

Chapter 4 – Results

Focused Study with “Derek”

Derek began his secondary school teaching career as the only physics teacher at a private school. The school had only begun offering secondary level courses in the two years before Derek joined, although it had very long-standing elementary and middle school arms, so he was not alone in being a new teacher at the school. Although a few of the teachers in the secondary program had “moved up” from the primary and middle school, most of Derek’s colleagues had been with the school for two years or less. Many of Derek’s students were also graduates of the elementary and middle school programs, although a few were starting with the high school. Derek felt that the school had relaxed its high standards for admission to get the high school program going, but also felt that the school would become more selective as the years went on.

Derek felt that he had a very light workload in his first year, especially compared to what he had seen in public schools. Derek taught four 45-minute periods a day, on a trimester system. One of the periods involved supervising a study hall, so Derek found himself with a certain amount of what he termed “downtime.” This extra time allowed him to plan ahead, reflect on his teaching, and keep caught up on his work. He also performed a few extra duties, especially helping his fellow faculty with their computers. Derek did not chafe at these extra duties, and in fact welcomed the variety. He noted that the tedium of working on a single project for hours is part of what drove him away from research. The diversity of tasks demanded of a teacher, along with the feeling of doing worthy work, is what drew Derek to teaching.

Preparing for the School Year

Derek knew where he would be teaching before the summer began, so he was able to spend part of the summer productively planning for his first year. He sketched out a rough plan for the semester, and talked with other teachers about the curriculum for his

physics class. Since he was essentially starting the physics program from scratch, he spent a great deal of time ordering equipment and designing his laboratory. The school distributed laptop computers to all faculty, and Derek spent some time familiarizing himself with the computer, and helping colleagues become acquainted with theirs. He also took time to review the textbook that the administration recommended for the course. He was generally pleased with the content and presentation of the textbook. Although he felt that the problems were not challenging enough, he knew that he could locate or create appropriate practice problems easily.

Derek characterized his actual level of preparation as “minimal,” and felt comfortable with this situation. He continued his habit from student teaching of planning lessons one day ahead. At the end of each day, he would reflect on the day’s events, and plan the next day accordingly, within the framework of the global plan he sketched out over the summer. Since he knew that he would have to be constantly revising his plans to adapt to student needs, he did not feel that long-term planning was an efficient use of his time and energy. In his opinion, this strategy worked well for him throughout the semester.

Derek felt very confident in his physics content knowledge, so he had few concerns about curriculum and classroom instruction. He consulted with fellow teachers and the administration about his curriculum, and chose topics that he felt comfortable teaching, and could get personally excited about teaching. He also wanted to choose topics that would help students prepare for future science classes such as chemistry, along with topics that would be useful and interesting to students who did not plan to study science further. He did not hesitate to change the traditional order of topics for his class, and he had the freedom to do so. He began the semester with a basic unit on electricity and circuits. He avoided the abstraction of electric fields, and focused on things that students would have experience with coming into the class. Derek felt that it was important to begin with a simple unit so that he and his students could get to know each other. He felt that the strategy was successful; students were interested in the subject

matter, and developed some mathematical sophistication. Once students had become more familiar with his teaching and assessment style, and had gotten more comfortable with concepts of significant figures and scientific notation, he felt that he could get into the “meat” of his physics course: the study of mechanics.

Developing Collegial Bonds

The summer before Derek started his new teaching job, the school organized a faculty retreat. Derek was just one of a number of new teachers coming on board that semester with the new 10th grade class, and the administration thought it appropriate to afford the teachers an opportunity to get acquainted beforehand. Although he felt that he would not have gone to such an expense if he were an administrator, as a new teacher Derek found the retreat pleasant. At the retreat, faculty and administrators discussed policies, rules and schedules, the mission of the school, and goals for the students. For example, a large amount of time was spent debating the merits of various dress codes. In addition, Derek talked specifically with the other science and mathematics teachers about facilities, teaching strategies, and equipment purchases. In all, the retreat was deemed to be a success, but Derek predicted that future retreats would be held closer to home, to reduce the expense.

Derek felt that the retreat was a very important factor in establishing the strong spirit of faculty cooperation at his school. In contrast to the school where he did his student teaching, where contentious factions and “cliques” were the norm, Derek’s full-time assignment placed him among colleagues that were united in their desire to support students and each other. Early on, he sought to help out other faculty members, and felt that he was able to “bond” with many of them. While occasionally faculty members could display selfish and territorial behaviors, they were always willing to compromise and focus on the interests of students. He felt that his new colleagues were smarter and more willing to work together than the teachers he met during his student teaching. This

spirit of mutual respect and cooperation has made Derek more willing to do extra things to help than he was in his previous situation.

Derek felt that the unity and cooperation of the teaching staff was a great help in working with students. Frequently, he would discover that although he was very different in personality and approach than some of his colleagues, their experiences with the students (positive and negative) were very similar. Because of the high degree of cooperation between faculty, the students at the school got virtually identical messages from all of their teachers, in terms of rules and expectations. Derek felt that this “united front” helped students to perceive the faculty as a group enforcing established rules, rather than individual teachers capriciously “picking on” individual students. Because of this support structure, Derek felt under much less pressure and anxiety than in his student teaching assignment.

The cooperative spirit of the faculty also showed at faculty meetings. Most of the routine interactions between faculty and administration took place via electronic mail, but the faculty at Derek’s school still had faculty meetings every two weeks for a little over two hours. Although some of the faculty found this excessive, Derek felt that this was a “bare minimum” for a new school. Faculty typically saw the meetings as a necessary evil, worth doing to make the school the best it could be. Derek thought that it spoke well of his colleagues that they wished to hold meetings on their own time, after school hours, so as not to “rob” students of class time. At the meetings, teachers engaged in a mixture of social conversation and issues pertaining to school policies and individual students. Derek saw the social conversation as inevitable, since most teachers are by nature outgoing, and have few opportunities to interact with adults during the school day. The minor tensions and disagreements between faculty at meetings tended to revolve around issues of allocation of students' extracurricular time between sports and academic tutoring. The discussions occasionally became heated, but mutual respect and a spirit of compromise usually won out.

Derek saw the positive attitude toward meetings was rooted not only in the respect between teachers, but also in the good relationship between teachers and administration. There were occasional disagreements between faculty and administration, but Derek observed that they were generally over minor issues such as class schedules and classroom furnishings. Occasionally there would be an impasse where the teachers would become stubborn and the headmistress would try to impose her desires on the faculty, but in general Derek felt that there was as much of an atmosphere of compromise between faculty and administration as there was between faculty. The administration frequently allowed teachers to do things their own way, and this made teachers feel empowered to make a difference at the school. Teachers were generally allowed to try new things, even in situations where the administration might want to do things differently.

In general, Derek felt that the small size of the school, and the fact that it was a brand new school, promoted the spirit of respect and camaraderie between teachers, and between teachers and administration. He felt very comfortable talking to his fellow teachers about topics ranging from individual students' needs to the schedule for the next semester. He was happy to help many of the other instructors with their computers, and trade "war stories" and useful pedagogical advice with them. Derek hoped that in the future he would be able to observe some of his colleagues' classes, to see what works best for them, and learn from their experiences:

One of the things I love to where I'm at right now, because I have so much respect for my colleagues in the new school, is hang around and talk about individual little situations: "What would you do if? What did you do when? Well, I had this happen to me..." You know, that sort of thing.

Working with Administration

The sense of collegiality that Derek felt when working with his fellow faculty extended into his dealings with the school administration. The head of the school showed

a great deal of respect for Derek and his colleagues, and was always there to support them. Administration was very demanding of teachers, but was ready to provide resources and suggestions for action. The close, tight knit nature of the school has helped to foster communication and a spirit of cooperation. To Derek, faculty meetings were streamlined and efficient affairs, where teachers felt that their ideas were honored, and that they were not simply being dictated to. Derek found this a refreshing change from his experiences during student teaching.

Derek found that the administration was always willing to back teachers up in dealing with parents and students, also in contrast to his student teaching experience. In fact, Derek was surprised on a few occasions at the stern tone that the head of the school has taken with students, individually and as a group. It seemed to Derek that in the wake of some unpleasant incidents, the head of the school was trying to nip disruptive behaviors in the bud, by coming down hard on students early on. Overall, Derek felt that the administration projected an effective aura of strength and authority to parents, students, and trustees alike.

Personally, Derek had mostly pleasant dealings with the head of the school. He felt a great deal of support, in terms of resources and discipline. While the administration could seem “penny pinching” at times, Derek felt he could generally get materials that he needed when he needed them. He would have occasional disagreements with the way things were run at the school, but he felt that the decision-making process was usually fair and efficient. He truly enjoyed being in a climate where he could make suggestions for improvement without the feeling of being critical or the fear of angering those in power. He has received positive feedback and fair, helpful criticism on his classroom technique from the head of the school, and has found her advice useful. In general, Derek liked and respected the administrations methods and results.

Although Derek felt that the discipline policies at his school were “extraordinarily sensible,” he was occasionally less than pleased with the administration’s enforcement of

those policies. He worried that administrators were "a bit on the lax side" in some cases. In one instance, he found a student wandering around campus without permission, and took her to the Head of the school. To his surprise, the student simply received a short lecture and was sent back to class. Derek believed that it was important to make an example to the rest of the school of students who exhibit unacceptable behavior. Still, he found more participation by administration in matters of student discipline at his current school than he had seen in the public schools.

One area where Derek and the administration had significant disagreements was in the relative importance of moral instruction of students, and the role he would play in that instruction. Coming from a secular background, Derek was understandably out of his element in matters of moral instruction. In previous situations, he found that schools usually gave only lip service to developing students' morals and character. He also felt that teachers are better equipped to oversee a student's intellectual development than to assist his or her moral development. He also confessed to being at a loss when it came to assessing moral development: "Well, it's hard to test for morals, isn't it? It's easy to test algebra."

He acknowledged that his status as a non-Christian at a Christian school is mostly to blame for his disequilibrium. He quickly realized that while schools without religious affiliations can try to reinforce moral ideas, at a Christian school, moral instruction is integral and emphasized. This would no doubt be one of his greatest challenges at his new institution.

Refining a Teaching Style

Throughout the school year, Derek's teaching was driven by the idea that arousing students' curiosity and helping them try to understand concepts is what teaching is "all about." He drew upon a number of past experiences when establishing his teaching style at his new school. When he was a teaching assistant in graduate school, he focused on

giving students the information and help they needed to discover things on their own. As a teacher of preparation course for standardized tests, he used a fast-paced style focused on developing his students' reasoning abilities. He wanted to continue to do both in his career as a high school teacher. He felt very little stress as the semester began, and did not anticipate difficulty:

I mean, c'mon. (laughs) You put... you put 12 upper-middle class 15-year-olds in a room, and you teach them something that you have a Master's degree in, that's not too hard to do. (laughs)

Derek rebelled against a philosophy of physics teaching centered on memorizing a large number of specific situations with the attendant equations. He wished instead to teach students a small number of important ideas, concepts, and equations, and then show students how they can be applied in a large number of situations. He sought to reinforce the basic concepts while enhancing student interest with more advanced topics. Derek also resolved to focus on topics that he found personally interesting, especially in the second semester.

In one of his preservice classes, Derek was introduced to the theory that many different outcomes are possible from a given lesson: emotional, intellectual, aesthetic, and so on. Derek was intrigued by this idea, and believed that all teachers should try to realize all of these outcomes to some degree. However, he also felt that science classes are often set apart from courses in other disciplines, in that science places the greatest focus on intellectual outcomes. That said, he did want to have some emotional impact on students, in the sense that physics can be interesting and fun, and some aesthetic impact, in that ideas in physics all branch elegantly from a single line of thought.

Derek believed that good laboratory activities are essential to promoting student learning in science classes. He felt that laboratory exercises were opportunities for students to be active and “do stuff” as they explore and discuss things together, using and

becoming more comfortable with the language of science. His efforts to present good laboratory experiments were somewhat hampered at the start of the semester by the fact that his laboratory facilities were still being built, so he had to make do with inferior facilities. He made the best of the situation, however, and did simple laboratory activities with common materials at the start of the semester; for example, he had students work with common electrical devices, such as Christmas lights and car batteries. Even when he got access to his full laboratory facilities, he resolved to keep the laboratory activities simple and accessible to students. While he did occasionally use motion sensors and other complex equipment, he encouraged students to focus on the concepts instead of the equipment. He realized that just because students can make graphs and manipulate complicated equipment, they do not necessarily understand the concepts. It was more important to Derek for students to relate physics to their everyday lives than to impress them with high technology.

Once he got access to his permanent laboratory facilities, Derek increased the role of laboratory work in his teaching. However, he still fell short of mandated levels of time spent in laboratory work, viewing those high levels as “unrealistic” given that time needed to be allocated for assessment and introducing students to the concepts to be studied. Derek felt that he initially had to give students detailed instructions about what to do and what to expect in a given laboratory activity. He felt that such proscription was necessary at the start so that students would not waste time on unproductive activities. Derek also found that students liked structure, both in lecture and in laboratory, and would become resentful if not given explicit instructions in laboratory. Once students had mastered the simple “cookie cutter” laboratory activities, Derek felt that he could be more of a facilitator and give more open-ended activities.

Just as his initial laboratory activities were very structured and proscriptive, Derek initially employed a very lecture-oriented teaching style in the classroom. As the semester progressed and he and the students became more comfortable with each other, he began to broaden the methods he used. Derek’s goal over the course of the semester

was for him to talk less, and for students to talk and explore more. While he had some success with this, he never completely eliminated lecture, because he believed that he and his students were more comfortable with lecture, in moderation:

Um, and in many cases what works is what the students are most familiar with and in many cases what the students are most familiar with is just, you know, teacher talks, student listens, which a lot of people say isn't the best, uh, the best way, and certainly to do it every day is exhausting to the teacher and boring to the students. But they're most comfortable with it. So, on any given day they'd rather be lectured to than anything else, even though on the whole they hate being lectured to every day, if that's not a contradiction.

Derek strongly believed that content controls pedagogy: what one wants to communicate will invariably control the methods one uses to communicate. In lecture, for example, he felt that he could explore more abstract and “what if” aspects of physics, while laboratory activities were naturally limited to the world of everyday experience. But Derek acknowledged that physics combines the difficulties of learning language with the challenges of learning mathematics, and students could often benefit from the reinforcement and repetition provided by multiple methods of instruction. Derek found that even something so simple as writing material on the board in addition to saying it aloud could be a great help to students. Derek was also open-minded about allowing students to pursue personal alternatives to traditional learning. For example, one student asked to work extra problems instead of taking notes, and his performance improved when Derek agreed.

Derek wanted students to see the ideas of physics as a connected whole instead of just another bunch of facts to be memorized. To get students thinking beyond the subject matter, Derek occasionally engaged in what he called “metateaching,” a process of talking to students about learning styles, study habits, and the “Big Picture” of the class. He

would share stories of the difficulties he had as a student, and how he overcame those difficulties. Students would occasionally share their strategies as well. Derek thought that the metateaching sessions did indeed help some students become better learners and be more curious about physics.

Derek had classes of different ability levels; he theorized that the need to schedule students in special mathematics and reading classes led to him having one class of mostly high-achieving students, and another with a preponderance of students who needed more repetition. Derek thus found himself with a problem of pacing: how could he keep all of his classes parallel without boring the class of advanced students, or leaving the lower-achieving class in the dust? Derek typically planned to present the material at a gradual pace, allowing for repetition when it was needed. In cases where a class would get ahead, Derek would steer the class into what he termed a "spontaneous digression," a discussion of a special topic in the area of physics being studied. By employing these digressions every few weeks, Derek was able to keep all of his classes on the same schedule.

Problem solving is an integral part of physics, and Derek developed a plan to help students become active and accomplished problem solvers. At first, Derek thought that students would want to know how to solve a problem before attempting it, but he found this often was not the case. Therefore, Derek got into the habit of giving students problems to do at home before discussing in detail how to do them, with the idea that if a student tried a problem on his or her own and failed, the student would realize how difficult the problem really was to solve. Then the student would come to class with specific questions about how to solve the problem. He found that students generally put in a good-faith effort to do problems, and then came in the next day "demanding" to know how to solve them. While Derek would never allow students to do future assignments in class, he would allow students to work past problems in class, often in groups. He reasoned that students who had successfully worked the problems could help their fellows, and those who failed to solve the problems could ask their classmates productive questions. In addition to the educational benefits, Derek found that these

group problem-solving sessions provided much needed breaks in his day. He used them sparingly, however, to preserve their impact.

As the son of an English teacher, Derek was interested in introducing writing assignments into his class. He felt that developing writing skills was more important in some ways than developing science knowledge, and that a small amount of content could be sacrificed to make room for writing exercises. He asked his students to write brief essays on a handful of physics concepts, first as in-class quizzes, then as take-home assignments. He was generally not pleased with the results of these essays. Surveying the student answers, Derek did not blame the students' poor performance on the essay format: some students showed poor comprehension, and others poor effort. Derek felt that those students would have done just as poorly if the questions had been asked in a different format. Even some of the students that had been doing well in other aspects of the class did poorly on the essays, a situation that puzzled Derek. The essays alerted Derek to topics that he would have to spend more time on, and he planned to organize some laboratory activities to better illustrate the concepts in the essays, to give students another perspective. To give students more practice writing, he asked students to read and report on science-related articles in the media, when he could find such articles. He attempted to consult with humanities faculty about the possibility of cross-disciplinary efforts, but did not find resistance so much as "shock" at a novel idea. He hoped to pursue this more vigorously in the future.

Derek had a bit more success with long-term student projects than he did with the essays. Students were allowed to choose their own projects, and Derek felt that as a result some students had a sense of ownership about their topics that enhanced their enthusiasm. He was very explicit about standards for the projects at the start, so that performance would be based primarily on student effort and not comprehension. He also offered to look at first drafts of the students' and make suggestions for improvement. Unfortunately, only one student accepted, but Derek felt that that student at least got some benefit from his comments. The students' performance on the individual projects ran the

gamut from college level work (“fantastic”) to sub-high school level work (“very weak”). Most of the students who performed poorly were already doing poorly in the other aspects of the class, and Derek chalked up the poor performance to poor effort. He wrote extensive comments for each student’s project, and in many cases was able to take an opportunity to teach the student more about the scientific process. In all, Derek thought that the individual projects were a successful pedagogical experiment, and he was glad that his school gave him the freedom to try new things, without pressuring him to cover a “laundry list” of material to the exclusion of all else.

Derek faced the familiar challenge of having students of widely variable ability levels. He found this wide range of abilities frustrating at times, but always reminded himself that a great deal of responsibility rested on his students’ shoulders. Although he found himself catering most to the mid-level students, he always tried to find time to challenge the most talented students with supplementary material while including enough repetition and reinforcement to avoid leaving the less talented (or motivated) students behind. He generally felt that he was successful: the high-achieving students still had to work hard to make good grades, while the lower-achieving students found that they could understand many of the concepts, and were motivated to increase their effort levels.

Derek was concerned about preventing his students from falling behind because of procrastination. He felt that in general his students were talented, and that most of them could do B or C level work without too much effort, so he would not go so far as to say that procrastination always leads to poor performance. However, he felt that in general, lack of student effort eventually leads to lack of student comprehension, and that a responsible teacher should work to interdict student tendencies to procrastination. Derek tried to attack procrastination on two fronts: frequent homework assignments to keep students active and long-term assignments that cannot be completed at the last minute. Derek proposed that if students are given small amounts of work to do, they will put it off, and so the teacher must keep them busy. He found that small, frequent quizzes also encouraged students to keep up with the class. Derek was unsure of exactly how much

his methods prevented student procrastination, but he did feel that some students were able to make reasonable assessments of the effort levels they would need to succeed.

Derek often had to wrestle with issues of what grades to assign to students in different situations, realizing that he was in a new and unfamiliar situation, and may set his standards too high. He quickly found that there were very few students of “average” ability in his classes; his grade distributions were often bimodal. He faced the dilemma of how to make the better students’ grades meaningful while encouraging the lower-achieving students to increase their effort levels. Derek believed that when grading, teachers should err on the side of being too lenient. Consequently, occasionally gave students grades of D when failing grades were warranted. In many cases, he knew that students were having personal problems, and did not wish to add to the students’ troubles with F grades. He noted that for many students and parents at the school, D and F are both failing grades. On the advice of the head of the science department at his school, Derek curved scores generously at the start of the semester. He decreased these curves as the school year went on and he became more familiar with the students’ capabilities, and predicted that in future semesters he would be more strict in grading. He refused to curve one test to send a message about performance to the students, a message that he feels was received by some. The bimodality of the grade distributions has diminished somewhat, with lower-performing students improving their performance.

Derek was adamant about maintaining high expectations and standards for his students. While he realized that some students might not have the ability to learn certain things within the time frame of a semester, Derek was appalled at the low expectations he encountered in his public school experiences. Even worse, it seemed to him that expectations were getting lower and lower every year, and that lower standards were being applied to certain groups of students at some schools. Derek felt that low expectations naturally yield poor results, so he was determined keep standards high in his classes. In fact, he was pondering raising expectations for the next school year, so that a work level that would earn a C his first year would only be worth a D next year. He felt

that his high expectations were rewarded with high student performance: he expected his students to behave better and work harder, and by and large they met those expectations.

Looking back at his first year, Derek felt that his expectations about the students' mathematical ability and listening skills were very unrealistic at the start, and he had to seriously modify those expectations. He felt that his pace at the start of the year was much too fast, largely due to his inexperience and poor communication with the students. He learned that that students were reluctant to speak out when they did not understand something, and often simply nodded "rhetorically" when asked if they understood. Derek found it very frustrating that he had to curve tests so generously, when it seemed that students understood the concepts:

They were fakin' me out. They were pretending that they understood more. So, because of what they seemed like they were understanding in class, and what I assumed that they would be able to follow, I was going... I was putting a lot of really tough stuff onto them at the beginning of the year, and I was very frustrated at their level of performance

Derek found himself slowing down the pace of the class, and working hard to break the conditioning that students had to say they understood something when they really did not. Eventually his rapport with his students improved, and once they became more willing to express confusion and lack of understanding, he was able to pick up the pace. This experience reinforced the idea that a teacher should always try to assess student understanding, keep an open mind about the results, and adjust the pace of the class according to the results. Students frequently required large amounts of repetition, more than Derek would have predicted at the start, to finally understand certain concepts. By the end of the year, Derek believed that the pacing of his classes was more realistic, and that the students were working harder and getting more out of the classes.

Derek enjoyed seeing his students “grow” as learners over the school year, and was pleased to see growth in himself as well. He felt that his students were able to adjust to him, and that he was able to adjust to them as well. As a result, some of the students were able to become comfortable with the basic elements of physics, and some of the finer points as well. Some students were able to appreciate the importance of achieving understanding as opposed to just memorizing, and to realize how the various elements of the class – the text, the lectures, the homework assignments, and the laboratory experiments – work together toward the goal of understanding. In all, Derek felt that many of the students improved their performance as learners, because the students were trying harder, and so was he.

Before this teaching assignment, Derek had never taught a group of students for an entire school year. He wondered at first how he would get through the year. By the end of the year, he was wondering how he could “let the students go.”

Enthusiastic Students and Disruptive Students

His first year, Derek found himself teaching all but one of the tenth grade students at his school, a total of 47 students in four classes. Derek felt that most of his students had made a choice to come to the school and sincerely wanted to be at the school. Instead of viewing their education as a “sentence,” most viewed it as an opportunity that they had to work to get access to, and had to work to maintain. Therefore, it seemed to Derek that most of his students valued their education and put effort into it, even though they might phrase things more viscerally:

They don't sort of say, "Oh, I'm getting a great education here," except, you know, when they are in their most cerebral modes. They say, "I like it here. I want to be a part of this. I like the way it is here."

Derek felt that in general his students have been cooperative and responsive to his authority. After a brief period of establishing his expectations and policies, Derek was able to put to rest most of his concerns about classroom management issues. His students were very good about following instructions and completing assignments. Most of the students were courteous during class and allowed other students to answer questions without outbursts. Students usually needed only gentle reminders not to interrupt. He found that many problems with disruptive behavior began to ease when he moved into his official classroom, which had more room for students to spread out. Over the semester, Derek experimented with different room configurations, trying to get students close enough to maximize productive communication, but so close as to promote non-productive socializing.

Derek sensed that there was always an “edge” to the class, a readiness to waste time. His biggest problems were usually in getting class started at the beginning of each period, or after an interruption such as a fire alarm. At the start of each class, he tried to have a task for students to perform, and he would always give students an assignment if he had to leave the room, to keep them focused on learning. As the school year went on, Derek found he was actually able to leave the room during some student activities without most of the students noticing. He believed that the students displayed such focus and persistence because it was expected of them, because the behavior was modeled all around them, and because most of them had developed a good ability to avoid distraction.

Derek felt that most of the problems that students had at his school were not discipline problems, but academic ones. Further, he found that most of those problems stemmed from a lack of effort, not a lack of ability. Derek characterized a few of his students as just “marking time,” putting little to no effort into their studies, and falling behind as a result. He suspected that the school would not invite many of these students back after the school year was over. He noted happily that such unmotivated students seemed to be the exception, and not the rule, at the school, in sharp contrast to his experiences in the public schools.

Derek placed his students into three general categories. He placed students that were the sources of most classroom discipline problems in the category of “jerks.” For some reason – perhaps because they had to take the same remedial mathematics and English classes – Derek found that one class in particular had an overabundance of these poorly performing and disruptive students. He found that perhaps his greatest challenge was in managing these “classic goof-offs” and their antics:

Then there's another gang who are always just giggling and slapping on each other before class and they take a really long time to get settled down... They're disruptive and they, you know, turn around or they don't have their books open. They make no pretense of trying to work on the problem that's on the overhead... They're just always grabbing each other, and horseplay, and constantly needing to be told to stop talking.

These students were a concern to Derek for a number of reasons. He soon fell behind his schedule in teaching this class, because he had to frequently take time out for discipline. Because of the presence of so many disruptive students, he found that class particularly difficult to calm down, both at the start of each day, and on occasions when he had to leave the room. They were a distraction to other students, which annoyed Derek because this meant that the students were not just harming themselves with their bad behavior. However, Derek noted happily that other students would try to distance themselves from the disruptive students. He also tried moving the students to different places in the classroom, which had some success in eliminating disruptions. Most of all, Derek was concerned because of the strong correlation between behavior and academic performance. He found it very disappointing that many of these students chose to waste their potential.

At first, when Derek took some of these disruptive students to task for their behavior, they acted offended, as if Derek were singling them out for unfair persecution.

As the semester went on, however, other teachers and administrators at the school began disciplining these students also. It seemed to Derek that a few of these students eventually saw the error of their ways and began to correct their behavior as a result of this consistent message.

At the other end of the student spectrum were a group of talented and energetic students who Derek found to be well behaved and academically capable. He truly enjoyed teaching these students, and characterized many of them as "thoughtful, probing, attentive, eager." He was very pleased to see their ability to follow along in class and occasionally go beyond the material in the text. Some students were even willing to stay after class to discuss class material in more depth. In Derek's view this was in sharp contrast to students in the public schools, who were "virtually unstoppable" when class was over.

The majority of Derek's excellent students were in the same class, probably due to the same scheduling coincidences that led to him getting a class with a large number of disruptive students. Unlike many students, who devote a large portion of their energy to divining what will be covered on the tests, these students were very curious and proactive, which presented Derek with a new set of challenges. Occasionally, he would find himself falling behind with this class, because these students' probing questions and tendency to digression would use up large amounts of class time. Although he did not like falling behind, he enjoyed seeing the students so involved in their education. He often wondered why all students were not that curious.

Most of the time the excellent class would get ahead of other classes, because Derek had less need for repetition and rephrasing. However, Derek was not necessarily happy with this situation, because he liked to keep all of his classes on the same schedule, for his own sanity and so that students could help each other across classes. In cases where the exceptional class would run the risk of getting too far ahead, Derek would exploit the tendency of the students toward digression:

There's one particular class that's made up largely of very quick students, that I more often have to stretch. However, they are... that class is more prone to digressions, so I can... I don't have to make a very obvious "hand on the throttle" type maneuver with them. I can just push when I need to, and let them digress and chatter and sort of, you know, have a little fun without, uh, without working too hard.

Both he and the students found the digressions fun, and he felt that many students got better acquainted with the nature of science as a result. Sometimes the digressions served to preview concepts for later in the semester. Often, one or two students would be intensely interested in a digression discussion, and that enthusiasm would transmit to the other students. Derek enjoyed the intellectual challenge of teaching these students.

In the middle ground between the exceptional students and the disruptive students were students that Derek described as "un-academic." Although these students can be occasionally motivated to be on task, for the most part they are uninterested in learning. One such student seemed content to get a barely-passing grade on a quiz, and when Derek expressed his disappointment at her attitude, she replied that she was planning to be "just a housewife," and saw college as an opportunity to meet a husband. The student was prone to outbursts and vocal self-denigration, but Derek saw each of these incidents as more of a play for attention than an attempt to disrupt the class. Derek could not relate to this student's attitude, and was saddened by it. He reported that the student's behavior improved, but her attitude never did.

The "un-academic" students presented a special challenge to Derek, because they were so often inattentive in class. He found himself having to repeat questions and instructions frequently with these students. Derek tried very hard to engage these students in learning and keep them on task:

Then you have just extremely inattentive kids, and I'm still working on how to deal with them. I call on them fairly often and I, you know say, "[Name]," and his head jerks up, and he didn't hear the question, so I'll repeat the question... So I wouldn't call people like [Name] a jerk, but I do have a lot of inattentive kids. Um, I have a little bit of success just by directing questions at them. It helps a little to engage their curiosity...

The inattentive students were not really disruptive to any of his classes, but Derek was concerned, because these students were sabotaging their education. One pair of girls gave Derek the impression that they “couldn't be bothered to try and pay attention.” Nothing he did was able to motivate these students to pay attention. The inattentive student that most concerned Derek, however, was a student who was the victim of family tragedy and an attention deficit. The student had poor impulse control and had a few minor violent incidents, but he never seriously disrupted Derek's class. Rather, Derek was concerned because the student was getting so little out of the class, because he had such trouble staying on-task. As the school year went on, the student was able to have some success in Derek's class, as well as some athletic success, so Derek had hopes that his situation would improve.

Over the course of his first year, Derek felt that the majority of his students were "growing nicely" as learners. Many of them were able to figure out how to succeed in a physics class, and increased their confidence and satisfaction. Even students that Derek had written off as hopeless had "turned themselves around" and improved their performance by the end of the year. While many of these students were only capable of average work, Derek was glad to see them working to realize their potential. In general, he was very pleased with the growth he was seeing:

They're starting to be able to see past the difficulty and perceive some meaning in what they're doing. And they're starting to take some curiosity

in it, they're starting to work harder at it, and therefore they're getting more out of it. We're starting to talk about advanced concepts that build on the simpler ones; we're starting to talk about things that are more neat, more fun, more cool.

Some of the students who were presenting problems were able to improve their behavior, and Derek found himself having to spend less and less time correcting them. Some students had to be moved around in the classroom, and even moved between classes, to put them in an environment where they could behave properly. Many of these students were under pressure from parents and administration to improve their behavior, but Derek also cited the influence of peer pressure in motivating problem students to change their ways:

...sometimes they're just sort of looking around and beginning to realize that the role models and behavior models they were following are bad models that aren't going to do them good to continue following, and they're sort of thinking, "Hmmm, if I want to get the outcome that Person A gets, I should start behaving like Person A." Sort of watching who's doing well and sort of just imitating who's doing well.

Although in general Derek found that his students were working harder as the school year went on, he noted with disappointment that some students declined in behavior and performance. A few students had simply given up, disenchanted with the idea of continuing at a demanding high school, and with no desire to return. Some of the students appeared fatigued by a year of intense study. He even noted that one student might have been distracted by her first romantic involvement. He was encouraged, however, that some of these "backsliding" students acknowledged their poor performance, and worked hard to halt their decline.

A School Culture of High Standards

The private school where Derek taught already had a tradition of high expectations when he came in. Hard work was expected of students, parents, and faculty. Students were being frequently reminded of these expectations, both overtly through statements from adults, and covertly through the role models presented by other students. Derek noted that a few students tried to occasionally avoid working as hard as they needed to, but Derek felt that those students soon saw themselves as a minority, and realized that the level of work they have been doing is not sufficient or appropriate. Derek believed that this form of peer pressure was a powerful force in motivating students to do what is necessary to get the most out of their education:

I think the reason is, yes, it's the culture of the school. That overall expectation of all the teachers and all the students and the parents would just be that, of course you do the reading tonight if it's, you know, if the teacher assigns it for tomorrow. You know, it would almost be unthinkable not to.

An expectation of self-discipline is an important facet of the high standards of the school. As a result, Derek found that the students at his school were “pretty darn well-behaved,” much more so than the students he encountered in the public schools. While he would not characterize them as “docile,” he did find them amiable and cooperative. He had only one serious challenge to his authority the entire first year, and he was able to defuse that situation by taking the student out of the classroom and negotiating. The amiability of the students was a great relief to Derek, not only because it removed one more worry from his teaching practice, but also because he believed that well-behaved students learn more and perform at a higher level academically. He also felt that the situation would only improve, partially because the school would become more selective in future semesters, but mostly because his students would mature and become good role models for future cohorts.

Although Derek's school did not perform class rankings, name a valedictorian or salutatorian, or even calculate an official grade point average. Nonetheless, he noted that students were very grade conscious. As with other aspects of the school's culture, Derek felt that this was a combination of institutional, parental, and peer expectations. Instead of being viewed as mere statistics, bad grades were a signal to some students that they needed to change their behaviors. At Derek's school, bad grades were largely seen as a problem for the student, not a failing of the teacher.

Generally speaking, Derek felt that most of the students wanted to be at his school, considering it a "big deal" to be students there. Many of them expressed distress when they fell short of what was required of them, in contrast to the apathy displayed by public school students. A few students did not want to remain at the school, and were actively sabotaging their status at the school, but Derek felt these students were anomalies. He cautioned, however, that students were not necessarily consciously aware of their educational opportunities, but simply appreciated the school as a place where they enjoyed spending time, and where they should strive to remain:

But also an imp... an important reason behind improved performance in the kids is they all sort of look around every few weeks and say, "Gosh, this is a really great place, you know? I could get thrown out of here. This isn't automatic." You know, this isn't a sentence: "You have to go to school here." This is an opportunity: "You can go to school here." And, you know, if I screw up, then I might not get it.

Most of all, of course -- for kids here too -- they're paying attention to their social life and more or less nothing else. But, um, the source of the difference is, their teachers and their parents and their friends all their life have shown, by example and by expectation, by accepting certain things, what's going to happen with them.

Students at Derek's school knew that if they did not meet the school's standards for behavior and academic performance, they would not be allowed to remain. Tenth grade was the critical time when underachieving students would be asked to leave the school; ninth grade was thought to be too soon to judge, and expelling students from later grades would give them little chance to re-acclimate themselves to a new school. Derek generally approved of this policy, although he wanted to place students with problems on probation in ninth grade, to give them more time to work things out. A few students at Derek's school were on probation for disciplinary problems, but a slightly greater number were on probation for grades. He acknowledged that even the threat of expulsion would not be enough to move some apathetic students to action, but he noted that such apathy attracts very negative attention:

And it's... that attitude is not going to be allowed to survive, that "I didn't do it, and I don't care." That's... we're... we're landing on that kind of kid like a ton of bricks.

The school has made some efforts to give students more ownership and responsibility through limited self-governance. This was actually a departure from the culture of the school, but since the school had only just begun offering secondary instruction, it was deemed a worthy experiment. Derek was skeptical, seeing some potential for abuse, and noting that the effort would be hampered by a lack of upperclassmen at the school to act as role models. The results of the student governance initiative were mixed the first year. Derek felt that the Student Senate had done very little in the way of governing, and that while the Honor Council had been somewhat active in its charge to enforce the school's honor code, they had not taken that charge seriously enough. Derek mentioned the case of one student, characterized by Derek as "spectacularly arrogant," who attempted to manipulate the student government to his advantage. The student's efforts had to be interdicted by the administration, and Derek felt that student would likely not be invited back for another year.

Interactions with Parents

As might be expected at a private school where a student's education is a significant investment on the part of his or her parents, Derek saw a great deal of parental interaction with the school. He noted that parents did not enter lightly into sending their children to the school, and expected much of their children, and the school. Parents played a major role in establishing the culture of the school, and the school always made a great effort to keep parents involved. There was a tacit understanding that students who were not pushed by their parents to work hard would not succeed, and would not be asked to come back. Derek knew of at least one incident where a student was admonished to work harder by his mother, in a manner that Derek felt was "appropriate but strict."

Parents were also aggressive advocates for their children, and Derek could hardly blame them for it. He recalled one instance where a father called to complain that his daughter received a grade of A- instead of an A for the grading period. Derek explained that the student had not submitted some assignments, and that he had to be fair and consistent in his grading. While the parent was not entirely happy with the answer, he accepted Derek's explanation. Ultimately, Derek gave the student an A anyway, to reward the work the young lady had done tutoring other students.

Derek was impressed by the amount of respect and trust from parents that he received as a teacher at his school. He was well aware that high expectations came with that respect. He recounted a discussion with another instructor that demonstrated he was not the only teacher to notice the sharp contrast with all too common attitudes of the parents of public school students:

Derek: He said that he had a whole song and dance rehearsed after many years that he had to go through with almost every single parent he dealt with at his old school, his former school, such that he would

have to kind of talk for awhile to let them realize that he was coherent and intelligent, and then go a little bit further to let them know that he was competent and caring. Because the assumption, explicit or implicit, he found in almost every parent, was that he would be incompetent or uncaring, or both. He says that since he has come to our school, he never has to do that.

Interviewer: Okay. Why do you think this expectation exists?

Derek: I don't know... there's certainly some truth to it, isn't it? That teachers in many cases are, or certainly seem incompetent or uncaring, and, um, the expectation and the history, uh, at a private institution is gonna be much different.

Derek's school has a policy of regular "conference periods," where students and their parents meet with a faculty advisor. Each teacher is an advisor to about a half-dozen students, and the advisor is expected to gather information from every one of the student's teachers and relay that information to parents. Derek felt that because input was gathered from all of the teachers and presented all at once, the conferences were a real experience that could not be shrugged off by a student as the prejudices of just one teacher. He also felt it was more authentic for parents because they were getting information directly from a teacher:

The important thing, often, is that the parents hear from all the teachers directly what's going on, rather than sort of second-hand through the principal or second-hand through the student, or just in brief snatches... You know, it makes a real process out of what can be just a show process, or just a lecture...

An important component of each conference was the construction of a plan to help the student overcome difficulties, with the expectation that everyone will make sure that the plan is implemented. In some cases, students were given assignment sheets for their teachers to check regularly, or comment sheets for teachers to make regular reports on their behavior. The conferences were also a chance for the student to articulate his or her own feelings about what the problems are, and to have a part in constructing a plan of action. Derek noted that these conferences were often slightly uncomfortable for the student, which he felt was occasionally necessary to motivate students to avoid counterproductive behaviors. In a few cases, Derek did notice marked improvements in some students' behavior, and he gave a lot of credit to the process of formal conferences. He was also glad of the opportunity to get to know families better, and looked forward to future conferences.

Derek has also had opportunities for contact with parents outside of the formal conference system. He did not feel that he was "drowning" in parental involvement, but he felt that he could contact most parents when disciplinary or academic problems arose. He found that generally parents were amenable to the school's disciplinary actions, and he ascribed part of that to the school's religious background. Once a parent did complain to him about a disciplinary action, but Derek was able to explain to the parent that he was merely following the guidelines set down by the Head of the school. This situation was very atypical, as parents were usually supportive of the teachers' efforts:

...usually they're... they... you know, they trust and respect the teachers, and if we say [Name] was out of line, they say, "Well, [Name] had better not do that again."

There were instances where parents were difficult to reach or reluctant to listen to a teacher's advice, but Derek stressed that these parents were notable exceptions that were definitely attracting the attention of the school. Derek wondered if family problems were distracting one particular family from being more involved. In a few other

instances, he believed that parents were in denial about their child's problems, or were taking too laissez-faire an attitude toward their child's choices:

Uh, I think I've definitely seen a few parents who are doing way too much of the "Let him make his own choices" because, you know, the choices he's making are just rock stupid.

Derek had very little contact with parents as a student teacher, largely because his cooperating teacher had little contact with parents as well, and the school administration did little to get parents involved. What encounters he did have left a bad taste in his mouth; he characterized many parents as "simpering" or "on the stupid side," and sometimes wished he could put *them* on probation instead of their children. His experiences with parents at his current school, however, were in his view numerous and productive in most cases. He praised his school for always striving to keep parents involved and informed, and he praised the parents for treating the faculty like respected professionals.

Comparisons to Student Teaching

Derek imagined that an outside observer would immediately notice one big difference between the public school where Derek did his student teaching and the private school where he got a full-time position: the typical race and social class of the students. Most of the students he taught as a student teacher were minorities from low socio-economic backgrounds. In contrast, most of the students he taught his first full year were white and from affluent backgrounds. The only exceptions to this trend were students on scholarship, who Derek estimated made up about one-fifth of the student body. Derek often wondered if these students felt uncomfortable around their wealthier peers, although he never brought this up with the students.

Comparing the two student bodies and school environments, Derek strongly believed that the differences in social class were far more important than the differences in race in determining student behavior, performance, and goals. All of the students at his current school wanted to go on to post-secondary education, and Derek felt that this was a realistic goal for all but about five or ten percent of them. For most of his students, it would be “unacceptable and inconceivable” for them to not go on to college. The students were surrounded by education-minded role models and constantly reminded of the high expectations that teachers and parents had for them.

On the other hand, most of the students that Derek encountered during his student teaching had no plans for schooling after high school. Even among the students that did profess a desire to go to college or vocational school, he discovered that very few actually knew what it would take to accomplish their goals:

But these kids [at his current school] all say they want to go to college, they really believe it, as opposed to the [public school] kids, who mostly said they wanted to go to college, but absolutely had no clue whatsoever what it took to get into college. And that was obvious in sooo many ways.

In one particularly discouraging incident during his student teaching, a student asked Derek to help her fill out a financial aid form. Derek seemed surprised that she was turning to a student teacher for advice, but agreed to help. However, it was soon very clear to Derek that the student knew very little about the application process and the schools she wished to apply to. Derek was disappointed at what he characterized as "naïveté" about higher education on the student's part. He hesitated to blame the student, however, noting that she and many of her peers simply had no role models to imitate, and few mentors (such as counselors, parents, or teachers) to provide them with information and good advice.

When conversing with public school teachers about his full-time position, Derek noted of all the things that they envied about his situation, they expressed the most envy about the small class sizes at his school. Derek agreed that small class sizes definitely enhanced the learning experience by allowing for a sense of community. The teacher can get to know the students and their parents, and the students can get to know each other and help each other learn more effectively. The small class sizes, coupled with the small number of classes that he had to teach, afforded Derek precious time: time to reflect on and improve his teaching, and time to give personal attention to students in need. Even so, Derek found himself barely able to keep up with his teaching responsibilities at times, and wondered often how teachers with more and larger classes could cope. He did not greet the news that class sizes might be increasing at his school with great enthusiasm.

Derek believed that one of the biggest differences between the two school environments was the level of respect afforded to teachers. As noted earlier, Derek was very pleased at the respect and deference he felt from the students at his current school and their parents. During his student teaching, he experienced neither respect nor deference:

Also, student teaching, you know, I had almost nothing but jerks and they were all of a much, much more contrary character than these guys. They would argue and debate and spit and yell and -- not literally spit in most cases, but -- you know, really, really overly defiant and awful kids, so certainly it was appropriate or helpful in that, you know, I learned to control my temper, and to have, you know, to have much lower expectations of what students are going to do.

Student defiance would often take the form of a refusal to do work, and a challenge to the teacher to do something about it. Derek even saw many instances of student apathy as acts of defiance, almost an attitude of “I dare you to try and make me care.” Students in the public school would seldom do assigned work, whether it

consisted of reading assignments or homework, and as a result got very little out of his teaching. Derek's anger may have faded, but his disappointment never did. By contrast, students at his current school were usually willing to do reading or homework assignments; such compliance was expected of them by their parents and their peers. Derek felt much more effective in this atmosphere, and felt that his students were more curious, more enthusiastic, and more involved with their learning.

Derek felt that most of the students he encountered while student teaching had little to no desire to please their teachers, and only obeyed their teachers if their own comfort and desires required it. He cited this open defiance as the main reason he would not even consider taking a job at the typical public school. He conjectured that in the unlikely event that he would have stayed at the school where he did student teaching, the best he could have hoped for would have been "a slight increase in civility."

Derek firmly believed that the public school itself created an atmosphere that promoted students' defiant and apathetic attitudes with lax or nonexistent discipline policies. He got the impression that many students had been permitted to defy their teachers for many years before disciplinary action was even considered. By then, any discipline might be too little, too late. He proposed that such a situation might only apply to large, monolithic public schools, and that a smaller public school might provide less fertile ground for defiant attitudes. Although Derek's current school did not need to take disciplinary action often, such action was always immediately and thoroughly followed up. The contrast was powerful to Derek:

And the least action of that nature would get a kid jerked out of class here. And if they did it twice, three times, they'd be removed from the school. But in a public school, in a bad public school such as the one I was at, they've been allowed to get away with that sort of thing for years, you know... Um, occasionally they get punishments, but it's... it's not certain enough and/or it's not dire enough, and/or it's not followed up at home...

Some way or another, it just isn't reinforced, it isn't demanded, it isn't insisted upon that a better standard be upheld.

Derek did not feel that the lack of respect for teachers was limited to students. It seemed to Derek that during his student teaching, teachers received little respect from parents, administrators, or even other teachers. Derek cited this general lack of respect as a main source of teacher discontent, and noted that many of his friends and colleagues were shocked by his decision to go into such a low-status profession:

You know, I believe very strongly that lack of parental respect, and the lack of societal respect, is a big, big, big problem for recruiting and retaining teachers. But, you know, virtually everyone I spoke to in the engineering world, thought I was crazy to go into teaching; they thought I was nuts, to lose the money, to take on all the extra stress, to, um, you know, lose the respect of the job. Very, very few people could believe it.

When discussing the administration at his host school, Derek was quick to give the caveat that he had very little contact with administration during his time as a student teacher. This was in sharp contrast to the large amount of collegial and respectful contact he had working with the administration at his current school. He got a very bad general impression from that limited contact, only developing mutual respect with one of the administrators. The feeling of condescension he got from the others was more a matter of body language, actions, and tone than actual words used. The administrators rarely made eye contact with instructors, and never apologized when they interrupted class, showing a lack of respect in Derek's view. He described one vice-principal as a pompous "strutter," and characterized the tone of most of the administrators as reminiscent of bad disciplinarians: "peevisish" and "slightly angry, slightly hurt." The administrators seemed to take pains to separate themselves from the teachers:

They struck me as distant and uninvolved with the teachers; it seemed like they were just there to discipline the students, and they didn't do a damn good job of that. So I can't say much good about them.

The tension and lack of respect between teachers and administration at Derek's host school was never more evident than at faculty meetings. Again in contrast to his current school, where the emphasis was on working together for students, most teachers at the host school considered faculty meetings a waste of time. Administration did little to try and improve this attitude, dealing with teachers in a dictatorial manner and treating them, as Derek phrased it, "like a bunch of idiots."

This air of disrespect even found its way into faculty interactions at Derek's host school. He often heard teachers criticizing other teachers harshly, and Derek himself saw many members of the faculty as "a bunch of whiners, selfish and narrow." At his current school, a collegial feeling of working together to support students ran through the faculty's actions. There was no such collegiality among the faculty at Derek's host school:

And certain of the facul-- administration seemed to have no more respect for the faculty than, by and large, they had for each other. There were "cliques" and small friendships, but no one seemed to take each other seriously, by and large.

In his student teaching experience, Derek's teaching style was largely governed by the style of his host teacher, whom he regarded as "an inveterate, hopeless moron." The host teacher forced an exclusively lecture-oriented style on him. By the time the host teacher was willing to relax these demands, Derek was too exhausted and cynical to consider significant change. In the environment of his current school, Derek felt more freedom to explore different ways of presenting ideas. Although he felt that in the main his teaching style changed little in the transition, a combination of more receptive

students and freedom to adapt to those students yielded better *results* than he got in the public school. Derek felt less stress, and felt better about what he was accomplishing.

Derek's student teaching experience helped him to cultivate patience, and remember that science can often be hard for students, and they may have to learn it at a very slow pace. It also compelled him to lower his expectations for students, which he did not necessarily see as a good thing. It did not seem to Derek that his host school insisted on high standards of behavior and academic performance for students. As a result, students could "get by" by doing very little. Derek, not an optimist by nature, was saddened by this attitude, as he saw in it the seeds of a downward spiral:

You know, it's just sad to realize that the performance levels are going to be so much lower in most public schools than they were in the suburban schools that a lot of us came from -- that I certainly came from -- uh, or the private school that I'm in now. What I mean is, sad for them to lower them year after year after year, and sad for them to lower them for a certain group of students. Little is demanded and less is delivered.

One aspect of these lowering standards were the trends toward grade inflation that Derek both heard about and witnessed during his time at his host school. He got the impression that a lone teacher could not fail a large group of students who were not doing assigned work. The teacher would be under tremendous pressure from students, parents, and administration to change the grades, and most if not all would give in to that pressure. Although he felt that many of these accounts could be exaggerated, he also believed that there were too many to totally discount. Never in his first year at his current school did Derek feel any serious pressure of this type. Rather, he always knew that the administration would back him up in his evaluations of student performance. That security helped him to concentrate on doing his job to the best of his abilities rather than trying to "play politics" with student grades.

Applying Preservice Education

Derek reported that he remembered and used "little things" from his preservice education, such as the suggestion that he always have an activity ready at the start of class. Throughout the semester, he tried to have a problem displayed on the overhead projector for students to work on while he took attendance, checked homework, and took care of other affairs at the start of class. Typically, he found that doing this helped the class to start out much more smoothly.

Derek also put the next homework assignment on the board for students to copy down at the beginning of class. He took care to always write in on the same section of the board every day, to give students a consistent place to focus their attention. Slowly but surely, the students did get into the habit of copying down the assignments. The need for such consistency was reinforced in his preservice classes, and Derek saw no harm in it, and much potential for good.

Derek also found the suggestion that students make nametags at the start of the semester very helpful. He found the nametags useful for more than just learning his students' names; they were also useful for making seating assignments and controlling student interactions. They also provided students with a creative outlet, although some abused that opportunity by writing inappropriate messages on their nametags. Even these incidents were useful, as they provided Derek with advance warning of potential problem students. He felt the nametags alleviated some of his nervousness in getting to know his students, and he considered it a useful "trick."

Derek's attempts to utilize other suggestions from his preservice education met with mixed success. For example, he was frequently advised to speak individually and privately to disruptive students. While he considers this to be good advice in theory, he found it to be very difficult to implement at his host school:

Um, it was sooo incredibly rare to get a one-on-one with a kid during student teaching. They were unstoppable on their way out of the door at the end of class and there were way too many of them going on during class to, uh, to take one outside and deal with them in that manner.

He even had difficulty dealing privately with students at his current school. While the students were not quite as “unstoppable” as the public school students, they were typically very busy and on very tight schedules, so meeting with them before or after class was problematic. And taking a student out of the classroom during class time was not appealing to Derek, because time was lost not only to the discussion, but also to bringing the entire class back on task afterward. While he realized the value of talking with disruptive students individually, Derek saw it as an impractical measure in most situations.

Derek’ preservice classes also informed him about “I messages,” a technique of phrasing instructor requests in terms of what the teacher needs to happen, rather than what the student needs to do. Derek felt that the technique would be useful for him, since he realized that his teaching style might be perceived as intimidating and domineering, or as he phrased it, “demanding and bossy and mean.” He could rarely use these messages at his host school, because he could rarely get a student into a one-on-one conversation. He was able to use them more at his current school, but was still unable to gauge their success.

Overall, Derek did not feel that his preservice classes presented very much to him that he considered novel or original. Rather, he claimed that on “good days” his preservice courses provided a “common sense check” for classroom strategies. He cited as one example the strategy of presenting class material in as many different ways as possible to account for differences between student learning styles. But Derek felt that many of these strategies were so obvious and common, that one could glean them from a television program or one’s own experience as from a formal education classroom. He

was perhaps most grateful to have been presented with a formal language to express many things he already knew from his experience. Still, he cautioned against misinterpreting his qualified and guarded praise of his preservice education:

So the courses said try to make it interesting, try to vary things, use directed questions, use overhead questions, yadda, yadda, yadda. Stuff that I kind of already knew, but it's good to have a reminder of it, good to have a formal language of it...Um, so to some extent, you may get an exaggerated idea of how much benefit the classes were just from the fact that I use the language of those classes a lot. Uh, to some extent, um, there were a few messages that were pounded home again and again and again that I needed to know more deeply than if I already knew them, and that's fine. Um, and that is the genuine benefit, such as it was, of the whole process.

Overall Reflections on Preservice Education

Derek came to his preservice education from industrial physics research, but his background was steeped in education. His mother is a university Professor of English, and Derek greatly respects her and the difficult job she does. She and Derek have had many discussions about her experiences teaching freshman-level composition courses. In addition to his work as a teaching assistant in graduate school, Derek also had extensive experience as a trainer of instructors for standardized test preparation courses. This background has given him many insights as he reflected on his preservice education during his first year as an instructor. His observations were numerous, and his opinions were direct and to the point.

Derek got into the university's certification program because he had become bored with what saw as the predictable tedium of industrial research. He had also developed a desire to pursue a worthwhile vocation; he wished to contribute in some

small way to the betterment of society, and saw little potential for that in the business world. He did not wish to pursue alternate certification, because he was concerned with the transferability of such certification, and he saw potential to make more contacts for the future in a university program.

Derek was also interested in becoming a teacher because of his positive experiences working for a company that prepared students – mostly prospective medical and law school students – to take standardized tests. Derek began as an instructor, but eventually moved up to become a trainer of such instructors. He enjoyed the company’s emphasis on the trainer as more of a “coach” to the future instructors. The company’s curriculum was very uniform and proscribed, and the focus was on what the instructors would be doing in the classroom: how to convey information, what questions students were likely to ask, and so on. The future instructors would practice frequently under Derek’s supervision, and he would provide detailed critique and feedback. Derek termed this process a “guided introduction” to the basic skills of instruction, and hoped to get something similar out of his preservice education.

His preservice classes were the first formal education classes, but Derek admitted that he entered into his preservice education with some preconceived notions about education as an academic disciplines. These notions came about as a result of his undergraduate experiences, discussions with his mother, and conversations with other teachers and prospective teachers. Almost all of these preconceived notions were unfavorable, and Derek reported that unfortunately his preservice experience did little to disabuse him of those notions.

For example, Derek had long been of the impression that students taking education classes and pursuing teacher certification were far from the “best and brightest” students at the university. Conversations with professors and students in other disciplines reinforced this idea:

I might also add... 75-80% of the teachers I've talked to agree that education majors, uh, were the biggest... were definitely, you know, thick in the head, to put it mildly. But also, in the college education is not respected as an academic discipline; everybody knows that their education courses are their easiest courses, and that education majors are, on average, the least intelligent students in the school, on any measurement you'd care to make. So, you know, it's just... it's just the bastard stepchild career and the bastard stepchild major and, you know nobody wants it.

Despite this preconception, Derek hoped that by pursuing certification at a university, he could have an opportunity to interact with professors and students with a high degree of science knowledge and experience. Regrettably, he felt that did not happen. While Derek did meet a few of his fellow student teachers that he considered “bright and interesting,” he saw such as the “vast minority” of preservice teachers. Most of the education students he encountered were, in his words, “big old bozos.” He believed that most of these students had poor knowledge of science, and even of the academic disciplines they were planning to teach. Moreover, he thought they were well aware of their deficiency:

I mean, these kids knew -- a lot of them knew that they were terrible in their own subjects. Likewise in science, there was this tremendous anxiety: "Well, I can't get a job unless I... take the Composite Certification Exam, but if I take the composite exam, they could ask me to teach Chemistry, Physics, Aquatic Science. You know, I'm a biology major! All I know is biology!"

It seemed to Derek that many of his fellow preservice teachers were in the program because they could not succeed in another discipline. Derek saw teaching (especially science teaching) as a career that was simultaneously low-status and high-demand. Teaching was thus not likely to receive the best possible candidates, but was

compelled to take whoever wanted to enter into the profession, for whatever reason. Derek did not feel that most people entered into teaching as a way to serve society, and even suggested that some talented people may wish to enter the profession for altruistic reason, but are discouraged by teaching's reputation for low pay, high stress, and low status. Teaching seemed to be a "fallback" career for most of Derek's classmates, a profession of last resort:

People don't wanna be teachers. It's an afterthought. It's a default career. It's a "If I can't think of anything else, I'll always teach, rather than... you know, the Peace Corps, or business, you know, or art..."

Some of them -- a few -- would say, "Yeah, I just thought about doing this a few months ago, and I went ahead and, you know, signed up, you know, because I couldn't think of what else I was gonna do, so now I'm getting certified."

Derek also had heard very unfavorable things about the performance and intellectual capacities of the professors in the education department. This colored some of his perceptions as he began his education classes:

There's the general characterization that I... that I had heard about education, education professors, the certification process, that was not at all dispelled by my experience in it... education has a horrible reputation, uh, among undergraduates in my experience. Everybody... everybody realizes it's boring, insipid, um, populated with stupid professors and stupid students.

Once again, his experiences as an education student did little to improve this preconception. Most of his professors had little experience teaching science to pre-college students, and he felt that this was greatly detrimental to the value of his preservice

education. Among those that did have experience, most had taught many years – even decades – before, and did so in schools far away from the schools where their students would be teaching. This inexperience showed frequently. For example, Derek was appalled in one of his classes when an education professor “badly mangled” a basic physics problem.

Derek could only give praise to a few of his education professors. These were the professors who presented “well-defined” material and assessed student knowledge consistently and in a “straightforward” manner. He felt that he had to put forth a significant effort to learn and succeed in those professors’ classes, as opposed to the “petty projects” of his other professor. Derek also pointed out that such professors shared the low opinion many outsiders held of their colleagues:

Also, from talking to education professors, the ones that I liked and respected during my brief contact with education professors, were quite willing – if you twisted their arms a tiny bit – to admit they felt most of their colleagues were kinda really the dumbest professors in the school, and that there's -- a lot of the scholarship wasn't very strong

This low opinion was also shared by many of Derek’s fellow students. He claimed that most of his fellows shared his view that the certification process was by and large not worthwhile. Even in cases where his fellow student teachers expressed a high opinion of their professors, that opinion usually focused on personality:

Sometimes they would defend an individual professor, saying, "So-and-so's a nice guy. So-and-so's really nice." Um, never, however, did I hear them defending the intellect and teaching prowess of most of their professors.

Coming as he did from a career in the physical sciences, Derek was largely unaware of the scholarly aspects of education research, and what he was aware of did not impress him. He attempted to rectify this deficit upon entering his preservice program, by talking with fellow students with more experience, and by getting suggestions for reading. After some exposure to education research, he felt that it compared very poorly to the more empirical forms of research that he was accustomed to. As noted above, he also found some students and professors of education that shared his view.

Derek viewed research as “the actual running of tests and gathering of data,” and by this test, Derek thought that few “education researchers” actually did research. In his view, they just “pondered and philosophized,” based on their own experiences. He characterized most scholarship in education as “well-meaning 50's style buffoonery under the guise of research.” He explained in detail what he meant by this odd turn of phrase:

By "50's style" I mean naive and bold... The Progressive Era where we were willing to set out and conquer new territory, intellectually and physically, that we were going to unlock... the secrets of the mind like we had unlocked the secrets of the atom, and it was sort of ... very portentous and very serious. Um, by buffoonery, of course I mean the exact same things, and my point is that there are attempts to make conclusions about tremendously complicated things, based on altogether insufficient evidence and studies that are not rigorously constructed, and in many cases that are based on foundations that are not well constructed, or based on no foundations at all, based on assumptions.

Derek admitted that he was of the opinion that all the social sciences suffered from the impossibility of control and random selection and assignment. He also noted that the limited abilities of social science researchers to construct falsifiable tests and quantify the things they claim to measure conspire to limit what can be accomplished with social science research. Because of these flaws, Derek believed that education

research could only rarely be proscriptive, in the sense of being able to make concrete predictions and recommendations for action with a high degree of certainty. He felt that most education research was forced to be descriptive, and based largely on opinion and personal experience, which made work in the field seem less valuable to Derek. He viewed attempts to call education research scientific were “far overreaching.” He would prefer that researchers should admit when they are presenting their opinions, and strive to present dissenting views as well.

Derek leveled some serious accusations against education research, based upon his limited exposure to it. He felt that much of it was interpreted in such a way as to merely affirm the current “fads” of educational theory. He characterized it as “more rationalized than rational,” and suspected that researchers were being more selective about their data that they cared to admit:

A lot of it is very politically motivated. Uh, people know what answers they want before they do the research. A few of them are honest enough to find... to report the opposite answer, but most of them will just keep, you know, cutting this particular case, or moot-slanting the data in this way, or just reading it a certain way, and then excerpting their results, you know, their data to sort of talk about it.

Derek did not necessarily assign sinister motives to these suspected tendencies. Rather, he believed that education researchers were typically very passionate about their work, and as a result might experience less detachment than researchers in other fields. That diminished detachment would inevitably lead to increased bias, in Derek’s view:

And, uh, also, it's a field that inspires much deeper passion than most other fields. People who are in teaching feel very, very deeply about the importance of it, and get much more wrought up in their individual styles and methods and their individual discoveries and wisdom that they want to

share, so they do in-depth interviews that bring out their own perspectives, rather than more neutral interviews that wring out objective facts.

Derek also had no words of praise for the textbooks for his education classes. Despite the fact that these textbooks occasionally discussed issues important to Derek, he felt that the books themselves suffered from trying to cover too much material in too simplistic a manner. As usual, his descriptions were evocative:

I mean, just the common sense I get from talking to other people around here is worth more than the class notes and the tests and the reading assignments. Certainly the textbook reading assignments were trash: oversimplified, um, drivel.

A few of the interesting and thought-provoking things survived the simplification process, but by and large, yes, the materials were sufficiently... homogenized and reprocessed and digested and processed and boiled down to the point where... they read very poorly. They were both far too simple and far too repetitive, and at the same time they were covering so much that it was very difficult for me as an active reader to not just vomit on the pages.

Derek also found that his instructors did not seem to trust students to do class readings. Instead of using class time for discussion of the readings, most of Derek's instructors seemed to just repeat the information in the readings. Only rarely did he really feel the need to "digest" the readings. Derek considered this situation to very self-defeating:

And so, you know, it's a self-fulfilling prophecy; we're going to lecture you because we know you're not going to read; we're not going to read because you're going to lecture to us.

As for the education classes themselves, Derek typically found them to be too broad in scope and too lacking in detail to be useful to him. It seemed to him that the intent of the curriculum was to be all things to all students. The classes seemed to lack both an individual element and a practical element for Derek. As a result, he got very little out of the classes that he felt he could use, given the subject he would be teaching, and his individual personality. He reported that many of his fellow student teachers agreed with his assessment; a few with advanced science degrees seemed to Derek to be “embittered” by having to take “freshman-level certification-type classes.”

To illustrate what caused much of his dissatisfaction with his preservice curriculum, Derek discussed his attempts to learn about the factors influencing student motivation. He saw student motivation as a key concern in education, and hoped to find out more about it in his classes. Although motivation was a topic mentioned throughout his preservice education, Derek saw the treatment of the topic as very superficial. He got the impression that his professors had some ideas about student motivation, but did not – or were not able to – effectively communicate them. This was very frustrating to Derek:

Well... student motivation is a big mystery to me. It's nothing that I know buckets about. It was a topic... it was a topic that was discussed in almost all of the certification classes I had, and there was, you know, a tiny bit of general comment of what it is and what helps it, and once or twice there were attempts during preservice classes to really get into it. But I really felt... thoroughly ignorant of the subject when I was... when all of these efforts were done... And even then you could go through a textbook definition and do all the things that it says would help intrinsic motivation, and not do a darned thing to actual real-world students.

Derek saw the practice technique of “microteaching” as an exercise with potential to help student teachers, but his experiences with it failed to realize that potential. It did

not seem to him that there was any standard of quality for the microteaching sessions; a student teacher that did poorly in the microteaching was not required to try again after reflection and critique. As a result, Derek did not feel that many of the student teachers took seriously the opportunity for critique and reflection afforded by the microteaching:

You know, they were very, very eager to just get out and be done with it, you know, they just each wanted to take their turn and then just not pay any attention. Um, the... there was no insistence of high quality. If you did a crappy job microteaching, it just didn't matter any differently than if you did a fantastic job microteaching.

Derek felt that many aspects of the microteaching were unrealistic. For example, student teachers could select their subject matter, and were not required to teach different things under different circumstances, as they would have to once they got into an actual classroom. Still, Derek noticed that many of his fellows were nervous and unsure during their microteaching sessions. Also, Derek felt that the room where the microteaching was performed was far too different from a typical classroom. He thought it was too cluttered to move around well in, and was too small to practice good voice skills. Finally, he felt that the “students” for the microteaching – that is, the other student teachers – were too few in number and too ill-prepared for the roles they had to play. Derek’s experiences with role-play situations convinced him that requiring all parties to perform extemporaneously rarely produced useful results. He proposed that many student teachers may have forgotten – or could be in denial about – how they had behaved as teenagers, and instead would act like “high school students” with an adult frame of mind. He felt that some rehearsal could have helped his cohorts play their “parts” more convincingly, getting past some of the "giggly silliness" and making the sessions more useful. He suggested that before microteaching begins, participants should observe student behavior in actual classrooms, either live or via tape – to add more authenticity to the microteaching experience.

Derek felt that practice teaching is only useful under the supervision of an experienced teacher who can give constructive criticism and expert feedback. The supervising professor provided little of this after the microteaching sessions; the professor was not even present in some sessions, and students had to submit tapes! Although Derek did express understanding that his professor may have had too many students to spend much time on each critique, he still felt that the feedback he got from the professor was low in quality and late in coming.

Most of the critique for each student teacher's microteaching sessions came from his or her fellow student teachers. Derek saw little useful about this feedback, for two reasons. First, he wondered how much context the novices had to make their critiques, most of them being new to teaching. Second, he believed that many of his fellow student teachers felt awkward giving completely honest feedback if that feedback was going to be negative. As a result, although the forms for giving feedback requested a balance between the positive and the negative, Derek saw most of the comments as little more than "a pat on the back." Derek himself tried to ground his comments in his own background as a teacher and trainer. He hoped that those experiences would enable him to give useful feedback. He was worried that some of his classmates might think his comments too harsh, but many were grateful for his honesty:

I did microteaching with a woman who thanked me and thanked me and thanked me for all my feedback, and I said, "You know, I really don't want to, you know, seem too harsh, and please forgive me if I, you know, say a lot of negative things, or if you feel like I'm attacking you, if you feel terrible after all this feedback. But I'm gonna tell you all the things that I notice, because I've been doing this for a long time, and because I think it'll help you, and because I would, in your situation, want as much information as possible." So I was able to give a ton of feedback to my microteach partners, and they would generally say to me, "That was

incredibly helpful. I'm really glad. You know, I've never really heard that from other people that I did microteaching."

Although Derek generally had a low opinion of most of the student teachers in his cohort, he did enjoy discussing teaching with some of his classmates. This was especially true of those student teachers who, like Derek, were coming into teaching with advanced science degrees. Indeed, he felt that many times these discussions were more useful than the formal work he was doing in class. These were people that he had a lot in common with, and they often shared ideas and commiserated over problems and frustrations. Derek noted that many of his classmates were "eager" to share their experiences with each other, and this sharing served as opportunities for learning and catharsis.

Derek has carried on this tradition of productive interaction at his host school. He enjoyed discussing teaching with his colleagues his first year, and found himself getting a lot more out of those discussions than he did from the majority of interactions with his professors. He argued that even though his current colleagues may have had fewer years of experience than his professors, his colleagues had more experience in the context of the school, and with teaching science:

So, uh, yes, I do think that the people I talk to are significantly more grounded in their experiences, significantly more relevant. Is it more total experience? Eh, maybe, maybe not...I think [student teachers] could work more with teachers who have recent and extensive education experience in the schools, rather than people who did it maybe for 10 or 15 years, but that was maybe 5 or 10 years ago. They could do it more with more narrowly set aside groups, uh, you know, more precise age groups, more precise subject groups. They could... more closely integrate the student teaching and the classroom experience.

The worst aspect of Derek's student teaching experience was by far the disastrous relationship he had with his host teacher. He was in an almost constant state of conflict with the host teacher, and got no helpful advice during his "apprenticeship." The host teacher tried to force Derek into a certain teaching style, and would not allow Derek to experiment with other techniques, either from Derek's own experiences or his preservice classes. He felt that his time student teaching was actually a hindrance to his professional development. He discovered that many of his fellow student teachers had bad experiences as well, although not as bad as his. When Derek tried to persuade his professor to place him with another host teacher, the professor refused. Derek wished that there had been an "escape hatch" in place, to help student teachers like him who need to get out of a "match made in hell."

Overall, Derek saw many flaws with the system of selecting host teachers as he understood it. Comparing his own experience with his host teacher to the stories of his fellow teachers, he got the impressions that many host teachers did not volunteer with the intent of assisting the next generation of teachers. Rather, it seemed to him that many of his cohort's host teachers were looking for someone to help them with their work, or because their school administrators were pressuring them to develop closer relations with the university. He did not think either of these were good reasons to be a host teacher. Derek also did not feel that the supervising professor made an adequate effort to seek out a large number of high-quality host teachers:

Um, the method was... partly based on coop gender; she tried to match student teachers to coops that had -- of the same sex. Uh, the method was sharply, sharply based on availability, and it turns out that the professor did not make any extraordinary effort to ferret out or expand the available volunteers. Um, there was some geographic consideration, although not a lot. And of course there was a little bit of subject coordination as well. But for the most part was simple Hobson's choice.

Derek also did not get the impression that the supervising professor had taken the time to get to know the host teachers very well. He felt this was certainly true in the case of his host teacher. Derek thought that, given the tremendous commitment that is asked of cooperating teachers, developing a close relationship with prospective host teachers should be a priority for a supervising professor. He conceded that to do so may require more time and resources than are currently available:

To do the job right would require much more time than the current resources would allow. I mean, I'm... I'm not claiming that the job could be done fantastically better with the current resource level, although I think it could be done better. It would require... you know, it would require... (laughs) the placing professor and the cooperating teacher to have met, which was not the case in dozens and dozens of times here at [University].

Derek believed that expert feedback from a number of experienced sources was essential to a student teacher's development. He conceded that receiving such feedback may be intimidating for some student teachers, but if it becomes a frequent, even routine, part of their training, the stress will ease. However, he felt that he got very little of that from the experienced professionals in his preservice program. Some of the small amount of feedback that he got from his professors seemed to him to be very superficial:

Sometimes the response was effective, sometimes it was just some tangential thought, sometimes it was a "Hmmm, this seems interesting. You have obviously put thought into this." One of those things that you cut, paste, paste, paste, when you can't think of a damn thing other to say about what somebody said to you.

The largest source of feedback for Derek during his preservice classes came from his fellow student teachers. While he enjoyed some of these conversations, he did not find much of the critique from his peers to be very useful. Most of his peers were too

inexperienced themselves in teaching to say much that was useful. He also sensed that most of his peers had little faith in their critiques, and did not want to risk causing hurt feelings:

Yeah, they said, "Well you know, I'm just a... I'm just a student here too, I mean, who am I to say you're bad?" or "You know, I don't wanna be... you know, I don't wanna say all these mean things and make you hate me." I mean what good is that?

During his student teaching, Derek was supposed to get feedback from two expert sources: his host teacher, and the graduate student assigned to observe his teaching. As mentioned above, Derek felt he got nothing useful from his host teacher. But he also felt that even if he had had a good, productive relationship with the host teacher, the system itself insured that the feedback he would get would be too little, and come much too late:

The primary most important thing, regardless of subject and range is a lot of feedback from a pro. Supposedly you're getting that from your co-op during your student teaching. That comes at the very, very, very end. I mean, towards the end of your student teaching there's just nothing else going on, and after the end of it, there isn't any other sort of guided feedback, more practice, more prep -- more sort of, you know, more training or anything like that

Derek had a very strange experience with the graduate student that was assigned to observe and critique him. He firmly believed that the graduate student's brief visits did not give him a good idea of what Derek was trying to accomplish in the classroom. Also, Derek had a hard time communicating with his evaluator, and wondered if the graduate student was really paying attention to what Derek was doing in the classroom, and what Derek wanted to discuss with him. He seemed unconcerned with Derek's individual needs and concerns:

Uh, he came out, I think three times, for... I wanna say about 10 minutes each, but my memory is vague on this. Um, and some of his feedback was good and helpful; most of it was just dead wrong... And the thing that really got me is, this guy was just on... just, just really had one particular thing he really wanted to beat on and beat on and beat on, and he had one position he kept taking and taking and taking. And, you know, regardless of whatever I said, he kept saying, "Well, yes, but you need to keep doing such-and-such, and you need to keep doing such-and-such." And the irony is, of course, is that's what I do more than anything else in my own teaching, but he didn't see me doing that in the 10 minutes he was there.

The graduate student evaluator seemed to get more and more detached with every visit. He seemed to have an abrupt change of heart regarding how Derek should approach his evaluations, both as a student teacher and in his full-time career. Although Derek was willing to admit that his bad experiences as a student teacher undoubtedly colored his perceptions of the graduate student's advice, he was still shocked by the switch:

[Y]ou know, he told me the first time before he came out, "Well, of course, you know, we expect you to just teach and be your self and don't, you know, kind of go out of your way or prepare some special thing just because I'm here. You don't have to impress me." By the end of the, uh, the student teaching experience, he was saying the exact opposite. He said, "You really have to, you know, really show your best stuff during these times when I'm visiting. I mean, some people call it a dog and pony show, but, you know, just whatever you have to do, because you know what we'll be looking for, so just show us that. You know, do whatever you have to do to make sure that this and this and this happens while you've got an evaluator in the room." I found that pretty cynical and

disgusting, and I was really sort of flummoxed at his reversal of what he had earlier said.

Derek felt that overall his preservice classes focused entirely too much on theory and not enough on suggestions for classroom practice. He understood that some people who design the preservice curriculum wish to “plant a seed” of theory in prospective teachers’ minds that might “grow” in later years, or that such people might fear that teachers would not have the time or desire to educate themselves about education theory once they became teachers. Derek attacked both of these notions. First, he proposed that, due to a lack of experience, preservice students might not be able to place education theory in context. Therefore, the student may not remember the theory taught in preservice after many years as a teacher. The student teacher’s mind might not be fertile enough “soil” for the seed to take root:

I don't think the "seed" idea is realistic because you have so little experience teaching during and before your preservice that the theory is just going to be meaningless, just meaningless for the most part. Being a student and being a teacher are totally different, just night and day, so you can't step up... You know, you can't relate the theory enough to your own experience for it to be useful or meaningful or stick, in my opinion.

Derek also felt that any fears that experienced teachers will not be able to, or will not want to, learn about and think about educational theory are unfounded. He believed that good teachers would always want to find the best way to teach, and keeping up with the latest research findings and philosophical trends is a part of that. Teachers have access to a variety of media to help them upgrade their knowledge. In contrast, bad teachers will never want to keep themselves updated, and planting the seed in preservice will do no good. Derek wished that preservice educators would give teachers a little more credit for caring about their professional development:

...you'd have to be extremely incurious or uninformed about your own profession to not sort of see where to go if you were interested in learning more about sort of the roots, and what's behind teaching.

Derek would have preferred more of a focus on practical applications in the classroom, and treat theory as something that supports practice, and something that teachers can get more deeply into once they are established. He proposed that theory has very little meaning if it is not placed in a practical context. He was also afraid that, since many “fashions” in teaching have a tendency to come and go, there was a risk in focusing on philosophical and theoretical notions that may be considered “hokey” years from now. He found little of the theory that he heard about in his education classes to be applicable to his practice, although he occasionally found useful ideas in other classes, such as theories of memory and cognition in a psychology class. He found it "a damn shame" that he did not get similarly useful theories in his education classes.

Possible improvements to the system

Rather than restrict himself to mere criticism of his preservice education, Derek made some suggestions for possible improvement. These suggestions were based on his experiences as a teacher and trainer before his preservice classes, and his experiences during his first year. For example, Derek would have liked to have seen a more uniform curriculum focused on training instructors in classroom techniques unique to their academic discipline. He conceded that teachers frequently like to “do their own thing,” and was not proposing that teachers should be forced to teach a certain way. He merely pointed out that while he worked as a trainer, he presented students with a certain set of classroom techniques tailored to what the prospective test preparation teachers would be doing in the classroom, and this uniformity provided a solid basis for productive, focused discussion. He proposed forming the preservice curriculum around state and national standards for each discipline, to prepare student teachers for what they will be expecting to teach.

Derek also felt that the classes in preservice education needed to have fewer students, more focused on a particular academic discipline. He saw many of the problems that he noted above – a paucity of useful feedback, low levels of professor contact, poor relationship between professor and host teachers – as being directly related to the large number of preservice students in each class. Even as an “assertive and vocal student,” Derek still felt that he had a low level of useful contact with his professors. He pointed out that small class sizes are considered a good idea in elementary and secondary schools, and wondered why that philosophy did not carry over to teacher training courses. Although his final “methods” course has about twenty student teachers, the theory classes that preceded the final semester had about twice as many students or more. He advocated smaller cohort sizes and classes that were narrowly focused on specific academic disciplines, even if it required a greater commitment of resources:

So if preservice education is going to accomplish anything, and it's not going to waste everybody's time, you gotta do it with small, specific -- if not homogeneous, at least, uh, at least limited groups. You just can't do it in big... in big groups. Now maybe that'll cost a lot of money, but let's put it this way: the current system isn't cheap, and it is wasting everybody's time, in my ever so humble opinion.

Although he was able to observe actual classroom teachers for a few hours before beginning his student teaching, Derek felt that the time was not nearly enough. Much of that time was spent doing class assignments that actually detracted from his ability to learn from the situation. Derek firmly believed that more time in the classroom, either observing or assisting, is essential for preservice students to place the theory they learn in the classroom into a “real-world” context. Derek proposed a system where student teachers would rotate in and out of a variety of classrooms, with close supervision by the professor. Derek thought this would especially help students to prepare for being “students” in the microteaching sessions:

What might also help is if you do a little bit of this back and forth in and out of real classrooms, so that they can get a little, they can see a little bit more how the kids act. 'Cause most people remember how they act, and when people are remembering their past, uh, in education, they typically project their current mental state -- presumably mature adult -- back into the classroom, which is not an accurate memory.

When he was a trainer of instructors, Derek tried to create a cycle where first he and his students would talk about teaching, then they would practice teaching. The practice teaching was then followed by a group session reflecting on the lessons learned from the practice, and more practice would follow. Although Derek at first insisted on his students following his model, he gave them more latitude as they developed and reflected on their practice:

... my attitude with the trainees was this: "What I'm going to do is give you a few things the way I do them, have you give those back... those things back to me as much as possible the way I do them. And then do a few more things in your own way, now that you've seen my way, and then I'll tell you what we need to do to make your way a little more effective. It doesn't necessarily have to come out like my way by the time you're done, but we're gonna find some things to improve in your way to the point where it will work in a classroom."

Derek's description of his process mirrors the process of "praxis" as defined by Brookfield (1986, p. 10). He saw it as an iterative process that became more complex over time, continuing even after the instructor had been placed in an actual classroom. Derek and other experienced instructors shared their wisdom and experience with the new instructors. Derek observed that most teachers like to share their stories and techniques, because they see the possibilities for their own learning and development.

Derek did not feel that he went through such an iterative process during his final year of preservice training. He characterized his preservice training as about 50 hours of observation, 45 minutes of practice, and then total immersion during 50 days of student teaching. He and the other members of his cohort were afforded very few opportunities for group discussion and reflection on the things they saw and did. He felt that most of his classmates gave only cursory attention to the process of personal reflection, only “jotting down” enough thoughts to fulfill class requirements. Attempts at group discussion, usually held during evenings after a hard day student teaching, were diminished by the exhaustion Derek and his classmates felt. Overall, Derek felt that this long period of concentrated theory, followed by a long period of concentrated teaching, with little opportunities for reflection, was highly ineffectual:

So with student teachers, you teach them everything, then you give them three months, and then they're ready? What? Or three months, ten -- fifty days, ten weeks, fifty days is the requirement. And of course it works out to 12 or 13 weeks, with the realities of schedule and all. But, you know, it's just... it was just pretty silly to have a semester of classroom management, and then that semester ends, and then you have a couple of weeks of "issues in schooling" -- whatever the hell that means -- then three months of student teaching, and then what? You know, when did somebody come back and say, "So here's what we read in the book," and then, "Did you go out and try it? What worked? What didn't work? Okay, look at it this way, re-read this. What does it mean to you, now that you've gone out and actually tried to control 30 12-year-olds in the room using this technique or that technique? What worked, what didn't work? Okay look at it again, try this."

Derek proposed a system where student teachers would alternate between days teaching in an actual classroom, then days in their college classroom reflecting on and

discussing what had occurred during student teaching. The professor would facilitate the discussions, always encouraging students to relate their teaching experiences to educational theory. Expert critique from the professor, who would have to be much more involved in gathering information about the student teacher's classroom performance, would be an essential source of information for this reflection. He realized that such a system would require a great deal of time, energy, and coordination, but he firmly believed that trying to do practice and reflection simultaneously was not working.

Derek strongly believed that the skills and knowledge that he needed to succeed his first year were seldom provided by the theory-driven instruction he received during his preservice education. He felt that little effort was made to connect the theory in the preservice classroom to practice in the secondary school classroom:

Well, I don't think that they attempt... that the purpose of theory was to deal with those experiences. I mean, none of my theory about multiple intelligences is helping me deal with [name's] Mom when she calls up and wants to know why I threw him out of class.

Derek proposed that the top priority of preservice training should be to give teachers the basic skills they will need to do well their first few years. He pointed to high withdrawal rates for new teachers as evidence that such skills are needed, but not being provided:

Uh, the, uh... And I also think that what people need to survive their first year, and be successful in their first two or three years is so different from what's delivered in the theory as to... and so critically needed, so urgently needed, what with the very, very high dropout rate after the first year and the first few years teaching that they should really give people better instructional skills and better survival skills as a matter of just critical priority and just say, you know, "The theory is out there, and it's kinda

neat, and we like it, we think it's important. Here's an article to put on your shelf and look at in five years. Or you'll get people talking about this a lot during inservice, or your principals will know about this." There's enough other places that people can learn the theory later if they're interested.

When asked about what skills were important to him to “survive” his first year of teaching, Derek focused on skills in communication, organization, and self-evaluation. He believed that prospective teachers should receive instruction on classroom communication, both verbally and on a blackboard, even if it is just from the professor’s example. Derek found the basic public speaking aspects, making transitions between topics and effective summarizing, to be the easiest aspects of his teaching, but understood that some prospective teachers might not be so comfortable. He also emphasized that the ability to hold the attention of a classroom “audience” does not necessarily translate to teaching effectiveness. He also believed that skills at communication outside of classroom instruction were vital, the ability to deal diplomatically with inattentive and disruptive students, and with parents that are uninvolved – or too involved – with their child’s education. Derek thought this proficiency could only come about as a result of practice, reflection, and expert critique.

Derek saw organization as another vital set of skills for the beginning teacher. Beyond lesson planning and assessment creation, the teacher needs skills in time management and looking at the “big picture” of a semester. Derek referred to this as a form of “multitasking,” since teachers have to relate what has been taught in the past and where the students are in their learning in the present with what will be done in the future. This multitasking would go hand-in-glove with skill at reflection and self-evaluation. The teacher must be able to assess his or her own performance continuously, and alter strategies to match goals and conditions. Again, he felt that expert critique and a strong example from host teachers and supervising professors is essential to developing these high-order skills.

Epilogue: On Being a Research “Subject”

Given his low opinion of education research, it may be somewhat surprising that Derek consented to be such an enthusiastic participant in this research project. Derek and I occasionally discussed his opinion of this research, his role in this research, and what effect, if any, being a participant was having on him. He confessed some skepticism about how useful the results of this research would be to readers, and sympathized with those that might question its validity:

If I were to sit down and read detailed transcripts of this interview or the previous interviews, I would say, "Yeah, but this is just one guy; look how incredibly unusual he is, and look at some of the very sensible, obvious things that the interviewer wrote about him, and look at some of these crazy bizarre notions that the interviewer got off of him."

Being a student of physics, he naturally made a connection between this research and the Heisenberg Uncertainty Principle: the act of observing inevitably changes what is being observed. Although he confessed to having little interest in what the researcher did with his words, he was often glad of the opportunity to look deeper at his attitudes and beliefs when I would ask for clarification. Most of the time he found the act of talking about his experiences and voicing his opinions beneficial to his own process of professional reflection:

Uh... I am coming to find these sessions... somewhat useful for just making me articulate and contemplate things that I might not otherwise have paid as much attention to -- like therapy. Partly because of the bond and the discussions "out of class," so to speak, that you and I have had, I respect your, uh, philosophy and experience and personal beliefs, so I find

it interesting... but, uh, you know, this has been partially useful to me, and thus, selfishly, I allow it to continue. (laughs)

As a researcher, I am glad that Derek's respect and comfort level in speaking with me led to such detailed, honest, and insightful discussions. As a teacher advocate, I am glad that he found our interviews useful and broadening. I hope that all of my collaborators were able to get similar benefits from working with me.