

# **JOURNAL OF INVITATIONAL THEORY AND PRACTICE**

**VOLUME 13, 2007**

# **JITP**

**IAIE**



**INTERNATIONAL ALLIANCE FOR INVITATIONAL EDUCATION**

®

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**The International Alliance for Invitational Education** is chartered by the State of North Carolina as a not-for-profit organization. Members consist of an international network of professional helpers representing education, child care, nursing, counseling, social work, psychology, ministry, and related fields who seek to apply the concepts of invitational theory and practice to their personal and professional lives.

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# JOURNAL OF INVITATIONAL THEORY AND PRACTICE

Volume 13  
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## Editorial

- Phil Riner  
*The Beacon and the Port* 3

## Articles

- Melanie Hunter and Kenneth H. Smith  
*Inviting School Success: Invitational Education  
and the Art Class* 8
- John J. Schmidt  
*Elements of Diversity in  
Invitational Practice and Research* 16
- Gina Gresham  
*An Invitation into the Investigation of the  
Relationship between Mathematics Anxiety  
and Learning Styles in Elementary  
Preservice Teachers* 24
- Anita N. Kitchens and Robert G. Wenta  
*Merging Invitational Theory with Mathematics  
Education: A Workshop for Teachers* 34

- Guidelines for Authors** 47

## **IAIE Searches for Editorial Board Members**

*The Journal of Invitational Theory and Practice*

Members of the International Alliance for Invitational Education are invited to apply for an Editorial Board position with the journal. Interested members should send their name, position, and email address with a brief statement of interest to:

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A brief statement of interest could include editorial board experience and recent publications in the past five years.

## EDITORIAL

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### The Beacon and the Port

In 1957 I was a school age kid attending segregated schools in North Carolina and barely understood what was occurring at Central High in Little Rock, Arkansas. Nine Arkansas high schools students decided to go to school, and to get to school safely, President Eisenhower had to enlist the services of the 101st Air Borne Division and a federalized U.S. National Guard. I was seven at the time and on that day, I road to school in a bus and was guarded only by my taunting ten year old brother and the supervision of community values. It was another ten years before the schools I attended opened their doors to all Americans and it wasn't until 1979 that the first seniors graduated from my high school having never attended racially segregated schools. This edition of JITP commemorates two very important anniversaries. First, it is the 50<sup>th</sup> anniversary of the Central High incident. Second, it is the 25<sup>th</sup> anniversary of the Alliance for Invitational Education.

The connection of the two events, though wide apart in the emotional reaction they evoke, is more direct than may appear at first glance. Vital to both the Central High incident and the creation of IAIE is a steadfast, unquestioned belief held a few true believers that people need to be united and to be treated with justice, kindness, and dignity. And, if there are costs for that determination to invite, the costs will be born by the committed few and goodness *will* prevail. Both events illustrate that inviting with commitment often has its costs, and

that accepting an invitation frequently requires great courage. It is helpful to remember that although a disinventing mob and a very disinventing governor may be our first memory of Central High, there were many others who acted invitingly and with great courage. First among those, of course, are the nine students who took that long walk to Central. But there are others such as Central High students Georgia Dortch and Jane Emery, editors of Central High's student newspaper *The Tiger*. On October 3, 1957 they wrote "Looking back on this year will probably be with regret that integration could not have been accomplished peacefully, without incident...[We encourage] each individual to maintain a sensible, peaceful neutrality; to accept the situation without demonstration, no matter what personal views are entertained; and to make these, your years in Little Rock Central High School, the happiest and most fruitful of your academic education." A modest statement for today's ears, at the time it showed great fortitude and considerable insight into the future for adolescents in such difficult times. It is a message we need to hear today, "Give ourselves time to work it out."

Twenty-five years later, while certainly less dramatic, the founders of IAIE assembled, chartered themselves into a legal entity, and set about putting a body to a dream. This was not easy. The world in 1982 was tainted by an aging Cold War, IRA bombings were a fact of life, the Falkland's War flourished, a

plethora of serial killers such as the Unabomber and the Freeway Killer stalked the US, and a new form of hate emerged with the killing of unsuspecting consumers with the deliberate tampering and cyanide contamination of Tylenol pain relievers. Yet, the effort was made, the persistence commenced, and twenty-five years later IAIE has spread the concepts of invitational education worldwide.

While the immature and ignorant disinvolving behavior of many is well documented in film, in print, and in the folklore of our society, what is also apparent is the commitment of the everyman. The everyman is the literary commoner whose coalition of duty, will, and courage emerges to see that the future will include just and kindly treatment of all people. The commitment of the inviting everyman is at the expense of personal risk and setting aside the pursuit of individual gain to provide an invitation to others who are currently in need. Those who accept invitations do so with a risk that is unacknowledged and underconsidered also display great courage. The actions of the inviters and of those who accept illustrate what I have begun to think of as The Beacon and The Port.

In invitational theory many constructs have been devised to help us understand and unite a cohesive validated theory. Yet, we have substantial work ahead of us. One area to be considered is the complexity of the structure and attributes of the invitations themselves. I've identified several potential variations in invitational behavior, but as an introduction to the topic, I'll simplify my analysis to examine two types of inviting behavior "The Beacon" and "The Port." Both are demonstrated by the end of

Central High School's racial segregation and by the founding of the IAIE.

### **The Beacon**

"The Beacon" is inviting behavior that attracts others. Beacons send out invitations to one and all: smiles, greetings, encouragement, participation, conversation, company, and entreaties to join. As Allyson Schoenlein says, "...getting everyone inside." Beacons serve as the most overt expressions of inviting behavior, reaching out even to the most reluctant persons, always showing others that invitations are there for the taking, offering encouragement and optimism, an opportunity to join, a chance to establish belonging.

### **The Port**

"The Port" is more subtle. Ports are inviting by providing a haven of safety, a place to pause and take stock, a place to rest and recuperate, a place to take refuge without a need to provide an explanation. Sometimes a Port is inviting by saying nothing, communicating support by presence alone, avoiding the poking and prying that is ordinarily so encouraging and invigorating. Instead, a Port listens with care, concern, and interest. A Port freely gives away time and attention, provides empathy, acknowledges fear, accepts reluctance avoiding the foray of enthusiastic invitations Beacons provide so earnestly

Both behaviors are inviting. Both are appropriate, although either can be inappropriate given certain circumstances and timing.

## Choosing Our Behavior

How do we know what inviting behaviors to provide at any given moment? In general, Beacon behaviors initiate an inviting relationship while Port behaviors sustain and nourish the association. If, as in Allyson Schoenlein's words, the individual is "on the outside," Beacon behaviors are usually needed. If a relationship is established, the choice is more difficult.

Part of the conundrum is a result of the ability to send invitations and yet, not be an inviting individual. This phenomenon is poignantly illustrated by the Central High incident. Let there be no doubt an invitation was sent and great lengths were expended to see that the students could attend the school. However, relatively little was done to educate the community and deal with the root causes of hatred: distrust, lack of respect, emotionally uncontrolled platitudes, and a pessimistic attitude that "them" equates to "trouble." Little Rock was and continues to be a host of many good-willed citizens practicing the four virtues of invitational education...trust, respect, intentionality, and optimism. However, for so many, those attitudes were lost in the moment, the past overshadowed the future, a void emerged from the inevitable elimination of systematic discrimination. Less dramatically, we see inviting behaviors go awry when the gregarious "life of the party" invites a reluctant participant to join the dance, sing the song, join the game or participate in some other behavior that draws attention to oneself. Certainly this is a Beacon of inviting behavior, an overt sign saying "join us...we welcome you." Yet this may be the exact opposite of the individual's needs. Drawing atten-

tion to oneself when one is feeling inadequate isn't inviting at all...it is terrifying! Terrifying, tormenting, or generally disquieting an individual is certainly not inviting. Likewise coaxing someone into doing something they may be reluctant to do may be a big step forward, but to some, it can be a big step back.

## Wisdom

Beacon behaviors are the most popular of inviting actions because they are overt, easily conceived, inclusive, and (at least in my experience) fun. Because of this, I think that extending Beacon behavior is always appropriate...at least once. After the initial behavior, the inviter has to carefully ascertain the receiver's response and be very sensitive to the reactions of the invitee. When practicing inviting behavior, we are totally out of the range of simple answers and easy solutions. We are, I would propose, into the area of wisdom.

Wisdom is more than amassed learning and experience. On the contrary, wisdom is the ability to go beyond what is known, to accommodate what may not be knowable, and to discern what has value. Wisdom does not operate in the quiet corner of a peaceful refuge. Instead, wisdom is found in the chaotic experiential existence where life's compass spins erratically, never yielding a true heading, always creating doubt, always capable of error.

Wisdom, as it turns out, is not completely accepted in academia as a valid construct. The more common understanding of wisdom transcends the logical analysis of data that underpins the philosophy of science. On the contrary,

wisdom, by accepting the use of the unknowable, can yield results that do not comply with the laws of logic and of science. Mark Twain underscores the purpose of wisdom: “The perfection of wisdom...is to proportion our wants to our possessions, our ambitions to our capacities, we will then be a happy and a virtuous people.” My father said it rather more simply, “The wise man is the man who knows he has enough.” So, moving on...

### **“Bringing Them In”**

In the last issue I posed one of the yet unanswered issues in IE theory: Does the motivation of the sender when sending an invitation alter the invitation in substantive ways that might enhance or detract from the invitation’s success in promoting positive action and situational amelioration?

Allyson Schoenlein of Huntington, West Virginia sent a thoughtfully written letter that summarizes and synthesizes the views of other inviting educators. Invitational education imposes a number of positive exemplary expectations upon those who choose to follow that path. However, that belief also conveys an expectation that other will reciprocate and incorporate trust, intentionality, respect, and optimism into their outlook and their behavior. As Allyson states: “After all, self-control is a decision. Proper motivation isn’t required. ...Positive actions develop positive habits. Positive habits can change our way of thinking. In other words, when we repeatedly choose positive actions, positive thoughts develop.” Allyson concludes with a powerful summary to guide us in our work and remind us that we will get better with time: “Ulti-

mately, the goal for invitational education is to merge positive thinking *and* positive action. But in the meantime, it just may be the greater form of selflessness when a person chooses to *act* inviting during a battle with negative thoughts. It is a backdoor to invitational education, but getting everyone inside is all that counts.”

### **Featured Articles**

The thirteenth volume of the JITP describes and illustrates some of our finest inviting concepts. Melanie Hunter and Ken Smith help us build a Port in the arts. Their article “Inviting school success: Invitational education and the art class” describes characteristics of an art classroom that attracts students to explore their aesthetic abilities.

Jack Schmidt also describes the creation of protective Ports in his article “Elements of Diversity in Invitational Practice and Research.” Jack outlines the “Six E’s” of invitational education in promoting equity and mutual understanding. As a natural extension of invitational theory, Jack provides an instructive model to assist in the creation of satisfying environments for all students and clients.

Gina Gresham provides a nice Port for inviting educators and students troubled by math anxiety. In her article “An invitation into the investigation of the relationship between mathematics anxiety and learning styles in elementary preservice teachers,” Gresham examines ways to reduce math anxiety by employing invitational education processes and strategies. The article provides assistance to the educator enabling a better understanding the student, in providing a



supportive environment for learning, and, of course, the beacon to invite them “inside.”

Our last piece for this issue comes from Anita Kitchens and Robert Wenta and provides a Beacon and a Port for introducing educators to invitational education, in this case through an examination of the affective aspects of math education via the format of a teacher in-service opportunity. Their article “Merging invitational theory with mathematics education: A workshop for teachers” describes their strategies for introducing

invitational education into the math curriculum in to reduce apprehension and promote math confidence.

### **Happy Birthday IAIE**

This year marks the celebration of the 25<sup>th</sup> anniversary of the International Alliance for Invitation Education. Join the festivities at the Leadership Conference in Georgetown, Kentucky, read your Forum, and visit the new IAIE website [www.invitationaleducation.net](http://www.invitationaleducation.net).

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# Inviting School Success: Invitational Education and the Art Class

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“Effective teaching may be the hardest job there is”  
(William Glasser)

*It is acknowledged, nationally and internationally, that Invitational Education is actively practised in many schools. However, there is a paucity of articles describing the relationship between Invitational Education and specific disciplines at the elementary and high school levels. As such, this article attempts to address this shortcoming by discussing how and in what manner Invitational Education is applicable to the Art classroom. Applying the principles of Invitational Education, the Art classroom can become a classroom that not only facilitates students in achieving their potential but, in addition, create a positive and enhancing learning environment for all students and teachers.*

## Introduction

Invitational Theory/Education is a student-centred approach to the teaching-learning process. Founded on the ideas and concepts of the Perceptual Tradition (Combs, 1962; Combs, Richards, & Richards, 1988), Cognitive-Behavioural Approach (Ellis, 1970; Meichenbaum, 1974) and the Self-Concept Theory (Jourard, 1968, 1971; Rogers, 1969; Purkey, 1970), invitational theory affirms the “power of human perception and its impact on self-development” (Schmidt, 2004, p. 28).

Invitational Education is a theory of practice for communicating caring and appropriate messages to facilitate individuals to achieve to their full potential as well as for identifying and changing those forces in schools which would defeat and destroy potential.

Invitational education has four main interrelated areas which when working together and at a balanced level can create an optimally inviting and positive learning environment and experience for the whole student (physical, social, cognitive, emotional, and spiritual). The four main areas are the Four Assumptions, Five P’s, Levels of Functioning, and Four Dimensions. These areas all have an impact on the way in which teachers can enhance the learning process and development of their students in a positive way, and in our view is particularly applicable and important in an Art room.

Invitational Education is applicable particularly to the Arts as the aim of an Art class is to excite and stimulate curiosity and inquiry into artworks, as well as self-assessment of their own processes (of art making) and ideas. As Maaka (1999) states a major aim of a teacher is to “create classrooms that ex-

cite curiosity and inquiry, and invite self-assessment” (p. 6) and an Art room should not only be a place of art production and theory but a place of inspiration and resource for the young artist.

The aim of an Art room for students is to not only learn the theories of artists, artworks and the processes, but to experience art for themselves, learn and discover through practice and experimentation, freedom of choice and expression of opinions and ideas without ridicule. An Art room should be a place where young artists (students) can come and discover art for themselves, gaining their own independent and individual meaning from the information presented to them and their own experiences of life and art. “Independence, creativity, self-reliance and self-evaluation are all encouraged, and children take responsibility for their own learning and development” (McInerney & McInerney, 2006, p. 472). An Art class should be more than learning about different artists and artworks, it should be a place of personal discovery, where students can grow and develop their beliefs, opinions and ideas in a caring and supportive environment.

### **The Art Class and the Four Assumptions**

The four assumptions of invitational theory give a consistent and structured stance from which teachers can then create and maintain an optimally inviting environment. The four assumptions are:

- Respect; People are able, valuable, and responsible and should be treated accordingly.
- Trust; Education should be a cooperative, collaborative activity where process is as important as product.

- Optimism; People possess untapped potential in all worthwhile human endeavours.
- Intentionality; Human potential can be realised by creating and maintaining places, policies, processes and programs, specifically designed to invite development, and by people who are intentionally inviting with themselves and others, both personally and professionally (Purkey & Novak, 1996, pp. 50-55).

Respect, trust, optimism and intentionality should be a part of every school, and important to every teacher in their actions as this is the basis of a good student-teacher relationship and helps to promote positive behaviours, self-concepts and environment, consequently heightening the students achievements (Lawrence, 2006; Purkey & Novak, 1996), as “No aspect of education is more important than the feeling on the part of the teacher that the individual student is important, valuable, and *can* learn in school” (Purkey, 1970, p. 52).

An Art room needs to be a place of trust and respect as this is an important part of an artists work for if they do not feel as though they can trust or have respect for and of their peers, then they are less likely to fully express themselves in their artworks and discussions. Art is about personal expression, a class might all be doing the same task or painting, but will all end up with a different ‘answer’ by producing a work with an individual style, colour, mood and interpretation. However, before this work can be produced the students need to feel as though they can trust and have respect for those around them. “Research shows that people need to feel a strong sense of trust, in an environment of empathy and

understanding to self disclose” (Gregory as cited in Jarvis, 2006, pp. 138-139). This can be reinforced and lead by the teacher through talking about their own personal art practices and experiences, showing their own work and presenting their opinions and ideas, inviting the students to comment, critique, discuss and debate these. “Teachers must make an extra effort to communicate to these young people a feeling of trust, positive regard and respect” (Purkey, 1970, p. 53). By showing oneself to the students demonstrates trust and respect for them, it opens an avenue for them to do the same.

It is important to reinforce that art is not about your ability or lack of ability to draw things realistically, but it is about personal expression of opinions and ideas in a creative or imaginative way- expression is an ability of all. This can be demonstrated to the students by presenting them with a range of artworks from the ‘child-like’ and ‘pop-art’ to the ‘high art’ of the Renaissance, as well as through art theory and history. As teachers we need to place equal or in some cases more emphasis on the processes used, developed, or discovered, as well as the effort put as this is just as important as the product produced (Jarvis, 2006; Maaka, 1999; Purkey, 1970).

Intentionality is a key to art, this is an environment where you are invited to express yourself in a personal, unique and creative way. This can be assisted or denied by the scope of the task, the layout of tables and chairs, artworks around the room, the tone of voice used, body language, and many other factors. However, by intentionally conducting ourselves in a positive and optimistic way, setting up the room to fit the task as re-

quired, and being able to adapt the task and allow for individual interpretation promotes the growth and discovery of potential and consequently a work of art. Cogan (as cited in Purkey, 1970) states, “students with warm and considerate teachers produced unusual amounts or original poetry and art” (p. 53).

## **The Art Class and the Five Ps**

Invitational education has identified five key areas that exist in every environment and contribute to either the success or failure of each individual. The five areas are:

- People; People are an integral and important factor to life and experiences. People create a respectful, optimistic, trusting and intentional society.
- Places; Physical environment, classrooms, offices, hallways, common rooms, libraries, playing fields, etc, all have an impact on us and how we feel. Making changes to the physical environment offers opportunity for immediate improvement.
- Policies; Codes, rules or procedures, written or unwritten used to regulate the ongoing function of individuals and/or organisations. They communicate a strong message regarding the value, ability and responsibility of both groups and individuals.
- Programs; Maintain a wider scope of the needs of people by ensuring that programs are monitored and achieve the goals for which they were designed without negative labelling and stereotyping.
- Processes; Focuses on the way in which the other four P’s are conducted. The manner in which things are done and the atmosphere created (Purkey & Novak, 1996, pp. 6-7).

The Five P's are a combination of elements that work together to democratically and ethically invite the realisation of human potential (Purkey & Novak, 1996). People is the most critical of the five P's as the dynamics of a whole group or individual can be influenced by just one person (be it students, teachers or parents).

People can influence in either positive or negative ways and it is the teacher who is the role model to their class of the standards of behaviour and treatment they expect. As Purkey (1970) notes "that the teachers beliefs in himself and his students are crucial factors in determining his effectiveness in the classroom . . . those who are more accepting of themselves tend to be more accepting of others and perceive others as more accepting" (pp. 45-46). By believing and demonstrating a positive, accepting and open-minded attitude through our actions and interactions to and with others, it will consequently influence those around us in a positive way, and this is critical for any classroom, particularly those that require personal expression, like art. This can also take the form of the way in which we speak to the students, as well as our non-verbal actions (body language and facial expressions) as "the effect of the teacher's non-verbal behaviour is a particularly powerful influence" (Lawrence, 2006, p. 74) and can often contradict our verbal messages. There is a strong need for teachers to be consciously aware of this mixed message as "the style of teacher in that interaction helps develop children's understandings" (Jarvis, 2006, p. 34).

However, people are not only influenced by others, but by their physical

environments. The classroom "environment can be used to give reality, relevance and practical experience to learning" (Jarvis, 2006, p. 65). The classroom is the easiest thing to change to give a positive influence. An Art room should be a place of inspiration and resource for the young artist. This can be created through filling the room with natural light, posters of key art terms (such as the elements and principle of design) and artists of a variety of periods and styles, student's work of all grades and ability levels, as well as having some resources and equipment out on benches or tables at all times. By having a bright and warm environment it invites those who enter it to share in the experiences of the class and others by being able to view work produced and have the access to materials reinforces the positive messages, such as 'you are welcome in my class, feel free to pick a pencil or paint brush and express yourself'.

This environment is not possible without policies to reinforce and monitor these ideas. The policies employed in a class can be written or unwritten, and contribute to the running of the class and the overall atmosphere in a positive or negative way. As Bill Rogers notes (as cited in McInerney & McInerney, 2006) that "the classroom and school-wide rules should not be imposed arbitrarily from above, but should evolve from commonly held values" (p. 265). By maintaining positive policies and including students in the creation of policies about the operation of the class, such as getting out equipment or materials and their purpose or use, treatment of others, responding and asking for help and so on, it makes those involved feel as though they are respected and have a sense of personal 'ownership' which

“will help develop a positive classroom climate and that peer encouragement to uphold them is preferable to teacher enforcement alone” (McInerney & McInerney, 2006, p. 267). The policies employed in an Art room need to allow and invite the student to express their opinions free from fear of judgement or ridicule, as well as experiment with the different materials and resources in new ways, while maintaining a safe environment.

The programs that we introduce into our classrooms or have established are often influenced by policies of academic achievement levels, or for those with ‘special needs’. This can impact on the way in which we teach students who are apart of these programs, as well as the way in which they view themselves and others. Maintaining and making sure that programs that are introduced within the class do not discriminate or label the students in a negative way, as students see it as “more humiliating to be placed in ‘special classes’ then to remain in the regular class and receive low grades” (Purkey, 1970, p. 41). Art is a class in which the program topics and artworks need to be sensitively chosen as some artworks can reinforce negative messages and stereotypes and others can reinforce positive messages and stereotypes. The works or periods chosen to study need to be sensitive to the needs of the class in regards to self-concepts, religion, stereotyping, meaning, images/representation (too shocking or age inappropriate) and any other known factors of the individuals of the class.

The processes by which we monitor and maintain the other four P’s functioning is crucial. By maintaining a positive attitude, cooperative, caring and respect-

ful environment, with programs and policies to suit the needs of the students the teacher is “in a much better position to build positive and realistic self-concepts in their students” (Purkey, 1970, p. 46) and consequently increase their levels of involvement and achievement (Jarvis, 2006; Kleinig, 1982; Purkey, 1970).

### **The Art Class and the Levels of Functioning**

Invitational theory not only focuses on the people, places, policies, programs and processes it identifies four levels of functioning in both personal and professional living. This provides a way to monitor the five P’s and assist in applying Invitational Education by allowing the teacher to consciously assess their own behaviour and the influences that this is having on their students and self-correct this behaviour or attitude. The four levels of functioning are:

- Intentionally Disinviting; A negative and toxic attitude designed to demean, defeat and dishearten, both verbally and non-verbally.
- Unintentionally Disinviting; Accidental discouragement and undermining of others, both verbally and non-verbally.
- Unintentionally Inviting; Accidental support and encouragement. Generally function in effective ways, however cannot explain or determine why it is effective.
- Intentionally Inviting; Seek to consistently display the assumptions of Invitational Education. (Purkey & Novak, 1996, pp. 55-60)

The invitational stance determines the level of personal and professional functioning. By being aware of the dif-

ferent levels of functioning we are able to self-assess how we are projecting ourselves to others, and have the means by which to change.

Being intentionally inviting involves consciously maintaining the Four Assumptions and the Five P's in such a positive and intentional way to create an environment to which each individual is graciously called upon to develop physically, intellectually, socially, spiritually, and emotionally (Lawrence, 2006; Purkey & Novak, 1996; Purkey, 1970). This requires constant re-evaluation of the way the environment and in which the people, programs and policies interact, assessing their positive influences and potential negative influence in the teaching-learning environment.

### **The Art Class and the Four Dimensions**

The main goal of Invitational Education is to encourage individuals to better their lives both personally and professionally. The four dimensions are:

- Being Personally Inviting with Oneself; Need to invite ourselves before we invite others. Need to view ourselves as able, valuable, responsible and open to experience. It also means taking care of one's health (mental and physical).
- Being Personally Inviting with Others; Requires that the feeling, wishes, and aspirations of others be taken into account.
- Being Professionally Inviting with Oneself; This begins with ethical awareness and a clear and efficient perception of situations and oneself. It is important to maintain and continue to expand your knowledge base.

- Being Professionally Inviting with Others; Requires careful attention to the policies introduced, programs established, places created, processes manifested and the behaviours exhibited. It involves honesty and treating each person as an individual. (Purkey & Novak, 1996, pp. 104-111)

The four dimensions focus on the both the personal and professional aspects of people's lives and maintaining a positive and inviting stance in all of our endeavours. As Rosenthal and Jacobson (as cited in Purkey, 1970) noted from their research that "the teacher, through his facial expressions, postures, and touch, through what, how and when he spoke, subtly helped the children to learn" (p. 48). This is influenced by what the teacher believes about himself and his students, both from personal and professional experiences and knowledge, and expressed in verbal and non verbal ways (Moss, English, Ferguson, Godinho, & Hay, 2004). As a teacher, we need to be constantly conscious of our attitude and things that might influence our behaviour on a particular day or in a particular situation or context as we can unintentionally disinvite rather than intentionally invite (personally and professionally).

Through being personally and professionally inviting with oneself we open ourselves to new ideas, opinions, processes, procedures and experiences which help to shape and develop our own self-concept and beliefs which is reflected to those around us by both verbal and non-verbal actions. Being personally and professionally inviting with others, not only allows them to get to know you on both a personal and professional level, but also creates an op-

portunity for others to accept and become personally and professionally inviting with you. In the words of Sidney Jourard (1964):

*You can know me truly only if I let you, only if I want you to know me. If you want me to reveal myself, just demonstrate your good will . . . your will to employ your powers for my good, and not for my destruction. (p. 5)*

## Conclusion

Invitational Educational is a promising basis for any school or classroom as it focuses on the development of the student as a whole (physical, social, cognitive, emotional, and spiritual), rather than pure academic achievement and conformity to a set of rules. The Art class is a place where this is highly applicable as creating art is a personal journey, and a discovery of individual and personal opinions and ideas, and without an inviting, trusting, and caring environment this is unattainable, and therefore students creativity and work will be inhibited.

Learning can only be done by the student and it is the teacher's role to create the conditions for a productive, interpersonal and free learning envi-

ronment. "The more we understand ourselves, the more likely we are to understand those whom we are privileged to teach" (Jarvis, 2006, p. 37) and consequently are able to create an environment that not only promotes learning in a positive way, but develops the students self-concept and ideas in a positive and constant manner. This requires the teacher to be constantly reassessing their personal beliefs and views, being conscious of their verbal and non-verbal cues, the layout of the class, the styles of activities, kinds of rules established, the types of feedback and assessments given, as well as the time they spend with each student. By creating an environment that is positive and inviting to all who enter it can result in higher attainment and achievement levels among students and teachers (Lawrence, 2006; Purkey, 1970), and as Lawrence (2006) notes "that where the interaction is positive the child achieves more and is better behaved" (p. 67). It is our jobs as Art teachers to make this class an inviting and caring environment in which students can find comfort and inspiration (which is a key to self-expression and realisation) and by practicing Invitational Education we can achieve this and help our students develop as a whole person.

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## Elements of Diversity in Invitational Practice and Research

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Invitational theory uses many elements to define, describe, and delineate its beliefs and practices. For example, the Five Ps of people, places, policies, programs, and processes are consistently cited in the literature and research as the framework for assessing inviting practices (Purkey & Novak, 1996; Purkey & Schmidt, 1996; Purkey & Siegel, 2003; Smith, 2005). Another example is the presentation of four areas of inviting: Inviting Oneself Personally, Inviting Oneself Professionally, Inviting Others Personally, and Inviting Others Professionally (Purkey & Novak, 1996; Purkey & Schmidt, 1996; Purkey & Siegel, 2003). Such elements and components help to explain invitational theory and practices in an understandable language with useable concepts. All these concepts coexist in the approach known as *Invitational Education*.

As an inclusive model of communication and human relations, *Invitational Education*, implies a belief system that embraces, celebrates, and honors diversity. Yet, invitational theorists and writers have not illustrated this proactive stance and genuine acceptance of diverse populations in many publications. Stanley's (1992) twenty-year bibliography of invitational papers, articles, and books indicates some sources that address diversity in the broadest sense. Her compilation produced topics about at-risk students (Almond, 1991; Dorsey, 1991), minority students (Collins, 1988; Reed,

1984), teachers of color (Paxton, 1990), gifted students (Ganopole, 1988; Russell, 1984), students with disabilities (Dixon & Siegel, 1983), and gender differences (Stillion, 1983). Similarly, a cursory review of all eleven volumes of the *Journal of Invitational Theory and Practice* (1992-2006) found an article that addresses multicultural education (Arceneaux, 1992), one that focuses on gender differences (Dickman, 1993), and another that discusses diversity and invitational theory and practice (Schmidt, 2004).

In an earlier article, I stated that the principles put forth by invitational theory and practice present implications for working with people of diverse backgrounds (Schmidt, 2004). I reviewed basic assumptions, concepts, constructs, and stages, of invitational theory in the context of professionally helping diverse populations. The thrust of the article was to take the initial step in addressing "the nuances of applying this approach with students, parents, employees, clients, patients, or other populations from diverse backgrounds" (p. 43). In doing so, the hope was to examine the language of invitational theory, challenge practitioners and theorists to critique invitational concepts, constructs, and strategies from diverse perspectives, and encourage research about applications of invitational practice across diverse populations to verify that these "approaches can be ap-

plied with confidence across student, client, and patient groups” (p. 44).

As noted, this call for research has not yet been answered. Nevertheless, the absence of research has not inhibited authors, including myself, in endorsing invitational approaches when working with diverse groups. In a recent text on counseling (Schmidt, 2006), I described the four levels of invitational functioning from a culturally sensitive perspective, and noted that invitational counseling is an integrative approach that “embraces a broad perspective of the services needed to help clients meet the diverse challenges of today’s world” (p. 188). At the same time, I noted that invitational approaches “move beyond alleviation of immediate concerns towards an exploration of relatively boundless potential for future human development” (p. 188).

A lack of research about invitational practices with diverse populations has encouraged the current article. Perhaps what researchers and practitioners of invitational theory require is a schema or method by which to examine behaviors, the Five Ps, or other variables within multi-cultural and diverse contexts. In this article, I propose six elements of diversity (the Six E’s) by which researchers and practitioners can assess relationships and organizations in terms of accepting, embracing, and celebrating diversity. These six elements in alphabetical order are: empowerment, encouragement, enlistment, enjoyment, equity, and expectation. This is not an all-inclusive list of elements, but I present it here to begin a discussion of variables to assess from an invitational perspective. I begin with equity.

## Equity

By definition, *equity* refers to behaviors and treatment of people that create conditions of fairness, justice, and non-discrimination. Equitable practices from an invitational perspective ensure access for everyone to participate in programs, fair treatment across places, policies, and processes designed and implemented by the organization, and just action when a person or persons require assistance or discipline. All these conditions relate to what Novak (2002) referred to as a “deepening of an understanding of democracy” (p. 152). Accordingly, invitational practices have “a deep and abiding relationship with participative democracy . . . an educative way of life in that it allows people to gain understanding and develop a more fulfilling character as a result of being meaningful constructors of a social order” (p. 152).

Schools, hospitals, healthcare agencies, and other organizations that profess and practice a deepening understanding of democracy are also likely to demonstrate consistent application of equitable places, policies, programs, and processes. At the same time, equitable organizations are careful not to confuse fair and just practices with the misguided notion of treating everyone the same. Such confusion would fail to recognize the uniqueness that each person brings to a relationship. In contrast, people and organizations that strive for equity take pride in celebrating unique differences that individuals and groups possess and through which they enrich the greater community.

As an element of invitational theory and practice, equity can be evaluated by using existing structures. For example,

organizations might ask if members have equal opportunity to participate in various programs, do they receive fair treatment under current policies, is due process in disciplinary action consistently applied, and does everyone have the right to access places within the organization? In such assessment, people and organizations are careful to observe how *unearned privilege* of a select few might upset the balance of fairness within the larger community (Schmidt, 2006).

Equity is a powerful element of democratic relationships and organizations. Without it, democracy is at most wishful thinking. A second element of invitational theory and practice is *expectation*, which connects with the notion of equity.

### Expectation

Invitational theory and practice have emerged from the perceptual tradition, as explained by several authors (Purkey & Novak, 1996; Purkey & Schmidt, 1996). That tradition places high value on human perception as a vehicle by which people draw conclusions and make everyday decisions. As part of that process, people form *expectations* about situations and relationships based on experience and knowledge. Purkey and Novak (1996) explained, "Perceptions serve as a reference point for behavior. They influence the memories people use to understand the present and anticipate the future" (p. 23). As such, perceptions help us establish expectations of what we believe will likely occur.

When working with diverse populations, we will be successful to the degree that our expectations limit or expand the relationships we form. For example, if we have lower expectations of achieve-

ment for a student because of socioeconomic background, ethnic heritage, or family history, the likelihood of establishing a beneficial relationship with that student is minimal. In contrast, if we convey high expectations for all students and make developmentally appropriate decisions that benefit their welfare, we increase chances of being successful—for both the student and ourselves.

As with all the Six E's, we can assess and monitor *expectation* by tracking behaviors, examining policies, and evaluating processes that institutions choose and implement. Fundamental expectations, however, begin within basic human relationships—between a student and teacher, between a counselor and client, or between a parent and child. Finding ways to assess these basic relationships and the degree and direction of expectations within them is essential to understanding how the larger institutions—schools, mental health clinics, and families—operate.

Combined, *equity* and *expectation* are valuable elements in understanding our strengths and weaknesses when relating with diverse populations. They also connect with another element, *enlistment*, which we now consider.

### Enlistment

To *enlist* people, as used here, is not the traditional sense of enrolling in military service, but rather gaining the cooperation and support of people for moving an organization (or a relationship) toward common goals. With this definition, enlistment becomes an active stance of creating multiple invitations to involve an expanded audience in the work of the organization. Enlistment is

the precursor of partnerships. Through genuine invitations that we extend equitably across an organization, authentic partnerships have greater likelihood of becoming realities.

Schools, colleges, agencies, and other organizations that embrace invitational theory and practice strive for total involvement of all members and parties in their respective communities. They recognize all stakeholders from the most influential to the most vulnerable, and actively seek input and participation from a wide enlistment that is developmentally appropriate. Such institutions and organizations understand the power of enlistment and at the same time, note the risks associated when certain individuals or groups are overlooked either intentionally or unintentionally.

Current invitational concepts and structures exist to help people and organizations evaluate their level of enlistment. What processes and programs aim at increasing involvement of parents and students in a school? What policies encourage or discourage healthcare professionals to collaborate with patients in making medial or health-related decisions? Enlistment strategies can be assessed to give a sense of how an organization invites a wide audience of participation across its diverse groups. Such invitations relate to the notion of *empowerment* that organizations cultivate for their members.

### **Empowerment**

The verb *empower* means to give people a sense of power and authority over the decisions they face. It includes notions of self-confidence and self-efficacy that connect with self-concept

theory, another basis for Invitational Education. When used literally, however, the word, empower, takes on “doing to” characteristics as opposed to “doing with” relationships fostered by invitational theory and practice (Purkey & Schmidt, 1996; Schmidt, 2002). The noun *empowerment* may fit more closely with an invitational philosophy. Empowerment is the outcome of establishing and nurturing helpful relationships that combat oppression, negate marginalization, and elevate the elements of equity and enlistment mentioned earlier. Too frequently, individuals and organizations contribute to the legacies of marginalization and oppression by adhering to traditional programs and outmoded policies that overtly or covertly, intentionally or unintentionally, discriminate, degrade, and dehumanize (Purkey & Novak, 1996). Sometimes, organizations, such as schools, group oppressed people and assign causal relationships to their lack of educational development or life success. When this occurs, the tendency is to overstate the effects of life experiences while diminishing the potential of the human spirit to develop, learn, and flourish against seemingly insurmountable odds.

Organizations and individuals that strive to create places, policies, programs, and processes within which people become able to empower themselves would seem to follow an invitational philosophy. At the same time, such organizations and persons would establish methods of assessing how they contribute to this notion of self-empowerment and what nuances exist that help people become empowered. For example, what differences if any exist between the notions of becoming personally empowered and becoming professionally em-

powered? Similarly, researchers might examine differences between empowerment for individual benefit and empowerment for social justice.

Other research considerations proposed elsewhere (Schmidt, 2007) include:

- What programs and services should receive the greatest emphasis and time allotted in nurturing empowerment?
- What do organizations want people, such as students in schools, to become empowered to do?
- How will new technologies influence empowerment of individuals, groups, and organizations?

The element of empowerment is a complex notion that can have either positive or negative outcomes. This is analogous to the contradictory levels of being intentionally disinviting or being intentionally inviting. Worthwhile outcomes of empowerment are realized through the consistent application of equitable practices, appropriate expectations, genuine enlistment strategies, and a fifth element, encouragement.

## Encouragement

Over the past 100 years, many theorists have emphasized the importance of *encouragement* in human relationships. This is particularly true of Adlerian theorists (Dinkmeyer, Dinkmeyer, & Sperry, 1987; Dreikurs & Soltz, 1964; Sweeney, 1998). As Dinkmeyer et al. noted, “Encouragement is the prime factor in stimulating change . . . Encouragement generates the self-confidence and self-esteem that enable a person to act upon his concerns” (1987, p. 70). This stance is particularly important when teaching,

counseling, leading, and otherwise working with people of diverse backgrounds.

To ask people who have experienced oppression, neglect, unfair discrimination, and devaluation to take risks and make substantive changes in their lives is indicative of a courageous stance. Courage is the root of *encouragement*. Although invitational literature has not directly addressed the importance of encouragement, Schmidt (2002) adapted the professional stance of invitational theory and practice, renaming it “An Encouraging Stance,” while incorporating the qualities of optimism, respect, and trust into intentionally helpful relationships (pp. 56-61).

Encouragement is an important element to use when applying invitational assumptions and principles with diverse populations because it incorporates the fundamental philosophy of *being with* versus *doing to*. In contrast, praise is a doing to process, and as noted earlier, disenfranchised populations are not necessarily helped when they are “done to.” Encouragement signifies a genuine investment and veracity in other people and groups. Praise does not possess this same level of commitment or authenticity. Similarly, encouragement exudes potential for long-lasting effects while praise tends to produce short-term results.

Invitational theory and practices consistently encourage professionals to behave gently, appropriately, and with great care when asking others to change course, accept challenges, learn new information, and make positive contributions to the larger group. In this sense, invitational education takes an inclusive view of the progress of individuals make

as well as broader benefits to the greater community. As such, it embraces positive elements of both individualistic and collectivistic worldviews. Encouragement is a key ingredient that enables professional helpers to bridge the expanse that exists between these two philosophic positions.

The five elements presented thus far—equity, expectation, enlistment, empowerment, and encouragement—are essential in applying invitational theory and practices with diverse populations. They are fundamental components that are greatly enhanced by the last element, enjoyment.

### **Enjoyment**

In many speeches, books, and articles, William Purkey consistently encourages us to *Live to Enjoy!* (Purkey, 2006). Through his teaching, we learn that although life is reliably challenging, there are countless opportunities to celebrate, enjoy the company of others, and find good cheer. “How easy it is to overlook life’s joys,” he cautions, “Give more attention to life’s small pleasures and wonder” (Purkey, 2006, p. 99-100).

We might apply this lesson to our relationships with diverse clients, students, patients, and customers. Being with people of diverse cultures, backgrounds, religious beliefs, ethnicity, and other characteristics provides abundant opportunity to enrich our experiences and develop more fully our personal and professional lives. Rather than worrying about how we might protect our schools, our communities, or ourselves from challenges that diversity presents, we might spend time in wonderment about all the riches that it brings to our rela-

tionships and development as enlightened and fulfilled individuals. As such, *enjoyment* is another element that complements equity, expectation, enlistment, empowerment, and encouragement described in this article. Combined, these elements offer professionals, schools, agencies, and other organizations a structure for examining their current posture and considering new behaviors, places, policies, programs, and processes to provide relationships that are more beneficial with diverse populations.

A caution is appropriate when considering the power and place of *enjoyment* in diverse relationships. What one culture finds as joy, humor, and lightheartedness a person or people from another culture might perceive quite differently. Laughter is universal, but activities, behaviors, and situations that elicit laughter vary among world cultures.

### **Concluding Thoughts**

In this article, I have proposed six elements, the Six E’s, of assessing, appreciating, and understanding invitational relationships with diverse populations. The article is intended as a vehicle for discussion and, equally important, as a structure by which researchers and practitioners might develop methods of measuring and evaluating aspects of invitational theory and practice when applying principles and concepts with diverse students, clients, and other groups.

Invitational theory needs more research to support many of the claims that practitioners accept as fact. By using structures such as the Six E’s, researchers can investigate places, policies, programs, and processes as related to differ-

ent cultural groups. To start, researchers might use the Inviting School Survey—Revised (ISS-R, Smith, 2005) and perform item analyses using the Six E's. For example, a question might be, "How well do items on the ISS-R translate for

diverse populations?" We could generate other research questions, but the point is to generate more research that investigates the application of invitational theory and practices with diverse groups.

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# An Invitation into the Investigation of the Relationship between Mathematics Anxiety and Learning Styles in Elementary Preservice Teachers

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*Two hundred sixty-four students from a large southeastern U.S. university participated in this study which investigated the relationship between mathematics anxiety and learning styles in elementary preservice teachers. The Mathematics Anxiety Rating Scale (MARS) and Style Analysis Survey (SAS) were administered. Scores were analyzed using Pearson product-moment correlations. Results showed a relationship between mathematics anxiety and global learning style ( $r = 0.42$ ) indicating a tendency for global learners (whole picture learners) to have higher levels of mathematics anxiety.*

## Introduction

Invitational Education was developed to provide a model of practice to promote people to realize their potential in all areas of worthwhile endeavors. IE presents a paradigm that sees teaching as a force for positive social change. It is a theory of practice that emanates from the self-concept theory and the perceptual tradition. It is deliberately directed towards broader goals than learners and their performance alone. IE seeks to value and recognize the strengths of every student while helping the student improve on weaknesses. It breaks down the emotional, intellectual, physical, and psychological barriers that prevent learners from achieving their true potential. As educators, we have to make the effort to encourage each student to share his or her true gifts with the world.

## Mathematics Anxiety

Mathematics anxiety has gained heightened awareness by mathematics educators as an important factor in the

learning and teaching of mathematics (Aiken, 1970, 1976; Kulm, 1980; Reyes, 1987; McLeod, 1988; Sloan, T., Daane, C., & Geisen, J., 2002; Vinson, 2001). Educators believe that studying the manner in which individuals learn is also at the heart of educational enhancement (Oxford, 1994; 1995). Research reveals particularly high levels of mathematics anxiety in elementary preservice teachers (Battista, 1986; Gresham, 2004; Kelly & Tomhave, 1985; Singh, Granville, & Dika, 2002; Sovchik, Meconi, & Steiner, 1981; and Vinson, 2001; Zettle & Raines, 2002).

Mathematics anxiety has been defined as a feeling of uncertainty, of not being able to do well in mathematics or with numbers, (Tobias, 1998). More than a dislike or negative attitude towards mathematics, Smith (1997) described it as uneasiness when asked to do mathematics, an inability to perform well on tests, a feeling of physical illness, faintness, and dread. Tobias (1976) gave the shortest definition saying it is the “I can’t” syndrome. She stated, “People almost experience sudden death with

mathematics anxiety. It is an extreme feeling of uncertainty and disengagement, as if a curtain has been drawn, like an impenetrable wall ahead, or seemingly standing on the edge of a cliff ready to fall off.” (p. 45). Tobias and Weissbrod (1980) identified mathematics anxiety as the panic, helplessness, paralysis, and mental disorganization that arises among some people when they are required to solve a mathematical problem. It is a phenomenon where students suffer from the irrational fear of mathematics to the extent that they are unable to think about, learn, or be comfortable with mathematics. Inevitably, this fear has been known to cause low self-esteem, frustration, and sometimes academic failure in students (Tobias, 1998; Gresham, 2004).

Bandura (1997) has suggested that “self-affirming beliefs promote development of skills and a sense of personal self-efficacy” (p. 101). Mathematics anxiety conflicts with and influences students’ ability and beliefs that “I can” do mathematics and do so successfully. Students’ mathematics anxiety levels are directly related and influenced by teachers. This is consistent with Purkey and Novak’s (1996) description of how the influence of teachers affects one’s own beliefs. All of which is to suggest the powerful hand teachers have in the mental habits that an individual creates and develops. Purkey and Novak (1996) contended that the environment teachers create must be carefully prepared. Critical to this preparation is the offering of an inviting, supportive, and safe environment. The quality of mathematics instruction and the environment in the elementary classroom depends on the preparation of preservice teachers to teach mathematics (Battista, 1986).

## Learning Styles

Knowing each student and their individual differences is essential to preparation for facilitating, structuring, and validating successful learning in the classroom for all students (Guild, 1994). The opportunity for every child to succeed depends upon the teacher having a full understanding of learning styles (Oxford, 1995). Oxford, Ehrman and Lavine (1991) defined learning styles as “a person’s general approach to learning” (p. 2). The term “learning style” indicates preferred or habitual patterns of mental functioning and dealing with new information (Oxford, 1994). It is the way individuals concentrate on, absorb, and retain such new and different information (Dunn & Dunn, 1978; Oxford, 1994; Sloan, Daane, & Geisen, 2002).

Bennett’s work (1990) served as a benchmark to compare and respond to the definition of learning styles as a consistent pattern of behaviors and performance by, which an individual approaches educational experiences. An individual’s learning style is formed deep in the structure of neural organization and personality, which molds and is molded by human development and the cultural experience of home, school, and society (Bennett, 1990). Individual learning styles are categorized as global or analytical learners. Global learners or relational learners begins with the whole picture and has trouble discerning the important details from a confusing language background. In contrast, analytical learners like details better than the overall picture and can separate the details from the background (Oxford, 1994; 1995).

## **The Offering of Invitational Education**

Invitations, learning styles, and mathematics anxiety share similar effects. They influence the academic choices that students' make, their resilience to hardships, the level of anxiety they experience, and the success they ultimately have (Pajares & Zeldin, 1999). Invitational Education offers us a way to think about mathematics anxiety and learning styles preferences. IE is respectful, caring, and supportive of other's growth and development. Success expectations are closely related to self-concept, self-esteem, and self-efficacy; constructs that are essential to understanding invitation education and other approaches offered to student learning that emphasizes the perception tradition (Purkey & Novak, 1996; Purkey & Schmidt, 1987, Purkey & Stanley, 1991). With a better understanding of mathematics anxiety and its relationship to learning styles, we are forced to think more deeply and perhaps try something new in a safe environment where there are many opportunities for students to succeed.

## **Disinviting Learning Experiences**

Lack of understanding learning styles and their roots is not necessarily the fault of teachers. Many teacher education programs do not provide experiences that help develop skills in identifying students' learning styles and in handling style differences (Oxford, 1995) or in addressing the teacher's own mathematics anxiety (McCarthy, 1987; Sloan, Daane, & Geisen, 2001; Tobias, 1993). Some researchers have proposed that mathematics anxiety may stem from teaching methods that are more conven-

tional, and rule bound (Ashcraft, 2002; Cote & Levine, 2000, Furner & Duffy, 2002; Hembree, 1990; Pintrich & Schunk, 2002; Singh, Granville, Dika, 2002; Tobias, 1993; Williams & Ivey, 2001; Zettle & Raines, 2000). These methods are usually employed by pre-service teachers who themselves possess high levels of mathematics anxiety and negative attitudes toward mathematics (Bush, 1989; Karp, 1991; Tobias, 1993, 1998).

According to Oliver (2002), a quality learning experience meets the following criteria if it has authentic content, provides multiple perspectives, involves mindful engagement and reflection, encourages collaboration, incorporates authentic assessment, and involves the teacher as a coach/facilitator. Further, the National Council of Teachers Mathematics Standards (1989, 2000) advised teachers to use a variety of instructional techniques and strategies to benefit all types of learners in the classroom. Tobias (1993, 1998) and Gresham (2004) pointed out that most mathematics classrooms do not meet those criteria. Most mathematics instructional practices involve a "traditional" approach to teaching. That is, where rote memorization of facts and lecture practices occur with very little emphasis geared toward strategies that actually engage the learner. In other words, mathematics lessons are often not designed to be intentionally inviting. Unfortunately, many mathematics educators who teach in the traditional approach do not employ a variety of activities. They often neglect to meet the learning styles of all students which ultimately perpetuates mathematics anxiety (Hodges, 1983, Sloan, Daane, & Geisen, 2001; Tobias, 1998; Zaslavsky, 1994).

## Design of the Study

Two hundred sixty-four elementary preservice teachers (247 females, 17 males) enrolled in an elementary mathematics methods course at a large southeastern university were invited to participate in this study. All students had completed at least 3 university mathematics courses and 1 elementary mathematics content course.

Two instruments were used to obtain the data: the Mathematics Anxiety Rating Scale (MARS) and the Style Analysis Survey (SAS). The MARS (Richardson and Suinn, 1972) is a 98-item instrument, self-rating Likert-type scale which can be administered either individually or to groups. Each item on the scale represents a situation which may arouse mathematics anxiety by indicating: *not at all* = 1; *a little* = 2; *a fair amount* = 3; *much* = 4; or *very much* = 5. Mathematics anxiety may be elevated by the scaling of items with possible scores range from 98 to 490 with high scores indicating a high level of mathematics anxiety.

The SAS is a 110-item instrument designed to identify how individuals prefer to learn, concentrate, and perform in both educational and work environments (Oxford, 1990). The instrument has 11 subscales and uses a Likert-type scale with the following responses: 0 = *never*; 1 = *sometimes*; 2 = *very often*; 3 = *always*. Here again, the scaling itself could generate a level of mathematics anxiety in the respondent. Cronbach reliability coefficients for the subscales ranged from 0.73 to 0.89. The subscales are combined into five major categories: (a) Category 1- how you use physical senses for study and work (visual, auditory,

hands-on), (b) Category 2-how you deal with other people (extroverted and introverted), (c) Category 3- how you handle possibilities (concrete-sequential, intuitive), (d) Category 4- how you approach tasks (open, closure-oriented), (e) Category 5- how you deal with ideas, (analytic and global). If the scores in each category are within 2 points of each other, respondents are considered to be combinations of each category. Respondents can be categorized as analytical, global, or analytical/global depending on the closeness of their scores. Scores obtained from each of the SAS subscales and the MARS were analyzed using Pearson product-moment correlations to determine if there was a connection between learning styles and mathematics anxiety.

## Results and Discussion

Of the eleven subscales from the SAS, only one subscale within Category 5 (global-dealing with ideas) was related to mathematics anxiety at the  $p < .05$  level of significance. The data in this category indicated that out of 264 elementary preservice teachers involved in the study, 179 (68%) were categorized as global learners, 8 (3%) were analytic, and 77 (29%) were a combination of global/analytic. A comparison of the SAS learning style subscales revealed that there was a positive correlation ( $r = .42$ ) between global orientation and mathematics anxiety.

Thus it is known there was a relationship between mathematics anxiety and a global learning style (See Table 1). As global orientation scores increased, mathematics anxiety scores increased as well. The results of this study support Sloan, Daane, and Giesen's (2002)

**Table 1**

*Pearson Product Moment Correlations Between Learning Style Preferences (SAS ) and Mathematics Anxiety Scores (MARS)*

<b>Learning Style Preference</b>	<b>Mathematics Anxiety Scores</b>
Category 1	
Visual	.09
Auditory	.05
Tactile (Hands-On)	.04
Category 2	
Extroverted	.17
Introverted	.03
Category 3	
Intuitive-Random	.09
Concrete Sequential	.15
Category 4	
Closure-Oriented	.19
Open	.01
Category 5	
Global	.42*
Analytic	.25

\* $p < .05$

research regarding thirty-eight elementary preservice teachers' learning styles and mathematics anxiety. They found that only one subscale of the SAS (global) was related to mathematics anxiety. They too determined that as global orientation scores increased, mathematics anxiety scores increased as well. However, only 7.8% of the variance in mathematics anxiety was accounted for by global learning styles in their study. They contended that other

variables, such as instructional methods, mathematics achievement levels, confidence in doing mathematics, and levels of mathematics anxiety, may have accounted for more of the variance (Sloan, Daane, & Geisen, 2002).

Researchers have characterized global learners as holistic, spatial, divergent, intuitive, and imaginative (Edwards, 1989; McCarthy, 1997, Oxford & Anderson, 1995). The global learner be-

gins with the whole picture, seeking the big picture right away while trying to establish meaning only in relation to the whole, might have trouble with details, is more interested in fluency than accuracy, and likes learning that is integrative (Oxford & Anderson, 1995). Kinsella (1995) indicated that global learners are highly visual, relational, and contextual (parts-and-whole together) learners. Global or right-brain dominant individuals approach problems in an intuitive manner, whereas most mathematics courses are taught through systematic problem solving in a step-by-step linear fashion (Sloan, Daane, & Giesen, 2002). In addition, many mathematics problems are often geared toward finding only one solution or right answer and many teachers teach in this manner. However, open ended instruction is preferred by global learners who approach problems in a divergent manner. Analytical learners prefer instruction that is sequential, traditional, and rule-based (Oxford & Anderson, 1995). In contrast, an analytical learner likes details better than the overall picture and can separate the details from the background (Oxford & Anderson, 1995). Ellis (1989) implied analytical learners naturally prefer to engage in formal language learning aimed at achieving accuracy, while the global learner might prefer learning that is aimed at and takes place through communication. According to Tobias (1993), all types of learners are capable of learning mathematics. However, she stressed that some types of learners do not learn as well when taught in the traditional manner that is prevalent in mathematics courses, even today. Mathematics courses which traditionally emphasized sequential, step-by-step, deductive and rule based instruction have caused global learners to experience difficulties in

difficulties in learning mathematics (Oxford & Anderson, 1995; Sloan, Daane, & Giesen, 2002).

## **Invitational Recommendations**

Purkey (1978) has described masterfully how the teacher and the curriculum create an environment in which verbal and nonverbal messages to students are either inviting or disinviting. The creation of a classroom environment that invites all students to experience rewarding success should be the goal of every teacher. Whitmore (1982) indicated that there are some specific invitations which students particularly need to receive in order to gain the most from school experiences, to have the most positive attitudes toward classroom learning, and to regenerate motivation to participate if negative attitudes are formed. Students often become discouraged and develop a self-fulfilling prophecy that they cannot succeed and are doomed for failure when mathematics anxiety is encountered or experienced. When mathematics anxiety and learning style preferences are addressed and teaching strategies are geared toward the specific needs of the learner, success is eminent. Below are some suggestions for creating an inviting learning environment for students.

- Place an emphasis on students' learning style differences and what part learning styles have on the role of the learning process.
- Embrace mathematics. Make the learning environment a safe, secure, and inviting one by recognizing the variance of learning styles in students.
- Help students understand that they are a part of a learning community where learning styles are respected.

- Know that achieving academic success is highly dependent on an understanding of the relationship between mathematics anxiety and students' individual learning style differences. Let students know that their individual learning needs will be met.
- Praise students for their accomplishments in mathematics. Support them by using positive statements and feedback.
- Offer an inviting, safe, environment to guide students. Encourage and help them set and achieve mathematical goals.
- Be aware that mathematics anxiety does exist in students *and* in teachers.
- Allow students to share and describe their feelings about their mathematics anxiety.
- Transform the environment to a nurturing one. Be aware, understand, and adopt effective, non-traditional, motivating, active teaching practices, strategies, and learning experiences. Provide a curriculum that is relevant, challenging, integrative, and exploratory.
- Use multiple teaching approaches to respond to the various learning style differences of students.
- Mathematics anxiety can be debilitating. Therefore, engage in quality work, enhance problem-solving, and improve students' mathematical skills.

## Conclusion

Invitational theory (Purkey & Novak, 1988; Purkey & Schmidt, 1990; Purkey & Stanley, 1991) is a "fresh conception of education—forming a new image of what teachers can do" (p. 13). Invitational education seeks to provide a means of intentionally summoning people to realize their potential in all areas

of worthwhile human endeavor. It is a "democratically perceptually anchored, self-concept approach to the educative process" (Purkey & Novak, 1996, p. 3). The aim of invitational theory is to "create an educational culture that summons everyone involved to become lifelong learners" Purkey & Novak, 1996, p. 5). It is a method of creating environments in which self-concept could be enhanced and human potential more fully developed. Effective education decisions and practices must emanate from an understanding of the way individuals learn. Students are more successful when using their style strengths, therefore diverse teaching styles are essential (Guild, 1994). Dunn and Dunn (1978) and Oxford (1995) indicated that students learn faster and with greater ease when teachers gear instruction to student's learning styles. Increasingly, educational leaders are recognizing that the process of learning is critically important and understanding the way individuals learn is the key to educational improvement (Tobias, 1998). Classroom teachers accommodating student learning styles can result in improved attitudes towards learning and an increase in productivity and academic achievement (Oxford, 1994). Educators who work with preservice teachers may be able offer a greater awareness of learning styles within the classroom. This awareness could be explored to help preservice teachers improve the efficiency and effectiveness of instructional materials and methods used in the mathematics classroom. One's learning style is as unique as a fingerprint (Oxford & Anderson, 1995). Classrooms and curriculum strategies need to accommodate the variety of learning style preferences for students. It is important for preservice teachers (and those providing instruction for them) to be aware



of learning style differences so they can offer an inviting learning environment, maximize learning, and minimize stress thereby taking the first step in reducing mathematics anxiety in their students.

By returning civility to an uncivilized society, we can reduce barriers (mathematics anxiety) for student success and achievement.

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# Merging Invitational Theory with Mathematics Education: A Workshop for Teachers

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*Two faculty members in the department of mathematical sciences at a four-year university, with teacher-education experience, presented a workshop for in-service elementary and middle-school teachers. The intention was to address affective aspects of teaching including: teacher efficacy, learning styles, cognitive dissonance, relaxation, and beliefs as they influence behavior in order to motivate reflection and change. The goal of the workshop was to enhance the professional and personal development of the participants. The outline and implementation of the workshop were consistent with major tenets of Invitational Theory and with NCTM's 2000 Principles and Standards for School Mathematics. The intent of this paper is to suggest that educators reflect upon the teacher education program at their university and offer similar workshops.*

## Introduction

When it comes to mathematics, it seems to be a societal belief that some people “have it” and some people don’t. Ask, at any social gathering, “Has anyone here:

- been embarrassed in math class and, as a result, given up?
- studied hard for a math test and failed with little hope for doing better?
- asked a question in math class and not understood the answer?”

If any of the above have ever happened to you, then you’re considered to be a “have not.” Socially, mathematics weakness is frequently joked about; but professionally, it is taken seriously. Professionally, teachers are not encouraged to speak up about these past experiences because it may demonstrate weakness. The authors of this piece offered a workshop in which the atmosphere encour-

aged K-8 teachers to feel welcomed and free to speak up. The workshop title was “Becoming a more powerful teacher: How to think, teach and believe in yourself”. The underlying theme, based in cognitive restructuring (Kitchens & Hollar, in press; Meichenbaum, 1977) and perceptual psychology (Combs, Richards & Richards, 1976; Purkey & Schmidt, 1996), is consistent with the writings of many scholars who argue that life experiences are at the formation of beliefs that, in turn, dictate behavior (Bandura, 1986; Combs, 1982; Kitchens, 1995; Knowles, 2004; McEntire & Kitchens, 1984; Meichenbaum, 1977; Pajares, 1994). The topics of discussion included: the effects of beliefs on behavior, learning styles (an often-overlooked factor in mathematics difficulty), teacher efficacy, cognitive dissonance, guided imagery, and relaxation as applied to the personal reflection and self-development related to the participants’ teaching. Activities included: an activity to demonstrate

learning-style differences, solving challenging mathematics problems chosen to create anxiety, and a guided imagery exercise preceded by muscle-relaxation.

The intentions of this paper include the following: to demonstrate that the workshop aligned with four dimensions and four assumptions in Purkey's foundation article on invitational theory (1992); to confirm that the ideals of the workshop were in agreement with those presented by the National Council for Teachers of Mathematics (NCTM) in the 2000 *Principles and Standards for School Mathematics (the Standards)*; and to propose a refined version of the workshop for in-service K-8 teachers that gives support for the application of invitational theory to the teaching of mathematics and to the professional development of teachers.

### **The Underlying Model and Theme of the Workshop**

The underlying workshop theme was to make the participants more aware of the effect of their beliefs on behaviors and on their feelings of self-efficacy as teachers. The three components -- experiences, beliefs, and behaviors -- drive a *syndrome* that can be a success syndrome or a failure syndrome. The syndrome involves an acquired *belief*, affirmed as a result of a past *experience*, that dictates a resulting *behavior*. Then the behavior becomes another experience reinforcing the learned belief and generates a reinforced behavior: thus the syndrome. Change may be directed at any one of the three components: offer a positive *experience*, help the person to change a *belief*, or expect a different *behavior* (Kitchens, 1995; Kitchens & Hollar, in press). The workshop was in-

tended to make teachers aware of the syndrome, and aware that beliefs are learned and can be unlearned (Beck, 1976; Combs, 1982; McEntire & Kitchens, 1984). The point was also made that often we think a particular happening (*experience*) causes our reaction of discomfort (*behavior*) but it is our choice of interpretation of that happening (*belief*) that causes the reaction of discomfort (*behavior*) (Kitchens, 1995; Meichenbaum, 1977; Young, 1974).

Since behavior is the only component of the syndrome that is apparent, sharing conversations of beliefs and past experiences was the leaders' way of teaching participants about the syndrome and eliciting change. The syndrome served as a model and becoming aware of the syndrome and considering change was the underlying theme of the workshop. This suggested that changing a behavior in students or in oneself, uncovering the belief and possibly the experience at the formation of that belief, might be the first step. The intent of the workshop was to help participants break their own negative syndrome, if it existed, and to give suggestions and demonstrate how to detect and address it in their own students.

### **Evidence of Invitational Theory (IT) in the Workshop**

*Four Dimensions of IT-- Personally Inviting with Oneself and with Others, Professionally Inviting with Oneself and with Others.*

At the workshop, the two *personally inviting* dimensions of IT were introduced and expressed through the personal approach of the leaders. Regarding *Personally Inviting with Oneself*, the

leaders encouraged the participants to "...view themselves as able, valuable, responsible...be open to experience ...and seek to reinvent and respirit themselves" (Purkey, 2000, 59-62). Part of this encouragement includes getting past images that many students and teachers have of themselves, or ideas that perpetuate negative self-talk in their own minds (Purkey, 2000). Purkey also summarizes the downside of some teachers' perspectives of themselves by noting that "Teachers who say to themselves that they are unable, inadequate, and not responsible are in a poor position to teach anything to anyone" (p. 58). However, Stanley (1992), in her essay, *Inviting Things To Do in the Privacy of Your Own Mind*, said "Being intentionally inviting with ourselves means we know we will not always know 'the answer,' and that we don't have to" (p. 224). This attitude relaxes the pressure to perform and enables students and teachers to learn. In both students and teachers, the act of being *Personally Inviting with Oneself* allows the development of a sense of "unselfconscious confidence" (Purkey, 2000, p. 40). At the workshop, being *Personally Inviting with Others* suggested a tone of camaraderie and mutual respect, which involved listening and being supportive of others. In the words of Purkey, "...without this, invitational theory could not exist" (p. 13). The leaders encouraged the participants to take back to their classrooms the feeling of *invitation* that they experienced in the workshop.

*Professionally Inviting with Oneself* supported the workshop leaders' encouragement of reflection, introspection, and growth in self-efficacy recognizing the possible need for change. Change could involve a change of beliefs about them-

selves and/or about their students that could result in a new class atmosphere and presence. A discussion on teacher efficacy reminded participants of the benefits of continued change toward positively believing in oneself. The leaders shared research-supported evidence of the positive results of making such changes (Ross, 1995). The final dimension, *Professionally Inviting with Others*, reinforced the idea of treating people as individuals without labels. "It also requires honesty and the ability to accept less-than-perfect behavior of human beings" (Purkey, 1992, p. 14).

*Four Assumptions of IT-- Trust, Respect, Optimism, and Intentionality* (Purkey, 1992)

### Trust

The workshop leaders' grounding belief was that an atmosphere of *trust* and *respect* was vital. The workshop was to be a safe and supportive place to share covert feelings without judgment (Purkey, 1970). The workshop leaders modeled *trust* (Purkey & Novak, 1996) by sharing (in the first 15 minutes of the workshop) personal beliefs and examples from their lives of how their *beliefs* have initiated *behaviors*. They wanted each person to be introspective and uncover personal beliefs, fears, and concerns, and have the courage to share these feelings with others. This sharing reinforced the underlying theme of addressing the syndrome:

Experiences⇒Beliefs⇒Behaviors.

As feelings were shared, participants were to listen and reflect upon others' reactions to their concerns and beliefs, developing a group-trust.

### Respect.

“An indispensable element in any human encounter is shared responsibility based on mutual respect” (Purkey, 1992, p. 8). This puts into action the idea of being *Personally Inviting with Others*. The workshop leaders demonstrated *respect* (Purkey & Schmidt, 1996) by sharing the following supportive beliefs about teachers in the school setting:

- Each person is different and brings value and talent to a school.
- No one should feel inferior for any reason, particularly in mathematics, for not possessing the talent of another. Rather, teachers should feel valued and comfortable with self and with the mathematics they know.
- All teachers could benefit from focusing on their strengths while continuing to learn mathematics and growing in an awareness of the affective component in teaching.

### Optimism.

“No one can choose a beneficial direction in life without hope that change for the better is possible (Purkey, 1992, p. 9). If you know you can’t do something, you won’t be able to do it. If you can reverse the “I can’t” (an old *belief*), by understanding how the “I can’t” came about (the *experience*), then you initiate a new way of thinking, a new *belief*, a hope, an optimistic attitude that then motivates a positive action (a new *behavior*). In the workshop, we discussed that learning styles can give hope that something other than ability could be at the root of a difficulty with mathematics. It was also noted and discussed, however, that this new hope can also be a source of cognitive dissonance in that the new

belief may be in opposition to old beliefs. Dissonance is often necessary and even essential for change to occur (Bruning et al., 2004; Festinger, 1957).

*Optimism* was demonstrated with a sincere belief that all participants could grow in understanding (Purkey & Stanley, 1991) that teaching and learning mathematics is more than a cognitive exercise but an affective one as well. Such optimistic confidence contributes toward the belief that all can grow through self-reflection (Purkey & Schmidt, 1996). The leaders made it clear that all students can do the mathematics required, and if students are not successful, then an investigation into study skills, learning styles, or beliefs should be considered. Bruning et al. (2004) suggest that “...high academic achievement is attainable by virtually all students, provided they develop a belief system that encourages them to use their existing skills and to cultivate more advanced thinking skills” (pp. 160-161).

### Intentionality.

The leaders summarized *intentionality* as teachers knowing *what* they’re doing, *why* they’re doing it, and being selective with *how* they do it. It involves pedagogical decisions as well as affective encounters with students (e.g. dialogue and body language). At the workshop, every presentation and activity (referred to below as “selections”) began with a statement of *intentionality*.

Selection #1: Draw the Model: Experience⇒Belief⇒Behavior on blackboard.  
Intent #1: Allow leaders to refer to it often and emphasize its importance.

Selection #2: Discuss Teacher Efficacy.

Intent #2: Make teachers aware that their efficacy influences student and teacher performance, self-confidence, and classroom presence.

Selection #3: Discuss learning styles: The Myers-Briggs Type Inventory and left-brain/right-brain theory.

Intent #3: Point out that difficulty in mathematics may be something other than inability. Give students hope for success.

Selection #4: Lead an exercise suggesting left/right-brain preference (Kitchens, 2003).

Intent #4: Experience personal preferences and relate to school learning.  
Raise awareness of differences in preferences among the participants.  
Suggest that this exercise be done in their own classroom.

Selection #5: Discuss the topics: cognitive dissonance and relaxation.

Intent #5: Realize importance of personal change.

Selection #6: Present six mathematics problems to arouse anxiety, or the awareness of anxiety.

Intent #6: Share fears and beliefs (affective). Share approaches (cognitive).  
Feel the anxiety and learn a coping strategy.

Selection #7: Lead guided imagery (with relaxation) exercise.

Intent #7: Provide the opportunity to reduce anxiety and change beliefs.

Selection #8: Ask for written participant feedback and requests.

Intent #8: Monitor participants' ongoing evaluation and level of engagement.

Selection #9: Present mathematics concepts requested by participants.

Intent #9: Meet cognitive needs and discuss dissonance.

Selection #10: Provide comfortable setting with nutritious snacks.

Intent #10: Emphasize the need to take care of self.

Selection #11: Discuss: *Notable Failures...* (Larson, 1973).

Intent #11: Exemplify that prominent individuals have been seen as failures by their superiors and yet have become influential in society.

Selection #12: Assign Friday-night homework and lead Saturday-morning discussion.

Intent #12: Encourage reflection and review of presented theory.

Selection #13: Ask "What can you take to your school?" and request written response.

Intent #13: Reflect on specific applications of the workshop in the classroom.

The leaders conducted the workshop in line with the general view of IT that abiding by the four assumptions of *trust, respect, optimism, and intentionality*, would establish an atmosphere that would encourage participants to be the best that they could be (Van Hoose & Strahan, 1992).



## Mathematics Education Consistencies with IT

### NCTM Principles and Standards consistent with invitational dimensions.

Documents presented by the National Research Council (NRC) and NCTM address the concept of disposition. This affective concern clearly aligns with the dimension *Personally Inviting with Oneself* (Novak & Purkey, 2001; Purkey, 1992; Purkey & Schmidt, 1996; Purkey & Stanley, 1991). “Just as students must develop a productive disposition toward mathematics,...so too must teachers develop a similar productive disposition” (NRC, 2001, p. 384). In the 1991 document, *Professional Standards for Teaching Mathematics*, the NCTM suggested that among the “...persistent obstacles to making significant changes in mathematics teaching and learning in schools...are the beliefs and dispositions that both students and teachers bring to the mathematics classroom” (NCTM, 1989, pp. 1-2). In his foundation text, *Self-concept and School Achievement*, Purkey (1970) states “most investigators agree that the underachieving student sees himself as less capable, less worthy, and less adequate than his more successful peers” (p. 22). Successful teachers work from the first day of class to create an inviting classroom (Moskowitz & Hayman, 1976; Purkey & Stanley, 1991). Furthermore, “(d)isposition refers not simply to attitudes, but to a tendency to think and to act in positive ways” (NCTM, 1991, p. 233), reflecting *optimism, respect and intentionality*.

The dimension, *Personally Inviting with Others*, claims the need for all of our students to be welcomed in their classrooms (NCTM, 2000; Purkey &

Stanley, 1991). In particular, “equity requires accommodating differences to help everyone learn...” (NCTM, 2000, p. 13). Also, in their pre-*Standards* writings, Purkey and Novak (1988) used phrases, “treating students equitably” and “using terminology that is equally understandable by all” (p. 30), that are similarly stated in the *Standards* (NCTM, 2000).

The *Standards* also reinforce the dimension *Professionally Inviting with Oneself* with the idea that “... (teacher) opportunities to reflect on and refine instructional practices are essential” (NCTM, 2000, p. 19). Combs (1982) goes a step further and suggests that teachers’ beliefs about self are key to the teaching process. The National Research Council reiterates this concept by noting that “many successful programs of teacher education and professional development engage teachers in reflection” (NRC, 2001, p. 383).

Collaboration, an essential component of teaching (NCTM, 2000; NRC 2001), aligns with *Professionally Inviting with Others*. It encourages teachers to “examine teaching practices with colleagues” (p. 370), which requires a *trust* and *respect* for fellow teachers. Also in the *Standards*, teachers are encouraged “...to collaborate with their colleagues and to create their own learning opportunities” (p. 373). In the workshop, teachers were encouraged to allow other teachers into what many might normally be considered their private space so that teaching techniques and other ideas could be shared and realized together.

### **NCTM Principles and Standards consistent with invitational assumptions.**

The *Principles and Standards* give clear support for *trust* and *respect*. “The educational environment must be characterized by trust and respect for the teachers and by patience as they work to develop, analyze, and refine their practice” (NCTM, 2000, p. 370). Also, an underlying respect for students is strongly implied in various writings (NCTM, 2000; Purkey, 2006; Purkey & Schmidt, 1996). Goals are stated in other mathematics education writings to encourage our students to “...think of themselves as capable of engaging in independent thinking and of exercising control over their own learning...” (NRC, 2001, p. 146).

Statements are made throughout the *Standards* that echo the vision of *optimism* and *intentionality*. “*Principles and Standards* is provided as a catalyst for the continued improvement of mathematics education” (NCTM, 2000, p. 380). Phrases, including “...high-quality instruction...”, “...enhanced preparation for teachers...”, and “...increased opportunities...”, proclaim an optimistic perspective that permeates IT.

The *intentionality* is also spelled out in several ways. For teachers, “(t)his document is intended to...set forth a comprehensive and coherent set of goals...; guide the development of...; serve as a resource for...; stimulate ideas and ongoing conversation...” (NCTM, 2000, p. 6). In *Standard #2*, entitled “The teacher’s role in discourse,” the importance of orchestrating discourse with *intentionality* (NCTM, 1991) is demonstrated. Also, in its closing remarks the intentionally optimistic tone of the *Standards* is expressed and encapsulated

in the sentiment that the task will be difficult, “...but it can be done...We owe our children nothing less” (NCTM, 2000, p. 380).

## **The Pilot Workshop**

### **Pilot Description**

Two presentations of the same 10-hour workshop were offered entitled “Becoming a more powerful teacher: How to think, teach and believe in yourself.” The first, in September of 2004, was offered for K-5 teachers, the second, in January of 2006, for K-8 teachers. The ten hours included four hours on Friday beginning at 5 p.m. and six hours on Saturday beginning at 9 a.m. The workshops were free of charge and participants earned one re-certification credit. The leaders, one female and one male, were members of the mathematical sciences department at a four-year state university in North Carolina. All the participants were women and each time one of the participants was a home-school teacher. The K-5 workshop had 10 participants. The K-8 workshop had 3 participants. The smaller response was possibly due to the workshop being offered later in the school year. The workshop was publicized by the Math and Science Center at the same university.

### **Pilot Procedure**

Following an inviting workshop welcome, opening activities included a set of 10 Likert-scale questions filled out by the participants and a confidentiality agreement, signed by each participant and by the leaders that set the tone for a safe environment hinging on *trust*. Participants were encouraged to speculate, try new things, and be open to new ideas

that they had not previously associated with mathematics teaching. It was made clear that when students and teachers “understand that making mistakes is normal, expected, and understandable, they are in a good position to develop positive self-concepts as learners and teachers” (Purkey, 1978, p. 79). The participants agreed to make the workshop a personal event, making it more than a strictly cognitive presentation of mathematics concepts. Consistent with this agreement, the leaders then shared experiences revealing personal beliefs that illustrated the model (Experience⇒Belief⇒Behavior). The concept of teacher efficacy and its influence on the mathematics classroom experience were presented (Ashton & Webb, 1986; Gibson & Dembo, 1984; Guskey, 1988; Tracs & Gibson, 1986). Learning styles via the Myers-Briggs Personality Type Indicator (Myers & McCaully, 1985) and left-brain/right-brain theory (Edwards, 1999; Taggart & Torrance, 1984) were presented, and learning styles’ relevance to understanding mathematics instruction (Kitchens, 2003; Kitchens & Marsh, 2007) was discussed.

Cognitive dissonance was a major topic of discussion. Change toward self-improvement can have the façade of one feeling happy and satisfied. However, when a newly-acquired positive belief is in opposition to a long-held negative belief, the person must make the decision to accept the new belief with its new responsibilities and discard the old. Dissonance is part of the journey (Bruning et al., 2004; Festinger, 1957).

The next handout discussed, “Notable Failures—Humbling Cases for Career Counselors” (Larson, 1973), was a one-page list of several prominent indi-

viduals throughout history who had been told by a supervisor or teacher that they were less than mediocre. The list includes: Einstein, Disney, Caruso, Lincoln, Pasteur, and others, and ends with Churchill.

A mathematics word problem, meant to arouse anxiety, was given to the participants to solve. Care was taken with the anxiety-provoking mathematics problem to wait until each participant had time to read the problem and demonstrate understanding with a plan for solving, or reach a point where they did not know what to do. Open-ended questions were asked about how they felt when the problem was presented, and how they felt as they began to work. “Were you excited? Challenged? Frustrated? Anxious?” Each person’s experience was shared. This opened the door for heart-felt discussion. Participants also exchanged various problem-solving approaches, verifying the legitimacy of each of the different approaches. At that point, the group solved the problem together.

Relaxation was discussed as being important in thinking and learning, in developing confidence, and in changing beliefs. An exercise of guided imagery, prefaced by progressive muscle relaxation, led the participants to imagine themselves in a small, barred, confining cage unable to move. Then, as the bars crumbled, the symbolism was that their fears, anxieties or negative beliefs would also crumble. Just as without bars, they could feel themselves moving freely without hindrance, without negative beliefs (or whatever they had in their own mind as being represented by the bars), they were free to move and to behave in new ways. If that meant freedom to be

themselves, if that meant freedom to teach confidently, if that meant freedom to be worthy of the name “teacher,” then that belief was then planted. Time was taken to let the participants recover by stating at the end of the imagery that they could open their eyes when ready.

After a break, the leaders mentioned that a key word could be used to trigger relaxation when time did not permit a muscle relaxation. Similar to the first problem, a second problem was introduced but worked without the guided-imagery exercise. Instead, a reminder to relax and to take deep breaths was given. Homework for Friday night was to reflect on: moments of challenge to personal beliefs, the relevance of the theories presented, and the importance of learning styles and relaxation in teaching and learning. Participants were also given the opportunity to request specific topics that they considered to be challenging or difficult to teach.

On Saturday morning, discussions about the homework served as a review of the concepts from Friday. One at a time, four more word problems were given to the group to solve, each prefaced by a relaxation exercise. After lunch, the areas of concern, requested by the participants, were acknowledged. Discussion included modeling the teaching of the concept (signed numbers, word problems, ratio and proportion, and geometric problems) modeling the use of manipulatives as teaching aids, and linking each concept to the affective discussions of Friday. Each workshop ended with a post-workshop set of 10 questions and one open-ended question asking participants what they intended to do in their classrooms with the ideas from the workshop.

## Pilot Evaluation

Three-and-a-half months after the second workshop, an independent evaluator telephoned each participant in the second workshop and asked each of them seven Likert-style questions (on a scale of 1 to 5), and six other open-ended questions. A summary of the results were as follows: Participants were unanimous in the feeling of acceptance. They felt free to express their feelings, doubts, beliefs and concerns openly with the leaders and other participants. Participants’ anxiety, from the mathematics problems during the workshop, was lessened by relaxation exercises and the support of the workshop leaders. Participants benefited from discovering how their own beliefs, not the mathematics, caused their anxiety. When asked if they had used any of the workshop ideas in the classroom in the last 3 months, all said “yes” and one responded, “yes, everyday.” From the reactions during the workshop and the reactions during this evaluation, the workshop leaders concluded that the participants could see the relevance of the affective component in learning. The workshop also helped participants to reflect on their teaching and experience growth.

The workshop leaders presented an abbreviated workshop, 90 minutes in length, entitled “Become a More Powerful Teacher: How to Think, Teach, and Believe in Yourself” at the National Council of Teachers of Mathematics (NCTM) conference in Pasadena, CA, April 8, 2005 and at the North Carolina Council for Teachers of Mathematics (NCCTM) conference, in Greensboro, NC, October 13, 2005.

## Recommendations for Further Study: The Proposed Workshop

“...(A)n educator’s professional development does not end at the initial pre-service training” (Steyn, 2006, p. 18). Continued growth through awareness, reflection and discourse, as implemented in these pilot workshops, is valuable for the professional development of in-service teachers. Suggestions for such a workshop would include the following additions to the pilot:

- Introduce invitational theory.
- Study how to evaluate the workshop, statistically.
- Target all teachers. Originally, the intent of the workshop leaders was to help teachers who did not feel comfortable teaching mathematics. However, all teachers could benefit from self-reflection, theoretical presentations, and interaction.

One consideration for those offering a similar workshop is to become familiar with invitational theory. If discussing the affective component in teaching and learning is new and this unfamiliarity causes hesitation or concern for the workshop leaders, they can still offer the workshop and grow with the participants through reflective conversation. Research, reflection, and conversation with

colleagues (on beliefs, teacher efficacy, learning styles, cognitive dissonance, and relaxation, as they relate to the mathematical reform strategies of NCTM) would contribute to the ongoing development of the workshop leaders.

## Conclusions

Teaching mathematical concepts involves much more than a cognitive focus on understanding the mathematics and presenting it to a class. Equally important is a focus on the personal growth of students and a focus on the personal and professional development of teachers. If I know and feel that I am accepted, I can relax and improve in my efforts to grow as a student or teacher. Coupled with an understanding of the relevance of beliefs, invitational theory is paramount in teacher education. Choosing to attend workshops as proposed, without any stigma of appearing weak in mathematics, should be promoted for all teachers on a regular basis by local school systems. The ideals of invitational theory may provide the balance needed for teachers to have the confidence to discuss with other teachers the affective component in teaching in harmony with the implementation of the *Standards* in their classroom.

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