

4-4-1994

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Christy E. Repp

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Marching to Different Drummers

Christy E. Repp
Honors Thesis

Submitted to:

Dr. Flo Durway
Dr. David England
Dr. Eugene Kennedy
LSU Honors College

in partial fulfillment of the
requirements of the Upper
Division Honors Program

April 4, 1994

Ann - "One time Rebecca and I went to Highland Coffees to study this AP thing. We were doing this handout where we had to read a passage and answer some multiple choice questions about it and we read it out loud together and stuff. I found that I couldn't concentrate on what I was reading. I ended up having to go home and do it over again."

Rebecca - "I like to change where I am studying because I get tired of the same place. Toward the beginning of the year I was studying at the Union or Highland Coffees because it was different than home. I feel like at home it is hard to study because of the T.V. and stuff. If I am in a different environment, if I'm there to study - I'll study...I can wall all of the people out but at home I can't."

Despite changes in the society surrounding the school system, the most pervasive problem facing schools has remained unchanged - how does one teacher stand before twenty to thirty separate, individual, unique people and communicate effectively to all? To me, the ultimate challenge of teaching is to create a sense of excitement and energy within a classroom for each student. In my own school experience, I can clearly recall those teachers who were masters at making learning come to life. Just as quickly, I can recall those who could not or did not create the same concept of learning for me. What puzzles me the most is not what teachers did or did not do but rather why a teacher who was boring or tedious to me was an exciting, engaging instructor for someone else. Differences lie not only in the teacher; they lie also in the learner.

When knowledge does not come to life in a classroom, the learning that does occur is more often measured in grades rather than in gains of knowledge. When students are motivated only by grades, they may succeed in school but may not learn the intrinsic value of knowledge. I believe that many students fail in school when grades are not enough to motivate interest in school subjects that show little connection to each other or the students' lives. Students

do not learn what they should when they are unmotivated to learn or motivated only by grades (Goodlad, 1984).

The very structure of the school system and its approach to learning may contribute to student's problems with motivation. It is not until the age of five or six that a child is taught that learning must be structured. A child's first learning experiences are not divided into subjects and timetables. A parent does not tell a toddler to stop walking, sit down and begin practicing talking. Children are not reprimanded for trying to walk in different ways; holding on to furniture or to an adult is equally acceptable. Children learn about their world through touching, tasting, asking and doing. All ways of learning are valuable. The random nature of a young child's questions exhibits this all-inclusive view of learning.

When children enter school, the first thing they learn is that the nature of learning itself has changed. There is a dichotomous nature introduced to learning which creates a division between school and life. Valued and praised learning is the kind that occurs in schools. It has an order, place, time, and a procedure. Most importantly and most bizarrely, this procedure, which is designed to help students learn, is laid down by the school rather than the student. Learning is sitting quietly and performing well on written tests. Learning that enables a child to function in

a group, to tell a funny joke, to explore an area or to be inquisitive often does not count as real, "school" learning. The definition of learning has narrowed into a quantitative concept: it must be measurable and testable to be valid. Children are taught that learning is something structured and contrived. It becomes something that happens through textbooks inside school buildings rather than through experiences in life.

Those who do well in school are often those who have learned how to play the "school" game. They have become fluent in the language of schools and know how to perform within the framework of the school system. The learning that they are praised for is the learning that the school recognizes as valuable. Although this learning may seem external to the students and something to be learned for a test then forgotten, they are rewarded with A's and praised as successful learners.

Those who do not readily grasp this "school-speak" begin a long and frustrating school career. Students become apathetic when they see the learning that is accepted in schools as useless and abstract in comparison with the practical and concrete knowledge they gain through life. As more and more skills pass them by, they become increasingly incapable of regaining lost ground. Their apathy or negative attitude toward school may be a defense mechanism

to protect their self-esteem against a downward spiral of failure.

I first became interested in the differences in learners' perceptions of learning in an undergraduate education class at LSU on major trends in educational reform. Each new trend seemed to be addressing the same persistent problem. How do teachers and schools make learning meaningful to each student? How do teachers and schools "reach" the greatest number of students? Educators, parents, businesses and government agencies have initiated reform movements and new trends in instruction, testing, grading, discipline, organization, and even the construction of buildings. Like waves on a shoreline, these reforms have altered the shape and texture but not the substance of the educational system.

Although many of these reforms propose different changes, they seem to follow the same pattern or approach. Most of these trends begin with the concept of what learning is, how it occurs and how it becomes meaningful to students. These reforms approach the existing system and attempt to determine and then modify the aspect that has interfered with the process of learning they espouse. When flaws in the educational system are still found, when some students still slip through the cracks, a new theory of how learning occurs gains a following.

The results of these reforms have remained unsatisfactory perhaps because their basic premise cannot be established. Reforms attempt to define how the mind and learning work. Learning is a complex process and its study is hindered by the fact that it can only be observed indirectly. In addition, personalities, attitudes, habits, and preferences within individual learners create billions of varieties of individuals each with a unique concept of information and learning.

This project began when I became interested in an educational reform that seemed to answer many of the problems I saw in other trends. It seemed to address the problems of recognizing the complexity of individuals and the challenge of educating these complex individuals. This new trend is called Learning Styles, an umbrella term for a concept that offers an acceptance of individual learning differences. It proposes a school structure that responds to the multitude of ways students perceive and acquire knowledge.

The most appealing aspect of this trend for me was the way it describes students as learners. It fosters an extremely positive view of students as unique and capable learners. Embedded within the basic premise that all students have a unique and individual way of learning is the assumption that all students learn. In this theory, all

students are capable of learning and succeeding in school if given an environment that can showcase their talents. Learning style theories do not seek to impose a definition of learning upon the students but rather to restructure the learning environment to be compatible with all ways of learning.

The more I read about this trend the more excited I became about its possibilities. I was not alone in this interest. Because of its positive view of students as learners, theories of learning styles have attracted a large following. It seems that more and more members of the educational community rush to the bandwagon everyday. In its popularity, I found my first seeds of doubt. Information concerning learning styles is big business in education. Books, manuals, articles and seminars are in demand, and many school systems are interested in buying into the newest, cutting-edge reform. Some of the miraculous results stated in the literature border on sales propaganda.

Teachers in the classroom have the important task of judging any reform in education as it is - a reform and not a panacea. It is important to evaluate the program that learning styles propose, use its advantages, improve its shortcomings and not allow visions of a utopian classroom to interfere with objective evaluation.

This trend is one that will directly affect my practice whether I personally embrace it or not. East Baton Rouge Parish has already begun training their middle school teachers in learning styles and will begin a similar program next year with secondary teachers. It is important and necessary for me to know the major characteristics that define this new and popular trend and what differences exist between the major theories.

At the beginning of this project, I intended to concentrate on a theory of learning styles and apply it to my classroom. However, the more I learned about learning styles, the more artificial and contrived they became until I was uncomfortable with the idea of implementing any one of these systems into my class. Though I am extremely skeptical about the results accredited to learning styles, I do like the individual approach they propose and the image they promote of students. Therefore, I have shifted my approach in this project away from implementing a particular learning style theory into my classroom and toward discovering my students as learners. I used the basic concepts of learning style theories as my doorway into my perception of my students as learners.

I entered this project with an idea that each of my students had a unique way of learning that they had developed through their experiences. My questions,

therefore, were 1) How can I learn how my students learn? and 2) How can I use this understanding in my practice? I was very interested in seeing if my students' "style" or process of learning changed in different situations. Did they approach different subject areas in the same way or was their math learning different from their English learning? How important were other factors like time of day or their mood on their perceptions of a class? How important were the teacher's activities or mannerisms?

The structure of this paper reflects the evolution of my thinking during this project. I began with an interest in the theory of learning styles, and so the first section of this paper will be a review of the major theories currently popular in the literature. Theorists I have encountered include the Dunns, Bernice McCarthy, Isabel Briggs-Myers, Anthony Gregorc, Kathleen Butler and Gordon Lawrence. Though not an exhaustive list, it is representative of the major themes in this movement.

The next section of this paper involves my students and myself rather than literature and researchers. As such it represents a movement from my approach to this project as a college student to one of a teacher. In this section, I will be looking at my three students' journals and interviews. I will be discussing my plans for instruction that results from a greater understanding of my students.

The final section is an opportunity for me to draw conclusions about the application of teacher research for my practice. In this section I will be looking at what I learned from the product of this study as well as the process. Because this is my first serious effort in the field of Teacher-Research, my mistakes or shortcomings will be just as important for me and my reader as my successes. Within the structure of this paper is an opportunity for me to learn more about myself as a learner in all my roles: student, teacher, and researcher.

Literature Review -

I began looking at the topic of learning styles in the way I was most comfortable - as a student. I began at the library looking for information on researchers in the field of learning styles. I found that it was not as easy as looking the topic up in the library's computer. The topic seems so new that there is not a set area or location for this information. One book was even in the Veterinary Medical Library!

Although learning style theories are rather new to educational reform, I eventually found a multitude of approaches and researchers investigating this field. Researchers like Bernice McCarthy, Rita and Kenneth Dunn, Isabel Briggs-Myers, Kathleen Butler and Gordon Lawrence have

developed applications of personality types and learning styles based on early work by Carl Jung, David Kolb, Anthony Gregorc and others. The popularity of this field can be traced to its positive, student-centered view and the way it explains the practical experience of both educators and non-educators.

Learning style theories offer a positive, up-beat view of students and learning. The basis of all learning style theories is that individuals perceive, process and incorporate information more comfortably in certain situations than in others. The positive view that this theory promotes is that all students can learn and succeed when they and their teachers understand and incorporate their unique learning style (Briggs-Myers, 1980 pp 3-5).

The practical experience of educators confirms the value of the student-centered approach that many applications of this theory suggest. Teachers know that certain strategies they incorporate in their instruction work for some students and not for others. Teachers can embrace a learning style theory because it provides a logical explanation for what they already know - different people think in different ways.

Learning style theories and personality typing provide a theoretical framework to explore the differences we see in people around us. The appeal of learning styles reaches

beyond the educational community. Anyone who has explained a new topic to someone has probably felt the frustration of stating concepts in terms they understood only to find themselves incomprehensible to their audience. These experiences make it clear that not all people think alike. People who have encountered a variety of individuals have probably developed an unconscious classification system of their own. We tend to classify people as organized or chaotic, practical or theoretical, concrete or abstract. Others divide people into those who think as we do and those who perceive reality differently.

Learning styles is an umbrella term for studies relating the research on personality types to the acquisition of knowledge. In this section of this paper, I will briefly delineate the theories which apply the concept of personality types to classroom instruction. I will summarize some of the major trends within learning style theories by discussing several researchers, their approaches, their theoretical backgrounds and their suggested application to classroom instruction.

Just as many different personalities and learning strategies exist, many approaches to learning style theories exist. Most theories do share similarities in their basic structure. All major learning style theories classify learners in groups, styles or types. All theories insist

that there are no pure types. All type theories view the characteristics they measure as on a continuum. Characteristics of learners are not one or another but vary in degrees from one extreme to another.

It would be easier to understand learning if we could open up the mind and poke around inside for awhile. Since learning can only be observed indirectly, learning style researchers must measure opinion rather than fact. Learning style theories measure preferences reported by learners. Almost all depend on survey questions using self-description and word choice items. Since a conclusion is only as accurate as its tools, the validity of learning styles is questionable. Their measurement instruments seem vague and arbitrary.

Despite the similarities, learning style theories vary in their application to classroom instruction and the individual students. One of the most prolific teams writing in this area is Rita and Kenneth Dunn. Their research interest in learning styles began in the late 70's with their involvement in training teachers of at-risk students. Today they are two of the leading voices urging the implementation of learning style theories on a system wide basis (Dunn, 1978).

The Dunn Model of learning styles is extremely well-developed and detailed. Their "Learning Styles

"Inventory" is designed to create a personalized profile on a learner in order to individualize instruction for that learner. Specific preferences in over thirty-five variables are indicated through the "Inventory" including lighting, noise levels, time preferences, temperature, organization of information, locus of control and lesson structure (Dunn, 1978).

The "Inventory" asks students to describe the environment that they prefer to study and learn in. Do they need quiet, well-lit areas? Do they prefer to work alone or in groups? Do they eat when they study? The profile outlines the preferences the learner indicate are important to them. The Dunn's have written extensively on ways to implement their "Learning Styles Profile" into the classroom. From the profile the teacher may alter instruction or the design of the classroom to accommodate the individual needs of the students. The Dunn's (1978) textbook, Teaching Secondary Students Through Individual Learning Styles, details economical ways to design a classroom to provide for individual preferences. No facet is left unexplored in this text from the test formats to the paint on the walls.

The Dunn Model has drawbacks that stem from its detailed approach. The individualized treatment makes their approach difficult and time-consuming to use with a large

group of students. Administering and interpreting the inventory results requires substantial training and experience in order to ensure the an appropriate degree of reliability.

I also have questions about designing a classroom around the students' profiles. Students will not always find themselves in ideal situations. College class do not take into account the tactile preferences of learners. Job sites are not as quiet or as loud as one might wish. Adapting one's learning process to different situations and types of information is an essential part of education.

The Dunn approach does have several advantage which appeal to me. By acknowledging the students' uniqueness, students may come to believe themselves to be unique and capable learners. By designing a classroom to fit each students preferences for noise, light and group work, students may see their importance and place in the school environment. If used for these reasons, the Dunn model could significantly improve student's attitudes and perceptions of school.

Another researcher who has gained recognition in the field of learning styles is Anthony Gregorc. His theory is published in a book called Mind Styles. Gregorc identifies four types of mediational abilities based on his "direct experience and phenomenological perspective on existential

reality" (Gergorc, 1985 p.8). These abilities in perceiving, ordering, processing, and relating information describe the way individuals perceive themselves and the information around them (Butler, 1987 p. 13). Gergorc's approach is heavily based on his philosophical views of life and learning. He writes : "The primary purpose of life is to realize and actualize one's individuality, spirituality and collective humanness" (Butler, 1987 p. 11). The classification inventory which he uses to identify types is based on questions designed to measure the individual's perceptions of their inner self. "Style consists of the outer behavior, characteristics and mannerisms which are symptomatic of the psyche" (Gergorc, 1985 p. 7). Gergorc's theory is most often used with adult learners.

Kathleen Butler, a former student of Dr. Gergorc, has expanded upon his theory and sought to apply his ideas to classroom instruction. Her book, Learning and Teaching Styles: In Theory and Practice, is a guide for teaching students through a learning style classification based on Gergorc's work. Butler works within the perception and ordering abilities of Mind Style in order to define four learning styles. Perception of information varies from concrete to abstract while ordering moves from random to sequential.

For each learning style, Butler identifies activities and instructional techniques which move through Erikson's levels of cognition from knowledge to evaluation. The variation of activities is designed to meet the needs of students for emotional support, student-centered control and organization of information (Butler, 1987).

The Gregorc model is easier to use than the Dunns' approach because it has a less complicated inventory - twenty word-choice questions which take approximately five minutes to complete (Gregorc, 1984). Butler's work has made Gregorc's theories applicable to the classroom environment. The Butler/ Gregorc model, however, may not be suitable for many grade levels because of the nature of the inventory. Gregorc's "Style Delineator" is based on the individuals' perception of themselves, and this philosophical approach may not be as applicable with students as it is with adults.

Another theory to gain popularity in recent years is the result of the work of Bernice McCarthy. As an experienced educator, McCarthy was interested in the differences between her students' thinking processes. Her interest lead her to explore the work of David Kolb (Lawrence, 1989 p. 57).

Kolb's work in learning styles began in the 1970's. He identified two distinguishing characteristics in learners :

- 1) how they perceive information in the world around them

and 2) how they process this information. Perception, according to Kolb, moves on a continuum from concrete to abstract, The way in which individuals process their perceptions moves from active investigation to passive observations (Guild & Garger, 1985 p.35).

Using this as a theoretical background, McCarthy identified four learning quadrants. To this experimental learning framework, McCarthy added studies in hemisphericity. In each of the four quadrants, therefore, there are now two approaches : one designed for left brain processors and one designed for right brain processors. The result is eight quadrants that take the preferences of the four learning styles and divide them into tasks for right brain and left brain processors (McCarthy, 1993 p16).

Right and left brain preferences are key to McCarthy's model. Her approach is based on three main premises :

- 1) Left and right mode processes are different;
 - 2) Individuals favor different approaches along a right to left continuum;
 - 3) both kinds of processing are equally valuable
- (McCarthy, 1993 p.6)

Left brain activities are verbal, linear, rational, and passive. this processing involves placing, defining, and classifying information. Right brain processing tends to be

visual, contextual, interactive, and kinesthetic. This processing involves circular, intuitive thinking (McCarthy, 1993).

This theory, like others, divides learning styles into types. Unlike many other theorists, McCarthy does not suggest that instruction or testing be altered to fit these preferences. Rather she envisions constructing lessons and units which move through all the quadrants incorporating tasks and ways of presenting information for each section. In this way, all learners are presented information in a way they are most comfortable perceiving it and processing it. They are also asked to adapt and stretch their style to meet a situation and perceive and process information in a way not automatic to their own way of learning (Whittington, 1993). According to McCarthy's theory, lessons will take on depth and variety when designed by this system call the 4MAT system.

After reviewing these and other theories of learning style, I felt my original enthusiasm for any specific approach wane. Although all the theories professed to offer a way to get to know students' individual needs in an efficient way, I had doubts as to how successful these programs would be in a classroom. I questioned some researchers results when they seemed overly enthusiastic. In my reading, I never came across an example of a classroom

where the application of one of these programs did not work the first time it was tried. It seemed too good to be true.

I also began to look at the structure of the programs the theories proposed. It seemed as though they were sacrificing some knowledge about the students for the convenience of a quick test or a clear category. I do not think learners divide up so neatly.

My exploration of this area of research left me with a better understanding of the theories that are out there and a new approach to my own research. What I am most interested in is not whether a researcher is right or wrong in their results or theories. What I want to know is how my students think and feel about school and my class. Learning style theories did not feel comfortable enough for me to apply to my classroom. I decided to take my own approach to gain my own knowledge of my students.

Student Voices -

In order to answer my questions about students' learning, I worked closely with seven students in the high school where I student taught. These students volunteered to keep journals, be observed in several classes and participate in interviews about their study habits and impressions of their English and math classes. All students kept a journal for two weeks in which they recorded the

activities of their math and English classes and their reactions to the activities each day. I interviewed each student in individual, 15-minute interviews after the first journaling period. The interview questions were about the student's study habits and preferences in the classroom on everything from teacher activity to classroom design. After I interviewed students, they began another journal period for one week. I individualized prompts for this journal in order to clarify points and question that arose from their interviews or initial journals.

I selected three out of this group as the focus of my study both because they most intrigued me and because their schedules made it easy for me to observe them in other classes. All three are female and juniors. One is in each of my English sections. Two take the same math class while the other is in a different math class. They are all Caucasian, 16 years old and upper-middle class. They are all within the top 20% of both their math and English classes. Despite these similarities, they are three very different individuals in personality, appearance and approach to learning.

I looked at the collected data on these three students seeking to discover patterns in their thinking about their

learning in different subject areas. My main concern was then to use this knowledge in my practice.

Since this project was my first attempt at researching students in a classroom setting, I was unsure if the methodology I had planned but would give me the information I needed. I thought I was collecting too little until I sat down to sort it out. The sheer amount of data was overwhelming. As I began to sift through it, listening over and over to interviews, reading over and over journals, bits and pieces began to fall together. Each new insight was reaffirming that this project was doable and that the data was good.

Using the journals and interviews, I attempted to flesh out a picture of what a student's learning was like. In the process I also gained a clearer understanding of my students as individuals. Their entries were rich and alive. In describing their learning in this paper I will attempt to let the students "speak for themselves" as much as possible.

I. Ann

I was very glad that Ann volunteered for this project because when she raised her hand and said, "I would like to" it was the first time I had heard her speak in a week of observations.

Ann was a 16 year old junior. She was fair-skinned, tall and thin. She wore her red hair pulled back from her face usually pinned up in some way. Her appearance was neat and tidy. She was a quiet student; speaking out in class was a rarity. Despite little active participation in class, she had the highest score in English.

During my observation of her math class I was struck by the difference in her level of participation. As usual she paid careful and close attention to the teacher, but when working in groups she seemed unusually talkative even calling the teacher over to her group to ask her a question. I never observed a similar behavior in English. I also paid attention to her behavior in the hall between classes and at lunch. In these settings, although I would not describe her behavior as boisterous, she seemed much more talkative, open and relaxed. Her silence is obviously a classroom behavior which occurs mostly in English.

This difference in her behavior intrigued me. I am most interested in Ann because she is easy not to notice in class. She sits quietly and always pays attention. Her grades are excellent. In short she calls no attention to herself nor volunteers many insights into her thinking. Therefore I was curious to see what goes on behind the silence.

In her Journal, Ann wrote that, "Discussing the poems helped me understand it better," but she does not feel as though she must participate in the discussion in order to get information and understanding from it. She writes,

"By hearing others' thoughts, I understood the book in a way I didn't when I read it on my own. The only part I didn't like was having to express my own thought when he [the teacher] asked 'deep' questions."

In math she seems to have a different outlook. During group work she seems actively involved in both asking and answering questions.

"We got homework assignments that we worked on for the rest of the hour in groups...I liked working the problems because if I didn't understand something, I'd ask the group members. If we all did not understand, we'd ask the teacher."

"Today I finally understand everything. Working in groups and asking questions helped me understand."

In her interview and second Journal, I was interested in finding out if Ann's different behaviors came from the group structure or her conception of the subject area. I was surprised to learn that English was not her favorite

subject. It seems as though she is approaching both classes the same way, and her approach seems to suit itself more to math than English. It is as if learning is a movement from A to B. Between these points are steps, procedures, questions and answers that move her along the way. In math this process works well and is manifest in her homework assignments. In English, however, this approach falls apart. There is not a right answer, and there are many ways to get from A to B.

Ann seems to measure her expertise in a subject matter by the amount of time she must spend studying it. By this definition, math is her subject.

"I have to study a lot more for English than I do for math. For math, as long as I listen in class and do my homework, I don't have to study too much."

In her interview, Ann said that she studies about half an hour before a major math test as opposed to three hours before a major English test.

"But for English I have to study a lot more. I usually have to go back through everything in my notes...I'll get with a group a few nights before and we'll just go over the

notes and discuss...Sometimes I'll have to rewrite all my notes."

From this information I concluded that Ann perceives math and English very differently though she attempts to approach them in the same manner. Math is something to be learned like a skill or a process. There are definite steps to take in gaining this knowledge that are visible and measurable. English is something less easy to define. The steps to follow are vague, and there is not a correct or incorrect answer. Instead of making it open to individual approaches, this quality makes English seem like a slippery concept difficult for Ann to pin down.

After hearing how much questioning helped to establish her understanding of a topic in math, I became quite concerned about her lack of participation in English. When she studies English at home, she may call a friend to explain something in her notes. This consistency with her pattern of behavior in math classes led me to believe that the difference in her classroom manner is derived from the structure of the class activity rather than the subject matter. Within the context of a small group, she seems to be able to draw more confidence and is more likely to ask questions and volunteer answers.

I was concerned about Ann's participation in class and wanted to create situations in the class where she could feel more comfortable sharing her understanding and confusion. During the Research Paper unit, I attempted to create such a situation with a Research Workshop approach. Students were put into groups of three to work on their process of research and the major question they had about their project. Though this may have helped some students, I think it was implemented too early in the research process. Though the student had plenty of questions, there was a shortage of answers from their peers.

Another group project that seemed to work much better was a game played between teams concerning the Index Tables. Each team was to answer questions about the different indexes from a copy packet of each index. The questions required them to use the indexes to find magazine articles. The team with the most correct answers at the end of twenty minutes won. I paid special attention to Ann's group during this activity. She seemed very active in the group's activity and even called me over to the group to ask a question that they had. This was a real improvement in her participation.

Ann's responses about math and the role homework plays in cementing her understanding led me to question how I

could use nightly assignments in English to reinforce the students' understanding of the literature assignment. For my first unit in English, (John Milton's Paradise Lost) I made homework assignments to help students understand the section they were assigned that night. The assignments consisting of questions were designed to mirror the process I taught in class. The first question was to define unknown words, the next asked for details about the action and the final questions led students through the figurative language of the piece.

In an informal, short interview with Ann after class, she said that she liked the homework assignments. They seemed to help her focus on the parts she did not understand and give her questions to ask in class.

"It helped me know what was confusing me about the reading. I had trouble with the reading"

II. Mary

I was not surprised that Mary volunteered for this project. She seemed to be involved in everything from school performances to student council to class discussions. She was a 16-year-old junior in my English class. She was average height with long, black hair. Very self-possessed,

Mary exuded an aura of self-confidence in her speech and posture. She was the most comfortable out of all the volunteers during the interviews, chatting easily and showing very little nervousness. Her journals also project this confidence. They are wonderful reading, fluent, composed, and thoughtful.

Mary's view of learning came across very clearly in her journals. Her feelings about math and English surprised me because they seemed to contrast with the impression I had of her from observations in class.

Mary seems very confident and competent in both classes. She is involved in the discussions, asks questions and answers intelligently. She seems to be on top of things. However, in her journal, especially in the beginning of a unit, she expresses feelings of frustration and confusion.

Mary seems to approach each learning experience in math or English in the same manner. The idea or concept is first very foggy and unclear. This state of mind upsets her because she feels lost or behind. As class progresses, the details become clearer by degrees and her feelings about the class likewise improve. Finally, by the end of a unit, the whole picture emerges, and she feels positive about her

ability to understand the information. This progression is clearly seen in her journal entries.

"My confusion is becoming less noticeable. Things are finally becoming less hazy and are beginning to fit together."

Two things caught my attention about Mary's journal entries. Time and time again she expressed concern about the class moving too fast. This feeling seemed to be a constant theme of her reactions to the first few days of a new unit. When she was describing her best teacher in her interview, the most outstanding aspect was the time the teacher would take to explain the concept before asking the students to work problems.

"She did a good job explaining things like... like... (teacher's name) he gets up there and zips through it. He'll explain it once if we don't understand it he'll explain it again but he just goes real fast. (Past Teacher's Name) really took time to explain things. She explained it real well by the time she asked us to work a problem, we knew what to do"

In English, as well, she often feels that the speed of the class is too fast.

"Sometimes I feel that we go too fast and I don't get to absorb all of the meaning. We also move too quickly from poem to poem."

These comments seem to come at the beginning of a unit when the full picture has not yet emerged. Her confusion really bothers her, and she feels pushed to correct it. As time and her understanding progress, she becomes much more comfortable with the pace of the class and even becomes bored if the material is still being explained once she understands it.

The next thing that struck me in Mary's writing was her conception of English versus math as a subject matter.

"Mostly it [English] is memorization. However, you can not memorize Algebra. You have to think therefore it is more challenging."

As an English teacher, this comment left me shattered.

I never recognized evidence of Mary's discomfort from my observations in class. My impression based on my observations was that she was a very confident student. She participated in discussions and seemed to have intelligent ideas to add to it. From her journals and interviews, I now see a different picture of this student. It will be

important for me to provide time for questioning when introducing a unit now that I know that questions and confusion are not always visible on the surface.

I will also be attempting to outline before class the material I wish to the student to know by the end of that hour. By breaking up the material into chewable chunks, students like Mary may get a feeling of steps that they have accomplished and be less upset with themselves for not getting the whole picture immediately. This procedure may help Ann, as well, to feel a sense of progression toward understanding.

I would sincerely hope that my English class was about something "challenging" and that it required my students to "think" rather than just memorize. In response to this comment, I have tried to alter my classroom instruction in order to more clearly portray the thoughtfulness and process of English. Teaching the Research Paper project, I have attempted to introduce this project as a how to process rather than a product.

Writing workshops are also part of my approach to this comment. I have changed the students' bi-weekly writing assignments into a workshop format where the original idea is reworked and rewritten in different forms. This

technique is designed to reinforce my definition of writing as a verb rather than a noun.

III. Claire

Claire was another student that I was glad to see volunteer for this study because she seldom participated in class discussions. Unlike Ann, she was not silent. I often noticed her talking with those around her. Though not disruptive, she was not on-task often. My observations of her in other classes proved that this was not a behavior confined to English. For this student my interest was not so much in how she conceptualized the subject matter but rather how to keep her attention in the room instead of out the window.

Her journals led to several insights into this area. Claire seems to be well aware of this behavior and can articulate the reason behind it.

"I am the kind of person I will drift off if things get boring. The second stuff kinda starts to drop...I'm gone."

In her interview, she spoke of several classes which she liked and how they were run. Her preferences seem to focus more on teacher activity than on subject matter. She gave examples of both good and bad math classes she has had

through her school years. The differences were not in the subject matter of the course but in the teachers.

The key to keeping her interest and attention seems to be in involving her directly in the discussion. On one day I noticed that she was particularly attentive. Her journal for that day also reflected this attentiveness.

"I have expressed my views and actively discussed and commented in class. This is due to the fact that I understand and am interested and esp. b/c the teacher. She seems to care, which helps....This teacher's confidence gave me confidence, I guess, to discuss my views and opinions."

Her interview was especially insightful in revealing why she does not always participate at this level.

"I always had trouble because I use to be real quiet. I never said anything to anybody and I think it was due to a fear of saying something and it being wrong or it being stupid. I think I carry this around. I think it has always been in my mind that I am not going to say something unless I know it's right even if I think I have an idea of the answer I won't say it because that might not be right"

This fear may have a lot to do with her impression of a teacher I observed. Though I did not see any ridicule or

lack of openness in this teacher's class, Claire certainly did.

"When I ask her she either doesn't explain why or treats whoever is asking like they are stupid or haven't been paying attention."

Whether this was actual or imagined, it affected Claire's attitude toward the class. When she is not confident enough to participate, she is more likely to drift off.

My objective for Claire in my classroom was to have her involved in discussions as much as possible. In order to do this, I must foster an air in my class of openness and acceptance. I believe, from Claire's journal, that I have begun this process successfully. Since Claire's impression of one teacher was so different from my own, it is obvious that she is looking for things that I do not see myself. In the future, I would like to continue journaling with Claire at least once a week to keep tabs on the impressions I consciously and unconsciously create in my class.

In her interview, Claire also mentioned an outline that one of her "good" teachers used which helped her stay on task during a note-taking period. The outline helped her know what was coming up and what was important enough to

take notes on. In English, I do not lecture much and so have not thought of using outlines. From Claire's responses, I have decided to use outlines and review sheets to structure my lecture periods.

Claire also responded well to the homework questions designed to guide the reading. She wrote,

"I really like the question idea. It helped tremendously in reading the passage. It helped me to better read and understand the material and helped me focus and get everything out of the passage that I needed...I would read over the questions, read the passage and reread the questions and answer them."

Conclusion -

As a whole I was very pleased with the progression of this project. It was always so clear to me how this project would turn out. At the beginning of my project, I asked for volunteers to participate in the study. I approached this project in this way as an icebreaker for me since I was entering a new environment. I intended to invite other students to join the project in order to balance the demographics. I was surprised and pleased that the original group of volunteers was as balanced as I could hope to

achieve. I had equal numbers of boys and girls, both Juniors and seniors, and both students with all A's to students with D's and F's. The ethnic break down was balanced considering the school's demographics.

Unfortunately, I could not use all of the students who volunteered. I collected journals from all students, but my schedule limited the number of students I could observe in other classes. I also ran into difficulty collecting journals from several of the students who volunteered. I was particularly disappointed that I did not have enough data on the boys in the project to include them in the final group. Scheduling interviews was also difficult and when I did get an interview with one of the boys that I was very excited about, I mislabeled the tape and recorded over it.

Though all these were wonderful learning experiences about the practical side of research, these mistakes and difficulties made the decision for me about which students I would look at in detail. In the end, the final group consisted of three students on whom I had collected the most data. At first, I felt that this group would not serve my needs in this project. I was disappointed to see my wonderfully varied group reduced to such a homogeneous one since my goal was to discover how different students learn. At this point I found a misconception in my own

understanding. I had assumed that because all of the girls in the final group were white, middle-class, A/B students that they would learn the same. In exploring their journals I learned how wrong this assumption was.

All three students I looked at have radically different personalities. They approach school and learning situations with different expectations and assumptions. They are aware of their own processes, and they are aware that they process information in a unique way. This was an important insight for me. This insight gave me the tool to explore the black box of my students' learning. These students were all "good" in my class. They paid attention and seemed to be getting the information I wanted them to learn. But the way they learned and how they viewed the activity varied. Having a seemingly homogeneous group to explore simply underlined my understanding of each student as an individual.

The insights I gained in this project were astounding to me. Most obvious was the increased awareness of each of the three students most directly involved in my research. However through learning about these students, I gained a greater understanding of the unseen depth of all students. Every student in my class now intrigues me. Each one is an

unexplored wealth of information not only about their learning but also about my teaching.

The overwhelming question now is how can I explore the learning idiosyncrasies in this depth with all 135 students that I see each day. At first glance this seems to be an impossible task. Though I can require journals from a whole class and even personalize their prompts with reasonable effort, there is not the time to explore and pick apart each student's journal with the thoroughness with which I treated these three. Also, journal entries alone did not capture the entire picture. Observations in other classes offered important clues into students' behaviors. It will not be possible to shadow every student in other classes and still teach my own. Observing one student in class is very different from observing thirty. The interviews were probably the most insightful resource I had. Scheduling interviews to tape would not be impossible, but analyzing and transcribing those interviews would be impossible.

I cannot apply the method I used for three students across the board to all my students because of these limitations. Using an inventory created for a particular learning style theory is one option to standardize the collection of this data. I am still not comfortable with this approach. The data I collected and the applications I

found for it were real to me because they were discovered through my own method. The process was individualized. The questions changed with my wonderings about each student. The most powerful part of my data was not my interpretation of my students but rather my students voices themselves. I tried not to interpret their journals and interviews as much as listen to them. I do not believe that I would feel as comfortable basing my understanding of an individual's thinking process on a word choice test.

While I worried about this dilemma, it slowly started to take care of itself. Each student now intrigued me because of the depth I found in the few I looked at closely. I did not feel that my students' minds were mysterious black boxes; now I had tools to explore them. I found myself at home, in the car, in the middle of a lecture wondering what was going on behind those eyes. How much direction does this student need in a writing assignment? How much direction is stifling? How does this student remember so much when he does not take notes? Would an outline help this student stay on-task? Is something going on outside of school that makes this student distracted today?

I am still developing ways in my practice to answer my dilemma but several guiding methods are already in place. For now one answer is to let these questions out. I find it

necessary to find answers to my questions both for myself and for my students. In class, I ask for "quick writes" once or twice a week. These informal notes are designed to open up communications between my students and me. Sometimes I am interested in only a few students, sometimes all. More often than not my students' responses lead me to more questions than answers, but they do help me narrow the questions and begin to get at what I want to know.

The most exciting part of the project is the awareness the students get from this project. In both their interviews and journals, I observed that students were able to explain how they learned and what situations they preferred in class. Yet on several occasions, they asked if I would tell them how they learned after my project was finished. It struck me how ironic it was that they looked to me for answers I was asking them for. If this information is this exciting, insightful and empowering for me, imagine how powerful it can be for my students. If it is the key to making me a reflective practitioner, it can be the tool to make my students reflective learners.

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