

My Philosophy of Teaching and Learning

Jessica D. Marks

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Saint Thomas University

Introduction:

The process of teaching and learning is highly dependent on both grade level and subject area. As a secondary science teacher, my approach to teaching and learning is therefore very different from that of an elementary school teacher, or even a high school English teacher. In the following pages I will outline my philosophy of teaching and learning as it pertains to teaching secondary science. My philosophy will draw from the theoretical perspectives of Vygotsky, Bruner, and Bandura, among others, as well as from my own experiences as both a teacher and a learner. It will focus on collaborative and discovery-based learning, student motivation, and the appropriate use of rewards and punishments within the education system.

Scaffolding and the Zone of Proximal Development:

From a theoretical standpoint, Vygotskian theories provide the foundation for my philosophy of teaching and learning. Of particular importance to my own teaching practices are both the zone of proximal development and the notion of scaffolding. The zone of proximal development, according to Vygotsky (1978), is the “distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (p.86). From a teaching perspective, the zone of proximal development marks an area in which instruction can succeed (Woolfolk, 2009, p.45). It is therefore important to my own teaching practices as it defines the parameters within which my students will be able to learn. It also accounts for the social nature of both learning and development which can be enhanced with the help of a “more capable” other (teacher, peer, parent, etc.) whose role is to scaffold or support student learning. This type of assisted learning will be especially useful in my own classroom, where time constraints will require me to rely on more capable students to assist those

students who are experiencing difficulty. This is not to say that I will sit on the sidelines while my students teach one another, but rather that I will depend on them to assist one another throughout the learning process. My own teaching experience has brought to light how this type of assisted learning can benefit both the students and the teacher in the teaching and learning process especially when scaffolds or learning supports are provided.

#### The Need for Collaborative Learning:

While Vygotsky's theories provide a foundation for my philosophy of teaching and learning, they are somewhat limited in their application due in part to their focus on individual problem solving. As mentioned previously, given the large number of students that I will encounter in the run of a day and the time constraints within which I must cover the curriculum, it is not realistic for me to think that I will assist each and every one of my students on an individual basis. Of course, I will compensate for being unable to meet with all of my students individually by assigning regular group work and frequently conferencing with individual groups to monitor their progress. I will also make myself available for extra help outside of class time, either at noon hour or after school, and will encourage my students to make use of this time as they need it. I am not suggesting that I plan to ignore individual students in my classes, but rather that it will be impossible for me to assist all of my students individually on an ongoing basis. For this reason, I must also incorporate some of Jerome Bruner's theories into my teaching practices. Unlike Vygotsky, Bruner puts a focus on the social and collaborative nature of learning, where students work together with the teacher and with one another to achieve a common goal (Bruner, 1996). He suggests that "cognitive growth in all of its manifestations occurs as much from the outside in as from the inside out" (Bruner et al., 1956, p.1) implying that learning can be facilitated both through individual problem solving and collaborative work.

An Inquiry Based Approach to Teaching and Learning:

In my own classroom, collaborative learning will be enhanced with the use of an inquiry-based approach to teaching and learning. From the point of view of a scientist, inquiry is the process by which we come to understand the natural world (Martin-Hansen, 2002, p.35). Inquiry-based learning puts students at the forefront of their learning by allowing them to ask their own questions, search for evidence, and draw conclusions about science. It provides students with a more hands-on or discovery-based approach to learning and results in a deeper understanding of the concepts studied than does a more traditional or prescriptive method (Leonard & Penick, 2009, p.26). Unfortunately, my teaching and learning experiences to date have not allowed me to facilitate or participate in inquiry-based learning. Nevertheless, my own instructional practices will reflect various levels of the inquiry approach as I believe that it has great merit in extending and enhancing students' learning.

There are several forms of inquiry-based teaching which range from primarily teacher to primarily student directed. Open inquiry is the most student-centered approach to inquiry-based learning, and involves student generated questions, hypotheses, experiments, and analyses (Martin-Hansen, p.35). Guided inquiry is less student-directed and typically involves investigating a question proposed by the teacher. This type of inquiry is largely teacher facilitated. Coupled inquiry is a combination of both guided inquiry and open inquiry. It is therefore both teacher and student facilitated. Finally, structured inquiry is entirely teacher directed. It typically involves following directions or procedures in order to achieve a prescribed outcome. Ideally all students' learning should be facilitated using an open inquiry approach. Unfortunately, however, giving students complete control over the concepts that they are exploring and the ways in which they are explored is just not practical given the time constraints

of the factory model school system. For this reason, I will rely primarily on coupled inquiry in my teaching whereby the teacher and the students play complementary roles in the learning process. This approach will also require students to become involved in their learning, and thus will help motivate them to learn.

#### Dealing with Student Motivation:

In order to further address the issue of student motivation in my classroom, I must rely on the theoretical perspectives offered by Albert Bandura. His notion of “self-efficacy” is particularly important to my philosophy of teaching and learning as it describes the expectations that I have for my students as secondary science learners. The term “self-efficacy” refers to “beliefs in one’s ability to organize and to execute the course of action required to produce a given attainment” (Bandura, 1997, p.3). It is therefore related to student motivation and self-regulation, both of which have a strong influence on students’ achievement. As a high school science teacher, I expect my students to take responsibility for their learning, and to do so, they must be confident in their abilities to learn. Lack of confidence, as I have seen in my teaching internships, can be highly detrimental to a student’s achievement regardless of their ability to learn and I do not want this to be the case for my students. In fact, not only do I expect my students to believe in themselves as learners, but I also expect them to follow through with their beliefs by taking action. Bandura describes such behavior as demonstrating “self-agency” or “personal production of action for an intended outcome” (p.3). Setting these expectations of self-efficacy and self-agency for my students does not exempt me from preparing engaging lessons, but rather, prevents me from having to chase after my students to get their work done.

Despite the expectations of self-efficacy and self-agency that I place on my students, my own teaching experience has taught me that I too must play a role in motivating my students to

learn. Part of this motivation will come from planning and delivering meaningful and engaging lessons. This will involve incorporating choice into my lessons (through the use of choice boards, choice homework, etc.), catering the instructional material to students' interests, and providing information in a real-world context that students' can relate to. As my own learning experience suggests, giving my students choice in their work will encourage them to build on their strengths and will give them confidence in their abilities to learn. Similarly, catering the instructional material to my students' interests will draw them in and encourage them to become active learners. Finally, providing my students with a real-world context will add meaning to the knowledge that they are acquiring which will help to make it more memorable.

In order to successfully engage my students using the methods described above, I must first get to know them as individuals. My own teaching experience speaks to the necessity of establishing a positive classroom environment where I must look beyond my students as learners, and become familiar with their strengths and weaknesses, interests and hobbies both inside and outside of the classroom. I have already alluded to the large number of students that I will be teaching as a secondary science teacher, and I realize that this process will take time, but I truly believe that establishing positive relationships of trust with my students from the beginning is crucial to the success of the teaching and learning process. Furthermore, my experience as a learner has proven that having a teacher show an interest in my progress, both within and outside of school, significantly impacted my achievement. Knowing that my teachers believed in my ability to succeed helped me to gain confidence in my ability to learn and I am convinced that the same will be true for my students.

Use of Rewards and Punishments:

Unfortunately, neither making my lessons engaging nor establishing positive relationships of trust within my class will guarantee that my students will be motivated to learn. In fact, if I have learned anything in my teaching experience to date, it is that you cannot force students to learn. I am not suggesting that students who refuse to learn should be ignored, but rather, that no matter how hard we try to motivate our students to learn, it is ultimately up to them to decide whether or not they will participate in the learning process. For this reason, I must also incorporate rewards and punishments into my instructional practices. In other words, I must have some way of rewarding those students who are well behaved, and complete their assignments in a timely manner. Likewise, I must put in place some form of “punishment” for those students who do not meet these criteria. The word punishment is used loosely here to describe articulating consequences. While I agree with Alfie Kohn (1993) who suggests that rewards and punishments will “have a peculiarly detrimental effect on the quality of our performance” (p.49), the reality of the education system is that it is entirely based on rewards and punishments. Simply assigning grades, either good or bad, is a form of rewarding or punishing students based on their behavior and effort in school. I am not suggesting that poor grades should be used to punish students I am merely pointing out the fact that grading in and of itself is an embedded system of rewards and punishments. In theory, Kohn raises some excellent points about why rewards and punishments fail, but in practice, there is no better alternative to motivate our students than to introduce a system of rewards and punishment. Having said that, however, I realize that by using rewards and punishment I will not be motivating my students to learn, but instead, I will be motivating them to get rewards (Kohn, 1993, p.67).

Conclusion:

To summarize, my philosophy of teaching and learning combines the theoretical perspectives of Vygotsky, Bruner, Bandura and others with the practical perspectives offered by my own experience as both a teacher and a student in the science classroom. Overall I believe that the secondary science classroom should involve an inquiry-based approach to teaching and learning, where students work in collaboration with the teacher and with one another to construct their own knowledge. Crucial to the success of this approach will be the establishment of positive student-teacher relationships that will not only allow me to cater lessons to my students' interests and abilities, but will also provide my students with additional confidence in their abilities to learn and thus will increase their motivation. If my students are not motivated to learn, then the entire teaching and learning process loses its value. For this reason, I must also implement a system of rewards and punishments in my classroom that will help "motivate" my students. As a secondary science teacher, time constraints and large class sizes demand the most efficient methods for learning. While establishing positive relationships of trust with my students and facilitating their learning using an inquiry-based approach may require more time than the more traditional approach, I am confident that these teaching practices will be most effective in the long run since they will allow students to truly acquire their knowledge and will encourage them to become lifelong learners.



### Summary

As a secondary science teacher, my philosophy of teaching and learning is rooted in a collaborative inquiry-based approach where students work together with their peers and their teacher to construct their own knowledge. Inquiry-based learning encourages students to ask their own questions and explore the answers as they see fit. It can involve varying degrees of teacher and student involvement as appropriate to the learning context. While some would argue that an inquiry-based approach to teaching and learning wastes valuable instructional time, educational research points to the long-term effectiveness of this approach which promotes higher order thinking and encourages students to become lifelong learners. Of particular importance to the success of inquiry or discovery-based learning are pre-established relationships of trust between the teacher and the students. This means that as the teacher, I must look beyond my students as learners and become familiar with their strengths and weaknesses, interests and hobbies, both inside and outside of the classroom, in order to prepare lessons that they will find meaningful, engaging, and appropriate for their learning abilities.

A second aspect that determines the success of the inquiry-based approach is student motivation. My own experience as a secondary science teacher has taught me that it is nearly impossible to teach students who are not motivated to learn. Student motivation is therefore a crucial aspect of my teaching and learning philosophy as it dictates the potential success or failure of my instructional practices. As a secondary science teacher, I expect my students to demonstrate both self-efficacy and self-agency, meaning that they must have confidence in their abilities to learn, and be willing to act on that confidence, respectively. I recognize, however, that I too must contribute to their motivation. Part of this motivation will come from planning and preparing lessons that incorporate students' interests, promote choice, and are situated within a

real-life context. Another part of it, however, must come from the use of rewards and punishments. In other words, I must have some way of rewarding those students who are well behaved, and complete their assignments in a timely manner. Likewise, I must put in place some form of “consequence” for those students who do not meet these criteria.

To summarize, I believe that an inquiry-based, hands-on approach to both teaching and learning will be most effective in facilitating students’ understanding of science. The success of this approach requires the establishment of positive relationships of trust between the teacher and the students who perform complementary roles in the process of knowledge construction, as well as both internally and externally generated student motivation.

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