

Structured Independent Learning – An Experience of Evolution and Growth in Teaching

The subject was chemical bonding and I was doing what I had learned to do as a teacher – providing notes and discussion on the blackboard. I paused for a moment and surveyed my students. Although the vast majority had their typical looks of practiced interest and attentiveness, it appeared that no one was really paying much attention. To prove it to myself I slipped in the phrase, “I swallowed a frog last night” part way through a sentence. No one heard it. As I continued to do the lesson I wondered who I was doing this lesson for ... really, who *am* I doing this lesson for?

I stopped talking, put down the chalk (no white boards or smart boards at that time) and stood facing the class with what must have been a silly grin on my face. Now I had the attention of some of the students, they thought they were in trouble. After describing what I had just experienced I asked my students for their thoughts. A young woman stated that, while my class notes and discussions were generally quite good, she was having difficulty concentrating on them today. I thanked her and then asked the class if they had any suggestions for how we could change and improve this process of teaching and learning. Silence. Then one brave soul at the back ventured that if I gave them photocopied notes along with the assignment they could do it themselves. Many students nodded. Another student stated that she preferred having a discussion led by the teacher. A few students nodded. The solution we worked out that day was that I would provide photocopies of my lecture notes and examples to every member of the class. In addition, a mini-lecture would be provided – attendance optional. We also agreed that they could ask me questions at any time to receive further instruction and clarification.

The results were incredible. The majority of the students worked independently or in small groups. My strong, high achieving students continued to achieve highly. My middling and low achieving students got better results. When I inquired into what was happening for them, they stated that they were able to get the help and attention they needed either from myself or from fellow students. But far and away the most incredible result was the change in the class environment. People were having fun and enjoying themselves in the learning process. Students started making suggestions for how we could improve things further. Could I provide a calendar? If the week's work was done in four days could they have the fifth day off? Some students worked hard in class, while others socialised in class and got their work done at home or during a spare. An incredible experience.

The experience I had with that particular class eventually led to my current practice which I call Structured Independent Learning. However, the change in my teaching practice did not just spontaneously happen. There were many factors and experiences that led to my willingness to entertain a different approach.

Starting experiences

When I started as a secondary high school science teacher I adopted a “traditional” teaching style. I was the quintessential teacher-centered educator who enjoyed being the “sage on the stage,” confident in my assumption that I was an indispensable part of the learning process for all of my students. My role was to actively deliver the course curriculum to the students through lectures, demonstrations, overhead presentations, class discussions, lab activities, and other ways of delivering the curriculum. It was my job to decide when things should be learned, how quickly things should be learned, how deeply things should be learned, and how my students would be assessed. The wonderful and innovative ideas I had heard about

but never actually experienced in my university educational studies like inquiry-based learning, constructivism, discovery approaches, alternative assessment and the like were all but forgotten. My experience, both as a student and as a student teacher, was firmly within the traditional paradigm.

Adopting a traditional style had several advantages. It provided a familiar structure that everyone more-or-less knows and understands. The roles of the teacher and students were well known, defined and habituated by all concerned. Most significantly, the traditional paradigm was easily recognised. When people (i.e. – administrators, parents and students,) saw a traditional classroom in operation they could identify that teaching was occurring and that I was doing what I was contracted to do. Moreover, by adopting a traditional style I *felt* like I was actively engaged in doing the teaching. Providing note-taking lectures, examples, and discussion allowed me to feel like I was providing what my students needed in order to learn.

In retrospect, much of who I was as a novice teacher stemmed from my own insecurities, a lack of confidence in my abilities, and several erroneous conceptions of education in general. For example, I, like many teachers, embraced the idea that I had to be in control of every situation in the classroom. I perceived that there was an expectation from students, parents, and administrators that every classroom be a safe, secure and structured environment. Further, the maintenance of order and control was essential to providing such an environment. The need for control should not be underestimated and, in my experience, it is this issue that most often prevents teachers from exploring alternatives to their current practice. A sense of control was initially very important to me since I was not confident in my ability to teach my students the material they needed to know. While I had a degree in physics and I understood the subject matter well enough, I did not know how to make physics or chemistry a part of another person's

experience. How did learning *actually* take place and what was my role in that process? The initial years of teaching involved a relearning of the subject matter to a much greater depth than I had previously known. The process of students asking questions to clarify their understanding forced me to think and rethink my understanding. I was quite anxious as a starting teacher. I knew that I would eventually be found out as a charlatan, masquerading as someone who pretended to know something of value. Enacting the traditional paradigm allowed me to hide and avoid the risk of being discovered as a fake.

Being a good traditional style teacher required that I be, first and foremost, an effective classroom manager. Managing a classroom depended on having enforced rules of operation and it was crucial that I set the rules by which the class would function. However, I found this approach to be problematic. How was I to enforce the rules? What could I do to the students who were not willing to follow the rules? How could I force people to do what they did not want to do? I felt I was being asked to have power over my students, and while power was an idea that I knew and understood, I inherently distrusted power for power's sake. An enforcement model of classroom management did not work well for me. I could not maintain the enforcer role without finding it tedious, dull, labour intensive, and ultimately humorous.

An alternative to an enforcement model began to present itself when I became aware of the implicit assumption that lay behind the traditional view of students, namely, that education was largely a coercive activity. It was presupposed that without the proper incentives like marks, praise and other rewards, the vast majority of students would simply not learn what they were being asked to learn. My inquiry into the validity of this presupposition stemmed from conversations with students who were not interested in conventional rewards but were learning things for their own reasons. I engaged my students, both individually and collectively, in

conversations about why they were in school and what motivated them. While rewards like marks were an important consideration, the bottom line was that the students wanted to learn about things that were relevant and important to them in their current life experience. Learning for some future state of affairs (i.e. post-secondary school, learning a trade, etc.) was not nearly as important as finding something that interested them in the immediate now. Further, most of my students were open to the possibility that there might be something of interest to them in the material. Many of them were willing to be surprised by finding something of interest in the material. The coercive nature of teaching and learning was something I learned to challenge and be aware of.

In addition, through inquiry into what my students understood about the learning process I discovered how amazingly conscious and intelligent my students actually were. Before entering the teaching field I had dreamed about having terrific student/teacher relationships in an open environment of learning. However, in the process of learning techniques and methods of curriculum delivery and classroom management, I learned to see the students as objects into which knowledge and skills were being placed. This is not a surprise considering that much of the pedagogy I was taught was rooted in Skinnerian behaviourist ideas where the subjective nature of teaching and learning is minimised. I realized that the way I *treated* my students, as demonstrated by *how* I taught them, was essentially as objects into which I was pouring skills and knowledge. In my initial practice, the beingness of my students, who they were as sentient, holy people, apparently did not matter.

My attitude toward my students changed. I learned that my students were sentient, intelligent, and unique beings that I had the privilege to work with. I learned to really listen to what my students said and to adapt myself accordingly. Situations that had previously led to

difficulties and confrontation became opportunities for conversation and discussion. To put it in Martin Buber's terms, I learned to address my students as holy and sacred Thou's with whom a dialogue could be formed rather than seeing them as "its" at whom I projected a monologue. I re-cognised that my students were amazing and wonderful people in their own right and it was this re-cognition that was the major impetus toward finding and implementing a different form of teaching. Had I remained focussed exclusively on curriculum delivery I probably would not have significantly changed my teaching style. However, the more I worked with students the more I felt compelled to teach other things that would serve the students in their lives.

My initial concentration on the curriculum and the development of interest for the course material within my students eventually gave way to wanting to help my students become fully functioning, self-responsible, internally motivated and conscious people. Further, I discovered that teaching my students to become more conscious and aware could be done at the same time as, and within the context of, the curriculum – we could do both at the same time. My students taught me that my understanding of the teaching-learning process needed to be changed.

On the road to change

Reasoning that secondary high school students had had many experiences in classes with other teachers, I elicited class discussions about how we would run our class so that it worked – i.e. the work got done, the environment was relaxed, harmonious and focused, and people found the experience to be meaningful and enjoyable. Based on their own experience the students knew exactly what worked to make a class an enjoyable, meaningful, and functional work environment. I/we discovered that the less rule-oriented the class was, the more cooperative and enjoyable things became. For example, a common rule was for students to ask permission to leave the class to use the facilities, have a drink of water, go to their locker, etc. Reasoning that

we were all mature, responsible adults, my students were encouraged to leave the class, do their thing and then return in a few minutes. My permission was not required. The result was that it shifted the responsibility for a student's actions into their hands rather than being enforced from my position of authority. My students who were and are mature people were given the opportunity to act in a normal and appropriate manner in a normal situation. My students understood that the rules were contextual and fluid rather than concrete and rigid. The more I moved away from set rules and more toward the general principle of a functional, enjoyable environment, the better things became. People got the work done and they found that their stress level, and mine, decreased.

As I stated at the beginning, another aspect of the traditional paradigm that I initially embraced was to present material in a lecture format – i.e. chalk talk. The implicit message to the students was that all of them had to learn in the manner that I prescribed. I was a pretty good lecturer who utilised demonstrations, notes, discussion, questions, and humour, but I soon realized that the majority of the time I was simply talking to myself, or at least that was how it felt. Moreover, I was doing it because I thought it was what a teacher did – that lecturing to a class was what teaching looked like. But who was it really for? When I realised that chalk talk was largely for my sake, so that I could feel like I was doing what I was supposed to do, I became tired of talking to myself.

In concert with the chalk talk issue, I observed that many students who had missed two or more days of school in a row were often caught up with the rest of the class within a day or two. In other words, they had done three to five days of work in one or two days. To what degree was I really necessary to the learning of these students? In addition, I also experienced a number of “anomalous” students who caught onto things without apparent effort. Some students could

apparently read a lesson or listen to a lecture, do little or no work, and then consistently score in the top of the class. Why was I having them do class work that they did not need to do? Why was I making the entire class jump through the same hoops whether they needed it or not? Forcing all my students down the same path as one herd was driving many of them insane, but they had already been so well socialized in this mode that the majority accepted it without a blink.

I experimented. The lectures became optional. I made my lectures notes available to the students as a handout. I opened it up so that students could attend and participate in my lectures or they could learn from my notes or they could learn from another student who had read the notes. The results were quite astonishing. It was, and continues to be, a marvellous thing to be with a group of students that knew that I trusted them to find their own way. When I gave students the choice of being at a lecture or not, my students began to experiment. Some knew that they learned best by listening to a lecture, asking questions, and engaging in a teacher-led discussion of some kind. Others decided to do the work independently or in small groups. There were also those who decided to seize the opportunity to do nothing at all. No matter what a particular student decided to do, the results on assignments, quizzes and tests indicated the success of their efforts. The choices and the commensurate consequences of those choices were helping many of my students to learn self-responsibility. In effect, I removed myself from the role of being the prime-motivating factor. I was learning to place the responsibility for their actions in their hands, allowing them to practice having agency over their own actions.

My students thrived in an open environment of choice and responsibility. They were becoming independent and self-aware learners, discovering how they learned and what was the best way for them to understand things. While the vast majority of my students maintained or

improved their previous work habits and achievement scores, the main benefit was in how the overall tone and feel of the class changed. The class became a relaxed and focussed environment. Moreover, the students demonstrated that they were far more responsible and mature than I had given them credit for in the past.

Another key part of the new environment was the value of questions. No matter what style of learning they had decided to embrace, my students were encouraged to ask questions at any time. A general theme in John Dewey's work was that learning occurs when the student has an authentic, genuine question that the student has developed for him or her self. In my classes students had the opportunity to work with particular concepts for a time and then, when questions about the material had formed in their minds, they were encouraged to ask the question which served as the beginning of teachable moments. When a question was there within the mind of the student, learning took place quickly, deeply and easily. Once a student had a question, it indicated that he or she was actively engaged and ready to learn. The student was ready to learn at that moment and I would provide a lesson to that student at that time. Moreover, the lesson usually only required a few minutes. Even if I had to teach the same concept twenty times to different individuals or groups of students, the learning was superior because each person came with a question – i.e. they were actively engaged and ready. In addition, I could provide individual instruction to every student – I could build on what we had previously discussed. Working with students one-on-one or in small groups was far more productive than working with the class as a whole.

The students also learned that it was okay to not know something. Asking questions was a necessary part of learning. They learned that ignorance is not a sin, it is a simple fact of existence prior to learning. As a teacher one needs to be very gentle since asking questions is a

risky and vulnerable activity. The students also learned where to go to get their answers, whether it be in the lesson, asking a classmate, asking the teacher, or going outside the classroom to another source.

Influences

The changes in my teaching did not occur as a result of my reflective practice alone. Throughout my career I have had the fortune of being subject to many influences and serendipitous encounters with people who embodied a way of teaching that I was attracted to. In my early years of teaching, for example, I came to know a colleague named Don. Don taught students on both ends of the academic continuum (i.e. physics and non-academic general science courses) via a purely independent study method of teaching. Each course consisted of a series of thirty booklets and a time schedule of quizzes, tests, etc. which was rigidly adhered to. When I joined the staff and initially met Don I was not impressed with him or his method of teaching. He projected a cranky, prickly, loud and opinionated persona. For some time I avoided Don. However, when I conversed with his students I discovered that the majority of them enjoyed both Don and his method immensely. Further, they stated that they were learning new skills of being independent and autonomous learners. Don and I developed a relationship whereon I found him to be a compassionate and thoughtful individual who projected a cranky, prickly, loud and opinionated persona. Over a period of several years we would “discuss” teaching and education. Almost every aspect of Don’s practice challenged my understanding of how students learn and what my role was in that learning. By the time Don decided to transfer to another school I was willing to try independent learning. Using Don’s lessons and my own materials, I created sets of lessons for both of my physics courses. Acting on Don’s suggestion, I experimented with giving no lectures at all. However, it became apparent that for some students an oral explanation or

demonstration of some kind was required. Well timed class discussions or lectures, optional of course, were a good vehicle for addressing certain concepts and ideas.

There were also two other strong influences on my teaching practice. During the first ten years of my teaching practice I was also involved in studying and teaching a philosophy of life called Concept Therapy. Through a study of Concept Therapy I learned how to relate to people from their point-of-view and awareness. It also taught that people were in a state of becoming and that given the appropriate environment and opportunity people will grow and flourish. Further, while people may be influenced by ideas provided by a teacher, they will develop, change and evolve in their own way. In addition, while teaching full time I also worked through graduate school toward a masters and a doctorate. My studies in philosophy and post-modern thought challenged nearly every idea I had about the purpose and function of education. As my understanding changed and developed I simply could not continue to teach as I had before.

Structured independent learning

The method that I utilise in my current teaching is based on everything I learned as outlined above. At the heart of each course are a set of thirty three well prepared and edited lessons. The lessons contain the relevant information, examples, lab activities, and problems from which students can learn the course material. Students are also provided with a calendar that outlines when lessons are to be worked on, occasional lecture dates, assignment and activity due dates, quiz dates, and exam days. On the first day of class the students are given a handout that explains how the course operates (see Appendix A).

The structured independent approach transforms the teaching and learning experience. First, the power differential between the students and myself is not a significant factor relative to traditional approaches. I rely on creating respectful and reciprocal relationships with my

students. While I remain in charge of the class and correct people's behaviour when it becomes detrimental to others, the choices of whether or not to work, finishing assignments or not, asking questions, etc. is placed, by and large, in their domain.

My central role has changed to being a “guide on the side” rather than a “sage on the stage.” Individual relationships between the students and myself are formed. Through an individualised approach I can adapt the course to individual student needs. I can provide alternative calendars for students who have large time commitments to other pursuits like elite sports, the band program, and special outside interests. Students can, if they wish, negotiate their own time table, to which the vast majority respond in a mature, positive and engaged manner.

Teachers tend to be far too conservative in their appraisal of the potential for students to be self-responsible learners. In my experience, the majority of students thrive when given the opportunity. They may require guidance in how to be self-responsible learners, but the true source of their motivation, from within, is allowed to be seen and recognised. There is nothing more powerful to develop self-understanding than for students to develop their own skills at being self-responsible people.

My confidence in my teaching stems from the feedback I receive from my students. First, their achievement scores continue to be significantly above the provincial average. Second, the rate of students dropping my classes is quite low. Most significant are the responses I receive from my students. The last question on the final test at the end of each course asks the students to write a paragraph or two in response to the following question:

People learn different things in different courses depending on both the interests, aptitudes and attitudes of the student and on what the teacher brings to the course of study. **What did you learn that was valuable to you in this course?** Your response does not have to be about course content or anything else in particular. Your response can be personal, or not, but your response should include a reason

or explanation. In addition, your response is your response and should not necessarily be written for my benefit.

The vast majority comment on how they grew personally in addition to learning the course material. Some typical responses are:

This course is unique in the way it is designed. The independent learning style has many advantages for me. I can work at my own pace and I always know what I should be doing. The things I have gotten out of this course won't only be a broader knowledge of physics, but it has taught me time management and working skills that most courses cannot build. The flexibility offered in this course added to my learning experience and helped me in learning the course material. I think this class is the best learning environment in the school as you actually learn skills you will use out of school. (Cody, grade 12)

As you know, at the beginning of the course I was sort of sitting on the fence trying to decide whether to stay in this class or not. I am glad that I made the choice to stay. I have learned good study habits including time management, study skills, reading skills, question asking skills, and I learned to motivate myself. I think this course has prepared me well for the learning challenges in university and beyond. I also learned some cool physics stuff too! (Breanne, grade 12)

In this course I had a lot of fun. It was my favourite course all year. I believe it was because I had more freedom than in any other class. On top of that though, I learned to take responsibility for my own learning more than in any other class before. I also learned to use the teacher as a resource more than depending on the teacher to teach me everything. Learning on my own like this was exceptionally valuable to me because I learned to take more responsibility and to help me prepare for the real world where there will not be anybody to teach me anything about everything. (Michael, grade 11)

Many students also report that they experimented with doing work and not doing work. They found that there was a direct correlation between their efforts and their performance. Moreover, they appreciated the opportunity to be able to experiment without a teacher “ragging” on them.

Structured independent learning can transform the teaching experience into a cooperative and meaningful experience. It empowers people and gives them agency in a conscious and open fashion. Students have the opportunity to become **aware** that they are self-responsible beings.

People can have great success and people can also experience failure. I monitor what students are doing and when it is evident whether a person is experiencing difficulty due to the course material or if he or she has decided not to work. For those who want and need help, I am there for them. However, for those who decide not to work, I will with kindness and non-interference, let them sink or swim on their own. In any case, the students can take credit for their own successes and failures. It is not the teacher that gets the credit for how well they did in the course. I want them to learn to outgrow their dependence on a teacher. The goal for students to become independent and inter-dependent learners is, in my view, a hugely important part of learning to be a human being who is responsible for his/her actions.

Final thoughts

Structured independent learning is something that I have developed through years of reflective teaching practice. It works for me because I firmly know that it works for my students. It is not what every teacher should embrace and do in their practice. Many teachers do wonderful and meaningful work with students within a more “traditional” paradigm. I am advocating that teachers be reflective in their practice. If a particular way of doing things works for the teacher, students and other interested people, then by all means continue such practice. If, however, there are parts of one’s practice that does not work and is detrimental or hurtful to students, then such practice should and ought to be challenged and changed. If you really want to know about your practice, have the courage to ask your students, listen to what they have to say, and be willing to change your practice in response to what they have to say. Students respond to teaching that embodies authenticity, integrity and love.

Appendix A

Structured Independent Learning

I have spent more than fifteen years teaching high school science courses in a variety of ways from traditional teacher-centered classes, to computer-based instruction, to approaches where students were completely independent. I have, to the best of my ability, provided the appropriate materials, instruction and structure to help students succeed. However, the success of these approaches has, in my experience, been largely dependent on the student. Some students learn well on their own, some want a teacher to provide notes and lectures, while others enjoy a combination of independence and teacher direction. Some students have been willing to ask questions, even at the risk of sounding stupid, while others have not spoken a single word to me throughout the course. Some students do every problem, read every line, and take down every note, while others have done as little as humanly possible. In short, *every learner is different and unique*.

Having made this discovery I have endeavored to provide a course that will allow every student, as far as possible, to choose the manner in which he or she wishes to learn Physics 20 and Physics 30. My courses are structured so that every student can learn to become a self-motivated, self-responsible, independent and self-aware learner. In a larger context, beyond school, once an individual knows how to learn for him or her self all things become possible. This course format provides you with an opportunity to become a self-motivated, self-responsible, independent and self-aware learner. As in all things, one learns by doing.

At the heart of each course are a set of well prepared and edited lessons. The lessons contain the relevant information, examples, lab activities, and problems from which you can learn the course material. Your task is to:

- ⇒ Read each section of the lessons to understand the key concepts involved.
- ⇒ Read, work through, study and understand each example problem.
- ⇒ Make notes of key ideas and do the practice problems.
- ⇒ Do the assigned problems to learn the concepts.
- ⇒ **Ask questions** if you do not understand something. I will always answer your questions to the best of my ability. **Learn to use me as a resource.**
- ⇒ Enjoy the learning experience.

For some lessons I may provide a “lecture class” where I will explain the lesson material. I will also occasionally provide demos, video materials and websites that will help to clarify the physics principles. However, the lectures are never a substitute for reading and studying the lesson material. The majority of the instruction is done within the lessons and by **asking me questions** when you do not understand something. In fact, it is when you have a question that you are demonstrating your willingness and readiness to learn something. In my view, learning becomes possible when a student has a question in mind. If there are no questions within a student’s mind, little or no genuine learning is actually taking place.

You will also receive a calendar outlining when lessons ought to be worked on, assignment and activity due dates, quiz dates, and doomsday exam days. While I understand that many students have trained themselves to finish the work for a quiz or a test just in time, I urge you to use a different strategy for this course – i.e. get the work done ahead of time. The calendar indicates

when work on a lesson should be underway and when it should be completed. The answer key for each assignment is posted on a bulletin board at the back of the room and you should feel free to check your solutions at any time. When you are ready to hand in an assignment, mark the assignment using the answer key and then bring it to me. I will look over the assignment, ask a few questions, and then record the mark. If you hand in your assignment on or before the hand-in date add 10% to your mark. Assignments may be handed in on the due date and for one day thereafter without penalty. Unless there are special circumstances, no work will be accepted beyond one school day after a due date.

Since you are given a calendar of everything that will be covered in class on a daily basis, you will know when quizzes and tests are to be written. It is your responsibility to read the calendar. If you know in advance that you will be missing any school days, you should **talk to me**. It is your responsibility to **talk to me** about missed work. I will probably not chase after you. You will receive a zero for any missed assignment, quiz or test.

A key to success is attendance – be in class everyday. Being in class means to be there mentally and physically. Just a body showing up is not enough. I will check the on-line attendance during the class. If you are late, please move quietly to your seat and settle down to the task at hand. I will not repeat things for the benefit of those who are late; the people who are on time and working will have my time and attention. Remember that being late is always preferable to missing an entire class.

You are responsible for your own learning. You may work with or ahead of the calendar schedule. Some students work well on their own and others learn best in groups. If you demonstrate through your actions that you can handle the responsibility of working independently I will be pleased to give you as much freedom as you require. However, if by your actions you demonstrate that you cannot handle the responsibility, I will work with you to help you learn how to be responsible. Working behind the given pace usually results in students becoming so far behind that they have no hope of catching up. If you decide not to work, I will, with kindness and non-interference, let you sink or swim on your own. Of course, personal situations do arise. If there are extenuating circumstances, **talk to me**. The main objectives are to learn the course material, develop self-responsibility for learning, and to enjoy the entire experience. Further, while it is your choice whether you work or not, I will not tolerate your interference with other students' efforts to learn. A mature and responsible attitude is expected at all times in the classroom, in the school, and for off-campus field trips.

I believe it is my job as a teacher to provide the best environment in which learning can take place. If you have any questions or concerns, **talk to me** and bring them to my attention. If you are not learning things effectively, **let me know**. We can work something out.

Bring paper, binder, pen, pencil, eraser, and calculator to each and every class. If a textbook is required for a particular class, one will be provided for you. You will also be given a formula sheet that you may use for writing any equations, notes, or whatever you like on one or both sides of the sheet. You are allowed to use your sheet for any quiz. However, for doomsday tests and the final or diploma examination you will receive a new formula sheet.

Do not hesitate to **talk to me** about any problems or concerns you may have. I would also enjoy being told when I have done something right as well.

Let us endeavor to make your learning experience the best you have ever experienced.