Many of the youth that I work with at River Haven Homeless Youth Shelter, tune out to reading and assignments on paper. However, when given a specific, tangible job to complete, they become motivated, engaged and can show how intelligent they really are. Historically authentic learning has been the basis of all learning. Inventions and techniques were developed from real life situations. These skills were passed on to others through apprenticeship style learning. Great educational theorists such as Dewey and Freire were strong proponents of authentic learning techniques as a vehicle for deep integrated active learning, considered by them as superior to traditional models of teacher disseminated information. Authentic learning ties course material to real life problems and tasks that students complete on their own. Authentic learning is based in constructivist theory which according to Newman and Griffin and Cole (1989) asserts that student learning is self-constructed with the aid of the social intercourse that occurs when students work together on problems they figure out for themselves. Learning by doing stimulates the higher order learning objectives in Blooms taxonomy of application, analysis, synthesis and evaluation. Murphy (2006) showed that students are more engaged in science when it can be made relevant, personal and applied to real world contexts. Crawford (2000) claimed that this approach can engage students and instill a sense of ownership of their own learning and stimulate curiosity and future inquiry. Due to their real world problem scenarios, Stepien (1993) asserted that authentic tasks often result in integration of other subject matter. Authentic learning lends itself to a variety of informal and alternative forms of assessment. These can include observation, self-assessment, portfolio development, group assessment, and project completions. Studies have shown that authentic assessment can provide a greater measurement of student learning than traditional formal assessment. Utilizing a combination of summative, formative, formal and informal assessment can generate a balanced indication of student learning, help guide curriculum planning, and help build students’ self-regulation of learning.
Fortunately science offers ample opportunities to employ authentic learning to the classroom. Although I have not had the opportunity to teach in a classroom, I can draw from coursework and other professional examples that show that I understand the core concepts, supporting techniques, and drawbacks of authentic learning. I can demonstrate through examples the ways I have employed or would employ these principles, what I have looked for or would look for to show effectiveness, and how it addresses the Marist initial teaching standards 1 and 10.

Authentic learning is about engaging youth in a real world scenarios or problems that need to be addressed. It instills the skills of research and information gathering, analyzing integrating and applying, predicting a solution, and reporting on results, finally drawing conclusions about effectiveness and alternatives. Five key elements comprising effective authentic learning are identified by Newmann and Wehlage (1993). They are; 1. Engaging higher order thinking vs. lower students use, manipulate, transform, information in new and unpracticed ways, 2. Increasing the depth of coverage, students encounter a smaller number of ideas but are expected to develop a deep level of understanding. 3. Utilizing real world problems as topics of study with the expectation of students applying their knowledge to settings outside the classroom, 4. Generating substantive conversation involving students and teachers that builds on participant’s understandings, (constructivist theory). 5. Push for achievement, intellectual risk taking and belief that all students can learn.

Authentic learning can include authentic assessment. Resnick and Resnick have stated that traditional assessment techniques have the benefits of being easily quantifiable, but do not necessarily reflect the students’ true learning. By offering diverse ways to measure learning such as role play recording, project completion, or portfolio development, a broader understanding of the students’ knowledge can be gained and students with different learning needs can benefit.
The following is an example of where I employed elements number 2; increasing the depth of coverage, students encounter a smaller number of ideas but are expected to develop a deep level of understanding. When the youth are in recess from school, sometimes I assume Residential Counselor duties. I try to get youth out, active and away from routine. I have sometimes taken them to Minnewaska State Park to do a hike and rock scramble. To pass the time on the trail, I have conducted a simple tree taxonomy lesson. To start, I have picked two different leaves off tree branches and ask if they notice a difference and how many leaves I was holding. They have always gotten the compound leaf wrong, so I have explained about simple vs. compound leaves, and leaflets as making up one leaf. I have continued to do the same down the trail with deciduous, conifer, then add different types of species under each category, with an anecdote about the tree. I usually get 15 different species. At the end I assess learning a couple of different ways. Sometimes it has been a contest to see who can be the first to retrieve a specific species, sometimes it has been a quiz on the ones collected to see who gets the most right, sometimes it has been a written quiz back at the shelter. The record score was from one 14 year old girl who was struggling in most subjects in school and said she hated science. She got 12 of the 15 leaves correctly identified. I have tried doing this same lesson in the study room and found that the youth have often flipped into school mode, dramatically changing their behavior to that of fidgeting, not paying attention, complaining of being bored, acting out, and saying they are not in bio class now so they don’t have to do it. On the trail I have taught the same material informally and they haven’t displayed any of those behaviors. They readily offered answers, asked clarifying questions, and were receptive to further discussion of energy cycles, photosynthesis, genetic diversity and invasive species. Although this was an exercise on lower order identification and categorizing, the authenticity of the setting, being in the ecosystem, having to find the actual tree, seemed to make the material more relevant to them, stimulate the desire for learning, engage them in seeking to question further, and increased their retention of the information. This engagement and deeper application of material
translated to other projects done with them such as lessons on the use of fractions while measuring to build something. I have been amazed at how bright some of the most struggling students can be when given a relatively small group and an authentic tasks such as cooking, fixing or building something like the soccer goals for a community park, (exhibit 1 Kid building goals.) This demonstrates the power and influence new settings, new material, and novel experiences can have on youth, (exhibit 2. Leaf id.)

As part of my course work I created an authentic learning unit description that employed authentic learning element 3; Utilizing real world problems as topics of study with the expectation of students applying their knowledge to settings outside the classroom, (exhibit 3 Micro bio unit description). The unit established a mock scenario of a small municipality whose current water supply has been contaminated. The members of the town board were seeking consultants that they could hire for a long term project to develop a new viable water source. To help them choose who to hire they were requesting potential contractors to perform an analysis of a local water source, identify organic biological contaminants, and propose a remediation strategy. Students were to take actual samples of local water, utilize lab techniques already developed, learn new lab techniques, and have to research remediation techniques, develop a plan for remediation and present it to a mock town board. The board was to give feedback on each presentation and vote for the best overall plan. The winner was to receive the contract. This established a real life scenario, required students to utilize existing lab skills, while learning new ones, analyze results, research various remediation techniques, and evaluate applicability and feasibility. It required working in teams and provided the opportunity to generate much discussion of the topic from multiple viewpoints of all students work. The unit called for a range of assessment techniques. The authentic tasks of lab skills and techniques would be assessed through teacher observation, recording of procedures in lab notebooks, and teacher feedback. The authentic lab report developed should show standard lab report criterion as measured by lab report rubric. A teacher pre review of said presentation would assess that the target information was being identified and integrated
properly. Formal presentations to the board offered peer feedback, facilitated whole class discussion of material, and group assessment of necessary components. A unit student growth portfolio was to be developed with the following rubric for authentic assessment showing achievement and growth, (exhibit 4 Micro biology portfolio rubric). For that same course I developed a formative self-assessment form to try to get students look at how well they understood the material, how much time they spent on it and predict their quiz score, (exhibit 5 –predict a score).

Although it runs counter to strict constructivist theory, I believe sufficient background knowledge and scaffolding are necessary to authentic learning. Scaffolds are aids that encourage movement from current knowledge to a new goal. Kirshner and Sweller and Clark (2006) stated that fifty years of research indicates that background knowledge and scaffolding are necessary to enable youth to build their own knowledge, and that it is a mistake not to do so. Rogoff (1990) suggested that scaffolding should include these six components: develop interest in the task, demonstrate an ideal version, simplify task to manageable steps, control frustration and risk, provide feedback, and motivate students so that the activity continues to completion. Scaffolds are a necessary part of transferring the learning responsibility from the teacher to the learner.

When training staff and interns at the shelter, I have very little time to get them up to speed and competently handling crisis calls. This necessitates direct instruction, to ensure they have enough background information to complete the task. This part of the training is always met with lack of engagement. I have to continually generate questions to keep them engaged, and feed them responses. I try to build their knowledge in stages and provide scaffolds along the way to culminate in the final part of the crisis contact training by role playing actual crisis calls. After an overview of the program, history, laws and regulations, problems and the underlying issues facing the youth we serve, we move to how to field crisis phone calls. This includes active listening techniques, what information is to be gathered and provided, and what is the best way to do that, (exhibit 6- crisis contact phone training). After all the
components have been presented, discussed and reviewed, I take the material away except a blank crisis contact sheet; Then I have them do role plays of actual crisis calls I have taken. The calls are selected to require the major points I have tried to teach about the process, (exhibit 7- role play script). This often makes the trainees very nervous, even though it is just a role play. It is also the part in the training when I notice they are really paying attention to what I say, trying to integrate and apply all we have gone over. I don’t break character, but do allow them to ask for help from the other trainees who are listening. I use the training sheet as a check off list to assess that they have hit all the points and necessary components. When they feel they have satisfied the requirements of the call, I ask the others to assess if there was anything missed, if they got enough detail, if there was a way to phrase things differently. This incorporates peer assessment, peer teaching and vicarious learning. They are always very eager to find out what happened in the case, showing a large degree of personal attachment to the material. I feel it is the most effective part of the training, they report it is the hardest part of the training, but the most valuable.

During my course work at Marist we were assigned to present papers on the principles of foundations of education. My first presentation was very dry and even I don’t remember it. When I had to present about Pedagogy of The Oppressed, (Freire, 1970), I tried an approach that matched Freire’s philosophy of learning. Learning should be an active partnership between teacher and students. Information is not dispensed by the teacher, but knowledge is discovered by the student and facilitated with the teacher’s help. Instead of delivering a biography about him, I brought in a prop, supposed to be his sport coat found in the ambulance after he died. I put articles in the coat such as a wallet with a mock driver’s license, an employer’s paystub, pictures or trinkets of some of the places he had been, a fake bottle of nitroglycerine, and a wedding ring in a velvet pouch. From these clues the students were to figure out as much as they could about him. I split the class into two groups and gave them equal time to investigate while I went on with the presentation. The team that came up with the most correct assertion of facts,
was the winner. The exercise went over very well, people were engaged, talked about what things could mean, exchanged ideas about clues, vetted out some and developed a list of best possibilities, decided by the group. They all expressed that they really wanted to know the facts at the end. I saw the power that activity based learning had in the contrast between the dry first presentation, and the active, lively second one. This greatly shaped how I would like to present material to people. I developed an investigation summary sheet as summative assessment of the exercise, though I did not have time to utilize it within the allotted time frame, (exhibit 8- detectives report). I did review what the clues were supposed to indicate and both groups got about 50% correct.

I have developed formative traditional assessments for work and lesson plans. NYS requires that all Runaway Homeless Youth Staff receive training in the specific areas of: suicide, child abuse, case records, state regulations, youth issues, safety and emergency, and HIV awareness. The state inspects each year for documentation of this training. I usually talk about the topics, try to pull out the information they know or remember, reinforce it and add new information. I hand out a sheet with questions covering the material we went over and have them complete it, then we go over it as a group at staff meetings. This acts as reinforcement of the material and a record of the training, (exhibit 9 – adolescent brain development training sheet). I have also designed formal assessment tests for the science unit I developed in methods, using a variety of question types, multiple choice, essay, fill in and matching, (exhibit 10 – chemical bonding unit quiz).

These experiences also showed me many problems with activity based learning. It is time consuming. Teachers need to have a strong content area knowledge, be able to act quickly to unplanned developments, balance and fine tune scaffolding, reflect on and tie information to required course content, track discussions to avoid misinformation. (Hacker, and Tenant 2002). It took hours of thinking to come up with the ideas, hours to prepare the props and come up with the scenario, all for a small part of a small presentation. Public school teachers don’t have the luxury of taking youth out hiking the
woods for science lessons. The amount of information that I was able to cover in my class presentation was very small and ran out before things could be reinforced. The role play of a crisis phone call consumes a large amount of time and energy. The dichotomy between ideal teaching and what a classroom teacher is required to cover is large. My training of staff and informal lessons with residents at most require simple log documentation, and would be difficult to prove they were successful under the strict criterion of a public school system. Results that authentic learning increases standardized test scores is mixed at best, with much evidence to show the contrary. The learning of higher order thinking skills that occurs in authentic learning, does not necessarily get measured on standardized tests, which require specific information be retained by students. These factors can be strong deterrents for the use of authentic tasks in the classroom. However I have personally witnessed the power that authentic learning has on motivation, engagement, integration and retention. I will seek to employ it as final part of lesson units or training as often as possible.

**How the standards 1 and 10 were applied.**

Authentic learning practices address many Marist College teaching standards beginning with **standard 1**: The candidate understands the central concepts, tools of inquiry, and structures of the discipline within the context of a global society and creates learning experiences that make these aspects of subject matter meaningful for students. This standard implies that it is important that a teacher know their subject thoroughly and how it integrates with other subjects. The teacher should also know how to utilize inquiry based learning techniques that apply to real world situations and that students find engaging and meaningful. Authentic learning techniques are tools of inquiry. Incorporating tangible application of the material can help students apply it to society and real world situations.

I have addressed **standard 1** in my microbiology unit with several aspects. Students choose a sample to analyze in a real world scenario. They observe, analyze, identify, and draw some basic compositions such
as microscopic plants and animals; conduct a real world study of the bacterial content; research and
design a remediation plan for the sample. They utilized the methods of inquiry for the field. I have
addressed **standard 1** when training new staff as described above, material was presented in multiple
ways. I had to build background information for them to recall, then gave them scaffolds for learning
new material. **Standard 1** was also addressed when staff trainees found the authentic task of fielding a
crisis call meaningful as demonstrated by their engagement and when they kept asking how the case
turned out. **Standard 1** was demonstrated when youth in the shelter were able to identify many of the
trees reviewed during hikes, and also trees they recognized them in other settings. They had to utilize
previous information they had and apply new information they learned on the hike. Students
participating in the Freire biography presentation had to utilize their prior knowledge, and make logical
predictions of the clues provided to draw a conclusions about his life.

**Standard 10**

The candidate understands and uses formal and informal assessment strategies to evaluate and
ensure continuous intellectual, social, and physical development of the learner. This standard implies
that the teacher knows how to develop a variety of tools and assessments to confirm that the student’s
cognitive, social and intellectual skills are developing in accord with the goals of the material content.
**Standard 10** was demonstrated in the micro biology unit described, I have developed a variety of
assessment forms such as authentic tasks and lab reports. The unit offers a variety of assessments
including peer review. Self-assessment and learning regulation was incorporated through the self-
assessment sheets and student growth portfolio, which involve learners in helping them become aware
of their own strengths and needs. Assessing the tree identification through locating the tree, or
identifying it by sight, employs authentic assessment which is another aspect of **standard 10**. Having
staff trainees complete a crisis call, while documenting that the main points on the outline were covered, as well as having other participants evaluate how the participant did, offers authentic assessment, observation and peer evaluation. Another demonstration of **standard 10** are the summative assessments developed for science unit plans and staff training. They demonstrate an understanding of more traditional assessment techniques. Maintaining personnel records for New York State Office of Children and Family Services review, demonstrates record keeping and performance indicators to a specific criterion which addresses another aspect of **standard 10**.

Citations


