The Internet Source for Schools
Vol. 4 No.3 - Spring 2001

Constructivist Curricular Reform: A Grass Roots Approach

Eugene A. Giest, Ph.D.
Assistant Professor
Ohio University
Athens, Ohio
Geist@ohio.edu

Education reform is a constant issue to teachers, parents, politicians, academics and anyone who watches the nightly news. However for all the attention it gets very little change actually is accomplished (Doyle & Pimentel, 1997; 1999). What change is implemented usually has to do with "increasing accountability" and standardized testing. Very little attention and change is actually focused on changing curriculum and the way teachers teach children in their classrooms. Perhaps it is because the interested groups all remember the failure of "New Math" in the 50's and "Open Classrooms" in the 70's.

However, reform means change and we have not seen much change in our schools after over the last 20 years of reform efforts (Williams, 1996). The philosophy of most classroom instruction is the same as 100 years ago, the curriculum lacks depth, children are not encouraged to be active thinkers, and skill and drill approaches continue to be the prevalent method of teaching children in the United States (Barrett & Allen, 1996). However change and reform is not easy and has failed before. The failure has been caused by 2 main reasons.

First, reform is inconsistent and often contradictory. State Departments of Education outline courses of study and curricular guidelines that incorporate the standards set by the learned societies such as The National Council of Teachers of Mathematics (NCTM (1989; 1998)). These curricular guidelines often promote the philosophy of active and hands on learning. However, States also mandate standardized proficiency testing. These tests are so high stakes that schools and teachers feel they have no choice but to use skill and drill methods to prepare the students for the test (Gallagher & Bailey, 2000).

Second, teachers are usually not involved or engaged in the reform process. Most of the reforms come from legislative bodies that have little or no knowledge of education, best classroom practices, or child development. However, teachers are on the front line of implementing these reforms. Teachers begin to feel powerless, frustrated, or and beaten down by the endless stream of "new ideas" that they did not have any input into. Many teachers are resigned to the fact that every 2 years something new is going to be mandated. For this reason, teachers do not latch onto any of the individual reforms as being permanent (Cobb, 1994).

Will we never learn from our mistakes?

Most present day curriculum standards from States and from Learned Societies emphasize active learning and the construction of knowledge, yet classroom practices do not reflect these concepts (Glatthorn & AASCD, 1995). Local school boards, administrators and teachers often do not have the ability or the support to implement many of these practices into the classroom. Often this is because of other pressures such as standardized proficiency tests that will be used to rate the children's performance and hold the school accountable. Teachers and administrators feel the pressure to use methods that are

skill and drill to make sure the children are "prepared" for these tests. Often teachers will say that they agree with the Active learning approach, but that it is not practical in the current classroom environment where preparing for high stakes testing takes precedent.

To effect real change at the grass roots level, teachers and pre-service teachers need to be the focus of the reform efforts. Not just by holding them accountable, but by effecting and supporting change from the ground up. The failure of "New Math" and "Open Classrooms" and numerous other reforms was because those curricular reforms were implemented from the top down. Someone made the change at a governmental level and expected teachers to change, adapt and accept and this was and is a formula for failure.

Much research has been and is being done on best practices for teaching children. Most of this research shows that active learning and problem solving are more acceptable than rote memorization. Most accrediting standards and state teaching objectives reflect this research. The standards from the learned societies such as the National Association for the Education of young Children and National Council for Teachers of Mathematics are heavily based on the idea of active learning.

However, the Third International Math and Science Study (TIMSS) (OERI 1996) found that mathematics instruction in United States fourth and eighth grade classrooms are not based on active modes of learning and that teachers are not implementing the curricular reforms that the states and learned societies have published. The study found that teachers in the United States focused on teaching students "how" to complete a certain type of problem step by step. Teachers emphasized rote memorization of formulas, repetition, and set procedures for figuring out the correct answer. So instead of promoting critical thinking as the standards suggest teachers do, teachers end up teaching in a very teacher directed, passive learning model.

The NCTM (1989; 1998) standards describe the mathematical processes through which students should acquire and use their mathematical knowledge. Based on the responses from teachers in the U.S., TIMSS identified three categories of current ideas about mathematics: (1) hands-on real world math, (2) cooperative learning, and (3) focus on thinking (OERI, 1996A). The teachers who responded indicated knowledge and understanding of the NCTM standards and showed a philosophy consistent with these standards. However when the study actually looked at how teachers were teaching, it found that teachers did not actually implement these reforms in their classrooms. The fact that these three categories emerged from responses of teachers in the U.S. shows that teachers in the U.S. realize the importance of treating children as mathematicians. So why do teachers not implement these reforms in their classroom?

First even though state standards and courses of study show include many of the reforms, classroom teachers often do not use the state curriculum guidelines to guide their teaching practices (Solomon, 1998). Instead, they are required by their school's administration to teach using a textbook that outlines all the objectives and learning activities without the teacher ever having to look at the state guidelines. In this scenario, teachers are not asked to interpret guidelines or use their training in curriculum development to design curriculum that meets student's needs and curricular guidelines.

This is a major roadblock to reform because textbooks are not specially designed for each states curricular guidelines. Textbooks are constructed to meet objectives of as many states as possible. Therefore classroom teachers are often required to cover the textbook from beginning to end, even if the text objective is not a state objective. This leads to the second problem.

Teachers have too much information to cover is a short period of time. Teachers feel that they do not have the time to implement the reforms or to adhere to the standards from learned societies because they have to cover the material in the text. Teachers have more and more of their instruction time dedicated to

teacher directed, passive learning, worksheets, and rote memorization.

Third, TIMSS found that the text books in the US cover too many topics in less depth that do other countries who outperformed the United States on the TIMSS achievement test. Our texts lack focus and do not teach children about any topic in depth, but rather teach a lot of unrelated skills quickly. This is based on the ides that children need to be taught procedures to solve problems or get correct answers so that they can do well on standardized proficiency tests

Finally, is the pressure of achievement testing. Many States require achievement testing across the grades. These tests are very high stakes not just for the child, but also for the teacher, school, and local school district. Consequences of not performing well on these tests can be catastrophic to schools and teachers. Teachers can lose their job and schools can lose funding. In the all-consuming effort to raise test scores, schools tend to "teach to the test". In this scenario, the test drives the curriculum rather than the other way around. Teachers and schools feel that active learning strategies, problem solving, and the learned society guidelines take a back seat to making sure the students memorize and repeatedly practice the skills they need to do well on the test.

However, TIMSS shows us that this is the wrong way to go about preparing children to do well on achievement tests. Japan scored much higher than the U.S. on the TIMSS math and science achievement tests and their curriculum is based squarely on the problem solving approach. This shows that a problem solving approach can still improve test scores. However even though problem solving reform language appears in the state and learned societies standards, the practice does not trickle down to the classroom teachers. Therefore we continue to use and reuse the same old methods that have already been shown to be ineffective.

Teachers as Change Agents

In all of these examples the key is the teacher. The reforms that are put in place by States and learned societies are useless if teachers are not given the support, time, and freedom to implement them in their classroom. Teachers need to be trusted to make curricular decisions in their classroom. They have a good deal of college training in curricular methods, they understand child development, and they are the best at knowing the level of the children in their own class.

Excitement about learning should be the goal of every teacher. This philosophical change is not made by more emphasis on skill and drill methods or adding more mandatory tests (Kelly, 1999). It will take a deliberate process of change in the way children are viewed and treated in classrooms (Bay, Reys, & Reys, 1999). We can learn some valuable lessons from the TIMSS videotape study. If we are going to implement change in our schools, many long held beliefs and practices are going to have to change.

The first thing that needs to change is the idea that all children are the same and each teacher needs to teach at one set level that is usually set by a textbook. Teachers, administrators, and legislators need to realize that a classroom is made up of children of many different backgrounds and ability level and a teacher, to develop a curriculum that meets the needs of all of these students, needs to understand the children. Curriculum development is a process of understanding the children that are being taught, understanding the curriculum guidelines, and applying that understanding to a program of instruction that is beneficial for all students in the class (Jennings, 1996).

All children are different. They learn at different rates, they have different interests, they have different talents, they have different modes of learning, and when they come into the classroom they are all at different levels of understanding of mathematics. This is one thing that upon which most early childhood professionals can agree. Therefore, pre-made or "cookie cutter" curriculum cannot meet the needs of

children in an early childhood classroom. Cookie cutter or "Cookbook" curriculum is derived from a math series, a math workbook, or other curriculum guide that gives exact step by step instructions for how and when to teach a certain topic. However, curriculum for young children must be molded and customized to meet the needs of all children in a particular classroom. It must be flexible and adaptable so the teacher can use their knowledge of the children's prior understanding to create a mathematics program that meets the child at that level, and stimulate construction of more complex mathematical understanding. These "cookbook" curriculums do not meet the needs of young children (Myers & Simpson, 1998).

Lets take the cooking analogy one step further. A teacher must be a Chef not just a short order cook. The job of a short order cooks at any fast food chain is to follow the instructions for making the food exactly. The goal is to make sure that if someone goes into one of their restaurants in California and orders a hamburger, it will be exactly the same as the hamburger I get in Ohio. The cooks don't need a lot of training to cook the hamburgers because all they have to do is follow the instructions to the letter. A Chef, on the other hand, is much different. A chef not only cooks but also develops dishes from an understanding of how foods and spices blend and complement each other. Chefs train for years and years to learn their trade. They are inventive, creative, and most of all each chef has their own style. They don't just follow a "cookbook" recipe for a dish, they experiment, ad their own spin, and use their knowledge of locally available foods to make the dish the best that it can be. A chef try new things, think about what will work and what won't work, and make decisions and judgments based on their knowledge of food and the intensive training they have had.

Now lets apply this analogy to teachers. Teacher that just uses a "cookie cutter" or "cookbook" approach to teaching is a short order cook. They are simply following a recipe that was developed by someone who knows generally how children develop, but does not have intimate knowledge of the specific children in the teacher's classroom. This short order cook / teacher is not using the training, education, and understanding of children to develop curriculum, but is, instead, following instructions laid down by someone else. Teachers of young children must be chefs. They must use their understanding of child development and their understanding of their individual students to design the best curriculum for those specific children. Teachers need to be active thinkers and developers of curriculum. Teachers must look at what they have, consider the goals that they want to achieve, and develop a curriculum based on best practices to meet those goals.

The teachers need to be empowered to make changes to improve our schools. The teachers know the children the best. They know what their needs, interests, and capabilities better than any textbook manufacturer, standardized testing company, or school board. Reform needs to begin with the teachers. Teachers need to use their understanding of children and their expertise to help these children learn. As has been demonstrated in this article, there are many obstacles that teachers currently encounter that keep them from being reform agents. Eventually teachers stop trying. But if we remove those barriers and support teachers in developing curriculum based on state and learned society principles and guidelines, real change will occur.

Reference List

Barrett, M., Allen, J., Education Leaders Council, & Center for Education Reform (Washington (1996). The standards primer a resource for accelerating the pace of reform. Washington, D.C: Education Leaders Council.

Cobb, N. K. & College Entrance Examination Board (1994). The future of education perspectives on national standards in America. New York: College Entrance Examination Board.