

Martial Arts and Creativity – Martial Arts... Creative or Not?

Gregory Moody

Arizona State University

Dec 3, 2001

Running Head: MARTIAL ARTS AND CREATIVITY

## **Martial Arts and Creativity**

### **Martial Arts... Creative or Not?**

#### **Introduction**

Martial Arts is a multi-dimensional activity for kids and adults of various talent areas and talent levels. People of all ages are participating in martial arts –as young as 3 years old – for the benefits of self-discipline, self-defense, self-concept and physical fitness. While there are numerous styles of martial arts, they can be generally defined as any structured system of fighting. Because of this structure and the specific goals of the activity, this paper will review and discuss the question of how creativity is or is not involved in martial arts. *Should* it be (or is it different based on the students goals and age)? Why or why not? *Is* creativity part of the martial arts students' experience? To look at this issue, we will briefly review the background of martial arts, review literature on creativity and review how creativity can be involved in a structured martial arts teaching experience.

#### **Background on Martial Arts**

Systems of martial arts have been around for thousands of years. While there is no exact time known, the earliest martial art is believed to have begun 3000 years ago in China. The difficulty in determining when and where martial arts began, is due to the sparse historical records available in Asia. Though originally there were only a few systems, over time a large number of martial arts styles was practiced. Some of the ones taught today include T'ai Chi,

Kung Fu, Karate, Judo, and Taekwondo. Even within these styles of martial arts there are many variants and within these systems there are many variants. Some are based on the unique characteristics of the founder of the style, others are focused on a particular fighting method (Urban, 1993). Often these styles are difficult for children because they are either too militant, require too much fighting contact, are not presented in a way that children can understand (low level of teaching training for instructors), or the curriculum is not structured for children. Nevertheless, each system has some common characteristics, and many systems are structured to provide similar benefits.

### **Benefits of Martial Arts**

Students choose this activity for a variety of reasons and they all have different goals. The main four reasons can, however, usually be broken down into four different areas: self-discipline, self-concept, physical fitness and self-defense (W. Clark, personal communication, October 2, 2000).

### **Self-Discipline**

Self-Discipline refers to the students' ability to regulate themselves in the environment around them. Also presented as *self-control*, this can be different for different groups:

- Pre-School: simply being able to listen, follow simple rules or stand in one place.
- Elementary: becoming more self-regulating. Turning in homework, waking up by themselves, practicing on their own.
- Teens: getting to school on time, doing their homework, performing at a job.
- Adults: exercising regularly, eating right, making plans for their future.

This can be manifested in many ways other than listed above. Martial arts supports development of this by providing a structure in which it is required to follow strict rules and protocol. In this structure, there are also rules for how to act outside of the martial arts school. To move forward in rank the student is asked to demonstrate a “martial art” attitude – this is shown in part by demonstrating this part of martial arts.

### **Self-Concept**

Self-concept refers to how the student perceives himself or herself. Also presented as *self-esteem*, or even *self-confidence* this can show in many ways for each individual. Some examples are:

- Pre-School: being able to leave parents side (high self-concept), excessive shyness (can indicate low self-concept).
- Elementary: Speaking up, answering questions (high), afraid to try new things (low).
- Adults and Teens: being confident enough to set significant goals and plan to reach them (from a martial arts perspective).

There is not universal agreement about the definition of self-concept. A common assumption is that self-concept as it emerges in young children during the preschool years is a global orientation that influences behavior in social settings (Jensen, 1985). As children mature, they make more discrete self-judgments about their worth in different areas. These differential judgments do not occur until apparently about the age of 8 (Harter, 1982). There are many theories of development of self-concept. Denzin (1972) presents a comparative analysis of Mead, Cooley and Piaget:

“These three theorists agree with each other on five major points. First, they emphasize the importance of affective and cognitive processes in self-development. Second, they view each stage of development as qualitatively different from the previous stage. Third, they emphasize the role of interactional processes in cognitive development and in early self-hood. Fourth, they reject associationist and stimulus-response theories of learning. To them, the organism progressively acquires the ability to stimulate its own conduct and to formulate its own plans of action: objects and stimuli carry no intrinsic meaning. (According to Kohlberg (1969;347-361), Piaget treats learning as a complex process of differentiation and assimilation, which is in itself contingent on the development of language acquisition.) Fifth, they emphasize comparable empirical methods for the study of self. Each used a variation on the ethnographic, case-study method..... Each emphasized the importance of linguistic utterances as central indicators of self-hood... Each attended to gestures, to performances, and to non-verbal actions as indicators”(p 293-294).

The effect of a high self-concept on academic achievement has been a subject of much study (Bridgeman & Shipman, 1978; Brookover, Thomas & Paterson, 1964; Harter, 1983; Midkiff, Burke & Hunt, 1984; Purkey, 1970; Shavelson & Bolus, 1982; Glanz, 1994). Recent efforts have focused on improving the instruments by which to measure self-concept. This is due to the fact that while there has been a significant and consistent relationship between self-concept and academic achievement, the measurements of self-concept have not been so consistent (Burke, et al, 1985). Nevertheless, while the measurement instruments have been debated, it seems clear that a high self-concept will have a positive effect on academic achievement. Therefore, if

martial arts training improves self-concept, we can expect a resultant improvement in academic performance.

Further, in most sports, achievement is largely externally focused - a result of winning a competition (i.e. being compared to someone else or some other team). While there are some internal rewards that are not related to winning, these may be small in relation. Even within team sports, a primary reward is getting to play or “start” which is relative to how a participant performs compared to a teammate. In martial arts, achievement is measured not just by learning curricula, but also by *personal* improvement. Two students of different ability levels may advance to the same *rank* (for example orange belt), because what is measured is how much progress they have made compared to where they started. This allows a student of low physical ability to progress as much as a student with high physical ability (or talent). Competition against another student is optional, so compared to other sports that measure ability relative to others, students are rewarded by their own growth both internally and externally, congruently developing their self-concept (Richman & Rehberg, 1986; Moody, 1999).

### **Self-Defense**

Self-Defense is the way in which we protect ourselves from physical and mental attack.

Some examples are:

- Pre-School: recognizing threats, knowing what to do if somebody threatens them.
- Elementary: what to do when somebody mentally threatens them, defense against physical attacks.
- Adults and Teens: de-escalating and resolution of conflict.

(Björkqvist & Varhama, 2001) It's fairly obvious how martial arts helps with this by role playing the attacks and how these can be resolved. For example:

1. Somebody attacks you with a punch
2. Yell, Run/Disengage (if possible)
3. Block and Disengage (if possible)
4. Counterattack (till threat is removed)
5. Disengage.

Would be a typical feature in a basic martial arts class.

### **Physical Fitness**

Physical fitness is important to health and quality of life. The Surgeon General's Report on Physical Activity and Health (President's Council on Physical Fitness and Sports, 1996) summarizes existing research showing the benefits of physical activity in preventing disease and to draw conclusions that can be useful to Americans who are interested in improving their health. This report concludes:

- That physical activity (exercise) can benefit people of all ages.
- Physical activity reduces the risk of premature mortality
- Exercise reduces the risk of heart disease, hypertension, colon cancer, and diabetes mellitus.
- Exercise improves mental health and is important for the health of muscles, bones and joints.

Exercise benefits the cardiovascular, musculoskeletal, endocrine, metabolic, and immune systems. Physical fitness in martial arts is developed through many methods with aerobic and an-aerobic conditioning. Aerobic activities can include running, calisthenics, free-sparring, kicking drills, punching drills or any of hundreds of activities. An-aerobic activities will include

isometrics, push-ups, extreme stretching, slow kick drills. Many martial arts classes will use the concept of “No Down Time” – meaning that the students will always be doing something (even rest breaks will involve a discussion while stretching for example).

**Use of Martial Arts**

To illustrate use of martial arts, Morris (1996) created a model called the Martial Artist’s Defensive Theory (figure 1).

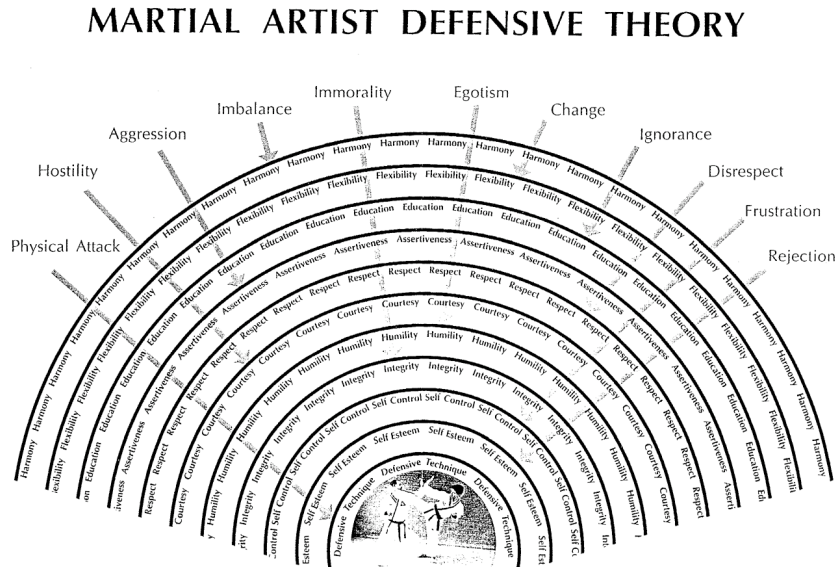


Figure 1 – Martial Arts Defensive Theory (Morris, 1996, p. 250)

This illustrates strategies of defense in a hierarchical way. For example, the way to defend against a physical (most invasive) attack is with a defensive technique, the way to defend against hostility (moderately invasive) is with courtesy and the way to defend against imbalance (the least invasive “attack”) is with developing harmony.



**Conclusion – Martial Arts**

Martial arts long history has evolved into an activity that provides many benefits for its participants. Self-concept, self defense, physical fitness and self-discipline are important qualities to have and apply to many areas of life. While participants may start for one of these reasons, the goal of the system should be to facilitate development of the student in all of these areas - Morris (1996) illustrates one possible model,

## **Creativity**

What is creativity? This question has many different answers – because this is by very definition an abstract subject, defining it results in abstractness. There is also confusion about distinguishing talent, giftedness, ability and creativity as characteristics of an individual (Cramond, 2001). Spiritual, psychological, social, system theory and luck are stated as causes for creative results in people.

### **Differentiating Creativity**

There are many types of creativity and as many different ways to describe it. A hierarchical view was given by Taylor (1959) as

- Emergenative Creativity – entirely new principles or assumptions around which new schools, movements and the like can flourish.
- Innovative Creativity – improvement through modification involving conceptualizing skills.
- Inventive Creativity – ingenuity is displayed with materials, methods and techniques.
- Productive Creativity – Artistic and scientific products within restrictions.
- Expressive Creativity – spontaneous drawings of children.

This distinguishes types of creativity and includes artistic and non-artistic types of creativity.

Note that it (and other definitions or categorizations) is *results* based.

Characteristics or descriptions of creative people are shown in table 1.

Cognitive	Personality
☐ Relatively High Intelligence	☐ Willingness to confront hostility and take intellectual risks
☐ Originality	☐ Perseverance
☐ Articulateness and verbal fluency	☐ Curiosity
☐ Metaphorical Thinking	☐ Openness to new experience
☐ Flexibility	☐ Driving absorption
☐ Independence of Judgment	☐ Discipline and commitment to one's work
☐ Ability to cope well with novelty	☐ High intrinsic motivation
☐ Internal visualization	☐ Tolerance for ambiguity
☐ Ability to escape perceptual sets	☐ A broad range of interests
☐ Ability to find order in chaos	☐ Tendency to play with ideas
☐ Questioning	☐ Unconventionality in behavior
☐ Alert to novelty and gaps in knowledge	☐ Tendency to experience deep emotions
☐ Ability to use existing knowledge as a base for new ideas	☐ Intuitiveness
☐ Aesthetic ability that allows recognition of good problems in the field	☐ Seeking interesting situations
	☐ Opportunism
	☐ Conflict between self-criticism and self-confidence

Table 1. Characteristics of Creative Individuals (Tardiff &amp; Sternberg, 1988)

This is not an exhaustive list and it is not to say that all creative people have all of these characteristics.

### **Causes of Creativity**

Psychological basis for creativity includes Maslow's (1954) self-actualized view of creativity (it occurs along his hierarchy of needs). Other views relate creativity to intelligence while stating that creativity also requires motivation to manifest. Some describe special talent creativity (people who may not be mentally healthy may show a high ability for creativity in a area) and literature relates creativity to psychopathology (Davis, 1997). Spirituality also has long been thought of as the cause of the creative person's inspiration. Creative though is a "Gift from the gods" or a "visitation of the Muse" as an explanation for the emergence of a creative thought (Piitro, 1998). This view is loosely held in modern times - it is often thought of as a "radical thought" (Cameron, 1992, pp. 1). This is because in modern day society we must measure everything scientifically to declare its truthfulness. Since it is hard to "measure" spirituality empirically, it is not an accepted explanation for creativity. However many of the most effective methods for enhancing creativity have a spiritual focus (Cameron, 1992).

Greg Moody  
Comment:

A very compete view of creativity was given by Csikszentmihalyi (1996) based on combinations of factors.

"Creativity is any act, idea or product that changes an existing domain, or that transforms an existing domain into a new one. And the definition of a creative person is: someone whose thoughts or actions change a domain, or establish a new domain. It is important to remember, however, that a domain

cannot be changed without the explicit or implicit consent of a field responsible for it.” (Csikszentmihalyi (1996, p. 28)

In Csikszentmihalyi’s definition, three important concepts are the *domain*: the set of symbols, rules and procedures, the *field*: the individuals who act as gatekeepers of the domain (an art critic who recognizes the work of art), and the *person*. Creativity, in Csikszentmihalyi’s view occurs when a *person* uses the protocol of the *domain* to have a new idea, and it is selected by the *field* for inclusion within the *domain* (or establishes a new domain). Csikszentmihalyi states 10 personality traits of the creative individual:

- They have a great deal of energy.
- They tend to be smart, but naïve.
- A related combination of playfulness and discipline.
- Alternate between imagination and fantasy at one end, and a rooted sense of reality at the other.
- Tend toward extremes of extroversion *or* introversion.
- Proud and humble at the same time. They know that their ideas stand on the previous work of many, there is luck involved, and they are often too focused on future achievements so they tend to be self-deprecating. Yet no matter how modest the individual is, they know they have accomplished a great deal in comparison with others.
- Tend to escape the rigid gender role stereotyping.
- Internalized a *domain* of culture (therefore traditional), yet also willing to take risks that may break with the safety of tradition.
- Passionate about their work, yet also objective enough to evaluate and be critical of the same work.
- Tend to experience a wide range of emotions, from suffering to enjoyment.

This list of 10 traits not only defines creative people, but illustrates that the creative person experiences both poles or dimensions of being a person. Often this is a requisite characteristic for creativity.

### **Conclusion - Creativity**

While there are differing concepts defining creativity, as well as its cause, none of these are mutually exclusive. For different situations and points of view they may *all* be correct! Understanding the theories about creativity and dissecting the concept itself allows us to help others and ourselves be more creative, helps us prevent stifling creativity and, hopefully, lets us be tolerant of people's ideas – when people are creative, they bring change and change brings stress. For us to enjoy the benefits of creative people as a society, they must be allowed to create.

**Fostering Creativity – What’s Its Place?**

Now that we have discussed martial arts, and reviewed theories about creativity, we need to discuss whether there is some common ground. Does creativity have a place in a martial arts environment? The martial arts environment is so structured that it might appear to disrupt too much of it to emphasize creative aspects. For example, one of the jobs of the instructor is to teach a “form” or a specific, pre-defined, set of techniques. This can be compared to teaching the elementary student spelling words for example – the English language is basically a set of pre-defined letters that have an assigned meaning. While these are basically arbitrary (a move could be in a different order, just as we could teach how to spell “dog” before we teach “cat”), instructors teach (and student’s learn) in this pre-defined order. A student’s progress is measured by whether they have memorized the form and how well they perform the techniques. Martial arts curriculum also includes many other rules: how to address instructors, or when to bow, ways to wear your uniform, what to call a move, when to use a technique, etc. This seems to leave no room for creativity.

Worse, one of the primary benefits we seek to develop in martial arts - *self-discipline* - could seem contrary to supporting creative efforts of a student. Take for example, a child, whose goal (or their parents goal) is to “behave” or “listen” or “stay on task” in school. What martial arts can provide is a structured environment where the student gets rewarded for following the structure (and not rewarded for contrary behavior). The results of this would hopefully be (and usually are) better behavior in school and at home. Does this stifle creative output? Or at least not encourage it?

While these aspects of martial arts tend to direct us toward feeling there is no creativity involved, this is really a narrow viewpoint. The structure in martial arts is really for training. In the case of martial arts this is being able to defend against an attack. A real attack is going to be 1) a surprise, 2) with an attack method (punch, kick, knife, gun, etc.) that wasn't communicated (we won't hear the attacker say: "hey I am going to kick you in the groin now so get ready"). Therefore a martial artist must be able to think fast and "create" a response out of the variety of techniques they have learned. Like learning A B C's to the writer, or learning calculus to the engineer, the techniques, learned in the structured environment should provide the framework for creativity. Csikszentmihalyi's definition follows these lines – the martial art is the *domain* – "A person cannot be creative in a domain to which he or she is not exposed" (1996, p. 29) Therefore a good martial arts program should foster creativity. This is emphasized also by the novelist A.S. Byatt – "...it is an uncontrovertible fact that the majority of the most successful, visible women writers employ conventional or traditional forms..." (Franken, 2001)

Further opportunities for creativity exist in martial arts from the most basic move to the most advanced level of training. Firstly, any system of fighting was "created" in the first place by the *Master* or *Grand Master* of the art (hence the word "art"). At the lowest level, even in a basic form, there is constant development and refinement. While a system of fighting is taught a specific way, each student (and instructor) will adjust the techniques for their own body type and ability. Training in sparring is more accurately called *free* sparring. The sparring partners are allowed to do whatever moves they want against each other. This is really the basic training method for self defense. Each student finds out what will work the best for him or her (based on personal preference, body type, age, weight, flexibility, speed, and the partner they). This method provides positive reinforcement for success (blocking an attack, hitting the partner or "scoring")



and negative reinforcement for poor performance (getting hit). In free sparring, the primary focus is on safety over fighting, creating a comfortable environment. In addition, students are partnered up with someone at about their own ability level so they can free spar and be able to create new combinations of moves for themselves (if they were sparring someone at a different ability level, they may spend all their time blocking or on defense). The most advanced level of training is for a student to become an instructor. Here the instructor must be creative even within the framework of the curriculum they need to teach. A creative instructor keeps the class exciting and motivating. Creating an environment that stimulates beginning instructors should be a major focus of their training.

### **Conclusion - Fostering Creativity – Its Place in Martial Arts**

While it is true, the basis for a martial art is to follow a “system” and it is not as apparently creative an endeavor as painting or poetry, we can still see that creativity is involved “full circle” in martial arts (from Master to student, to instructor who may become a Master). Initially, in *inventing* the particular system of fighting for an inherently abstract and creative result (being able to defend against an unexpected attack). Then, in developing the individual student’s skills we must be flexible based on the student. Finally instructors are required to be creative, adjusting their teaching methods and skills to accommodate many students, ages, ability levels and also to provide variety and enthusiasm in a class.

### **Fostering Creativity – How Do We Do It?**

Examining the potential causes of creativity, and understanding how people learn, can help us determine some ways to stimulate creativity in a martial arts environment. Strategies come from a wide range of sources and involve the student's environment, and the specific creativity and activity tactics.

#### **Environment**

The environment is a primary factor in stimulating creativity. Cramond (2001) listed environmental characteristics important for creativity:

- Psychologically safe.
- Emphasizes intrinsic rewards over extrinsic rewards.
- Students learn about their own interests
- They can pursue with some autonomy
- Stimulation balanced with some quiet time
- Challenges are matched to the level of the learners

Csikszentmihalyi's (1996) *domain* concept states that the student's environment also needs to provide the rules, symbols and procedures (definitely present in a martial arts class). Martial arts classes generally provide most of this environment. The areas the classes may be weakest in are the *pursuit with autonomy*, and *quiet time*. A martial arts class tends to be directed the entire time (students only have two to three 45 minute classes per week), so students don't get a lot of personal time. Short independent times could be included, particularly for leadership or more

advanced students, so as students become proficient in the *domain* they may create their own forms for example.

### **Strategies**

Cramond (2001) suggests a “warm-up”, activity that stimulates multiple areas (verbally, visually, musically, physically). Some strategies suggested by Cramond (2001) Daniels (1991) and Hennessey (1991) that could be used in martial arts classes are listed below.

Strategy	Martial Arts Example
Ideation	Brainstorming different possible responses to a bully
Visualization	Done at the beginning of each class (ex: visualize doing a technique or being a Black Belt)
Focusing on Attributes	List the attributes of free sparring and ideas for improvement
Lateral Thinking	In dealing with a conflict (children - bully, adults - road rage, etc), we use EBS (examine both sides) of an argument, and have students list the issues of the argument.
Role Playing	Using role playing to enhance learning of specific techniques (ex: “what are some situations to use a high block?” and doing it).
Removing Blocks	Discussing people’s viewpoints of where an attack could come from, who might attack them (ex: they may not think they could be attacked in their

	car, what could you use to defend yourself with?)
Competition	Differing from academic competition, this can be use for the students who already have developed higher self-esteem. Competition can stimulate creativity – students in competition need to think of new ways to spar and show off their technique.
Use Intrinsic Motivation	Be careful of over rewarding with tangible rewards. Make intrinsic motivation a regular form of class discussion.
Metacognitive Understanding of Creativity	Discussion about how Grand Master Lee designed the forms. What were his motivations, goals
Pantomime Warm up	“Follow the leader” with martial arts techniques.
Mirror	Mirror Sparring (One partner copies three or so moves the other does).
Encouraging Questioning	Creating a positive climate for the students and giving thoughtful feedback to their questions.

These methods can be included in a martial arts class to make it more conducive to creativity.

### **Conclusion**

While martial arts training may seem strict and rigid, there is room for developing and expressing creativity - the “art” in martial arts – particularly the innovative style proposed by

Taylor. Instructors have a variety of methods for enhancing the creativity of their students both in terms of the student's environment, and specific strategies. Martial arts is a domain for a student to express creativity in free sparring, forms and techniques. This applies particularly within Csikszentmihalyi's framework, and for people who meet some of his discussed personality traits. Because of this and the other benefits, martial arts can be an important supplement to a student's academics.

**References**

Björkqvist, K & Varhama, L., (2001). Attitudes Toward Violent Conflict Resolution among Male and Female Karateka in Comparison with Practitioners of Other Sports. Perceptual and Motor Skills, 92, 586-588.

Bridgeman, B. & Shipman, V. C., (1978). Preschool Measures of Self-esteem and Achievement Motivation as Predictors of Third-Grade Achievement, Journal of Educational Psychology, 70, 17-28.

Brookover, W. B., Thomas, S., & Paterson, A., (1964). Self-Concept of Ability and School Achievement. Sociology of Education, 37, 271-278.

Burke, J. P., Ellison, G. C. & Hunt, J. P.. (1985). Measuring Academic Self-Concept in Children: A Comparison of Two Scales. Psychology in the Schools, 22, July, 260-264.

Burke, J. P., Ellison, G. C. & Hunt, J. P.. (1985). Measuring Academic Self-Concept in Children: A Comparison of Two Scales. Psychology in the Schools, 22, July, 260-264.

Cameron, J. (1992). The Artists Way – A Spiritual Path to Higher Creativity. New York: Penguin Putnam Inc.

Cramond, B. (2001). Fostering Creative Thinking, In F. A. Karnes & S. M. Bean (Eds.), Methods and Materials for Teaching the Gifted (pp. 399-440). Waco, TX: Prufrock Press, Inc.

Csikszentmihalyi, M. (1996). Creativity, Flow and the Psychology of Discovery and Invention. New York: Harper Collins Publications.

Daniels, Susan (1991). Creativity in the Classroom: Characteristics, Climate, and Curriculum, In N. Volangelo & G. A. Davis(Eds.), Handbook of Gifted Education (pp. 292-307). Boston: Allyn and Bacon.

Davis, G. A. (1991). Identifying Creative Students and Measuring Creativity, In N. Volangelo & G. A. Davis(Eds.), Handbook of Gifted Education (pp. 282-291). Boston: Allyn and Bacon.

Franken, C. (2001). A.S. Byatt: Art, Authorship, Creativity, Houndmills, Basingstoke, Hampshire, U.K.: Palgrave.

Glanz, Jeffrey (1994). A School/Curricular Intervention Martial Arts Program for At-Risk Students, Paper Presented at the annual meeting of the safe schools coalition on "Gangs, Schools & Community" (2<sup>nd</sup>, Orlande FL, May 15<sup>th</sup>, 1994).

Harter, S., (1981). A Model of Mastery Motivation In Children: Individual Differences and Developmental Change, In W. A. Collins (Ed.), Aspects of the Development of Competence: The Minnesota Symposia on Child Psychology. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Harter, S., (1983). Developmental Perspectives on the Self-System, P. H. Mussen (Ed.), Handbook of Child Psychology (4<sup>th</sup> Ed.). New York: Wiley.

Harter, S., (1983). Developmental Perspectives on the Self-System, P. H. Mussen (Ed.), Handbook of Child Psychology (4<sup>th</sup> Ed.). New York: Wiley.

Hennessey, B. A. (1991). Teaching for Creative Development: A Social-Psychological Approach, In N. Volangelo & G. A. Davis(Eds.), Handbook of Gifted Education (pp. 282-291). Boston: Allyn and Bacon.

Moody, G. H. (1999). Martial Arts Benefits for Children, Unpublished Doctoral Dissertation, Arizona State University.

Morris, E. (1996). Developing and Validating a Conceptual Model for Describing and Developing Individual Character and Principle Centered Leadership in Students of Traditional Martial Arts, Unpublished Doctoral Dissertation, Florida State University.

Piirto, J. (1998). Understanding Those Who Create, Scottsdale, AZ: Gifted Psychology Press.

Reiff, G. G., Dixon, W. R. , Jacoby, D., Ye, G. X., Spain, C. G., and Hunsicker, P., (1986). The President's Council on Physical Fitness and Sports 1985 National School Population Fitness Survey. Research Project 282-84-0086, Washington, DC: Department of Health and Human Services.

Urban, P., (1993). The Karate Dojo: Traditions and Tales of the Martial Arts. Tokyo:  
Charles E. Tuttle Publishing Co.