) notes a low correlation between high IQ scores and high scores on creativity measures. However, this phenomenon may be as much a result of the instruments used to measure IQ and creativity as it is a reflection of presence or absence of the actual constructs (Callahan, 1978; Newland, 1976). At any rate, the question of this relationship is considered to be unresolved at present (Callahan, 1978; Ehrlich, 1982; Newland, 1976). A fairly recent study by Harvey (1981), in which factors of both creativity and intelligence were elicited and analyzed, concluded that both are highly complex in nature, but appear to be inter-related, particularly in regard to the quality of creative production. As Harvey states, "creativity might be thought of as an ability not only to produce many new ideas, but also to produce high quality ideas

which have originality and which are elaborated with details" (1981).

While creativity need not (and should not) be regarded as the sole province of the highly intelligent, it does seem to emerge as an important element in many conceptualizations of giftedness. As Clark (1983) states, "(creativity) is the highest expression of giftedness." Other authors (Callahan, 1978; Passow, 1981; Renzulli & Smith, 1980) point out that it is this interaction of creativity and intelligence which seems to enable gifted individuals to function at high levels of productivity and accomplishment. This promise of high productivity, coupled with the defined need to

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provide differentiated educational services to gifted/talented children, makes the provision of programming for the development of creativity an essential component of gifted/talented education. Indeed, Callahan (1978) notes education for creativity is usually one of the primary or secondary goals of gifted/talented programs.

If the premise of interrelatedness between creativity and giftedness is accepted, and the promise of high productivity is desired, the problem which remains is one of determining effective ways of incorporating education for creativity into programming for the gifted and talented. While creativity may be conceptualized as specifically related to a given talent area, education for creativity in this sense is more broadly conceived. Ehrlich (1982) defines creativity as the "capacity to reorganize information and experiences in a way that is unique or different from anything previously known to the creator." Thus, education for creativity cuts across curriculum lines and goes beyond mere subject matter adaptations. It becomes, first and foremost, an approach to teaching and learning, with an inherent philosophy and concomitant practices.

Perhaps the most important considerations in providing education for creativity relate to environmental and teacher characteristics (Newland, 1976; Passow, 1981; Vail, 1979). More specifically, the classroom atmosphere must be one in which ideas are valued and are never subjected to ridicule (Callahan, 1978; Newland, 1976; Vail, 1979).

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Such an atmosphere provides the gifted child with the accepting, non-threatening environment in which it is safe to experiment with ideas, to make mistakes, and to reach that unique formulation of information and experiences which Ehrlich identified as creativity. In establishing such a classroom climate, certain teacher characteristics and attitudes are also important. According to Newland (1976), a teacher must show respect for students and their thoughts, must allow for some products to be done solely for the experience of

practice without the burden of evaluation, and must use whatever evaluation is done to establish logical relationships between problems and solutions. In addition to establishing such a climate in the classroom, the teacher has the unique opportunity to serve as a model of a creative person, as well as encouraging and providing contacts for students with other creative role models (Callahan, 1978). Such contacts serve to further establish in the students' minds that it is not only acceptable, but also desirable to be a creative individual who functions effectively and produces at a

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consistently high level. The formation of such positive attitudes goes hand-in-hand with the development of specific knowledge and skills requisite to full and productive functioning, beginning at the student level and continuing throughout adult life (Passow, 1981).

Within the framework of this supportive learning environment, education for creativity can take a number of different directions. Callahan (1978) delineates three models of creative thinking, each with its own particular focus and concomitant educational approaches. The process model centers on the active involvement of the individual with his/her environment, and the creative thoughts and expressions which arise from these interchanges. It is primarily concerned with the stages through which an individual passes in encountering and dealing with new ideas creatively. The product model is based on generating unique responses to problem situations through divergent thinking and evaluation. Within Guilford's Structure of the Intellect Model, which is one of the major examples of a product model, divergent thinking encompasses ideational fluency, flexibility, originality, and elaboration (Callahan, 1978). The personality trait model focuses on specific characteristics which have been identified as common to successful and creative individuals. These include such traits as imagination, intrinsic motivation, emotional security, risk-taking behavior, and ability to deal with ambiguous situations (Callahan, 1978; Gallagher, 1975).

Each of these models, singly or in combination, can form the basis for education for creativity within gifted/talented programming. To a greater or lesser extent, the components of these models can be directly instructed and enhanced through specifically designed classroom activities. For example, Gallagher (1975) notes that merely telling gifted students to produce their most original work or to produce as many responses as they can to a given problem (fluency), can significantly increase the creative output of students. Providing well-planned activities, combining underlying structure with the removal of external constraints needed to engender maximal creative production, can also increase creative production. Gallagher (1975) uses the example of brainstorming (generating multiple responses to a given problem) as such an activity for increasing fluency. However, he stresses the need for the underlying structure inherent in planning for eventual application of the creative output generated, pointing out that merely producing long lists of ideas without such follow-up essentially leaves the creative process permanently stalled in mid-air (Gallagher, 1975).

While directly instructing students to utilize a creative thinking approach or produce creative responses that are original or flexible in nature may

meet with a good deal of success in the classroom, such techniques may not be as successful in effecting changes in personality traits. While these traits may not be easy to instill if they are not present or are only present to a small degree, they are most likely to develop within the encouraging and nurturing atmosphere of the previous described supportive environment.

Within the context of these models and approaches, Gallagher (1975) sets forth several suggested procedures for maximizing creative production in the classroom. Among these procedures are the formulation of

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curriculum into broader concepts which allow for divergent and creative thinking, rather than using collections of related facts which call for the students to always converge on a single 'right' answer. In addition, Gallagher stresses the value of independent projects as a method of learning. Again, however, the underlying structure of adequate guidance in these projects is deemed necessary to the culmination and closure of the creative endeavor.

This article has attempted to set forth a general framework for providing education for creativity to the gifted/talented population. For more specific details on available curriculum programs and packages, the reader is referred to Callahan (1978).

Concentrating at least part of the effort of gifted/talented programming on the creative component of giftedness is an attempt to maximize the productivity of these individuals. As Morgan, Tennant, and Gold (1980) summarize,

It is important to encourage various areas of creativity in all students, but with gifted students opportunities can be increased and made as wide-ranging or as depth-plumbing as their particular projects or creative expressions indicate.

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The New Jersey Teen Arts Program: A Program to Foster Creativity

By Daniel Aubrey

Two quotes reflect a light on the involvement of the New Jersey State Teen Arts Program with creativity and youth. The first quote is from New Jersey poet William Carlos Williams: "The imagination will not down...if it is not art, it becomes crime." The other is from Franklin D. Roosevelt during his comments at the dedication to the Museum of Modern Art. "The arts," he said, "cannot thrive except where men are free to be themselves and to be in charge of the discipline of their own energies and ardors. The conditions for democracy and for art are one and the same."

To these two minds the arts represent more than a product; they are a wonderful process which allows individuals to unfold with their own strengths in their own rhythms. They are the rock on which civilization is rounded. The opening and maintenance of those streams of wonder, expression, imagination, and vision face every society, for as the Old Testament reports, a people without a vision are a dying people.

The New Jersey State Teen Arts Program reaches throughout the state into all counties, cities, suburbs, farmlands, public, and private schools. It has the simple goal of gathering students together to permit them to dream, create, experiment, and learn together. Of course, history shows that simple goals

have complicated pasts and components, so what follows is an outline of the mechanics of this program and how it operates.

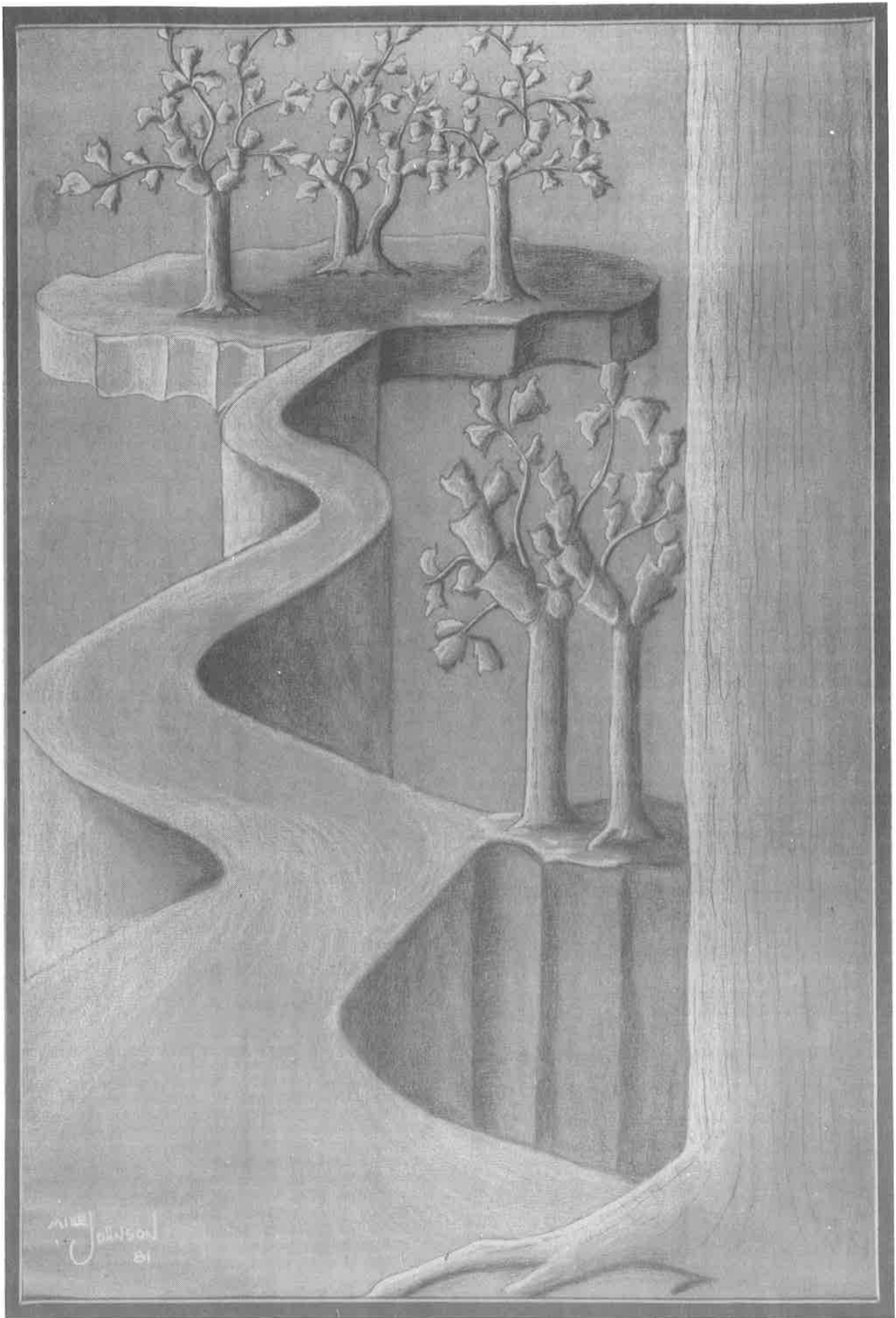
One belief shared by the educators, artists, and students who coordinated the first Teen Arts event in 1969 was that for creativity and self-expression to blossom in the state, they need to be cultivated. Students, as future artists, educators, art consumers, and well-rounded individuals, need an atmosphere that provides interest in both creative process and product. Now, 14 years later, the New Jersey State Teen Arts Program, named by the first students involved, has developed into a prototype program of wide participation, extensive networking, cost effectiveness, and on-going service to youth and creativity.

The most continual and comprehensive arts-in-education project in the state, Teen Arts has provided hundreds of thousands of students with non-competitive events where they learn directly from professional artists, as well as from one another. The entire

The most continual and comprehensive arts-in-education project in the state, Teen Arts has provided hundreds of thousands of students with non-competitive events where they learn directly from professional artists, as well as from one another.

Daniel Aubrey is Public Information Coordinator for the New Jersey State Teen Arts Program.

program reaches approximately 100,000 individuals



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annually, and is administered through both state and county program offices.

The county programs are organized throughout the state, and are managed by a coordinator who may be an employee in a cooperating agency, an individual contracted by an agency for Teen Arts, or a volunteer. The coordinator's responsibilities include developing liaisons with county high and middle schools, communicating with regional artists and arts organizations, and devising and implementing the county festival where these students artists, and educators meet in a community forum that reflects the goals pre-determined by artists and educators at the planning sessions.

At the county festival, students realize what exists in their counties as artistic and educational resources, and what is most accessible to them. Here students meet others who share similar interests and goals. An overview of an actual county festival makes it clearer: The Camden County Teen Arts Festival of 1982 was held for two days at the Rutgers University Campus in downtown Camden. The coordinator, Beth Glenn, was contracted by the Camden County Cultural and Heritage Commission to organize the festival. Over 1000 students from 28 schools were involved with 649 students participating by performing or exhibiting, and the others attending performances, workshops, and discussions. Professional involvement came from faculty at Rutgers, nearby Glassboro State College, and Camden County college; regionally important groups such as the Camerata Opera Company and the Mount Laurel Regional Ballet; and nationally recognized organizations with nearby headquarters, such as the Pennsylvania Ballet and Johnson Atelier. Besides the feedback seminars in all art forms for the exhibiting and performing artists, there were 30 workshops which included "Vocal Techniques," "Graphic Design," and "Introduction to Sculpture." There was no charge for the students to attend; fees were paid through funding from the State Teen Arts Office (through a grant from the New Jersey State Council on the Arts) and the Camden County Cultural and Heritage Commission.

Other county festivals are held at Rutgers in Newark, at Community Colleges throughout the state, at a major shopping mall, and at vocational-technical schools. Out of the 21 counties in New Jersey, there were 19 county festivals in 1982-83; all 21 participated in the most visible component of the program: the annual State Teen Arts Festival.

The New Jersey State Teen Arts Festival is an implication of what has been described about the county festival, and it is the model on which the other

Out of the 21 counties in New Jersey, there were 19 county festivals in 1982-83; all 21 participated in the most visible component of the program: the annual State Teen Arts Festival.

festivals are based. At this event, students come from all corners of the state to perform or exhibit in all art forms; participate in critiquing sessions led by professional artists; and participate in open workshops, seminars, or career sessions led by professionals. Others just enjoy the works of fellow students.

Over 11, 000 students participate in this festival, and although not all students contribute to the samplings of finished art products, there are usually over 600 works of visual art displayed in the gallery, while a thousand other students perform daily during the three festival days.

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The festival is important because it provides students with the satisfaction of moving through a number of stages of the creative process, provides them and their instructors with a practical focus for school or self-initiated projects, allows students to develop an assessment of their own talents, and provides students with a center to exchange ideas. The festival also lets students interact with professional artists, developing dialogues and attending learning sessions where they can draw from first-hand experience of their field or interest.

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A segment from an interview by a New Jersey radio station with a student at the state festival brings it home. As this young actress had just completed participating in the workshop "Auditioning and Stage Presence," she was asked to comment on the festival. "We were given a lot of helpful information," she said of the class, "which I know I'll be able to use. I'm auditioning two times within the week and there are some things I didn't know that I should do...Teen Arts has been good. I don't know many people who are interested in the arts and when I see all these people here it's nice to know that I'm not alone."

Just as the county festivals draw resources from the surrounding regions, the State Festival draws upon those that have impact on the state's cultural sense, as well as that of the nation. Involvement at the state festival has included participation from Westminster Choir College, New Jersey symphony, New Jersey State Museum, Newark Museum, Garden State Ballet, Philadelphia Orchestra, and WNET Television. Other resources include groups or individuals of peer age who have demonstrated expertise: students have led classes in calligraphy, taped radio programs live at the festival to be broadcast on commercial radio stations, assisted Teen Arts student advisory councils, demonstrated banner making, and led programs in theatre.

At the state festival, representative selections of students are made for involvement in Teen Arts year-round extension projects. Selections represent student potential and are made on the basis of commitment to the art form, talent, and inclusion of all regions of the state. Extension projects comprise a variety of activities that are a constant source of keeping students both active and visible to the community at large. These projects include the Annual Teen Arts Visual Art Exhibit at the New Jersey State Museum, an exhibit that is complimented by a gala performance of the annual Interscholastic Assembly Program. The Interscholastic Assembly Program is a performing arts vehicle which provides students with an opportunity to learn through performing. It also gives schools, nursing homes, and hospitals a source of free performances to supplement their activity schedules. During

the 1982-83 school year there were 30 student acts catalogued and available; over 100 organizations participated as nosts.

Other extension projects include the Teen Arts Calendar, which features student art work, the literary anthology EARTHRISE, and master classes in music and dance which have included, through cooperation with New Jersey Bell and the Bell System's "American Orchestras on Tour Program," classes with the New York Philharmonic and Cleveland Orchestras. Dance master classes have included the Pilobolus Dance Theatre and the Twyla Tharp Dance Company.

Funding for the Program has come from a variety of sponsors, including the New Jersey State Department of Education, New Jersey State Council on the Arts, Middlesex County Cultural and Heritage Commission (which administers the Program), Geraldine R. Dodge Foundation, Mason Gross School of the Arts of Rutgers

University, Nabisco Foundation, Johnson and Johnson, Gannett Foundation, Exxon, and the New Jersey Reading Association.

Now that the program has reached the age of its participants, it, too, is gaining a sharper vision of what its role is to be in the coming years. In that same radio interview 18-year-old Alexander Winter, a veteran Broadway actor with credits including "Peter Pan" and "The King and I," had just finished leading a career seminar for young actors. He was asked, "What do you think the future of Teen Arts is?"

His reply: "It is the future."



Providing Creative Experiences for the Handicapped

By Caroline C. Allrutz

It was the spring of 1959 when I first met Dr. Viktor Lowenfeld and in the summer of that year, I arrived at Pennsylvania State University to study with him. As a young art educator, I was inspired and encouraged by this remarkable teacher, thinker, research innovator, critic, psychologist, therapist, and humanitarian. Dr. Lowenfeld was a pioneer in teacher education, art education, and in providing creative art experiences for the handicapped. No other individual has had a more lasting influence in the history and story of art education.

Wherever there is a spark of human spirit--no matter how dim it may be--it is our sacred responsibility as humans, teachers, and educators to fan it into whatever flame it conceivably may develop...We are all by nature more or less endowed with intrinsic qualities, and no one has the right to draw a demarcation line which divides human beings into those who are not worth all our efforts. One of these intrinsic qualities is that every human being is endowed with a creative spirit (Lowenfeld, 1957).

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For myself, this is a firm belief "every human being is endowed with the creative spirit." As a teacher educator deeply involved for the past twenty-four years in visual arts education and personnel preparation in order to provide high quality arts programs to handicapped children and youth, I also believe that the arts are integral to human development. Over the years, direct experience with the handicapped in a variety of settings has proven that the arts can enrich lives and enhance learning for the handicapped.

The arts can enrich lives and enhance learning for the handicapped.

A Rationale

The value of the arts experience as part of learning and living for the handicapped has been presented by authors in the arts and education (Allrutz, 1978; Eddy, 1982; Lowenfeld, 1957; Maslow, 1972; Rubin, 1978). The words of Mrs. Jean Kennedy Smith, Chairwoman of the National Alliance for Arts Education Committee, perhaps best express the feelings

of those who are working to improve arts programs for the handicapped. In accepting an award for her work in promoting arts programs for the handicapped, she stated:

More and more we are learning to understand that for every artist who has painted a picture, composed music, or written poetry, and for all the teachers who have educated students in the arts, and for all of us who have enjoyed the genius of artists, there have been others who have been excluded from even the chance to see a portrait, hear the song or read the verse. They have been excluded because we have branded them 'handicapped' or 'retarded' and therefore have considered them 'unappreciative.'

Every child is a gift of God; and every child of God has the potential for talent, a capacity for creativity, and a right to enjoy to the fullest the beauty and vitality of the arts.

The talent of every child is precious to us all; the creativity of every child can enrich us all. The joy of every child exposed to the arts is a blessing to us all.

Only when every child in our society can be assured the opportunity to share in the appreciation of the arts can all of us claim a share in the wonder of the talent, the creativity, and the joy of every child.

Challenges and Opportunities in Teacher Education

Changes, opportunities, needs and challenges in the entire teaching profession related to the role of the arts for the handicapped suggested an approach to meet the challenges and changes (Allrutz, 1980). A rationale for teacher education (Allrutz, 1974) and for art education and special education was addressed with a program proposal. Allrutz (1980) provided the belief that the most exciting, challenging, and essential ways to prepare personnel to provide arts experiences that enrich and enhance learning and living for the handicapped is to begin at the undergraduate level in the professional preparation of all individuals involved in the education of the handicapped. A theme issue of Design Magazine devoted to the "International Year of the Disabled, 1981" features articles on the opportunities and challenges on this topic written by leaders in four different professional arts education associations.

Programs of Promise

In 1978 a five-year plan for the arts in general education was adopted by the Illinois State Board of Education. The primary goal of this plan is to expose all children and youth to all of the arts. A vital part of this plan is the Special Arts Component. Specialized arts instruction includes programs which are designed for students in classes with particular needs and/or special situations. Examples would include programs for the handicapped and the gifted, the special requirements for bilingual-bicultural classes, and individually tailored classes for the very creative or talented. Ideally, this category of arts instruction would be incorporated into the curriculum at all levels and would be taught by both classroom and specialist teachers. Allrutz and Bond (1979) discuss this component, provide instructional program guidelines, and identify model sites and resources. An excellent recent publication, The Arts: A Basic Component of General Education provides valuable information about the plan and arts education for all students (Bealmer,

1983). A national model program based upon the Arts in Special Education Project of Pennsylvania is provided in Readings: Development Arts Programs for Handicapped Students 1981 (Ditson, Kearns & Roehner, 1981).

Teacher training programs are being offered and developed with the goal of preparing future teachers to become effective as they are involved in providing creative arts experiences for the handicapped. Such a program of promise is offered at Northern Illinois University. Realizing the need for change in teacher education prompted by PL 94-142, Illinois House Bill 150, and the Illinois teacher education certification requirements, the art education faculty, in close cooperation with the Department of Learning, Development, and Special Education, engaged in the first NIU Faculty Redevelopment Grant Program. This unique program of action represents a model in the preferred direction. This is also the first faculty redevelopment and professional growth program of this type and scope in the nation to date. Publications describing this program are underway and presentations about the program have been made at the 1983 National Convention of the National Art Education Association and the Illinois Council for Exceptional Children Convention 1982, by Peg Bond, Chairperson of the Art Education Area; Carla Cumblad, Instructor, Special Education; Laura Frankiewicz, Coordinator of Special Education Clinical Experience; and David McKay, Professor, Art Education. The National Committee, Arts for the Handicapped, is the nation's coordinating agency for creating and promoting arts programs for individuals with disabilities and is an educational affiliate of the John F. Kennedy Center for the Performing Arts. An Annotated bibliography of creative art resources prepared by Wisconsin Coalition for the Arts and Human Needs features over two hundred listings of books, films, videotapes and other resources focusing on arts experiences and activities for individuals with disabilities. The Illinois State Board of Education has available a publication of arts activities for the handicapped.

Moving Forward

The year 1981 was proclaimed the "International Year of Disabled Persons" by the United Nations General Assembly. The aim of the Year was to encourage the rehabilitation of the estimated 450 million people who suffered from some form of physical and mental impairments. The keynote theme was 'full participation.' This special Year demonstrated well how opportunities could be seized to improve the human condition. Long term goals of and for the disabled were adopted by communities, organizations, states, and others.

The Decade of Disabled Persons (1983-1992) has now been proclaimed. Greater opportunities lie ahead for us as educators, administrators, and parents to lead the way with positive action toward providing 'full and successful participation in the arts by, with and for the disabled.' Elisabeth Mann, future special education teacher at NIU and a student of mine, shared the following experiences and hopes for the future:

When I was in seventh grade my art teacher asked me if I would like to display two of my paintings in a very special art exhibit to be held at Northern Illinois University. I was very willing to have my paintings displayed, at the same time telling myself not to get my hopes raised.

A few weeks later, my art teacher told me the painting of the Halloween scene had been selected to be included in the exhibit. I remember the feeling of pleasure that rushed through me when my art teacher also informed me that I would be receiving a cer-

VERY SPECIAL ARTS FESTIVAL HELD AT NIU



SPECIAL STUDENTS CREATING RAINBOW HATS

SPECIAL STUDENT PARTICIPATES IN CLAY EXPERIENCE



SPECIAL STUDENT CREATING A RAINBOW BRACELET

SPECIAL ARTS FESTIVAL EXHIBITION



tificate of congratulations.

My family and I went to NIU to view the special exhibition. We were all impressed by what we saw. One would not know the art work was done by children with special needs. The feeling of pride and joy showed in my face as I looked at my painting. The exhibit meant a lot to me.

I am 23 years old now, but can still vividly recall how I felt about the exhibit. Remembering how important it was to me, I hope that exhibits and arts programs continue to grow and expand so that more children with special needs can experience the same thoughts and feelings that I did!

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In the Beginning God Created ... A Place To Work

By Richard K. Hofstrand

In the beginning, God created...a place to work.
And that workplace has been the anvil of creativity

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ever since. The ceiling of the Sistine Chapel was Michelangelo's 'workplace' for his paintings. Milan was daVinci's for his thoughts and sketches about the potential flight of man. The Radium Institute in Paris was Madame Curie's. And the Bell Labs were John Bardeen's for his creation of the transistor. The workplace or job, for whatever reason--time, need, opportunity, resources or other--has been and will continue to be the nurturing humus as well as the testing ground for creative thought and advances.

But many of the creative advances in productivity, efficiency, quality control and delivery of goods and services from the workplace are not necessarily famous creations by famous people. They are, instead, a compilation of thousands of minor advances by as many workers who perform seemingly insignificant jobs. Workers exhibit creativity; they explore new ways of performing old functions, and in doing so, increase the efficiency of their labor as well as the profit of their effort.

The problem is: how can we teach and encourage potential and existing workers in our society to dream and to express creativity? How can vocational teachers in high school classrooms foster positive attitudes toward creativity on the job? How can technical instructors in post-secondary laboratories teach students to 'think' about what they are doing and about how it might be done faster, easier, better? How can trainers in business and industry inculcate knowledge, attitudes and skills which might enhance the work place as well as the work product? How can trainers of teachers produce creative teachers? The problem is how to teach creativity for the workplace.

Too often, education stifles, rather than fosters, creativity. Witness the following example.

A student was given a barometer by a teacher and was told to measure the height of the school building with it. After pondering the problem as well as the 'tool,' the student climbed to the top of the school building, tied a string around the barometer, lowered the barometer to the ground, marked and measured the string and reported the height of the school building to the teacher.

When the teacher discovered how the student had solved the problem, the student was told to do

The problem is how to teach creativity for the workplace.

it again--'the correct way.'

The student, faced with the identical problem and the identical tool, propped the barometer up on the playground. The student measured the height of the barometer as well as the length of its shadow. Then measuring the shadow cast by the school building, the student used a simple formula of ratio and proportion, calculated the height of the school building and again reported the same finding.

Once again the teacher discovered the 'error' in procedure, and although the answer was correct, told the student again to solve the problem the 'right' way.

The student carefully reconsidered the problem and the resource. The student returned to the top of the school building, and while dropping the barometer from the top of the building, started a stop watch. When the barometer hit the ground, the watch was stopped. Knowing that an item falls at a given rate of speed and now knowing the time elapsed for the barometer to fall to the ground, the student calculated the height of the building, and, reported the same answer for the third time.

Given the universal premise that 'any batter only gets three strikes,' the teacher flunked the student.

The student learned two very important lessons: (1) barometers are bad luck, and (2) attempts at creative thought must be avoided.

(What was the 'correct' procedure? The student and this writer have never been able to answer that. Can you?)

The above example demonstrates how creativity and divergent thinking can be stifled. The following example, however, provides a scenario of how divergent thinking can be expected, encouraged and rewarded.

Insert a diskette into the disc drive.
Flip the power switch on.
Sit down at the keyboard and monitor.

(blip)

Welcome to an Automotive Mechanics Simulation. What is your name?

Laverne

Hello, Laverne. The purpose of this simulation is to test your diagnostic skills with a malfunctioning automobile engine as well as to encourage your creative thinking. You will be graded as to how quickly and precisely you diagnose an engine problem as well as your skills at original thought. You are an owner/operator of a automotive garage. You have just finished a complete tune-up on a customer's car. As he drives out onto the street, his engine sputters and dies, leaving him stranded in the middle of traffic. He wants to know what you have done to his car, demands his money back and threatens to report you to the Better Business Bureau. To begin this simulation, please describe what you perceive the problem to be.

The engine runs but dies.

What else?

The owner is angry.

Good observation. Is this the real problem?

Another problem is that my other customers are viewing this situation which may affect future sales.

Excellent! Now, list three possible causes or solutions to the 'root' problem you described above.

1. There's and electrical malfunction.
2. The engine is not getting any gas.
3. The car is out of gas.

Very good. Which of the above do you think is the most probable cause?

It's out of gas.

What do you want me to do, Laverne?

Check the fuel gauge.

How do I do that?

Turn the key in the ignition to the 'run' position.

It's on.

What does the gas gauge read?

The gas gauge needle is rising and stops at 3/4 full.

Well, it has gas. Let's check to see if gas is getting to the carburetor. Remove the air cleaner.

Air cleaner is off.

Look down into the throat of the carburetor and press the accelerator pump.

I can see gas squirting into the throat of the carburetor.

Then it's getting gas. Turn the ignition key on to the 'run' position.

Ignition key on.

Pull the high tension spark plug wire out of the top of the distributor.

Wire is out.

Rub the wire on the exhaust manifold.

It produces a crackling sound and blue-white sparks.

Spark is okay. Let's try to start it again. Turn the ignition key.

I'm turning the key. The engine starts, runs for a minute or so and then coughs and dies. Your first three possible causes were incorrect. Please confer with another student and return with three new possible causes.

1. There's water in the gas.
2. There's a loose wire somewhere
3. The camshaft sprocket is slipping.

Those are excellent possibilities, but I'll save you time and tell you that none of those are the cause. What do you want me to do next?

(silence)

I'm waiting, Laverne.

I know! I know! Why would that engine start and then die? Its almost like when I was a kid. I'd thread a balloon down the neck of an old bottle. I'd blow it up, and then the back pressure would... Start the engine and listen to the tailpipe.

Engine is started, I'm listening, but I don't hear anything.

Look up the exhaust pipe. Do you see anything?

I see a rag.

A what?

A wadded up old grease rag.

Remove the rag.

Rag is removed.

And the engine is still running?

Yes, the engine is running fine.

Who stuffed a rag in the exhaust pipe?

The owner--when he came to pick up his car.

Why?

He wanted to cause a scene, get his money back, remove the rag and drive off with a free tune-up. Now let's see how well you've done. You solved the problem on the seventh try. I must deduct 5 points for each of the first six tries or 30 points. But your idea about the slipping sprocket was a new one for me, and I will record that in my permanent memory. For that, you get a 25 point bonus giving a final score of 95. Very good, Laverne! Come back again.

(blip)

Based on these two examples, several generalizations or principles of teaching creativity in the vocational and technical education classroom/laboratory can be observed. These principles are as follows:

1. Create a creative climate.

In the first example, the climate discourages creativity. In the second, creativity is encouraged and rewarded. When creativity is encouraged and rewarded, it will increase both the quantity as well as the quality of creative thought.

Creativity is diminished by several barriers, i.e., 'mental walls which block the problem-solver from correctly perceiving a problem or conceiving its solution' (Adams, 1974). The barriers may be psychological. As Ross (1981) noted,

The more common psychological blocks to creativity include our preference for the predictable and orderly and, conversely, our intolerance of the unknown or ambiguous; our high achievement motivation and quick success orientation and, conversely, our inability to allow ideas to include and develop; our tendency to value our sensory perceptions to the exclusion of our intuitive perceptions.

Other barriers are cultural such as the low esteem held for fantasy, reflection and playfulness which tend to expand the creative process. Other barriers are environmental such as a boss or teacher who is threatened by new ideas. It is important for the vocational education teacher to help students (a) overcome barriers, (b) be open to the possibilities, and (c) take risks.

2. Encourage problem solving: Avoid answer giving.

Both examples presented above begin with a problem. The first prescribes a 'proper procedure' and proscribes divergent thinking. In the automotive simulation, the problem is presented and an expansive, not a constrictive, process of problem-solving is encouraged.

Our traditional mode of teaching is deductive--we give the answers first and follow with the reasons, rationale and data. But curiosity and questioning--the precursors of divergent thinking--are discouraged by the deductive approach. They are encouraged by an inductive approach where specific examples and data are presented first. Then generalizations and principles based on those prior examples are drawn. (This article is presented in an inductive manner.)

3. Encourage and reward divergent thinking.

In the automotive simulation, the student is encouraged to not only state the problem, but to re-state the problem as well as to re-affirm the problem. A problem often changes as our perception of the situation changes. Getzels (1975) quotes Albert Einstein as saying,

The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or

experimental skill. To raise new questions, new possibilities to regard old questions from a new angle, requires creative imagination.

A classic example of problem redefinition comes from a consultant who was called to a high-rise apartment complex to speed up the elevator. The occupants were complaining about the elevator being too slow. The elevator was tested and found to be operating normally. But that didn't resolve the tenant's complaints. So the consultant had full-length mirrors installed in the elevator area on each floor. Once people could primp, prink and preen while waiting, complaints about the elevator ceased. The supposed problem was only a symptom of a more generic problem. The phrase, 'a problem well defined is half solved' is especially true in creative problem solving. Creative thinking is enhanced by creative problem stating.

The student was also encouraged to think of multiple causes or solutions. The obvious cause is not always the exact cause; the obvious solution often proves to be less than satisfactory. Developmental consultants are trained to recommend a prime course of action and two additional courses for consideration. Often, after all things are considered, one of the 'additional courses of action' may become the favored.

Divergent thinking must be rewarded. Consider the example of an employee of a heavy equipment manufacturing firm in Ogle County, Illinois, who approached his company with an offer. He had an idea that he thought might save considerable assembly time. He wanted to use the company's metal lathe to make a jig, doing it on his own time. If the invention worked, the company could have it; if it didn't they owned him nothing. All he sought was permission to the company's shop. The company refused, claiming that their insurance wouldn't cover them in case of an accident. Who lost? The manufacturing firm lost not only this idea, but future ideas of this employee as well as others who observed. Creative, divergent thinking was worse than not rewarded; it was discouraged.

If you expect students and workers to be creative, they will be. In the Automotive Simulation, divergent thinking was expected, encouraged and rewarded.

4. Challenge the conventional.

The student with the barometer used it in a variety of ways; the student was not subject to what Raudseep and Haugh (1977) refer to as 'functional fixedness,' i.e., the tendency to use tools and techniques in only one way. Students must be encouraged to challenge the conventional and to explore the unknown.

Bennis (1975) concludes that the key to promoting creativity is to expand awareness and to 'force' students to view the familiar in a new way; to make the familiar strange and the strange familiar. Einstein

Students must be encouraged to challenge the conventional and to explore the unknown.

supposedly came to his theory of relativity by following alongside a beam of light traveling through space and watching it as it changed. What if you asked a student to 'visually' flow through the pipes with irrigation water? Or if you asked someone to watch a cake bake from the inside? Or to imagine 'receiving' the letter they just typed?

The Synetics Strategy described by Milanovich and Geer (1978) provides an effective way of helping students to view things in unconventional ways. 'Synetics' is a Greek term referring to the linking together of irrelevant or different elements. The Synetics Strategy utilizes analogies and metaphors to foster unconventional thinking. This detailed teaching strategy also uses a technique called 'compressed conflict' in which descriptive words are selected which seem to be opposite and which contradict each other. The 'compression' tends to 'force' viewing the familiar in a new way.

5. Foster group creativity.

In the Automotive Simulation, the student was instructed to explore three additional causes or solutions with one or more classmates. Why? The group process is synergistic: it produces more than merely the sum of its parts. How many uses can you think of for a common brick? I've seen brainstorming groups come up with 30 uses and still keep going strong because as one person expressed an idea, it sparked an idea in another person's mind. A group, in total, produces more ideas than each member would individually.

People from differing backgrounds and with differing training, think in differing ways; they approach problems from different perspectives. They think in different 'languages'; some think mathematically, other verbally, still others visually. When divergent people are brought together to address a common problem, each brings a unique perspective and approach.

6. Be creative yourself.

How can you encourage your students to be more creative in school? On the job? How can you train employees to be more creative? How can you as a teacher become more creative?

In summary, the place of work tends to be an anvil of creative thought. And creativity for the workplace can be taught, both before the student enters the workplace as well as while the worker is in the workplace. Teaching students to be creative can be accomplished through the application of several principles such as (1) creating a creative classroom climate, (2) encouraging problem solving, (3) encouraging divergent thinking, (4) challenging the conventional, (5) fostering group creativity and (6) being creative yourself as a teacher.

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The Bureaucracy and Creativity

By John R. Burr

The concepts of bureaucracy and creativity need philosophical analysis. They carry an emotional load weighing them down almost below the intellectual Plimsoll line; they designate different and sometimes incompatible meanings in education alone, to say nothing of government and other fields; they stand for a tangle of substantive issues deeply rooted in the past and the present. In a brief article, such an analysis can only begin.

The term 'bureaucracy' has become a pejorative one; the term 'creativity' has acquired an honorific connotation. 'Bureaucracy' suggests something undesirable while 'creativity' implies the opposite. There is the acid test of self-reference: people who presumably are bureaucrats in fact never call themselves bureaucrats and resent others doing so; creative people do not shrink from referring to themselves as creative and are flattered to be so described by others. These pejorative and honorific emotional associations powerfully reinforce widely held beliefs that bureaucracy and creativity are totally and irrevocably opposed to one another and that bureaucracy should be fought and creativity promoted. Thus, if discussion and argument about bureaucracy and creativity are not to be prejudiced from the start, these terms must be defined in as emotionally neutral a form as possible.

In a contemporary American context, a relatively emotionally neutral meaning of bureaucracy is that of a body of nonelective government officials such as the United States Department of Education, a state department of education, and a local superintendent of schools and his/her assistants. However, as applied to American education, such a definition immediately strikes one as too narrow because in this country educational institutions may be public or private. The term bureaucracy has been extended to include the administrators of private educational institutions, as well. What is more important to note here is that, in theory, at least, these nonelective government officials or administrators are supposed to carry out policies officially adopted by others, be they elected representatives, boards of trustees, stockholders, and so on. In addition, in order to perform successfully, such bureaucracies have become characterized by specialization of functions, adherence to fixed rules, and a hierarchy of authority.

In his 1861 work Considerations on Representative Government, the English philosopher John Stuart Mill (1977) declared that 'the essence and meaning of bureaucracy' consisted in the work of government being carried on by professionals, by those who devote their working lives to the task and have been specially trained to do so in advance or have acquired that

training on the job. This professionalization has steadily grown since Mill's day so that increasingly bureaucrats must be formally educated to be bureaucrats. Today an ambitious educational bureaucracy or administrator possesses a Ph.D. or Ed.D. in educational administration. However, the term 'educational bureaucracy' has been extended even further to include not only administrators but also teachers; indeed, all professional educators are considered to belong to the 'educational bureaucracy.' It has become customary to refer to the teaching profession as a 'bureaucracy.' Instead of parents directly educating their children or people educating themselves, educational bureaucrats have been hired for the purpose.

To be creative is to be capable of bringing something into existence. That something may be undesirable as well as desirable. Doubtless the reader has visited homes where there is not a picture on the wall nor a rug on the floor that isn't hideous, just as he has been in other homes that are very tastefully decorated. Furthermore, something created is deemed to be new or original rather than a copy or imitation of something already existing. Nevertheless, something being new in this sense does not necessarily mean it is better or worse than anything else; it could be just different. There also is a strong tendency to assume that only individual persons can be creative and that groups, committees and organizations can't be. This presumption must be set aside at the outset since there seems to be no a priori reason for its truth.

Returning to the subject of bureaucracy, it is indeed difficult to comprehend how any large organization such as a public school system based on compulsory education or a university enrolling 20,000 or 30,000 or more students, to say nothing of a national government, could function without such a professional group. The abolition of bureaucracies in today's world is as much a fantasy as Arcadia or Eldorado. Any 'de-schooling of society' in the sense of the total elimination of educational bureaucracy would mean the abandonment of the kind of educated citizenry essential to the continuance and progress of contemporary industrial-technological civilization. Some of the opponents of bureaucracy in general and educational bureaucracy in particular grasp this implication; their denunciation of bureaucracy rests not so much on a detestation of bureaucracy per se as on a hatred of the whole of contemporary civilization, which they want done away with root and branch. In turn, this general hostility flows from many sources: dislike of democracy, capitalism, socialism, communism, science, technology, what is deemed artificial as contrasted with what is believed to be natural and good, or even government in general (including the old Yankee tradition of always being 'agin the government').

In the brief but shrewd and prescient analysis of bureaucracy in his Considerations on Representative Government, John Stuart Mill (1977) finds bureaucracy to be necessary to good government and modern society, not as a necessary evil which we must endure, but as a

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positive good itself: "It thus appears that the only governments, not representative, in which high political skill and ability have been other than exceptional, whether under monarchies or aristocratic forms, have been essentially bureaucracies." Bureaucracy also is essential to representative government. As Mill indicated:

...freedom cannot produce its best effects, and often breaks down altogether, unless means can be found of combining it with trained and skilled administration. There could not be a moment's hesitation between representative government, among a people ripe for it, and the most perfect imaginable bureaucracy. But it is, at the same time, one of the most important ends of political institutions, to attain as many of the qualities of the one as are consistent with the other; to secure, as far as they can be made compatible, the great advantage of the conduct of affairs by skilled persons, bred to it as an intellectual profession, along with that of a general control vested in, and seriously exercised by, bodies representative of the entire people...No progress at all can be made towards obtaining a skilled democracy, unless the democracy are willing that the work which requires skill should be done by those who possess it. A democracy has enough to do in providing itself with an amount of mental competency sufficient for its own proper work, that of superintendence and check (Mill, 1977).

Mill's admiration of bureaucracy is not uncritical. Bureaucracy needs 'superintendence and check' from outside of itself because without external control, good or vital bureaucracy sooner or later degenerates into bad or routine bureaucracy.

The disease which afflicts bureaucratic governments, and which they usually die of, is routine. They perish by the immutability of their maxims; and, still more, by the universal law that whatever becomes a routine loses its vital principle, and having no longer a mind acting within it, goes on revolving mechanically though the work it is intended to do remains undone. A bureaucracy always tends to become a pendentocracy (Mill, 1977).

Franz Kafka's The Trial, George Orwell's 1984, and similar works melodramatically exaggerate Mill's 'pendantocracy' into an all-encompassing nightmare in which all bureaucracies are sick. Mill's 'pendantocracy' is a bureaucracy incapable of creativity--that is to say, a bureaucracy whose flexibility and initiative have been destroyed by excessive adherence to regulations and decline of the power to live and grow and the capacity to continue a meaningful or purposive existence.

But Mill remains an optimist, a liberal. Only degenerate bureaucracies, not all bureaucracies, are incompatible with creativity, with life or the capacity to bring something new into existence. He did not see the degeneration of bureaucracy as inevitable; it could be prevented if bureaucracies were superintended and checked by elected popular representatives of adequate intelligence and knowledge. Bureaucracies must be responsible to and ultimately controlled by nonbureaucrats. Mill's basic premise is: "In all human affairs, conflicting influences are required, to keep one another alive and efficient even for their own proper uses..." (Mills, 1977). At bottom, Mill is an individualist. If those 'conflicting influences' are

to exist and flourish, the free development of individuality must be the paramount goal. And for Mill 'individuality' means experimentation and differentiation in human life--in a word, 'creativity.'

Clearly, the subordination of local school systems to local, elected school boards composed of laymen is an American attempt to put into practice Mill's principle that bureaucracies must be superintended and checked by non-bureaucrats, the experts controlled by amateurs. Equally clearly, Mill would be opposed to any school board dominated by professional educators. Contemplation of actual lay members of school boards is bound to raise, particularly in the minds of professional educators, serious doubts about Mill's optimistic liberalism. Can lay school board members be said to be examples of Mill's concept of 'individuality?' Or are they more likely to be ignorant, conforming Babbitts? Or doctrinaires seeking to impose scientific creationism or some other doctrine rejected as false by the professionals? How can we secure sufficiently intelligent and knowledgeable voters to elect them?

Mill suggests the creation of a well-trained, articulate, and courageous intellectual class, possibly rooted in strong and independent universities producing liberally educated graduates. Such institutions will bring people into contact with others different from them and expose them to unfamiliar modes of thought and action. A genuinely liberally educated class with broad though not expert knowledge and with a cultivated sensibility will provide the external stimulus essential to prevent bureaucracies from degenerating into 'pedantocracies.' Yet we certainly cannot complacently assume that the contemporary university will do the job. Anyone familiar with the university today recognizes the truth contained in A. H. Halsey's (1968) description:

The modern social context of higher education increasingly favors the bureaucratic type of institution. A technological economy seeks to fashion the institution of higher learning as an antechamber for its manpower demands and as a source of marketable technical innovation...Students seek a degree course to earn a living, rather than college residence to complete their introduction into a style of life. Similarly, in the same context, the career interests of professors and lecturers encourage research, which brings academic and professional recognition, or administration, which brings local reward, rather than teaching, which commonly brings neither (Halsey, 1968).

Somewhat ironically, almost 30 years after Arthur Bestor published his "Liberal Education and a Liberal Nation" in Phi Beta Kappa's The American Scholar, Diane Ravitch (1981) of Teachers College, Columbia University, calls for a resurrection in American schools of liberal education: "...the school's first purpose is to encourage and guide each person in the cultivation of intelligence and the development of talents, interests, and abilities." Vermont Royster (1983) nails what he espies as a waxing 'counter-revolution' rising from the primary grades and now reaching the graduate level to return to a rigorous, academically demanding liberal education brought about by the public and parents, in particular, outside the educational bureaucracy. Mill's 'superintendence and check' still seems to be operating. Will the 1980's merely be a reprise of the 1950's? Will a critically ill educational bureaucracy recover, or will this latest liberal reform turn out to be one more intermittent fever in a chronic invalid? The past says, "Yes." The future remains disconcertingly

silent.

Meanwhile, in America, professional educators occupy an equivocal position. They are expected to be and want to be regarded as professionals, bureaucrats; they are expected to be and want to be creative. A monsoon of criticism pours down on them for being too bureaucratic and for not being bureaucratic enough; for not being creative enough and for being too creative. They are denounced for being specialists and for being quacks. They are expected to be skilled professionals, people who know what they want to accomplish and how to do it without any surprising side effects. They are not allowed to be autonomous professionals; they do not fully control entrance into the profession and exit from it; what they shall do and how they shall do it. They are dictated to and interfered with by non-professionals, by elected officials, parents, politicians, journalists, citizens, self-styled experts, demagogues, fanatics, ignorances, idiots. They are condemned for not being professional enough, for not really knowing what they want to do, for endlessly debating the aims of education, for failing to teach even literacy. Accused of sacrificing subject matter and experimentation to methodological routine, they are scolded for being suckers for every new fad or craze. They are looked upon as unimaginative pedants who are not quite right in the head and so need close watching. In short, non-professionals look upon them as a comic character.

And yet American educators see themselves as torn asunder by divided loyalties. They sincerely strive to be autonomous professionals and also loyal citizens of a democracy. They labor to become scientific specialists and also artists working with living material rather than paint and stone and sound. They try to advance their subject and the best interests of

their students. They seek to produce expected results and to experiment. The abler, brighter ones try so hard and yet often succumb to 'burn-out' and depression. The German philosopher Hegel found the essence of tragedy in being subjected to equally valid, but incompatible, rights or duties and particularly admired Sophocles' play 'Antigone,' in which the heroine is caught between obedience to the law and devotion to her family and the gods. American educators constitute a refutation of the thesis that in an egalitarian, democratic age there can be no tragedy.

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Counseling and Computers: Implications for Teacher Educators

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American Baptist Assembly
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PROGRAM

FRIDAY, OCTOBER 21, 1983

4:00 5:30 pm Registration in the Lobby
Christian Writers Center

SESSION I CWC Dining Area
John Starkey, Presiding

6:15 Welcome: Leonard Pourchot

6:30 Dinner

7:15 Counseling and Computers in the Educative
Process
Joseph Ellis, Northern Illinois University

Counseling for Sexual Wellness
George S. Holden & Janice Minor-Holden
Sex Therapists, Geneva, IL

Use of Early Recollections: A Diagnostic
Technique for Counselors
James L. Hafner, Professor of Psychology
Indiana State University

8:30 Comments from the Foundation Chairman
Byron F. Radebaugh

8:40 Adjourn SESSION I

11:15 Hands-on Experience with the
Microcomputer
Thomas Many, Robert Starkey and
Wesley Many

Adjourn SESSION II

12:00 Lunch CWC Dining Area

SESSION III CWC Conference Area
Weldon Bradtmueller, Presiding

1:30 Hands-on Experience with the
Microcomputer

2:45 Break

3:00 Small Group Work
Counseling Interest Groups--Robert Maple
Computer Interest Groups--Glen Riley

3:30 Adjourn SESSION III

6:30 Dinner on Your Own

8:00 Return to the Center for Small Group
Meetings

SUNDAY, OCTOBER 23, 1983

SESSION IV CWC Dining Area
Charles Smith, Presiding

8:30 Breakfast, Dining Area

9:30 Summary and Looking Ahead
Frank Lanning, NIU

10:00 Adjourn Conference

For information and registration materials contact:

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Department of Learning, Development & Special
Education
Northern Illinois University
DeKalb, IL 60115
815/753-0657

SATURDAY, OCTOBER 22, 1983

SESSION II CWC Dining Area
Roy Bragg, Presiding

8:00 Breakfast

8:45 Recent Developments in Career Counseling
Carol Minor and Wesley Schmidt, NIU

9:30 Microcomputers in the School Setting
Wesley Many, NIU

10:15 A Demonstration of Computer Educational
Software
Thomas Many, School District 15
Palatine, IL

10:45 The Word Processor: A Tool for Improving
Writing
Robert Starkey, NIU

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A MICROCOMPUTER SOFTWARE FAIR

The College of Education at Northern Illinois University is sponsoring a Software Fair on Tuesday, April 3, 1984, 9 am to 4 pm in the Ballroom of the Holmes Student Center. The purpose of the Fair is to introduce teacher educators, teacher education students, teachers, and administrators to the software that is currently available for instructional purposes.

More than 50 exhibitors will demonstrate software throughout the day. There will be several series of demonstrations that will focus on instructional areas: Social Studies, mathematics, science, etc. At the same time there will be a mini-conference on topics related to computer education such as selection of software, criteria for selecting hardware, instructional strategies for using software with elementary and secondary students, etc.

There is no charge for participants. Teachers and administrators are invited to attend. Refer questions to Howard Swan or Pete West, College of Education Learning Center (815/753-1241) or Louise E. Dieterle, Associate Dean (815/753-1949), College of Education, Northern Illinois University, DeKalb, Illinois 60115.

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