TEACHING FOR CREATIVITY: APPLICATIONS OF RESEARCH AND LEARNING THEORY IN THE CLASSROOM

Nancy H. Barry[28]

Resumo

Com a educação musical como pano de fundo, este texto apresenta pesquisas recentes sobre criatividade, e discute, com apoio das teorias de Betty Edwards, a utilidade do processo criativo no/na ensino-aprendizagem. Depois de discutir a produção criativa no campo de drama (produção de peças), abordagens criativas para a educação em música são apresentadas para argumentar que – *Os estudantes precisam de oportunidades para explorar seu lado criativo através de uma variedade de experiências de aprendizagem. Dando seus alunos mais oportunidades para serem criativos, poderia aumentar a sua motivação, melhorar suas habilidades de ouvir, e fortalecer suas capacidades para pensar, raciocinar.*

Abstract

Using Music Education as a backdrop, the text presents recent research about creativity, and discusses, with support from Betty Edwards' theories, how the creative process can be drawn upon in teaching. After discussing creative playmaking, creative approaches do music education are presented in order to argue that – *Students need opportunities to explore their creative side through a variety of learning experiences. Giving students more opportunities for creativity is likely to increase their motivation, improve their listening skills, and enhance their thinking abilities.*

INTRODUCTION AND THEORETICAL FRAMEWORK

Teaching is both an art and a science. The acquisition and understanding of factual information is only one component of a complete education. Educators acknowledge that, in order to achieve their greatest intellectual potential, students must also have opportunities to develop creativity and problem solving skills (Abdallah, 1996; Fatt, 1997). Research indicates that creative approaches to teaching and learning can improve academic performance and enhance cognitive development (Caine & Caine, 1991; Gardner, 1982). The business world has also recognized the increasing need for individuals capable of original and creative thought in the workplace and in society (Edelson, 1996; Getty Education Institute for the Arts, 1996; Roweton, 1989). However, traditional approaches to education in both Brazil and the United States tend to neglect creativity. It is important for educators to avoid letting the demands of the content that we teach overshadow the needs of our students. This paper explores some ideas about creative teaching and learning with an emphasis upon classroom applications.

[28] Professora Titular do Departamento de Currículo e Ensino, da Faculdade de Educação, da Universidade de Auburn, Estado de Alabama, EUA. O texto é a "tradução da apresentação" realizada pela autora durante o I Congresso Regional de Educação, CCE/UFPI, em dezembro de 1998.

Learning can be divided into two general types: *Passive Learning* in which the learner passively "takes in" information dispensed by the teacher and *Active Learning* in which the learner is an active participant.

Passive learning, by definition, is teacher centered--the teacher makes all decisions and provides information to the students. Traditional, lecture-style teaching is a good example of passive learning. In contrast, active learning involves the students as active participants in the learning process. Active learning may also be teacher centered if the students are active participants but are following the teacher's directions with no opportunities to make their own choices. Student-centered active learning provides the greatest opportunity to develop creativity and problem solving strategies because students have a great deal of responsibility for their own learning. Students have the opportunity to make mistakes and, with the teacher's guidance, to learn from those mistakes. They must make many decisions and solve problems for themselves, but, of course, the teacher is responsible for providing a framework for this learning activity and provides support and guidance throughout this process, offering feedback, asking questions, and assisting students. A common misunderstanding is that student-centered learning does not require teacher supervision, but this is not the case. Research and common sense tell us that student motivation and learning increase when more active, student-centered approaches are used.

We must also take into consideration the different cultural backgrounds of our students. Culture has a huge influence on the way that a youngster behaves. For example, in some cultures, a child refusing to make eye contact would be viewed as a sign of shame or belligerence, but in other cultures that same action would be a sign of respect. Research also tells us that students of different cultures learn best through different learning modalities. For example, some cultures place more emphasis upon facial expression and gesture in communication (physical expression) while other cultures pay more attention to words and language (verbal expression) (Gardner, Kornhaber, & Wake, 1996).

Other aspects that teachers should consider include multisensory teaching and learning. We must remember that different people learn in different ways. The most effective teaching involves a variety of senses. It is important for teachers to remember to include visual, aural and kinesthetic experiences in their lessons.

In order to understand the creative process, we must also understand cognitive development (Cohen, 1983). Cognition has been defined as perceiving and knowing (Simpson, et. al., 1998). Activities that help develop cognition include symbolizing, remembering, creating, problem solving, fantasizing, and categorizing. These capacities are best developed through

creative learning experiences. A number of theories of cognitive development have emerged: Stage Theory, Sociocultural Theory, and Multiple Intelligence Theory.

Stage theory developed from the work of Viktor Lowenfeld in art and Jean Piaget in psychology. According to stage theory, as the child develops he/she proceeds through a series of clearly defined stages. As the child gains experience, thinking is refined and revised and a new stage is reached, gradually moving from simple cognition to metacognition.

More recently, computer terminology has provided useful metaphors for explaining human brain function (Cohen, 1983). For example, Case and Fischer have recast the idea of Stage Theory in the form of Information Processing—a theory that acknowledges that children develop in clearly defined stages, but also suggests that children encode, transform, and organize information in a variety of ways and progress at different rates (Simpson, et. al., 1998).

The work of Vygotsky and others holds that cognitive development is not an independent process. Sociocultural Theory describes cognitive development as a socially mediated process through which children move sequentially. Learning is affected by two factors, culture and the physical environment.

Multiple Intelligence Theory was researched and developed by Howard Gardner and associates at Harvard University. It is a complex theory that, after years of research, is still being refined and expanded, but it is based on the simple idea that different individuals may have different strengths. According to Gardner's theory, "Intelligence" is any human skill or attribute which is valued by a culture (Gardner, 1985; Gardner, Kornhaber, & Wake, 1996).

Gardner points out that the idea of intelligence—that which is valued--is culturally bound. For example, imagine a person from a remote pacific island with no formal schooling and a business executive with a university degree. Place these two individuals in a business meeting, and the islander would most likely appear rather awkward and perhaps even stupid in that setting. However, shipwreck these two people on a desert island without benefit of technology or outside assistance and the "educated" executive would most certainly have to rely upon the knowledge and expertise of the islander for his very survival (Gardner, 1985).

Traditional educational programs tend to emphasize verbal-linguistic and mathematical intelligence, while minimizing other forms of human ability. But research has demonstrated that educational systems based upon multiple intelligence theory provide more effective learning for all students

by allowing each individual to utilize her/his dominant learning modalities (Campbell, Campbell, & Bruce, 1996).

To date, eight different "intelligences" have been identified:

1. Verbal/Linguistic Intelligence is responsible for the production of language including, poetry, humor, storytelling, abstract reasoning, and the written word. People with high verbal/linguistic intelligence are likely to be good at things like reading, writing, talking, and debating. They enjoy things like poetry, humor, storytelling, argument, and creative writing.

2. Logical/Mathematical Intelligence is associated with what is called "scientific thinking" including deductive/inductive thinking, numbers and recognition of abstract patterns. These people are good at solving problems, analyzing things and may thrive in subjects such as math and science. They enjoy figuring out patterns, matching things that are alike, math, science, crossword puzzles, and solving problems.

3. Intrapersonal Intelligence involves knowledge of the internal aspects of self such as feelings, emotional responses, self-reflection, and sense of intuition about spiritual realities. These people tend to be good at understanding their own and other people's feelings, focusing and concentrating, and thinking things through. They may be good at things like reflecting about how they feel about things and focusing and concentrating on ideas. They are likely to enjoy meditating and being thoughtful and may require quiet time alone on occasion.

4. Interpersonal Intelligence concerns the ability to work cooperatively in a group as well as the ability to communicate verbally and non-verbally with other people. These people are good at working with other people. They like to work with other people on group projects and in sharing ideas and opinions.

5. Visual/Spatial Intelligence is the ability to create internal mental pictures dealing with such things as visual arts, navigation, map-making, and architecture. People highly developed in this intelligence are good at creating pictures in their mind and drawing them. They also tend to be good at creative and artistic things, using colors, reading maps, and are likely to have a very vivid imagination.

6. Musical/Rhythmic Intelligence includes such capacities as the recognition and use of rhythmic and tonal patterns and sensitivity to sounds such as the human voice and musical instruments. These people tend to enjoy things like humming, singing, playing musical instruments, and beating drums.

7. Body/Kinesthetic Intelligence is the ability to use the body to express emotion as in dance, body language and sports. Body/Kinesthetic learners prefer to learn by doing. A "hands-on" approach is most appropriate for Body/Kinesthetic learners. People highly developed in this intelligence are good at things like sports, dance, gymnastics, karate, and boxing. They enjoy working with their hands and are likely to have good body control and coordination.

8. Naturalist Intelligence is the ability to recognize plants, animals, and other parts of the natural environment like clouds or rocks. These individuals may like hiking, camping, fishing, digging for fossils, or other activities relating to the natural environment. This intelligence may be revealed through the interests of children who become experts on dinosaurs and adults who pursue such interests as hunting, botany, and anatomy.

Being aware of a student's dominant intelligences enables the teacher to plan more effective and appropriate learning experiences. This provides an opportunity for each student to achieve at her/his highest capacity.

Another important consideration in designing educational experiences which optimize achievement for *all* learners is the emotional/moral development of the student. Three prominent theories are: Behaviorism, Social Learning Theory, and Functionalist Theory. Behaviorism emphasizes the stimulus-response aspects of development. Emotional development is explained as the result of conditioning (Madsen & Madsen, 1981). Social Learning Theory describes development as shaped by culture and the environment. Functionalist theory explains emotional development as the cognitive processing of new information in order to adapt.

The works of Kohlberg (1984) and Piaget and Inhelder (1969) also address moral development, suggesting that decisions about right and wrong are reached by thinking about them in a very concrete way at first and, eventually, in a more complex, abstract way.

Social development, sometimes called social cognition, is the development of understanding of the self, others, and social relationships. It is very complex and begins developing at a very early stage. Social understanding develops from an understanding of one's own behavior (concrete social reality) to the ability to participate in complex social situations and an understanding of others' thoughts and behaviors (abstract metacognitive social understanding).

Current theories of language development have been influenced by several prominent schools of thought: (a) Behaviorist theory, based upon the work of Skinner and others suggests that language is learned through

conditioning and imitation (Madsen & Madsen, 1981). (b) Nativist theory, from the work of Comsky suggests that children are biologically equipped to develop language. (c) Interactionist theory suggests that both innate abilities and social context must be combined for language development. (d) And, of course, humans go through a long period of physical development before their adult height, weight, and sensory faculties are attained. Theorists such as Parsons (1987) and Hobbs and Salome (1991) have suggested that children and adults also go through several stages of aesthetic development which are defined by changes that occur in understanding and by experiences with works of art rather than by age.

Theories of creativity and cognition often include a discussion of problem solving. Simpson, et. al. (1998) describe two distinct approaches: (a) Problem Solving, the cognitive process associated with clearly formulated problems which requires following routine steps using a particular method to arrive at a known solution; and (b) Problem finding, is the cognitive process associated with an open-ended, ill-defined problem. The idea of problem finding stems from the work of American psychologist Jacob Getzels (1980) who explained that creativity is much more than merely solving existing or predictable problems. Getzels pointed out that creativity involves seeking and discovering new problems--problems that have not been perceived before. Problem finding is a common element in most of the theories that propose steps to creative thought. Since the problem does not have specific requirements, the problem solver must identify the problem and choose methods to arrive at solutions that satisfy the situation.

To put this into practice, the teacher must avoid always giving students "closed" problems because problems which present limited choices and problems with predictable results offer little opportunity for true creativity. It is important to provide learners with some open-ended experiences. Tasks presenting myriad problems and opportunities for a variety of solutions provide a true challenge for the intellect.

CREATIVITY RESEARCH

A review of the literature reveals an impressive body of work on the topic of creativity. Simpson, et. al (1998) divide creativity research into three broad areas: (a) Personality. Personality research focuses upon the "creator"—the human element in the creative process. It explores the nature of the creative personality and the relationship between various personality types and the creative process. (b) Product. Many studies have examined the creative process by studying the end result of the creative process. (c) Process. Researchers have also investigated the creative process, examining the steps of creativity from both qualitative and quantitative perspectives.

Teachers wishing to use more creative approaches in their classrooms must consider all three of the above factors. Certainly, the personality of the learner must always be considered when designing educational experiences. However, whether a learning activity is more product- or process-oriented will depend upon the specific learning objectives for that particular lesson. Some experiences may be more product oriented, leading toward a specific outcome, such as the creation of an original and accurate map for geography studies. On the other hand, some educational objectives are best served through process-oriented experiences. For example, if the objective is for students to read a book and to develop their own interpretation of that book, an appropriate creative activity would be to ask the students to improvise a play based upon the book. In this type of activity the thought processes (choices about which characters to include in their play and why, setting, action, etc.) that the students must go through are more important than the quality of the play that they create (product).

DRAWING ON THE CREATIVE PROCESS: THE THEORIES OF BETTY EDWARDS

Betty Edwards, Professor of Art at California State University, has received much acclaim for her books and seminars on the topic of creativity. Although she uses an over-simplified model of human neurological function, there is still much merit in practical applications of her theories.

Betty Edwards describes thought as either "R-mode" or "L-mode" (Edwards, 1986). R-mode thinking is based in the right brain and relates to visual, spatial, and relational perception. R-mode thinkers are visual learners and tend to perceive objectively, basing their perception on what they see rather than relying upon preconceived ideas. In contrast, L-mode thinking is based in the left brain. It represents linear, logical, language-based thinking. L-mode thinkers are logical/verbal learners who prefer to gather information and sort it into categories.

Edwards (1986) describes five stages of the creative process: (a) First Insight.
Creativity often begins when one simply observes her/his surroundings with curiosity and interest. First insight often emerges as a question. (b) Saturation. In the Saturation stage, seeing what is "there" is essential. Perceive the edges of a problem. Perceive the negative spaces of a problem. Perceive the relationships and proportions of a problem. Perceive the light and shadows of a problem. Perceive the Gestalt of the problem. (c) Incubation. The Incubation process begins when you can go no further in the Saturation stage. Move on to other projects. Your brain will continue to work on the problem in the background. (d) Illumination. In Illumination the creative solution is finally revealed. "Communicated back to the

conscious mind, the solution's congruent wholeness, uniting the problem and its answer, seems like a work of art itself" (Edwards, 1986, p. 227). (e) Verification. The function of Verification is to check the validity of the Illumination. While Illumination emerges from the unconscious mind, Verification is a deliberate, conscious act comprised of three related steps: (a) Continue to perceive the project as a whole. (b) As you analyze the project, perceive each part in relationship to the other parts and to the whole. (c) Perceive your project as unique.

If the teacher is not careful, calling upon students to analyze and criticize their work can easily lead to a very negative, self-deprecating perspective. Analysis and criticism of the work is an essential part of the creative process, but it must be carried out with a degree of objectivity. The teacher must provide guidance and promote a positive atmosphere so that students learn to appreciate the good qualities of their creative efforts throughout the process.

FIVE AREAS OF CREATIVE DRAMA (PLAYMAKING)

Creative dramatics is one example of a creative teaching technique that can be adapted for use with a wide range of age and ability levels and can apply to almost any subject area (Rump, 1996).

Classroom applications of "Creative Dramatics" generally encompass five different types of related activities: creative dramatics, pantomime, improvisation, puppetry, and integrated projects.

Creative dramatics involves "acting out" or retelling some sort of story or event in an informal setting. It may be carried out with or without the trappings usually associated with dramatic productions such as costumes, props, sets, etc. The only element that is essential to creative dramatics is imagination. Creative dramatics includes activities such as storytelling and short plays. It is important to point out that creative dramatics is carried out informally. There is no written script to memorize, no formal audience, etc. The idea is to give the students opportunities to think creatively and to allow their play to develop and change throughout the process.

Pantomime is similar to creative dramatics, except that the representation of the story or idea is carried out without dialogue. Pantomime is, quite simply, action without words.

Improvisation includes both action and words, but it is carried out spontaneously, with little, if any, opportunity for preplanning. Unlike other forms of creative dramatics, which may involve planning and rehearsal before the students are satisfied with their play, improvisation is completely extemporized. This type of activity really forces students to "think on their feet," challenging them to think and respond quickly. Observing students

during improvisational activities can also provide a wonderful opportunity for the teacher to evaluate student knowledge and understanding.

Like creative dramatics, puppetry involves the representation of an event or story through dialogue and action. Puppetry, however, differs because the action is represented through manipulation of some type of figure rather than through live action. Throughout history and across all cultures, humans have used puppets of various types for purposes ranging from religious rites to pure entertainment. Puppets range from simple to complex and vary in size from tiny to huge, larger-than-life figures. They have been crafted of virtually every material know to humankind, but the more familiar varieties are usually made from materials such as paper, cloth, clay, and wood (Rump, 1996). Puppets are a marvelous vehicle for creative student productions. They are especially useful for the student who might be reluctant to participate in other types of dramatics. Since the puppet is the focus of attention rather than the person manipulating the puppet, shy students usually experience a much higher level of comfort and confidence—viewing puppetry as a "safe" way to express their ideas. The author has had the pleasing experience of seeing very shy students gain much confidence through working with puppets.

Integrated projects encompassing a variety of skills and subjects can be particularly effective in instructional settings. Activities such as producing a "television-style" newscast (using videotape), radio programs (using audiotape), and puppet shows provide very comprehensive learning experiences. Such projects can involve visual art and design (for example, painting sets or backdrops), library research on a variety of topics (to develop a script), music (for example, students could create an original theme song or jingle), science (for example, preparing a weather report), and mathematics (conducting a school-wide survey and presenting the results in the newscast as percentages).

Creating a play involves four sequential steps:

1. Students must have opportunities to develop imagination. With younger children, this may begin with imaginative play. The imagination can be stimulated through reading and subsequent discussion of a story or of historical events. Questions such as "Why do you think that happened?", "What do you think happened next?", and "What if …?" can help stimulate imagination and can be good starting points for playmaking.

2. Students must learn to concentrate. During the process of playmaking the students must select a limited number of events and characters upon which the play will be based and they must continue to focus upon these things throughout the process.

3. Students develop self-expression in playmaking by using dialogue and/or "body language" to represent the characters and events of the story.

4. Students develop communication skills by using their bodies, facial expression, and their voices to express ideas in their play. Playmaking provides a wonderful opportunity for language development.

Practical teaching suggestions for dramatizing a story include:

1. Selecting a story that--
   a. Is understandable for the age level of the group
   b. Contains characters with strong emotions with whom the children identify
   c. Has an uncomplicated story line
   d. Has a strong dramatic conflict that requires action
   e. Presents opportunities for aesthetics and life values

2. Telling or reading the story--
   a. Be sure you are familiar with the book or know the story well enough to read/tell it with confidence.
   b. Be enthusiastic!
   c. Select word images that are understandable for the group.
   d. Interpret the story with feeling.

3. Planning the play--
   a. The plans for playing are made by the group.
   b. The plans must be clear and definite.
   c. The leader asks questions to guide thinking. The questions are based upon seven steps:
      i. The main points in the story or part of the story that is to be played
      ii. The people in the story or part of the story that is to be played
      iii. The setting
      iv. How the story or part of the story starts and how it ends
      v. The general ideas for dialogue
      vi. The necessary props
      vii. The selection of parts
   d. The children's answers form the ideas for acting out the story

e. The leader accepts, adapts and summarizes the ideas so that they are definite

4. "Playing" the play--

a. The playing begins when the ideas of the group are agreed upon.

b. Creative freedom allows spontaneous thought, actions, and words.

c. The fun of self expression brings enjoyed group achievement.

5. Finally, students must be guided through self-evaluation. Evaluation is the most important period in the learning process for the student. It follows immediately after the playing period. The leader asks questions that will guide the group to analyze with positive thinking:

a. Why the playing was fun
b. Why the actions and words told the story well
c. How the playing can be improved

CREATIVE APPROACHES TO MUSIC EDUCATION

In order for youngsters to have a complete education, they should participate in four types of musical experiences:

1. Listener. The student is able to listen to music with critical and aesthetic understanding.
2. Performer. The student actively engages in music making.
3. Scholar. The student gains knowledge and understanding of the historical, cultural, and theoretical aspects of music.
4. Creator. The student creates original musical works through improvisation, invented notation, and standard notation.

Research tells us that students who are more creative musically (students who enjoy improvising and/or trying their hand at composition) also tend to be more motivated, practice more, and develop higher-level thinking skills than students who do not engage in creative activities. Therefore, the teacher who promotes more creativity among his/her students is likely to see improved motivation and higher-order thinking.

Orff-Schulwerk is a comprehensive approach to music education that incorporates all of the aspects previously discussed--it takes an active, student-centered approach, is flexible and versatile enough to allow for the strengths and weaknesses of different learners, and it places much emphasis upon creativity (Warner, 1991).

Carl Orff was born in 1895 in Munich, Germany. Best known as a composer of such works as *Carmina Burana*, Orff developed Orff-Schulwerk

as an outgrowth of his teaching at the Guntherschule (founded in Munich 1924 by Orff and Dorothee Gunther). Because many of the students at the Guntherschule had not had previous musical training, Orff emphasized body sounds and gestures for rhythm and he used the voice as the first and most natural of instruments. He used the ostinato--rhythmic, melodic, spoken, or sung--as the structural element in improvisation and, beginning with a variety of drums and simple percussion instruments, gradually added melodic instruments in the form of specially designed xylophones, metallaphones, glockenspiels, and recorders.

The Guntherschule was closed in 1944 because of political pressure. Munich, in the aftermath of the war, was in ruins and little support was available for education and culture. The rebirth of Schulwerk occurred by fortunate accident. Walter Panofski, a staff member of the Barvarian Broadcasting Company and a friend of Orff's found an old recording of a dance piece created for the Guntherschule years earlier by Orff and Gunild Keetman. Panofski played the recording for the director of the Barvarian children's radio programs who recognized the appeal of this music. Orff was contacted and persuaded to create a series of broadcasts for children and in September 1948, "Children Make Music" went on the air with great success. Between 1950 and 1954, Orff and Keetman prepared a five volume work containing the pedagogical concepts that had developed out of their work with children--a music created for and by children--*Music for Children* (Warner, 1991).

In Orff-Schulwerk, musical concepts evolve from simple to complex with basic principles of rhythm and meter developing through language. Rhythm is tied to movement and the spoken word because the most elemental human modes of expression are oral and movement expressions. Musical training begins by awakening in the students a physical awareness of the pulse through movement. Word and rhythm are a unity and must be treated as such. Rhythmic development is facilitated though echo play and many, many opportunities for practice and experimentation. And, eventually, students are able to improvise complete question and answer phrases.

From these simple beginnings, new ideas are gradually introduced with many opportunities for experimentation, improvisation, and performance practice eventually arriving at a very advanced level of understanding and proficiency.

Like rhythm, melody is developed gradually and systematically. Initial experiences are based on the descending minor—*sol –mi* --the natural "children's chant." This melodic pattern emerges quite spontaneously and naturally in children in all Western European-based cultures. One-by-one other pitches are added following the natural musical developmental

sequence of children. Melodic development commences though echo play. As with rhythm, melodic concepts are introduced sequentially with melodies gradually increasing in range and becoming more complex. Harmony is also introduced, first through simple drone accompaniments played on barred instruments.

Instrumental development involves much echo play to develop conscious pitch discrimination and to provide good examples of melody. In echo play, the teacher (or, later, a student) plays a short melodic figure which the class echoes. During echo play students must be engaged, really listening and thinking about what they hear. Teachers must not be discouraged if some students have a great deal of trouble with echo play at first--just keep the patterns simple. With practice, students will learn to listen and will be able to repeat what they hear.

CONCLUSION

Students need opportunities to explore their creative side through a variety of learning experiences. Giving your students more opportunities for creativity is likely to increase their motivation, improve their listening skills, and enhance their thinking abilities. Teachers at all levels should include more creative experiences in their instruction. The activities do not have to be elaborate--it is best to start with relatively simple things. Gradually, teachers and students will gain confidence and will be willing to try more complicated activities.

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