EFFECTIVE CLINICAL TEACHING FOR MEDICAL TECHNOLOGISTS IN CANADA: FIVE CASE STORIES

by

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Adult Education)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

OCTOBER 2008

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Abstract

Clinical practicum in authentic healthcare settings is an important part of training to become a Medical Laboratory Technologist. Research into this area has shown that the clinical educator plays a significant role in student learning during this phase. To offer a slightly different perspective, the following research sought to examine a separate aspect of clinical training: to what extent does the clinical setting itself contribute to one's developing technical "competence"?

A study was conducted exploring the extent to which clinical educators use their workplace environment (whether intentionally or not) to teach, mentor and socialize new professionals. Five educators, selected on the basis of their TPI score (Pratt & Collins, 2000) each with a different approach to teaching, were used as the basis for case analysis. Further guiding the analysis of educators' awareness and use of context-as-teacher in the clinical practicum, the works of van Manon, Marton and Booth were used to supplement the case analyses.

Examples of the systematic relationship between educator's teaching perspective and use of context include: Social Reform used the context to encourage participatory democratic engagement; Developmental encouraged working with other members of the healthcare team to move "outside one's comfort zone" reaching into lifelong and life-wide skill development; Apprenticeship, well represented in this study, focused on work and where work took place; Nurturing encouraged students to use less convenient rooms to adapt and perform at a high level in any surroundings; Transmission clearly separated instructional time from on-task time, allowing sufficient instruction before judging performance.

The findings show that educators demonstrate different approaches to teaching; that they use context in teaching (955 documented instances); that the use of context is often related to their teaching perspective; and that there was a lack of awareness for the extent or power of context-as-teacher. They only seldomly designed learning around a healthcare setting resulting in lost opportunities to use the context in teaching. Through ongoing activities and dialogue on teaching, educators can gain an awareness of the role of context and the power of knowingly using context in teaching students in the clinical setting.
TABLE OF CONTENTS

Abstract ................................................................................................................................. ii

List of Tables ....................................................................................................................... vi

List of Figures ...................................................................................................................... vii

Acknowledgements ............................................................................................................ viii

Chapter 1 An Overview ........................................................................................................ 1
  1.0 Introduction .................................................................................................................. 1
    1.0.1 Arranging Effective Clinical Placements in a Challenging Economic Context .... 1
    1.0.2 Arranging Effective Clinical Placements in a Confusing Professional Context .... 2

  1.1 Background to MLT’s Training in a Practice Setting ................................................. 6
    1.1.1 The Need for Institutions to Place Students in Practice Settings .................... 7
    1.1.2 The Student’s Experience, Good and Bad Placements .................................... 7
    1.1.3 Variations that Characterize Placements ......................................................... 8
    1.1.4 Clinical Placement Arrangements .................................................................... 9

  1.2 Conclusions .................................................................................................................. 10

Chapter 2 Literature Review ............................................................................................... 13
  2.0 Introduction ................................................................................................................ 13

  2.1 What Do We Know about Clinical Teaching? ............................................................ 14

  2.2 Themes Found in Technologist Literature ............................................................... 15
    2.2.1 Theme 1: Competence .................................................................................. 15
    2.2.2 Theme 2: Student Characteristics ................................................................. 18
    2.2.3 Theme 3: Program Sustainability .................................................................. 19

  2.3 Workplace Learning in Adult Education Literature ............................................... 22

  2.4 Conclusions ................................................................................................................. 23

Chapter 3 Methodology ...................................................................................................... 24
  3.0 Introduction ................................................................................................................ 24

  3.1 Methodological Approach ........................................................................................ 24
    3.1.1 Situating Self as Researcher .......................................................................... 25
    3.1.2 Five Perspectives on Teaching ....................................................................... 26
    3.1.3 The Teaching Perspectives Inventory ......................................................... 29

  3.2 Recruitment of Clinical Educators ............................................................................ 29
5.6 Conclusions

Chapter 6 Four Questions: Comparison Across Five Educator’s Use of Context in Teaching

6.0 Introduction

6.1 Elaborating on Five Perspectives in Practice

6.2 Clinical Practice Educators Rationalization of their Approach

6.3 Invoking Context in Teaching Explicitly

6.4 Power of Teaching within External Forces

6.5 Conclusions

Chapter 7 Significance of Findings for BCIT and other Health Professions’ Training

7.0 Introduction

7.1 Implications Arising From This Research

7.2 Conclusions

References

Appendix A: Invitation to Participate Letter

Appendix B: Consent Form

Appendix C: UBC BREB Certificate of Approval
List of Tables

Table 1. Representativeness of Teaching Perspectives across Five Perspectives. ..................... 56
Table 2. Respondents’ References to 55 Context Features of Department-Situated Teaching,... 61
Table 3. Average Number of Mentions per Context Category.................................................. 66
Table 4. Representativeness of Teaching Perspectives for Department-Situated Teaching........ 89
List of Figures

Figure 1. Relationship Between Clinical Setting and Effective Learning ........................................... 70
Acknowledgements

This work is drawn largely from my experience over the past twenty-five years in medical laboratory technologist (MLT) education. I wish to acknowledge with thanks the clinical educators who shared their teaching stories and experiences with me during the course of this study and the many months afterward.

Thank-you also to my medical laboratory colleagues (particularly those who actively engage in teaching others), the greater than 1000 MLT students I have had the pleasure of teaching and learning from, my supportive friends, family, and BCIT colleagues, particularly to Karen Belfer for her thoughtful feedback (both early and latter stages) and for generally encouraging me in my quest to improve my teaching.

I wish to send a special thanks to Dan Pratt and John Collins who skillfully guided me through the research process with an abundance of patience and encouragement. John provided just the right references and ideas at the perfect moments and always within a relentless focus on scholarly writing. To Dan I owe tremendous gratitude for planting the seed for this thesis and for continuing to inspire me along the way.
Chapter 1
An Overview

1.0 Introduction

A student technologist arrives at the hospital for her last phase of training, the clinical practicum. She's excitedly nervous as she meets her clinical practice educator who greets her with a smile alongside a no-nonsense demeanor. The student knows she's well equipped with knowledge to apply in the workplace setting, but is amazed by the ease with which her clinical practice educator completes technical duties. "How did she know to do that at that moment?"; "will I ever be able to do that?" She begins her clinical practicum with a healthy dose of self-doubt and awestruck admiration for her clinical practice educator who seems to be running simply on instinct.

The above scenario, although hypothetical, is a common story for students on the outset of their practical learning phases. The clinical practicum phase of healthcare professions training is where students learn to demonstrate their competency levels after learning theory and basic skills in a classroom setting. A recent survey by the British Columbia Academic Health Council (BCAHC) documented that the clinical placement phase in BC's health professions training programs range between 40 to 60% of total program length. At the British Columbia Institute of Technology (BCIT), there are over 20 health training programs that place over 500 students in authentic workplace settings each year. The Medical laboratory Science and Medical Radiography programs are the largest technologist training programs at BCIT, each placing over 50 students for approximately 50 weeks each year. Recently, healthcare managers have expressed concern regarding the sustainability of the clinical practicum phase in light of faced economic pressures. Not knowing the effectiveness of the practicum environment as a teaching tool however, it becomes less clear how to approach this concern.

In light of this discussion, the following analysis was constructed to clarify the role of the healthcare setting in becoming a healthcare professional and how clinical practice educators use context in their teaching.

1.0.1 Arranging Effective Clinical Placements in a Challenging Economic Context

Over time, health care professions have settled into a socio-political hierarchy, with medicine at the top and other professions in lesser political influence below. Health reforms however, have shifted the power structures from medicine (patient health focus) to managers
(economic health focus). Further, education to managers has become a function of cost and in today’s world of skyrocketing healthcare budgets, is an item for intense scrutiny. Clinical practice educators are currently caught in the tension between performing work without instilling added costs, and attending to students learning needs as best they can in atmospheres where teaching is considered as a secondary function to the mandate of the workplace. Managers are no longer able to support the costs associated with student training in the workplace and hence seek alternative solutions. One such solution proposes a new funding model where tuition fees flow with the student to the institutions hosting their clinical placement. Another option and one significant to this study involves moving the placement out of the authentic workplace and into simulated laboratories housed within the training programs themselves. It’s believed that students from this route would master tasks in simulated laboratories and commence their entry level employment phases with a greater ability to perform at a reduced training cost to the employer. The Canadian Society for Medical Laboratory Sciences recently reviewed Canadian training programs using or exploring the use of simulated laboratories for student training. They found no evidence for a realized reduction in cost (CSMLS, 2007). The research conducted here focused only on the learning in an authentic setting, not on cost savings to student training. Although students could potentially master tasks in simulated settings, the results highlighted in subsequent chapters support the notion that students can only learn to think like technologists while immersed within an authentic setting because the classroom does not offer the same experiences.

1.0.2 Arranging Effective Clinical Placements in a Confusing Professional Context

Medical Laboratory Technologists (MLTs) are Canada’s third largest health profession after doctors and nurses, but trail well behind these professions in terms of in public awareness and visibility. MLT’s are commonly categorized as “paramedical,” “allied health,” or as a faceless “other health profession”. Their identity is further disguised by physical locations and arm’s length relationships to the public. MLTs work in a contained, non-centrally located or “off limits” practice space known as “the lab” and operate under medical specialists such as pathologists, clinical chemists, medical microbiologists, who generally handle public inquiries and concerns regarding laboratory testing. Very little is currently known about those who practice within the profession let alone how one learns to become an effective technologist.
Yet thanks to popular media, the public is increasingly aware of the kinds of tests performed by medical technologists. Public health professionals effectively draw attention to incidents such as flesh eating disease, *E. coli* outbreaks in drinking water (e.g., the Walkerton tragedy), West Nile Virus (and even involve the public in the search for dead crows, sentinel indicators of the virus), anthrax scares (e.g. 9/11; ‘white powder’). Furthermore, routine health check-ups often include recommendations to screen for common health problems by testing glucose, cholesterol, prostate specific antigen (PSA), hemoglobin and white cell levels. In most cases, patients, or clients, are introduced to laboratory professionals as their blood is drawn, or when they deliver urine samples to the laboratory receptionist. Surgical biopsies, swabs, and cerebral spinal fluid specimens are collected and delivered to the laboratory by other healthcare professionals. In cases such as these, the patient may never directly interact with the laboratory. MLTs perform the testing and deliver the reports to the physician who then relays the test results back to the patient.

Even with a visit to a laboratory however, the public does not see all that a medical laboratory technologist does. Sure they would see the instrumentation, but they would not see the mental processing in the minds of the instrumentation operators. For the most part this is not visible, however does require a very high level of training. At a recent session for interprofessional healthcare teams orientation, a young midwifery student tentatively suggested MLTs were “like the television show CSI, but with live people?” Presumably, she meant MLTs use technology to solve clinical dilemmas. As the technology used in this field advances, it is often suggested that it will eventually replace technologists altogether. Personal experiences in the field have demonstrated that technology always advances and drastically changes the ability to perform tasks. Computerized information systems and automation has proved to simplify and standardize overall processes so that today’s technologists can focus on activities requiring critical thinking and interpretation. To date, there have been no reliable advances in automation to replace the expert technologist’s judgment.

**Technician versus Technologist:** The identity crisis here mirrors the struggle for a name. The profession insists on the term technologist, yet the media and public commonly reference technicians (the “lesser” term). What is the difference? Webster’s dictionary defines technician as a specialist in the technical details of an occupation, and technologist as one who accomplishes something through the practical application of methods and or knowledge. The
name technologist seems to denote a broader set of responsibilities whether permitted to perform them or not.

**R.T. versus M.L.T.:** The issue of credentials is as equally confusing as the names. Canadian medical laboratory technologists were traditionally awarded the credential, Registered Technologist (RT). However, respiratory therapists claimed the RT designation as part of their application to the government for a licensed profession. As a result, medical laboratory technologists currently refer to themselves as MLTs, although some provinces still use the RT designation.

**Licensed profession versus Occupation:** The Canadian Society of Medical Laboratory Science (CSMLS), the professional association, determines the required set of professional competencies and certifies entry-level MLTs using a national certification examination, which allows portability anywhere in Canada. Currently, most MLT programs in Canada are at the diploma level, but the profession has opened a debate with government for changing entry-level qualifications to a bachelor degree. MLTs work under pathologists and laboratory managers, and in every province except British Columbia, MLTs are required to maintain certain competencies as outlined by their provincial College of MLTs. British Columbia Society of Laboratory Science (BCSLS) recently made an application to the government to form a college, but at the time of this writing was not successful in their application. The subsequent re-application included a joint “umbrella college” application with professional societies for both British Columbia’s Medical Laboratory Science Technologists and Medical Radiation Technologists.

**Diploma versus Degree:** A wide variety of training models exist in Canada, but most include a period of classroom instruction with practice laboratory sessions in a technical college or university, followed by several months (2 to 47 weeks) in clinical practice and conclude with passing a national certification examination. Students study the same laboratory disciplines as medical pathologists: anatomical pathology, clinical chemistry, clinical microbiology, hematology, and transfusion science. Pathologists generally focus on clinical interpretations of laboratory testing, while a technologist focuses on the technology and techniques required to perform the testing. Educators located within a college setting are qualified MLTs and take the lead role in curriculum design. Like other healthcare professions, the Canadian Medical Association (CMA) Conjoint Accreditation Committee accredits the developed training
programs to ensure they cover entry level competencies set by national credentialing bodies. Most training programs in Canada offer diplomas, and only two offer degrees. In BC, the proposed move from diploma to degree for entry level technologists is linked to the professional college application, which is on hold until a decision is made for the profession.

**FTE versus Professional:** Employers refer to technologists as a percentage of a Full Time Equivalent, or FTE. As previously mentioned, the current climate of balancing costs with a looming (and in some locations, very real) skilled technologist shortage, the clinical practicum phase of technologist training is under scrutiny. “Laboratory reform” has been ongoing for the better part of the last decade, such that practice expectations for training programs are a moving target. As a cost savings measure over time, the clinical educator function has been reduced from an identified position, to a task within the daily routine of each technologist. Laboratories are experiencing difficulty in training students and educational institutes are finding it more difficult to place students, despite the human resource need and pressure from the government to expand all health programs. Several discussion threads have emerged as solutions to the “clinical practicum problem.” Managers suggest replacing the practicum with simulation to reduce the “teaching burden” in an already overburdened practice place. Non-traditional placements, such as integrated learning/practice models, have also been proposed. As the shortage is realized, laboratory managers are requesting the student be better prepared to “hit the ground running.” So what becomes the reasonable entry-level expectation?

Laboratory reform in British Columbia has once again triggered “high stakes” political debates and is subject to ever-increasing directives from laboratory managers and the education sector to solve the “problem.” As solutions are forwarded from industry with increasing urgency for education to respond, they fail to address the important issue: what do students learn in the clinical practicum that cannot be learned elsewhere? As clinical educators become a lost breed, rather than submitting to the notion that there is no money in the healthcare budget for clinical educators, the question should ask how costly it is not having them at all.

Often times, what seems like a fairly simple concept can actually open the door to more questions. How does one learn to think like a technologist? Educators may know what to teach (what to know), but not necessarily how to teach it. So how is this done? What is learning (what happens)? Can variations between teachers lead to variations in learning? How should students
be taught to act within the changing context of our environment (rapidly changing technology)? Or does the environment do the teaching?

Allied healthcare is currently experiencing increased pressure to streamline operational costs to improve efficiency and the resulting changes do not always consider the effects on ongoing educational activities. The short term goals for education and the health industry seem to be at odds with the interests and balance of power of healthcare managers. A challenge now exists to establish a line of communication to address each side's concerns and intentions. The ongoing discussion on competencies required to work as a technologist, and checklists to check off as students meet them, is not directly contributing to the broader question of how we learn to think like technologists and how clinical practice educators could optimally set up the learning for the learners.

1.1 Background to MLT's Training in a Practice Setting

Looking back at historical medical laboratories in Canada, as technology became increasingly complex, medical laboratory technology programs were started to assist practice sites with teaching theory. The British Columbia Institute of Technology (BCIT) began its MLT training program in the mid 1960s. Prior to that, MLTs in British Columbia were trained on the job ("hospital trained technologists"). Since the program's inception, MLT students, like most in any health professions training, will spend up to one third of their time in the practice setting. Until very recently, individuals known as "teaching technologists" were responsible for teaching in the practice setting. Employers typically supported at least five teaching technologists (one per department) who were overseen by a laboratory manager. BCIT faculty would have clear lines of communication with each teaching technologist to maintain the teaching program collaboratively as needed. However, with the loss of teaching technologists amidst laboratory reforms, the communication lines have become confusing for all concerned, including the students. Despite this, individual MLTs are now admirably picking up the duty to train the next recruits, quietly and without accolades.
1.1.1 The Need for Institutions to Place Students in Practice Settings

Despite the human resources crisis in healthcare, there are decreasing opportunities for clinical placement. Healthcare managers face fiscal pressures every day and often deem clinical education as a cost item. While beneficial factors exist in the cost-benefit continuum, they are as yet unacknowledged as significant counterarguments (CSMLS, 2004).

Health professional education has always been competency based, meaning each profession sets out a list of competencies that its entry-level practitioners must be able to prove. Competence is usually best proven within the practice setting itself, where various skills, attitudes and behaviors can be demonstrated in context. While most Canadian MLT training programs place students in practice settings, they widely vary in the length of practice required. A few programs established mainly on the east coast regions, have either partial or entirely simulated clinical practice phases. CMA Conjoint Accreditation requires clinical practicum for training programs but does not set out how the program must meet that requirement. Laboratory managers may agree that a practice based clinical is ideal, but in light of the current economic challenges, simulated clinical practice also deserves a serious look. This is true for education program administrators across Canada as well. Unfortunately, with a lack of evidence to show how students learn in practice, the economic argument will carry the day.

BCIT MLT students are generally placed in hospital and private laboratory facilities across the province. The practicum stage is broken down into training in five departments (anatomical pathology, clinical chemistry, clinical microbiology, hematology, and transfusion science) and within each department by “benches” or discrete work cells. Students work with technologists assigned with teaching duties (who may or may not have had any choice in the matter). The technologist must balance his/her duties in order to complete normal daily work on top of an added commitment to teaching.

1.1.2 The Student's Experience, Good and Bad Placements

After each clinical placement in a medical laboratory setting, students return to BCIT and engage in a faculty lead debriefing session. Throughout this section there will be reference to composite notes taken from such debriefing sessions over the past several years.
Very often, the clinical practicum becomes a vivid memory for many technologists. It is at this stage where they finally discover why they had to learn all that theory! It is often a frightening or anxiety-producing experience and being away from the relative security of the classroom, students must quickly identify and align with mentors in the authentic workplace.

In past debriefing sessions, students often expressed an “enthusiasm for the profession” when their clinical instructor also shared these attitudes and felt they were “a burden” if their clinical instructor demonstrated that attitude. Sometimes personality conflicts and/or perceptions of having a “bad attitude” led to “bad placements.” Two issues most often reported by the clinical educator as “bad placement” is the student’s lack of commitment, and student’s poor command of the English language. A perceived lack of commitment stemmed from differing expectations around “work” and resulted in intergenerational conflict. Through communication and time, this issue was often resolved. Students with English as their second language must meet certain language standards before entering training programs, but on occasion the clinical educators perceive the standard is too low. In these cases the student is provided with additional assistance.

In instances where the instructor accepted a teaching responsibility (with or without the support of their employer and fellow technologists) the student experience was a positive one despite the usual challenges of inadequate time and space. Students in this scenario often reported feeling a “part of the team,” enjoying activities such as the coffee break with the technologists.

1.1.3 Variations that Characterize Placements

Students training to become entry level technologists experience wide variation in clinical placement in Canada. Variation exists between programs, within programs, and also within laboratories. For example, technologist training programs in Canada vary in length of placement in clinical practice sites from as little as 2 weeks to as long as 47 weeks. Where the placement occurs within a training program also varies (i.e., in one single block of time or staggered throughout the program). Placement sites vary in type of institute (private or public institution), and geographic location (rural, community hospital or urban teaching hospital).
As one training program, BCIT also introduces variation. Students experience their practicum differently; some will complete all of their training at one clinical site (e.g., a hospital), while others experience clinical placement in multiple sites including those in different cities. Some students will be part of a student cohort, and others will be alone.

Variation also exists within different laboratory settings. Some students train under consistent clinical educators, while other students see a different technologist every day. The same student may experience different systems between departments (i.e., one department may have a dedicated clinical educator, while the others do not).

1.1.4 Clinical Placement Arrangements

Students ideally want to choose their placement site, usually based on proximity to their personal life (i.e., family, friends, etc.). Similarly, employers want the opportunity to select their potential employees (i.e., they are not usually interested in discussions on their role as an educator; rather, their focus is on using the placement as an extended in-depth employment interview).

Affiliation agreements fundamental to the functioning of MLT training have been signed by high-level administrations in both BCIT and each health authority in BC. BCIT admission procedures include a criminal record search (requirement for employment in the healthcare setting) and provide all students with liability insurance while practicing in the healthcare setting. The training program itself addresses issues of student safety preparedness before a clinical placement can begin.

BCIT recognizes Clinical Coordinators as an important role in facilitating many of its health professions programs. Healthcare professionals in general are constantly stressed out and Clinical Coordinators must continually assess the atmosphere and tread lightly as they negotiate student placements. The clinical placement site relies on clinical instructor support in the form of preparation, clear expectations, and goals. Public relations as an on-going communication are also an integral part of the Clinical Coordinator’s role,
Students also need the appropriate preparation and information in order to make a suitable choice for their clinical training. Most students nowadays are generally older (average age 25 years) and arrive with “baggage.” They often carry greater responsibilities (families, personal health issues, etc.) which may limit their flexibility within clinical placements. Thus Clinical Coordinators must carefully match the student to the training site as best as possible in order to maximize the chance of success for both the student and the potential employer.

1.2 Conclusions

In order to arrange effective clinical placements one has to have a sense of what is learned during this phase of student training. This chapter set the groundwork for placing Medical Laboratory Technology students in a challenging economic context (shrinking healthcare dollars) and confusing professional context. Educators use entry-level competencies to guide their teaching. Over time, national competencies have been amended by professional organizations to include thinking behaviors thought necessary for today’s technologists. The “new” competencies are considered “best delivered in a degree format.” (Canadian Society for Medical Laboratory Science website) Medical Laboratory Science and Medical Radiography, along with Nuclear Medicine and other educational programs, prepared to proceed towards changing the entry-level certification from diploma to a degree in order to accommodate the new competency requirements. Concurrently, these professions through their provincial professional societies also sought the formation of professional colleges in BC. The applications for both the degree and college initiatives were eventually discussed at a provincial level (BC Ministry of Advanced Education and Ministry of Health) and along with the support from Health Canada, a moratorium was placed on moving professions from diploma to degree for entry level, warning against what they considered ‘degree creep’. The application for college formation was similarly put on hold in BC, despite the existence of professional colleges for medical laboratory science technologists in every province except BC and PEI at the time of this writing. Apparently, the push towards professional status is happening too fast so what does this say about technologists and how students learn to think like them?

Throughout their clinical placement, students experience the context through clinical practice educators who have differing levels of responsibility and commitments to teaching. Of note is that students are not considered employees of the institution where they are placed nor do
they belong to the union or qualify for other hospital employee ‘perks’. Does this have some influence over their experience? Quite possibly it may further fuel the power imbalance between student and technologists in context and contribute to their vulnerability as they experience the context of work. Recently the phrase ‘burden on clinical’ has been coined to represent the so-called fiscal burden students will place on the operations. Students often consider the time they contribute to the workflow as a form of pay back to the institution that provided their training. As it stands, clinical education for entry level allied health technologists is no longer seen as a professional responsibility, but merely a favor to the student and the educational institution with whom they collaborate. The placement organization prefers to see a return on their investment to the student and would feel discontent in the event the graduate finds employment elsewhere after training. In many cases, these same clinical sites will list a “commitment to education” on their mission statements, however, on closer examination; the term ‘teaching hospital’ includes teaching doctors and nurses only. The term does not translate well to other allied health professions, including technologists, just as the government’s allocated funding does not extend training health professionals. Some argue funding is allocated but that it is simply hidden within global hospital budgets. Unlike doctors and nurses, there is no dedicated budget dollars for clinical training of technologists so what does this say about the clinical context in terms of supporting education for future health professionals?

The clinical practice educator is often an expert practitioner, and is either new or very seasoned in terms of teaching student technologists. Therefore, in an attempt to discover the value of the clinical context doing the teaching it was important to include discussions with them as part of the research process: how do they make sense of learning in context? Dan Pratt’s notion of context-as-teacher opens the door for the clinical practicum teaching roles to include both the educator and the context, such as the space, schedule and people (D. Pratt, personal communication September, 2002). What is included in the context for medical technologists and how does it do the teaching? Would the clinical practice educators even be able to verbalize this?

In Chapter 2, the level of inquiry on this topic as found in the literature today is discussed. To date there has been very little research specific to technologists so a review of the significant hits only will be reviewed. Next, Chapter 3 describes the research methodology and Chapters 4 and 5 presents the data from the case stories of five clinical practice educators highlighting their experience and differing approaches to clinical teaching. An emphasis has
been placed on their perspective on how they made sense of how the setting influences student learning. Chapter 6 presents a comparison of instances where context was used in teaching as noted in observations and narrative, and relating each to their teaching perspective. Lastly, Chapter 7 presents the significance of the research findings, and their potential to influence laboratory reform especially regarding the clinical training cost/benefit discussions.
Chapter 2

Literature Review

2.0 Introduction

Excerpt from observation field notes:

Tracy asks, “What's been ordered?” and talks about patient presentation, “admitted with anemia so requires group test and screen; admitted through the oncology clinic so refer to hemoglobin.” She talks very fast. “Standard order for platelets... what would that be? Five units. Right! Should the patient receive that product? Is the patient bleeding? Hemoglobin is <5, in OR, so automatic platelets. Open heart surgery in less than 2 hours. Yesterday there was an aneurism, so you order cryo and platelets. Order STAT from CBS but there's a bit of a delay, it comes by cab.” They talk about various transport procedures. “What type of testing?” Student goes through the options. “Okay, sign into LIS.” Student’s BCIT progress forms are on the desk; he’s made a list of things to accomplish in this, his last week in this department.

Tracy is close by and talks him through each step, criteria to order and to refer to pathologists. She talks about the technologist's role, what to check. “Has the[test] been done?” “Yes, on what?” “This admission; can we add new info on?” “If he stayed in the hospital, yes. If he’s gone home in between, then no.” More questioning and more scenarios: red cells, plasma, issue on blood group, requirements. “What’s the outdated time on platelets?” Five days “Why?” Student responds, “Right, okay”. Then she asks him “how do we know? What would you do?” He gives the correct follow-up explanation.

The phone rings several times, Tracy doesn’t answer, other technologists answer and take messages for her. “Any questions? Ask yourself questions all the way through the process. Has the patient been transfused, has ....” “Great, if you think of anything else let me know.”

Most laboratory technologists are able to recall at least one particularly profound learning experience from their training year, the kind of learning that still amazes them years later. Many will also recall a teaching technologist who greatly influenced their desire to specialize in a particular area of the laboratory. These teachers of practice seemed to possess an intuitive knowledge that was out of reach, but strangely mesmerizing for the beginning practitioner.

There is no doubt that learning in a workplace context differs in important ways from that experienced in the classroom. The question arises: what are the tenets of clinical teaching to arrive at powerful learning? What constitutes effective teaching in the clinical laboratory? A reasonable place to begin exploring for answers is to search what has already been discovered in scholarly literature.
2.1 What Do We Know about Clinical Teaching?

Summary of Search Terms: Teaching, Laboratory Personnel, Education, Medical Laboratory Technology; Competencies, Teaching Methods; Teacher Effectiveness; Medical Technologists; Clinical Teaching (Health Professions); Allied Health; context; perceptions; culture.


A dearth of literature on learning and teaching exists in medical laboratory technology and what does exist is largely from the USA. Given this profession has never been located within universities in Canada there is no tradition of research. Resultantly, the initial library database search produced very few articles of interest and the decision was made to review other healthcare professions to inform practice within this profession.

A search of the education databases (Academic Search Premier, ERIC, PsycInfo, CBCA Education) was conducted using the search term “Clinical Teaching,” and yielded 213 articles. Subsequent filters on the search refined the number of articles to the professions of interest by using the terms “medicine,” (65 articles), “nursing,” (44 articles) and “laboratory,” (five articles). Of the five laboratory articles, none were medical laboratory articles, but, nursing (two articles), dentistry, medicine, and librarian training. Alternatively, beginning the original search with the term “Teaching,” medicine again appeared with the greater numbers at more than 4000 articles, nursing at more than 2500, medical laboratory at 183, and clinical laboratory at 149. A review of the latter hits showed that most referred to teaching content, while very little addressed the central issue of whether the setting, or context, influences teaching.

The next search looked at the health-related databases (Elsevier ScienceDirect, Ingenta, Web of Science, MEDLINE, PubMed, CINAHL, pre-CINAHL), using the same terms and yielded more than 25,000 articles related to medicine, 17,000 articles for nursing, and 904 for medical laboratory. Despite promising numbers, there were very few research papers related to effective medical laboratory teaching in the clinical context. The majority of medical laboratory authors seem to have published “one off” non-research journal articles, which were used to guide
this paper, but are not expressly included. The diploma program librarian produced a few more research studies by searching within the allied health literature. Essentially what follows is a review of the findings from approximately 14 works that directly or indirectly examined issues related to teaching and learning during clinical placements.

A common theme among the selected researches was that they investigated effective teaching in the clinical environment for doctors and nurses, but not in any significant way for medical laboratory technologists. The findings for two largest healthcare professions (doctors and nurses) are of limited value for the third largest profession (medical technologists) as their context is significantly different. While the hospital setting is common for all, there are significant differences in the nature of the work, the pace and routines of work, the equipment that is required, levels and types of authority that are present (intermittently).

The research gathered from the broad search was analyzed regarding applicability to clinical teaching. The analysis revealed three predominant themes from the medical laboratory science research on teaching:

1. Preparing students for the workplace: Competencies needed for current practice, and teaching strategies to achieve them (six studies).
2. Student characteristics leading to success (three studies).
3. Medical Laboratory Science Program Sustainability: economic pressures (five studies).

2.2 Themes Found in Technologist Literature

2.2.1 Theme 1: Competence

Arlton and Sunderworth (1990) explored the tension between general education faculty and health professions faculty. Both types of faculty perceived that general education contributes to health professional development in facilitating verbal and written communication, problem solving, understanding behaviors of self and others, and also developing a personal value system. This study showed that although there is agreement with the contribution of general education, there is little collaboration between faculties for the purposes of program curriculum design. Spanning five health faculties from 114 accredited programs, the study documented a
widespread issue that many believe continues today. Employers’ expectations of their employees included effective communication and interpersonal skills in addition to technical competence, but faculties had difficulty creating space in their programs for non-technical courses. Which technical competencies should be dropped to make room for other courses? Apparently, new graduates require all the skills of the previous graduates, plus improved workplace behaviors.

Beck and Laudicina (1999), both Associate Professors of the Clinical Laboratory Science Program of North Carolina, surveyed former graduates for their views on competencies required for current practice. Their survey tool consisted of forced entry questions related to demographics, and an open-ended question, which the authors claimed would allow them to “collect data on the respondents’ views without the authors’ influence or limitations” (p. 99). The authors coded the respondents’ answers to the open-ended question, and arrived at their final classification of the important skills, competencies, and attitudes through a means of consensus. Their study ultimately highlighted the following competencies needed for current practice: “able to communicate well with others as a team member; flexible and open to change in the work environment, technically competent; able to solve problems and correlate clinical information; organized; and involved in management and leadership of the clinical laboratory” (p. 98). Strengths of this study include a good response rate (73%) which acts as solid support of the conversation regarding interpersonal skills as a required focus for learning in medical laboratory science. A weakness, as disclosed by the authors themselves, was that it was entirely based on one program’s experience. These findings are therefore significant to clinical educators because they provide a common understanding, that in order to be a successful technologist today, current workplace competencies go beyond technical competence and problem solving skills.

Kenimer (2002) designed a survey tool using a modified Delphi approach, and then used the tool to identify several critical thinking behaviors important to laboratory technologists’ practice. The focus of this research study was related to the development of the survey instrument itself. The study used a mixed qualitative and quantitative design and as such, the validity and reliability statements were cumbersome. In any case, she carefully described her logic in developing the survey. Once the survey was developed and tested, it was then used in a national survey (USA) where a total of 1571 practitioners responded. The results highlighted that critical thinking behaviors in the workplace extend beyond cognitive and psychomotor skills, into behavioral, affective, and situated/contextual areas. Further, critical thinking was described
as "a metaprocess that facilitates learning by interlinking the more basic processes associated with the different learning orientations: behaviorist, cognitivist, humanist, and situated/contextual learning" (p. 61). Kenimer linked the development of critical thinking behaviors with that of expert practice. She proposed that with further study, critical thinking behaviors could be placed into a typology ranging from entry-level to expert practitioner, and subsequently used to plan professional development throughout a technologist’s career. Although this paper may be the only one considered to possess an education focus (as opposed to market-driven), it is questionable whether one can actually map “metaprocesses” into objectively defined career landmarks.

A large quantity of the non-research publications found described attempts to include behavioral training, such as teamwork, through the implementation of specific teaching methods. Milson & Laatsch (1996), and Teshima (2001), studied the relationship between teaching methodologies (cooperative learning or problem-based learning) and student achievement. For nine years, Milson and Laatsch (1996) analyzed their student’s test scores to determine whether experience with cooperative learning would lead to an improvement in their test scores as compared to scores prior to implementing cooperative learning. Though their results were inconclusive (neither increased nor decreased scores), they did find that cooperative learning prepared graduates to become team players in the clinical workplace. Interestingly, Teshima (2001) found that problem-based learning influenced student test scores only when they did not receive additional higher level courses on the subject. Problem-based learning (PBL) was considered useful when attempting to synthesize prior learning, or develop a positive attitude toward critical thinking and problem solving. Teshima also drew attention to the changing perceptions that clinical teacher’s had of these students. In the past, students who asked a lot of questions (as taught by PBL) were considered indecisive and less self reliant. Alternately, the pre-PBL students who did not ask as many questions would perhaps be thought of as uncommunicative. Teshima’s important observation can have direct implications for clinical educator’s professional development.

Roberts (2003) surveyed clinical educators to determine their perception on the importance of team skills in the medical laboratory curriculum, and how team skills were taught during clinical training. Only 64% ranked team skills as very important or important, and 69% made use of team-based assignments. The studies by Teshima and Roberts illustrate the need for
further communication between classroom and clinical educators to ensure students obtain the benefits associated with particular teaching methods.

2.2.2 Theme 2: Student Characteristics

Freeman, Fell and Muellenberg (1998), retrospectively compared their student’s learning styles with learning outcomes. Student learning styles were determined using Kolb’s Learning Style Inventory, and fell into one of two types: active experimenters or reflective observers. The outcome measures consisted of eight posttests and a national certification examination score. They concluded that student learning styles had no effect on examination scores. It has become apparent that the topic of student learning styles as a predictor of success is quite popular in the general conversation among clinical laboratory educators. Although Freeman et al. found no significant correlation using a more compelling research method, it should be mentioned that they had only forty students from which to base their conclusions.

Laudicina (1999) employed a forced entry survey in her prospective study to determine which student characteristics best predicted student success. Student characteristics were grouped into three areas: academic achievement, background and demographic characteristics, and environmental factors. The characteristics organizing scheme differentiated students into two predictive categories: those students likely to complete the program and students less likely to complete the program (i.e., voluntarily withdraw or fail to meet minimum requirements). A related conversation in the non-research based literature surrounds student attrition and interventions to improve student success. There appears to be a general concern that programs graduate sufficient numbers to meet the needs of industry. Attrition is therefore a growing phenomenon, and educators are now looking for appropriate supports for students.

Wiggers and Holton (2001) studied the usefulness of a comprehensive examination to predict success on a national certification examination. Students’ comprehensive examination scores (1993 - 2000) were examined and compared with their success rates on the national certification examination. Those who achieved higher than 74.36% on the comprehensive examination passed the national examination on the first try. Those below 74.36% had mixed results. Of interest, 40% of the students who failed the comprehensive examination passed the certification exam on their first attempt. Faculty discerned that for some students, life
circumstances more than academic performance influences test scores and those students would require external motivation to pass examinations. However, if passing the comprehensive examination is not mandatory, students will likely not make the effort to pass it. Wiggers and Holton next surveyed other program directors to determine the extent to which comprehensive examinations are required. Of the 40 responding program directors, most required a comprehensive examination made up by program faculty, and the grade became part of another course grade. Wiggers and Holton concluded that a mandatory comprehensive examination would provide the necessary motivation for those students who seem to require it, and would raise the “mastery of knowledge” bar to a level commensurable with the increased knowledge and professional ability required in today’s workplace.

2.2.3 Theme 3: Program Sustainability

US training programs suffered a large number of closures in the early 1990’s, and Canadian programs followed suit shortly after. McCoy (1997) surveyed all clinical laboratory science programs in the US to determine how healthy the training programs were at the time, and to identify major curricular changes. McCoy’s survey determined that while program declines continued, still 69% of the respondents perceived they were in a “healthy mode.” Program changes were required, consistent with changes in the current workplace, and most programs had reduced rotation times in the automated areas of the laboratory and increased the emphasis on management and laboratory information systems to prepare graduates for additional roles in health care.

In Canada and the US, the willingness of clinical training sites to participate in student training is the rate-limiting factor, or the limitation to how many students may be trained each year (CSMLS 2004). Previously, staff reductions coincided with training program closures and few laboratories were willing to take on teaching in addition to their workload. Programs in the US eventually changed their curriculum in response, as reported by McCoy (1997). Most have reduced the time spent in clinical settings opting to assist instead with student learning on-campus, through web based learning and other methods of self study. Most Canadian programs currently use web based learning to support student learning in placements, and some have reduced the overall time spent in their practicum (personal communication, CAMLE meeting June 2007). Several Canadian programs are currently undergoing investigation of the feasibility
of simulated laboratory practice to substantially reduce the reliance on authentic placements. A recent report showed that momentum to implementation of simulated laboratories was declining in training programs due to a lack of funding and evidence base to support their use (CSMLS 2007).

Economic pressures on laboratories continue to influence willingness to train students. Cost benefit studies, such as the one performed by Laudicina and Beck (2000), exposed the reluctance of laboratory managers to consider students' contributions to productivity and overall costs. The response rate for their study was not high, only 114 of the 500 laboratory managers surveyed (23%) responded. For the most part, laboratory managers demonstrated a commitment to training programs and to maintaining the clinical teaching partnerships with the industry. The managers could also identify benefits, such as recruitment and orientation of new employees, and on staff professionalism. Managers commented that staff often felt they had less time to dedicate to teaching (as compared to past years).

Little and Harmening (2000) reported the significant results of a national consensus conference held in the US, which included Canadian participation. The team of 136 allied health experts from both education and practice met to consider ways to reform clinical education. They had formidable goals for the one-and-a-half day conference, but ultimately hoped to develop a guide for policymakers. The three major issues addressed included: economically-driven changes impacting clinical education/training, overcoming barriers to clinical education reform, and the role of professional societies in clinical education/training reform. Of particular interest, the group recommended that educators should take a value-added stance in order to present a cost neutral plan that considers both cost and value benefits. They also recommended the design of “systems to prepare and recognize clinical educators” (p. 172). Professional societies have a potential role here.

Waller, Watt and Karni (1999) offered a possible reason for the lack of appreciable published works. Their research into the scholarly activities of clinical laboratory science faculty indicated, “Faculty in CLS are in a transition stage from educator to researcher.” They highlighted that while US program faculty are gradually increasing their credentials (48.1% Masters, 45.6% Doctorate) and are often employed in major research universities, their teaching responsibilities kept them from producing research. Canadian programs, not commonly
associated with major research universities, had very little research conducted by comparison. This lack of clinical teaching research seemed to support a general lack of professional identity for these brave souls who weathered economic pressures and constant curricular changes, while maintaining their productivity.

The Waller et al literature review highlighted the bias toward 'objective evidence' and the heavy reliance on fixed entry surveys as a commonly used tool in clinical laboratory science research. Objective evidence generally seemed to be the goal. It also suggested that teaching involves preparing graduates for changing roles. One often wonders how the effectiveness of didactic teaching strategies informs the clinical educator, but efforts have apparently been made to link the two. Research using methods that facilitate rich descriptions and insights into effective clinical teaching is sorely lacking. There almost exists the notion that once the most appropriate list of competencies has been identified, the task of training the next wave of clinical practitioners will magically happen, independent of any teaching. Thus the underlying “crisis” in clinical teaching appears to be an identity crisis hidden by the bellowing “economic crisis”.

It appears constant change is of major concern to those working in the midst of it. The changes occurring are partly of a technical nature, and increasingly of a political nature. Rising costs of healthcare are sited as reason to eliminate certain “non-unit-producing” positions including the clinical instructor. It is apparent that today’s healthcare leaders do not recognize the important role the clinical instructor plays in developing future skilled employees. Managers are also dealing with the tension between the role of the state and the market in determining the changing nature of “work” (Higgs & Edwards). Technologists are responsible for maintaining employability skills and must be ready to move wherever the work flows. Employment security is increasingly becoming an outdated concept, one that new hires understand as their lot and contrasts greatly with the views of the expert practitioners.

The research reviewed here focuses on the allied health group consisting of medical laboratory technologists, medical radiography technologists, diagnostic sonographers, radiation therapists, and nuclear medicine technologists. As a group, these professions have many commonalities with respect to training. Each has specific technical knowledge to apply in a practice setting. The major implication of this research will be to influence healthcare administrators in maintaining the role of clinical instructor where student training is concerned.
2.3 Workplace Learning in Adult Education Literature

The literature identified two “ways of knowing”: implicit and explicit (Atkinson, Claxton, 2000). Often there is heavy emphasis on the explicit or that which can be articulated. Explicit knowledge is the science, the facts and lists that record our work. However, implicit knowledge, especially as it relates to learning, is equally important and often ignored. Implicit knowledge may be the context or conditions, culture and values of the workplace, and learned by hand on experience. Clinical practice training is absolutely necessary in order to gain skills not available to them in a classroom and not easily simulate in a simulated clinical practicum.

Gardner described a body-kinesthetic type of intelligence, or learning by doing (Gardner, 1983). Lave and Wenger’s notion of “legitimate peripheral participation” in situated learning provided a framework for bridging novice to expert through socialization of learner by a “master” or expert, and is described as a form of “apprenticeship” (Lave & Wenger, 1991).

In terms of use of context in learning to become a medical technologist, two authors are particularly noteworthy: Benner set out a framework of workplace learning for nurses, and Schulman discussed professional cultures as having their roots in how the profession is educated at its point of entry into the profession. In this view, the workplace is the context where expertise is developed and that professions have an individual culture which is partly shaped by how practitioners are first introduced to it and where they learn to think like a technologist.

Pat Benner’s work with learning in the nursing clinical context, defined the various developmental levels nurses pass through while developing skills in the workplace. This work was based on the Dreyfuss and Dreyfuss model of expertise development and defined the five levels as novice, advanced beginner, competent, proficient, and expert (Benner, 1984). Using this framework, students will enter their clinical practicum at the novice level and develop into the competent level and become entry level professionals. Over time and continued exposure to practice, they will develop to an expert level during their first years of employment.

Lee Schulman coined the term ‘signature pedagogies’ to describe how the development of a profession’s culture depends on the way its professionals are initially educated upon entering the profession. Here, the way taught is the way behaved. “Novices are instructed in critical
aspects of three dimensions of professional work – to think, to perform, and to act with integrity. But these three dimensions do not receive equal attention across the professions." He argued that signature pedagogies “can teach us a lot about the personalities, dispositions, and cultures of their fields” (Schulman, 2005). This seems like a valid place to start when exploring learning clinical practice. How are students taught to enter the profession and learn how to think like a professional? It appears students are socialized into our culture, but without being explicit about it.

2.4 Conclusions

We know very little, from the extant literature, about the context of medical laboratory practice as sites for training the next generation of laboratory technologists. Nor do we know why some sites are more effective than others as places to learn. Yet we do know that it is more than the instructor that makes for an effective clinical rotation (Pratt, Harris, & Collins, 2008). Clearly, there is a need for greater clarity about the intersection between learner, teacher, and context when considering what counts as an effective clinical placement for training medical laboratory technologists.
Chapter 3
Methodology

3.0 Introduction

"Phenomenological data analysis proceeds through the methodology of reduction, the analysis of specific statements and their themes, and a search for all possible meanings" (Cresswell, 1998).

As van Manen says "we gather other people's experiences because they allow us to become more experienced ourselves." "The point of phenomenological research is to "borrow" other people's experiences and their reflections on their experiences in order to be better able to come to an understanding of the deeper meaning or significance of an aspect of human experience, in the context of the whole human experience." (van Manen, 1990, p. 62). This study explores the experiences of five clinical educators and by extension allows us to better understand the ways in which contexts of practice are invoked (or not) to help students become medical technologists.

How do allied health technologists learn? What are the best practices for introducing new technologist students to then "real world"? How is allied health knowledge constructed? This research focused on Pratt's notion of context-as-teacher or, the value of context as a major contributor to clinical instruction. This study compared teaching perspectives to determine variations of "good clinical teaching" within allied health fields, and to ascertain how the differences manifest within the allied health fields.

3.1 Methodological Approach

I explored narratives about what clinical practice educators said about themselves, thus I chose the tradition of phenomenology to guide my research design. The phenomenon under research is the role of context in teaching and learning. Through observation and interviews of five clinical practice educators, rich data was gathered on how clinical practice educators make sense of the role of context in their teaching. A pilot interview provided initial feedback and refinements to the process. Data was gathered from each clinical practice educator in an identical process: initial interview, observation, second interview, a second observation, and final
interview. Observations, interviews, and clinical practice educators' self-reflections from beginning to end were transcribed. It was important to not be unduly influenced by my own presuppositions about the role of context in clinical teaching. This meant I had to work at staying external to what my participants were saying, that is, to hear the participants' experiences and to derive meaning from them, rather than impose my own meanings on them. To do this, I tried to 'bracket' my own preconceived ideas about teaching in clinical contexts and try to understand how my informants experienced that phenomenon.

Cresswell cautions that this concept of bracketing personal experiences may be challenging, and indeed, I found this to be so. While interviewing and when analyzing each set of transcriptions, I tried to listen deeply to my respondents and think from their point of view. During the analysis, I continued this process and discovered common clusters of meanings of what and how they experienced context in their teaching (Creswell, 1998). Van Manen talks about writing as a yet another research method and, indeed, it also required an intentional act of thinking from my respondents' points of view. Thus, 'bracketing' was an important part of my research methodology, from interviewing to writing. It was also an important part of my own development as I learned the value of listening to other's stories, sometimes in spite of what I had already come to know and understand about my profession.

3.1.1 Situating Self as Researcher

I began my medical laboratory science career in the early 1980's. This field of allied health is very broad and contains five distinct practice areas, hematology, clinical chemistry, clinical microbiology, transfusion science, and anatomical pathology. It is difficult, if not impossible to maintain competence at an advanced level in all five areas. Most technologists will spend their first years specializing in one particular area and I followed suit by specializing in clinical microbiology. By the mid-1980's, I pursued an interest in teaching as a clinical practice educator. Clinical practice educators are currently not trained in educational methods yet perform intuitively to guide the students' transition towards autonomy. Teaching interests led me away from the laboratory and into the classroom in 1989. It was quite evident to me that student learning was vastly different in the two contexts, and the ongoing discussion around how technologists learn "best" continues to be a contentious issue often cloaked behind rhetoric. The predominant training strategy is to teach as you were taught.
For the past fifteen years, I have considered the changing needs of the industry and have adapted classroom teaching in an attempt to sequence content to prepare "work-ready" students at their clinical training phase. No matter what I tried in the classroom, the outcome was essentially the same. Once the students entered the clinical phase, their relationship with their clinical instructors and not necessarily their classroom preparedness, was key to their early success. I was convinced that something else was involved for effective learning in the clinical site and that re-sequencing content alone was not the route to success.

By 1996, I was responsible for placing medical laboratory science students in their clinical practice rotations. It was during this time that I was re-introduced to the tensions between those who would teach and those who would learn in clinical settings. While many practitioners consider the role of clinical teacher to be a burden, most learners consider their clinical placements to be tremendously exciting learning periods.

As Chair of the Canadian Association of Medical Laboratory Educators (CAMLE), and BC representative to CSMLS Council on National Certification (CNC), I spoke with, and was a resource for, technologists across Canada about their concerns related to educating our next technologists. In this role, and as my career moved closer towards interacting with healthcare leaders in government and industry, I was struck with the wide-spread focus on cost rather than quality of education for entry-level practitioners. It is my contention, and it is a central tenet of this thesis, that the preparation of the next generation of medical technologists must include profession-specific content that can only come through placements in authentic settings, not as a 'burden' but as an exciting and integral part of helping students learns to think like technologists.

My biases at the start of this research included: my identity as BCIT faculty with personal and professional relationships with interviewees; climate issues in workplace and training settings; and differences in patient/professional relationships across allied health technologies.

3.1.2 Five Perspectives on Teaching

Do clinical educators bring differing points-of-view on best use of context in their teaching? In order to answer this, I used the framework developed by Pratt & Collins. Five
perspectives on teaching were derived from interviews and observations that Pratt and his graduate students conducted in Canada, China, (then) Hong Kong, Singapore, and the United States (Pratt 1998/2005). The five perspectives are Transmission, Apprenticeship, Developmental, Nurturing, and Social Reform. The characterization for each is outlined below (Collins, 2008):

Five Perspectives on Teaching
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Each of the paragraphs below is an abbreviated description of a perspective on teaching. No single perspective is universally 'better' than any other; each is best suited to specific people, aims, values, and contexts. However, since they represent contrasting and sometimes competing views of teaching and learning, individuals must value some perspectives more than others. It would be misleading, therefore, to say that all five perspectives are equally representative of a person's view of teaching.

In research involving over 50,000 educators from more than 100 countries, the vast majority held one of these perspectives as their dominant view of teaching with one or two additional 'back-up' perspectives allowing them to accommodate changes in learners and educational circumstances.

**TRANSMISSION:** Effective teaching requires a substantial commitment to the content or subject matter. Effective teaching means having mastery of the subject matter or content. Teachers' primary responsibilities are to represent the content accurately and efficiently. Learner's responsibilities are to learn that content in its authorized or legitimate forms. Effective teachers take learners systematically through tasks leading to content mastery: providing clear objectives, adjusting the pace of lecturing, making efficient use of class time, clarifying misunderstandings, answering questions, providing timely feedback, correcting errors, providing reviews, summarizing what has been presented, directing students to appropriate resources, setting high standards for achievement and developing objective means of assessing learning. Effective teachers are enthusiastic about their content and convey that enthusiasm to their students. For many learners, effective teachers are passionate presenters of their content.

**APPRENTICESHIP:** Effective teaching is a process of socializing students into new behavioral norms and professional ways of working. Effective teachers are highly skilled practitioners of what they teach. Whether they are in classrooms or in clinical settings, effective teachers are recognized for their professional knowledge and expertise. Effective teachers take time to reveal the inner workings of their skilled performance and
translate that into language that is meaningful and accessible to learners. They also give students an opportunity to be involved in the work through an ordered set of tasks which usually proceed from simple to complex, allowing for different points of entry depending upon the learner’s capability. Effective teachers within this perspective know what their learners can do on their own and where they need guidance and direction; they engage each learner within his or her ‘zone of development’. As learners mature and become more competent, the role of a teacher changes; they offer less direction and give more responsibility as students progress from dependent learners to independent workers.

DEVELOPMENTAL: Effective teaching must be planned and conducted “from the learner’s point of view”. From this perspective, effective teachers must understand how their learners think and reason about the content to be learned. The primary goal is to help learners develop increasingly complex and sophisticated cognitive structures related to the content. The key to changing those cognitive structures lies in a combination of two skills: (1) teaching that engages learners with content while also challenging them to move from relatively simple to more complex forms of thinking, and (2) ‘parking’ their own answers in order to allow learners time to construct their own understanding of the content. Questions, problems, cases, and examples form bridges that these teachers use to transport learners from simpler ways of thinking and reasoning to new, more complex and sophisticated forms of reasoning. It is crucial, particularly in the initial stages of learning, within this perspective, that teachers adapt their professional knowledge to learners’ levels of understanding and ways of thinking.

NURTURING: Effective teaching assumes that long-term, hard, persistent effort to achieve comes from the heart as much as it does from the head. Within this perspective, teachers believe that people become motivated and productive learners when the standards for achievement are clear and accompanied by a balance of academic and emotional support. Effective teachers, therefore, create a learning environment that provides challenging yet supportive conditions in which learners feel a sense of control over their education, work collaboratively with others, believe their work will be considered fairly and honestly, and receive feedback in advance of any high stakes judgement of their efforts. Within this perspective, effective teachers do not lower their standards; nor do they excuse learners from doing what is required. Rather, effective teachers help learners set challenging but achievable goals, reinforce effort as well as achievement, and acknowledge individual growth as well as absolute achievement as might be indicated on standardized examinations. They believe strongly that learning is diminished when the learner’s self-concept is threatened.
SOCIAL REFORM: Effective teaching seeks to change society in substantive ways. Teachers in this perspective are concerned with changing the social norms of society or a profession. From this perspective, effective teachers awaken students to values and ideologies that are embedded in texts and common practices within their discipline or profession. It is the teacher’s responsibility to challenge the status quo and encourage students to consider how they are positioned and constructed within particular discourses and practices. To do so, teachers help learners analyze and deconstruct common practices for ways in which such practices perpetuate conditions that are unacceptable. Texts are interrogated for what is said and what is not said; what is included and what is excluded; who is represented and who is omitted from the dominant discourse. Students are encouraged to adopt a critical view in order to take social action to improve their own lives and the lives of others. Critical deconstruction, though central to this view, is not an end in itself. The goal is not just to learn about the world, but to change it.

Clinical practice educators teaching perspectives were distributed across these five preferred approaches to teaching, as discussed below. The focus of this research was whether the educator’s perspective was demonstrated in any observable way, and also whether there was any relationship between teaching perspective and use of context in teaching.

3.1.3 The Teaching Perspectives Inventory

In order to draw from a variety of points-of-view about clinical teaching, educators were asked to take a short online survey. Pratt and Collins’ Teaching Perspectives Inventory (TPI) is a tool to differentiate various teaching preferences or approaches to teaching based on the answers to posed questions. The teaching perspective is based on the relationships (the teacher’s beliefs and intentions guiding their actions) between teacher, learner, knowledge (or content and ideals) all within a learning context (Pratt and Associates, 1998). A recent study was carried out through analysis of the accumulated TPI responses over six years. The study showed that the tool’s reliability and validity was statistical proven, and that the TPI was best used “to promote reflection, clarification, and plurality of approaches to good teaching” (Collins & Pratt, 2008).

3.2 Recruitment of Clinical Educators

On March 11, 2003, approximately 100 clinical educators of medical laboratory technologists, medical radiography technologists, cardiology technologists, nuclear medicine
technologists, electroneurophysiology technologists, diagnostic medical sonography technologists and radiation therapists attended a teaching workshop at BCIT. Each participant completed an online teaching perspectives inventory in preparation for the day. After receiving ethical approval, six potential research participants from the group of 100 clinical educators were recruited to the study “Ways of Teaching in Contexts of Professional Practice.”

Using the 100 TPI results, I sought one pilot participant and five study participants, each with a different approach to teaching to approximate the diversity existing in practice. However, the nature of medical laboratory clinical practice lends itself to Apprenticeship; most educators attending the workshop demonstrated an Apprenticeship peak, or preference to teaching (Pratt & Collins, 2003). In order to recruit educators with differing approaches, those with an Apprenticeship peak plus a strong secondary peak in another approach were included in the selection process. There were some categories with no obvious match, so I expanded the recruitment to include medical laboratory science and medical radiography technology educators. Medical radiography training is very similar to that of medical laboratory science technologists, in terms of professional and political history, employment climate, and training model.

My research was mainly concerned with clinical instructors’ perceptions which fit within the qualitative theoretical framework of phenomenology, the research tradition with ‘lived experience’ at its centrality. The participants explained their individual understanding of their approach to teaching and the meaning teaching had to them.

3.3 Data Gathering

The study involved three one hour interviews and two one hour observation periods within one week. The first clinical educator, the pilot, was completed and reviewed before setting out plans for the remaining five. After discussion about the pilot interviews and observations with my thesis supervisor, the set of questions were modified to lessen the structured approach and allow for a more free-flowing conversation to develop.

During the first interview, I explained the process and gained formal consent from both the educator and his or her student(s). I encouraged the participant to speak about their beliefs
and locate their personal values about their teaching role within the context of their profession. I was usually introduced to his or her supervisor, manager, and colleagues to inform everyone why I was there and to ensure that I would try to limit the disruption to the work as much as possible. I then observed the educator and student for approximately one hour, taking field notes as discreetly as possible. “Close observation involves an attitude of assuming a relation that is close as possible while retaining hermeneutic alertness to situations that allows us to constantly step back and reflect on the meaning of those situations” (van Manen, 1990, p. 69).

The second interview was audio taped, and followed a free-flowing conversation style based on a few questions. The clinical practice educator was encouraged to reflect on the questions between the second and final interviews. During the second observation, I was usually able to speak with the student as well as the instructor. The third and final interview was similar to the second and captured thoughts that may have been missed on the second interview.

Interview Protocol:

1. How do you describe your approach to teaching in clinical?
   - When you think back to Dan Pratt’s workshop in 2003, do you recall anything useful, interesting, or important?
   - What do you remember? Why was it important; what did you do with it?
   - What do you enjoy about teaching? What do you find challenging?

2. How do you prepare for teaching?
   - What do you want students to learn while they are with you?
   - Describe how your teaching has changed over time
   - What key values do you portray that positively influence student transition to the profession?

3. What, or who influenced you in developing your approach to teaching?
   - Describe resistance you experienced (by others or the culture within your discipline)?
   - Give an example of a time you used your teaching approach to successfully encourage a student.
4. How do professionals maintain continuing education? What role do you have?

5. How is your teaching affected/ influenced by the department?
   - How do you balance teaching and service?
   - What might the student learn without you?
   - How does context (space, schedule, and people) influence what students learn?
   - How do you intentionally use the context to help students learn?

3.4 Data Interpretation

All field notes, observations, interviews were transcribed and analyzed for themes, or “meaning units” (van Manen, 1999, p. 78). Findings for each educator are presented in Chapters 4 and 5, and comparisons across educators are presented in Chapter 6.

3.5 Conclusions

Classroom teachers have a language which includes terms such as competencies, which clinical teachers reinterpret for use in the clinical setting. Developing competent technologists is the agreed upon goal, but the meaning of competence may not be clear. The notion of what constitutes “teaching” in the clinical context is equally unclear.

Van Manen describes teaching as having “hope” for the success of students, yet “the language of objectives, aims, teacher expectations, intended learning outcomes goals, or ends in view is a language of hope out of which hope itself has been systematically purged” (p.123). The problem is that, “teacher expectations and anticipations associated with certain aims and objectives differ from having hope for our children in that expectations and anticipations easily degenerate into desires, wants, certainties, predictions.” As we look for measurable outcomes, teaching exists only in the present and is “in danger of always treating the present as burden, as something that must be overcome” (p. 123).

Clinical educators understand that students on the journey of becoming entry level professionals must learn far more than what appears on the mandatory competency check list. What is the additional learning? Could they articulate it or is it innate? What do they draw from
to facilitate that additional learning? Do they purposefully use context to provide that learning?
The case stories of five clinical educators, each with a different perspective on teaching, were analyzed to determine the extent to which clinical (including but not limited to space, schedule, people) and professional context is used in their teaching.
Chapter 4
Case Stories as Observed of Five Clinical Practice Educators

4.0 Introduction

Excerpt from observational field notes:

"Why did this instrument flag these normal results?" Alice reviews the numbers, "It's a hematocrit-hemoglobin error, or HH error. Numbers should be three times greater and when they are not, the instrument flags it." A technologist chimes in, "That instrument is very clever!" Another technologist prepares to take her coffee break, "There are slides here, a STAT there..."

The student enters results in the LIS (computer) and comments, "Maybe post partum, high platelets; that’s normal for this patient." "Why?" asks Alice. Student responds, "Yeah, that’s right." They move on to the next patient. "Probably it’s an infection," says student. "What’s the diagnosis?" Alice asks. Student checks, "Pneumonia."

Alice appears to shift into second gear and says to the student, "Okay, let's work on setting priority. There's a bunch of [transported] bloods there and ..." Student also looks for work and offers, "There's some STATs." Alice says, "Right." Alice delivers reports to other departments and directs the STAT to another technologist. Three technologists are working independently at other stations. Student takes a phone call (the first one I've seen her take), and relays the message to Alice who tells her, "Give it to one of the [technologists] on the microscope bench.

A technologist is asking loudly "No, it shouldn't have been cancelled! Does that mean the red count is cancelled too?" The energy in the room builds suddenly. This technologist leaves as quickly as she arrived and the stress level drops as suddenly.

As shown in the above vignette, the clinical practice educator has unique role within the workplace. She or he participates in similar work as do the other technologists in a particular setting, and has the added responsibility of attending to teaching a student. Their work: teaching balance is a delicate balance indeed. The objective for this study was to document "good teaching" in ways it has not been done before and not to determine if these participants practiced "good teaching." Another objective was to investigate the role of context in effective clinical teaching. As was evidenced by their interviews, all had teaching experience and felt strongly about their important role as clinical practice educators. The following presents each educator in terms of biographical information, dominant perspective(s), and work context. All names in this thesis are pseudonyms.
4.1 Tracy: Medical Laboratory Technologist, Transfusion Science

4.1.1 Tracy’s Biographical information

Tracy has 25 years experience as a technologist, with the last five years as clinical practice educator. She does not participate in other professional activities where her teaching skills might be used because she has a family, two small children and husband, who receive all her off-hours attention. Tracy initially hesitated to participate in this study. She had many questions before committing her own time. She also was very thorough in gaining support from her colleagues for the time I would be onsite. Tracy made every effort to talk through all eventualities before getting started with the interviews.

4.1.2 Tracy’s Dominant perspective(s): Transmission and Apprenticeship

Tracy was equally dominant in both Transmission and Apprenticeship teaching perspectives. She rationalized her Transmission perspective as stemming from dissatisfaction with her own training. She felt she would have had a better learning experience had her clinical practice educator taken the time to explain things more fully before being judged on her performance. Tracy feels her students benefit from her approach of thorough explanation before doing, but admits to feeling exhausted after long stretches of teaching. Sean, her student at the time, felt a great appreciation for the time Tracy spends up front, the attention she extends through the day, and for her wealth of knowledge. Tracy’s approach is to provide instructions and explanation up front, then demonstrate once, and then allow the student to try while she stands close by asking questions and providing support and additional resources at procedural checkpoints. Students are encouraged to learn through open dialogue and self study.

4.1.3 Tracy’s Work context

Tracy works in a small and very busy Transfusion Medicine department in a mid-size urban hospital. This is the department responsible for cross-matching patient blood for transfusion, often in a highly charged emergency situation. In addition, they supply appropriate blood products such as serum and platelets at the request of a physician. Procedures in Transfusion Medicine are federally regulated as a result of the HIV and Hepatitis C infections
received through tainted blood. Technologists must be aware of, and adhere to, and communicate the many rigid regulations to ensure the correct products reach the correct patient.

Tracy’s department experienced a critical event during my observation. A patient was brought into emergency with what appeared to be a cardiac event. Blood products were ordered. All four or five technologists’ awareness levels escalated and the student was allowed to participate where he felt comfortable. Tracy verbally checked in with him, repeatedly asked if he felt comfortable and stayed close by him at all times to confirm he had all the information he needed to complete the procedures. The stress level dropped quickly when a phone call from the attending physician told them the patient had stabilized for the time being and to put the blood on hold until further notice.

Tracy feels the culture in her workplace is supportive and encourages diversity in approaches to teaching. At one point, there was a need to discuss an ordering error with the attending physician. Tracy explained to the student that they would tell the pathologist what the problem was and explain what the corrective action was, and that the pathologist would then contact the physician. She explained to him that this pathologist was not their regular pathologist and that she was not used to the Transfusion Medicine department (she was an anatomical pathologist) so their communication must be clear and concise. Tracy then asked the student if he felt comfortable talking to the pathologist himself, while she stood beside him. He jumped at the opportunity and they rehearsed what he’d say in the hallway as they waited for the pathologist to invite them inside. Tracy was effectively using the context to provide a memorable learning experience for this student.

4.2 Alice: Medical Laboratory Technologist, Haematology

4.2.1 Alice’s Biographical information

Alice has 21 years experience as a technologist, and of those, five years included teaching. Outside the direct duties of the department, Alice is active in her professional society and with her family (two teenaged children, husband, and large extended family). Alice enthusiastically volunteered her time for my research. She loves her profession. She wishes more of us were positive about it and comments often about negativity in others. She dislikes the oft-
mentioned self-deprecating phrase “I’m just a lab tech.” Alice believes the healthcare team includes approximately 100 people serving the patient, and laboratory technologists are just as important as the others are. “We are not only about machines and numbers; there’s a patient at the end of it”. She hopes she models this professional self-worth to her students.

4.2.2 Alice’s Dominant perspective: Apprenticeship

Alice is not at all surprised at the Apprenticeship classification and supposes, “We all trained that way, what other way could there be?” Alice attributes her own approach to teaching a direct response to what she felt did not work in her own experience. She felt that she was left alone to learn on her own too much and is quite uncomfortable in some departments in the laboratory (particularly microbiology). Alice feels her role is one of mentor and role model. She is fueled by the opportunity to share what she feels is an important profession, and is challenged by students who do not appear to share her enthusiasm. During the last decade, I have witnessed her bringing in new volunteer recruits into the professional society, supporting the notion of socially constructed cultures.

4.2.3 Alice’s Work context

Alice works in the hematology department of a busy community hospital. Hematology is the study of blood cells and their activity (e.g., coagulation) in a variety of patient samples, including bone marrow, cerebral spinal fluid, joint fluid and of course, blood. The work is differentiated by test equipment and urgency. Routine blood work is performed using high volume instruments (e.g., red blood cell counts, white blood cell counts, hemoglobin), manual cellular morphology for cerebral spinal fluid (and other fluids) is performed using microscopes, STAT work supersedes routine work. This laboratory had three large bench top instruments on two benches, a microscope bench between them, and benches surrounding the room containing a variety of laboratory equipment and manuals for the myriad of tests not performed by the high volume instruments. Patient samples are logged into a computerized laboratory information system and test results are released to the patient record. Personal pictures of staff and their children added to the friendly “clutter” of the space.
Alice works in a department with eight other technologists, most of whom are over 50 years of age and who do not participate in teaching students (at their own request). Alice has their permission, and respect, to organize the student’s workload, distributing the work towards or away from the student as she sees fit. Alice makes her decision based on the student’s level of competence and learning needs. Janet, the student, was in her last week and at her most competent level, so Alice gave her more complex work to tackle on her own, while she performed the routine work herself. Alice was always close by and available to Janet for consultation, but far enough away that Janet could feel she was doing the work unassisted. Alice used humor to engage the student, and asked questions throughout each procedure. This verbal questioning style is one Alice prefers. She is aware students learn how to do some laboratory tasks rather quickly. By asking questions, she is trying to guide the student towards deeper understanding, and to bring the patient back into the student’s awareness. Alice also feels it is important to build the student’s confidence with making decisions. Besides teaching BCIT students, Alice is responsible for tours for other health professionals, for learning and teaching new equipment to colleagues.

As I watched Alice, I thought of a dance. She both directed and was directed by the work as it came in, the students’ needs, and the other technologists’ needs. Alice was aware of everything happening within that department at any given moment. At one point, the work appeared to be coming faster than it was being dealt with, so Alice stopped her humorous banter and changed the tone (and pace) of the workplace. We all suddenly felt that we had better get down to business! My presence was felt acutely I’m sure. For that reason, I moved further out of the way to be less likely part of the “dance” and more of an observer.

4.3 David: Medical Laboratory Technologist, Haematology

4.3.1 David’s Biographical information

David has been a technologist for 20 years and has been a clinical practice educator on and off for five years. He is married and has two young children.
4.3.2 David’s Dominant perspective(s): Developmental, Apprenticeship and Transmission

David had three dominant approaches: an Apprenticeship peak and an almost as strong Transmission and Developmental peaks. He was selected for this study for the strong secondary Developmental peak. He rationalizes his approach as having been inspired by teaching mentors in his department and hopes he emulates a positive role model within a stressed out system where poor morale prevails. He mentioned he likes to go out of his way to greet his students in the hallways, to acknowledge their presence (and value to the system) and to create an atmosphere of trust. He wants them to understand he is available to them any time, wherever they may be training within the laboratory. When a student is scheduled to be with him, he starts off by outlining the timeline and achievable goal markers along the way. Armed with this framework, he then sets them free to experience lab work with other technologists who support student learning. David checks in frequently at first, and less frequently as the student demonstrates competence with learning.

David hopes to provide a role model to future technologists, to be active in their profession and take advantage of opportunities as they present. He believes students should make up their own mind about their profession based on their own experiences. He sees the context as providing plenty of opportunity for those who choose to take advantage of them. He knows some technologists prefer stability and feels that is appropriate for them. The laboratory provides enough diversity to employ all types of technologists. For him though, the key is to develop a positive professional attitude, remain positive through all challenges, and contribute positively whenever you can.

He guides the learning by providing goals for the student to accomplish each week with the assistance of the assigned technologists in the department. Once the goals are discussed, David spent relatively little one-on-one time directly with the student. He communicated, and was friendly, but offered almost no real-time instruction in the moment. This type of education was provided by other technologists. David provided prepared learning modules at predetermined scheduled times.
4.3.3 David’s Work context

David worked in the hematology department in a large urban hospital. There were several different work areas within this department, some specifically for reading slides (some multi-head microscopes for teaching) and others for high volume analytical instrumentation. As a large teaching hospital, there were a few interns with their own spaces that intersected the technologists’ spaces. He used his context in teaching by situating the student with any number of technologists doing the daily work.

The technologist most directly involved with the student usually provided a typical Apprenticeship approach where they worked close by and allowed to student to participate where they could. David provided the basic structure for learning, and then oversaw learning in the moment as he determined to be appropriate for the student. He used the context to encourage development of a self-directed learning approach, beneficial throughout their careers. He also encouraged students’ involvement in learning opportunities provided by the department such as slide reviews with the hematologist. He provided a positive learning environment for the students and staff alike and feels the onus is on each individual to take advantage of these opportunities.

David’s student Wendy enjoyed the clinical laboratory experience, but both she and the technologist working with her commented that this lab was so busy they did not have time to teach. They were apologizing for not teaching, and clearly did not recognize learning was in fact happening. Their notion of “not having time to teach” highlights a false perception that teaching is something separate from experiencing the workload and context. This will be discussed further in Chapter 6.

4.4 Nancy: Medical Radiography Technologist

4.4.1 Nancy’s Biographical information

Nancy had 16 years experience as a technologist and approximately three years experience as clinical practice educator. She found teaching students in clinical placements was very much like raising her children.
4.4.2 Nancy’s Dominant perspective: Nurturing

Nancy’s dominant perspective was Nurturing, with Apprenticeship as a secondary perspective. Teaching was not something she had aspired to do, a colleague recommended her for the job and so she gave it a try. Now she feels her whole purpose is to be with the students. She takes two weeks off for holidays in July, but rarely leaves the students otherwise. Nancy had negative experiences with learning, which she says was “because of her personality.” She knows she’s very sensitive and says she cares very deeply about her profession, about her colleagues, and about her students’ experiences in the department. She does not want them to have negative learning experiences, so expresses her role as a “buffer” between them and the technologists who tend to take advantage of them by treating them as an extra pair of hands rather than providing meaningful learning experiences.

4.4.3 Nancy’s Work context

Nancy works in the radiography department in a busy community hospital. She was responsible for three students, who work with other technologists as well as herself. The students and staff were distributed around rooms for general radiography, CT scanning, Fluoroscopy, and the operating room. My observations were in the general radiography rooms, where Nancy and two of the students took cases as they presented. There was a great deal of patient contact and emotions could run high, particularly when the patient was in pain. An elderly woman presented after she had suffered a fall. The porter brought her by gurney to the examination room. It was clear she had sustained broken bones and was in pain. Nancy and the student had to take extra care to comfort her and to position her correctly to get the best possible films. Jim was a junior level student and showed great attention to the patient, listening and responding to her concerns about comfort. Nancy and Jim left the patient to speak briefly outside the examination room about whether he was ready to handle this case. Nancy asked what he planned to do, and Jim answered enthusiastically. Nancy encouraged him to try positioning on his own, with her help supporting the patient. She gave him permission to ask for her help if he felt he needed it. Nancy and Jim returned to the patient in the examination room and quickly set about collecting her films with the minimal amount of discomfort. Watching someone in pain was difficult for me as observer. Nancy left the room when she felt Jim had it under control. She distracted herself with colleagues who were looking through wedding photos, happily congratulating a young
technologist on her recent wedding. After a few minutes, she went back to help Jim move the patient back out of the examination room and to the porter who would take her to her next destination. I spoke about this scenario with Nancy later, as I wondered how she coped with these highly emotional cases. Nancy said she felt bad for this woman, but put her desires to provide a good student learning experience before her own feelings. Technologists will encounter difficult cases, but they focus on their goals such as getting the best image possible, providing a learning opportunity, etc. Nancy enjoys the multiple and relatively brief patient contact, as opposed to nursing where you may see the same patient over a greater period. She enjoys the challenge of finding new ways to arrive at the goals, always within the guidelines of policy and protocol of course. She hoped her students learn that from her.

Nancy gauges her student’s level of comfort with a patient and moves in and out of the way as she feels the student requires or no longer requires her support. She demonstrates a traditional apprenticeship style (Lave & Wenger, 1991) which is one of her dominant teaching perspectives. She immediately follows up with the student after each case by discussing the relevant key points for their particular case in the main radiography area outside the case rooms. “Do you understand why we did that?” Always with compliments and encouragement “Good job!” or “That was a good effort. You’ll get it next time!” If the student is a little hesitant, Nancy will encourage them with “let’s do it together.”

Nancy’s main concern for her students is to encourage the development of self-confidence. She would like them to confidently approach each situation as it arises. One way she does this that utilizes her context is to encourage them to use every space available and this that way, not to allow technology limit their level of comfort performing their job. She finds that the goals set by BCIT do not satisfactorily encompass what she can teach them and refers to them only to ensure her students meet BCIT’s minimal standards while ensuring her own learning goals are met. Nancy is keenly aware of the student’s vulnerability in the workplace and strives to protect them from being taken advantage of by other technologists, which might diminish their self-confidence. The profession holds her interest (“I like the art aspect of X-ray”, she says) but she finds that the culture can put the student at risk of being exploited. Survival in this profession, at least in part, hinges on self-confidence and self-reliance.
4.5 Sonia: Medical Radiography Technologist

4.5.1 Sonia’s Biographical information

Sonia has 30 years experience and five years as clinical practice educator, has three older children in university and a husband. Education is an important part of her story, as it enabled her to leave her country of origin, where he was part of a minority and oppressed society, to make a home in Canada. She is proud of the accomplishments she’s made.

4.5.2 Sonia’s Dominant perspective(s): Social Reform and Apprenticeship

Sonia’s social reform approach was rare, and rarely expressed in healthcare professions. In her personal time Sonia volunteers at her local national constituent’s office. While interacting with students, she demonstrated the Apprenticeship approach to teaching; weaving in and out of the work depending on the student’s capability level. She took an active role, a role model for the student, to ensure patient comfort was always paramount. Away from the case room, she took a different approach. Her interest is to encourage social-minded thinking, what it means to be a part of a healthcare profession in Canada. She encouraged students to think about the issues. Sonia advocates for the students to access all the learning opportunities available to employees of the hospital. She sees their student status as one that might too easily be discounted. Her goal is one of participatory inclusiveness and development of professional values.

Sonia encouraged her students to be inquisitive about labor disruptions and to talk to the individuals most affected by them. The food and cleaning crew were on strike, so Sonia brought her students along to union meetings where the other union was discussed. She brought students over to a food worker to talk about what it was like from her perspective. Sonia encouraged students to come to their own conclusions rather than follow with the crowd.

4.5.3 Sonia’s Work context

Sonia works in the radiography department of a large urban teaching hospital. The department is very large, with a number of working areas; one close to a very busy emergency
department, another is a series of x-ray rooms, and yet another is designed for students to study. There are approximately ten other radiology technologists working with Sonia.

Jennifer, Sonia’s student, was worried I was there to investigate how to eliminate Sonia’s position, as had been rumored. Jennifer had been working with other technologists that day, but felt Sonia was an important touchstone away from the day to day, and to focus on learning and development. Sonia used the context to expose students to issues that they will encounter as professionals, such as attending union and professional association meetings.

4.6 Conclusions

The technologists participating in this study cumulatively had more than 100 years of professional practice and 25 years of teaching in a clinical site. This represents the clinical training for approximately 150 students transitioning to entry-level technologists.

The five clinical practice educators in this study are well known by their students and peers to excel at clinical teaching. All five participants work in high volume, urban hospitals. Four of the five educators worked in the same geographical region where they had trained and gained initial certification. They are all expert practitioners with sixteen to thirty years experience in the field. It was interesting to discover they had limited, only three to five years, teaching experience and this may have been a function of how they were selected rather than a statement about clinical practice educators generally. Perhaps new educators are more likely to seek out information about teaching and they self selected into the BCIT workshop where the participant pool was formed. In any case, they had all been responsible to teach students to become competent during their clinical practicum. Yet each had a clearly unique approach to teaching and use of context. In most cases, they were unaware that they were using their context to assist student learning. Often they apologized for not “having time to teach”. This point is further discussed later in this thesis. They link “teaching” with “telling” or following checklists provided by the educational institute even though they described these checklists as inadequate to what they would prefer to teach. Presumably, the missing pieces are the teaching beliefs and intentions related to their approach (build self confidence, self reliance, and social conscience, self-direction, etc.).
Chapter 5
Case Stories as Told at Interview by Five Clinical Practice Educators

5.0 Introduction

Excerpt from observational field notes:

After some delay the patient arrives from ‘Emerge’ on a stretcher resting on 4x4 posts across a bed on wheels. Sonia tells the patient where she is, who’s in the room and describes the procedure she will follow. The patient is wearing a neck brace, is about 40 years old and speaks with a New Zealand accent. Patient doesn’t move but the equipment does. Sonia cares for the patient while the student checks the film. We check views in the staff lounge adjacent to the exam room. Student talks about ‘swimmer’s position’, filters, etc. The view is not what she expected. They talk about next steps. Sonia tells the patient her pictures have turned out well. They move her to the x-ray table. Patient says she’s sore on right side and has to pee soon because they made her drink 2 cups of water. “We’ll be quick,” says Sonia and tells her the physician probably wants an ultrasound. They take two views and check the film together. They want one more but patient wants to go. They need to hurry. Something goes wrong with the machine. They have to start again. Sonia gets the porter to save time later, and the student takes the shot on her own. Sonia prepares to move the patient while the student processes the film. Sonia talks to patient and gets her bed ready to shift her. Student and Sonia shift her back to the bed. Patient recognizes the efforts of the student and compliments her “Nice bedside manner.” Sonia tries to move her along. “Thank-you ladies!” She wheels her to the OR. Sonia readies the room while student views film.

A one hour observation period, such as depicted in the vignette above, followed both one hour interviews with the practice educator. This allowed the educator to reflect on context in practice and enhance their answers during the second interview. Selections from the five clinical practice educators’ answers to the interview questions are presented in this chapter. The questions asked at interview were:

1. What is your approach to teaching?
2. How do you prepare for teaching?
3. Who or what influenced your approach?
4. What is your role in continuing education?
5. How does the department influence your teaching?

The answers to the interview questions provided insight into how their teaching perspectives influenced their approach to teaching and also, their level of awareness of the clinical context in their teaching. Apprenticeship was a dominant perspective in four of the five clinical practice educators, and also represented to a lesser degree in the fifth educator.
Therefore, the Apprenticeship approach to teaching was well represented in the case stories. In order to determine if the other perspectives were represented, I reviewed each case story and selected examples of the perspective for which they were selected to this study. For example, statements consistent with a Transmission approach to teaching are bolded within Tracy's case story presented below. Similarly, Apprenticeship examples are bolded in Alice's answers, Developmental in David's, Nurturing in Nancy’s, and Social Reform in Sonia’s.

5.1 Approaches to Teaching in the Clinical Setting

Tracy: *I tend to think of the students coming in with very little to no exposure to the lab. It’s a huge learning curve for them. They come here for their first 3 weeks; we give them an orientation to the department, to just try to familiarize themselves with the layout. Often it’s very foreign to them, so they need to get a perspective on where things are, how we do things, where we start off mornings, gradually getting into how we do things, why we do things, what services we provide in terms of blood bank here, both for our patients in surgery, our patients requiring transfusions in outpatients, usually due to the oncology clinic. We have outpatients here before they come to surgery, pre-admission clinic, to get an understanding of why we are doing it, what we are doing and how we are doing it. There’s so much to do, we try to give them the logical steps to get there, and the understanding of why. For me, I’m always trying to give them so much information for them to be able to understand the steps that they are doing.*

Alice: *Well most of us that teach in the hospital have that sort of apprenticeship style. That’s how I learn best. To see it, do it with guidance, and then do it by myself. My style is how it works for me.*

David: *It’s the same way I like to learn, it’s very practical, very hands on. I encourage people to really put the onus on themselves to learn. The technical practical application or standard operating procedures is our responsibility to show, but ultimately, I expect the student to be able to take the initiative to make sense of what they are doing. So it’s a real practical application sort of thing. I do encourage the theory but I encourage them to learn as they are doing it because I find... I learn best by reading and doing, it really solidifies it. Some people are very book smart and I tend to be more hands on. Apply it that way and it makes sense. I can remember it. I almost visualize myself doing or visualize the antibody antigen, visualize that interaction. It’s a really practical process I guess.*

Nancy: *I didn’t even volunteer to be clinical instructor, and somebody said you’d be really good at it. I’m not very good at change I’ve learned to adapt very quickly so it’s probably helped me but, things happened as a student that made me realize that I don’t want that to happen to anybody else. And I can’t protect them from everything, see, I am nurturing, I can’t help it, because I don’t want those things to happen to them and the students have such a negative feeling towards the profession. I love this job, I do. And to me it will never be monotonous because I will always figure out a new way of doing something, like even doing a chest x-ray I don’t always do the two views always the same, my PA then my lateral.*
Sometimes I do my lateral then the PA. So I try to keep things interesting for myself. And there's always a challenge. And I don't want the students to feel like I can't do this.

Sonia: Of course I have a job to do, but what students bring to me outside of the expectations of what I'm supposed to achieve is what makes it this particular job enjoyable... I love them. I have somebody who gets up at 6 o'clock to milk the cows; she's out in the valley and grew up on a farm all her life. I was raised by two urban people and lived in a penthouse apartment in [urban international city]. She points out the different grasses and she gets up when the cows get up, so she enriches my life in a different way. And it just makes you so much less judgmental. And so, I enjoy the students as a whole, I really do.

In our early conversations, all five educators were reminded of the teaching perspective which was the bases for their selection for participation in the study, and all five identified with their dominant teaching perspective(s). In the cases where they had more than one dominant perspective, they particularly identified with the one selected for this research. The opening interview questions were to establish an awareness of the educators’ teaching perspective and whether they felt the label fit their self-perceptions. As expected, the Apprenticeship perspective presented a number of times in addition to references to other perspectives. Four of the five clinical practice educators’ dominant teaching perspectives were reflected in their descriptions of their approaches to teaching. Sonia did not elaborate on her approach other than to say she is not limited to predetermined expectations.

5.2 Preparation for Teaching in a Clinical Setting

Answers to the question “How do you prepare for teaching?” provided an indication of whether the educator was aware of, or implicitly planned the use of context in teaching. As it would turn out, the question also provided insight into what (content) the educator thought necessary to prepare for teaching.

Tracy: When we first got students, I was the one working with them exclusively, and then we brought everybody else into it. I think it's better that way. It's sometimes hard on the one person that's actually working. I found that just working exclusively with the students, I was losing touch with everything else. The new procedures, the email, and all these things that you need to be able to keep current. As well as it's just better for everyone to see each perspective that each tech brings to the job. So we all take turns now. I think that works out quite well. I don't know if it's necessarily... there are some positives and some negatives with that. Because with any transition, today is my first day with [student]. This is [student's] last week and I'm here on Wednesday, sort of trying to review what he's done, trying to see what needs to be covered. How he [emphasis] works as a student, what his
needs are. One of the things I try and do with the students is calm them, I know it's difficult for them; I want them to be as comfortable as they can. I try not to make them too nervous. Each student is a little different too. So to see what kind of level they are at, how fast they can go, what kind of encouragement they need. Everybody has been a student at one point in their life, and can appreciate sort of that aspect of it.

Alice: As you saw this morning, the CSF was not my bench per se, but I’m allowed to say, ‘Let us do it!’ I’m allowed to do whatever work I think my student needs to do. I can come in on a day, and see there’s something unexpected, and say, oh! My student needs to do that! And the other techs are always very accommodating to either take my student with them, or let my student go and do it. So they’re very accommodating that way. And it let’s me be a little more looosy goosy, than, this is Monday and we’re going to do this. I guess, because as you know, everything doesn’t come in exactly when you want it to. If you’re doing fluids this week then no fluids will come in and they’ll get 17 the next week right? So it’s very good that way. We have sort of a plan so that for these days we’ll do these things, but always knowing that things could just be popped in or out anywhere.

David: Well what I have done is prepared a job guidance outline. What they were expected of, who they were to report to, what time they were to start work. Basically the steps in their learning. I would also use the guidelines from BCIT that told us what they had to learn by the end as far as the practical. That would all be in the outline. Then they would know, by the end of week one, these are the people I work with, this is who I have to report to, if I have questions I go here, and this is what I had to be able to do by the end of the week. Within that, they are doing every day work. At the end of the week I would evaluate where they’re at with a practical slide exam, differentials. A practical lab exam just to see how they’re doing with normals, doing estimates, and differentials. The next week I would step it up and do abnormalities, and maybe fluids. Something where they actually have to make a few more decisions, good decision making. So it’s a very gradual, but very laid out program. Now do they still get those job guidance sheets, I don’t know. That was my approach was to lay it out for them then they’d really know.

Nancy: Class days are on Wednesdays and we sequester ourselves in my office. I do a class, but not didactic, it’s a review and we usually have an exam the next week. Sometimes the technologists say ‘oh there’s a really good case out there.’ I will say ‘you know what; we’ve done case after case after case.’ A lot of times we don’t get any breaks because we want the experience, but I think the students enjoy it when we come in here because it’s just a bit of downtime. The learning curve is just huge. It’s boom, boom, boom, boom, case after case. And they are also told that they are never to be idle, that they have to keep busy. Which is true, they do need to keep busy, but not to the point that they are being overworked. My manager described me as a Banty hen [laughter]. My whole role is to be there for the students. I said, Is that a good thing or a bad thing? If someone says ‘we are short-staffed and the student can work in there.’ I’m the one who knows the student, so I judge whether that’s safe for them to be in there or not.

Sonia: I begin by setting an example when I work with them. To talk to the patients. After awhile, these students are very new, I stop talking. The first three months I don’t look at patient care skills. I’m there to help them with it, at to set a sort of role model for them. So they’re only being judged on their technical skills and how they are implementing them in the clinical setting. My evaluation on the next three months changes because now they’ve
found their feet, they've been here for long enough, they know all the little tricks. Now I look at patient care, so the evaluation processes are different. I stop talking and now I watch their technique, and each person will have their own style. So for the first 3 months I do a lot of the patient care part. I put the cast back on, I wheel in the chairs out, I chat, hoping to set some sort of an example. Then the next three months though, I start watching. I have them for a whole year. I change every 3 months, and I do tell them ahead of time, what I'm looking for in the next 3 months.

When asked how they prepare themselves for teaching, all five educators talked about how they organized their teaching curriculum goals (content). Tracy expressed concern that time spent on teaching took her away from staying current in laboratory procedures. Having a solid grounding in the content of the workplace would be very important to her. She used her context to solve the issue, in bringing in more people to help teach. Alice kept a close pulse on the work as it presented during the day and adjusted her teaching to what was best for student learning. David prepared a learning guide outlining expectations for students, within which students would experience the laboratory workload. He allowed for flexibility in experience with the context, framed within clearly established guidelines. Nancy described her preparation as saving students from being “overworked” by others in the workplace. She wants students to experience the workload in a collaborative atmosphere, and not taken advantage of. Sonia relayed her preparation in terms of her Apprenticeship perspective, where she gradually introduces more complexity over time. However, in conversation at different points of interview she positioned herself in Social Reform. For example, when discussing assessing student learning she talked about involving students in evaluating their own experience. She discussed student feedback with colleagues and where appropriate, changes were made to the next rotation so students would experience working in a democratic workplace environment where their comments would be taken seriously and effect change. Where the other educators spoke of context in terms of negotiating workload, Sonia expanded her notion of context into areas of professional behavior.

5.3 Influences in Developing Teaching Perspectives

Educators do not choose their Teaching Perspective per se; their perspective(s) are based on their personal beliefs about teaching. When asked, “Who, or what, influenced your teaching approach?” the clinical practice educators in this study rationalized their approach to teaching as having been influenced by their early learning experiences as student or other.
Tracy: *As a student, I wanted to be given the information I needed, rather than be challenged on what I know.* Although it sure makes you jump! I wanted to be given the information and thorough explanation how to do it, and also why. That’s how I feel I learn, so that’s how I teach I guess. Rather than make someone nervous, I explain each step and what to do. I guess it’s my comfort level, so I teach that way too.

Alice: *When I was a student, nobody sat down and explained gram stains with me or anything like that.* So consequently, somebody says the word gram stain and I go into a cold sweat! [laughter] I just can’t do it. Pink is negative and blue is positive! You were supposed to learn that on your own and I couldn’t do that. I had unrealistic expectations of people in my younger years because I caught onto some stuff quickly and if they didn’t I’d go well “phff! – that’s easy” But everybody has different forties and I think it’s, as much as I hate to admit it, years that taught me that. Yeah, more of an apprenticeship model and I think what I’ve done over time is I worry more about them understanding it rather than just doing it. Before I would say – this is how it’s done and if you can figure out why later, great, but it just doesn’t matter, just do it. You know? Whereas now, I really care that they get it, because I realize now that when they get it, then it will ingrain more as to why it’s done that way. That’s better and more mature [haha!].

David: I learned on the job by people who loved to share and show you things that they found exciting. That was where I really learned.

Nancy: I think it’s because I care. I care about my students a lot and I do care about other people as well, but more so the students because I feel that they are a little more vulnerable and tend to get walked on. Sometimes they get used as workforce. So I really do care about them and I look out for them as I’m not sure anybody else will. I don’t like having to tell them that they’ve done something wrong but I know I have to. I try not to be condescending to anybody. I don’t want the technologists I’m speaking to feel bad in front of everyone else. I think that’s the other thing because I’ve been spoken to that way and I don’t like that. So I believe that I don’t do that but I do stand up for what I know is right. Actually I did have to go to a technologist one time. A technologist was working with a student on an off-shift. They had their film and I said “the two of you did that?” “Yes” “and the tech passed that film?” “Yes” “you know what, that is an unacceptable film and you could have gotten a better film than that. I know that you were working with your technologist and it’s beyond your control if she tells you, you have to pass that film then you pass it right?” So I took that film to my supervisor and I showed them, and the hardest thing I had to do was to speak to that technologist. They were very accepting of my feedback, but I just said, you know, I expect this from my students. This film is just not acceptable. And I gave them reasons why and they were very good about it.

Sonia: I don’t know. People call it a style I just think it’s me. One, I’m not Canadian. I bring with me a different flavor. I’m not as politically correct and I have to watch that. I have to learn, my students teach me everyday. One, I come from somewhere else and that influences who I am. Two, I get to look at things from a minority point of view because I am a minority and it makes me a little more sensitive to cross-culturally and I can bring that to my students. And in a city that is so vastly multicultural, I think that’s a benefit when you can see somebody else’s point of view. And we discuss it, you don’t have to agree with that point of view, but they can be sensitive to where the person is coming from. So I share a religion that is under scrutiny right now, I am a Muslim. [laughter] I can shock and awe.
them when they have a stereotypical idea of who I’m supposed to be. And then think twice and say, okay, maybe that’s not the only way you could be. So I think all of those factors, automatically give me a different approach. It’s not that it’s a style I developed, it’s just who I am really. I come from a country where you had to fight for everything; nothing was given to me for granted. So I’m a little bit impatient with Canadians who don’t take full advantage of opportunities available to them. And sometimes I am far too passionate about those things. I care about universal healthcare system because I’ve lived in a country where there wasn’t one for everybody. So really who I am – we are products of our environment. I guess that’s exactly who I am. I’ve lived in a country with such strong dynamics. Sometimes I wish I could be less passionate about everything [laugh]. We had to go to our first HSA union meeting together. They have a union that represents them and expects to represent them yet they show no interest whatsoever. There is no interest in the department, there’s no shop steward even. So you can go there, and you don’t have to agree with everything either, that’s not what I am saying but democracy only works when it’s participatory. So there was an HSA meeting during lunchtime, an update on our bargaining position, so I took my 7 students off to lunch and to their first union meeting. I take them to CAMRT meetings in the evening so they know there is a professional body they belong to.

The five practice educators in this study attributed their own experience as student technologists, whether positive or negative, as the key factor which influenced their teaching perspective. They rationalized that their preferred approach to learning influenced their dominant teaching perspective(s). Tracy had a negative experience as a student and wants to provide information to students to avoid feeling unfair assessment by others. Alice also had a negative student experience, having not been left alone to learn. She attributes time and presumably the wisdom that comes with it, as having influenced the quality time she spends with students to ensure they perform and more importantly, fully comprehend the procedures she teaches. David’s experience with his practice educator had a positive and lasting impact. He hopes he leaves a similar impression on his students. Nancy’s negative experience as a student dealt with interpersonal communication that left her feeling less than adequate. Despite wanting to avoid “putting people down” she does not compromise on her high performance standards. Sonia equates her teaching perspective to her personality, and her personality was influenced by all she had experienced in life.

5.4 Maintaining Continuing Education

Technologists’ professional development requires continued learning throughout their careers. Clinical practice educators in this study accepted the educator role, but what was their role in continuing education for practicing technologists? Responses sought out insights into the
scope of the education role in the practice site, particularly the extent to which it extended beyond the responsibility for the entry level student.

Tracy: I don’t have any role in that. [Support has] not been very good in terms of professional development. I think it’s because of healthcare, a global issue here, the money’s not there. We do some different courses that are around. It’s not really encouraged unfortunately. People do go to [the antibody club]. I have not been one to attend very often. For me, with family and stuff I don’t participate as much as I should. Unfortunately with the budget we have, we haven’t even had a blood bank meeting for years. There’s just a tremendous amount of things we should be going over as a group, policies and those kinds of things that we should be doing. It’s really lacking unfortunately, and that’s why students are a bit of a challenge because we are all trying to read memos and emails of changes and things so we keep abreast of what’s happening. It’s just a reflection of what’s happening out there.

Alice: I’ve been in contact with about 20 students; at least three of them have gone on to be involved with the BCSLS or the CSMLS or something. A lot of them have come and said, “I’m graduating and am thinking of taking a course, what do you suggest?” The idea is that you never stop learning. In fact I say to them “You can be the person who says – oh putting through a 1000 specimens, or you can look for what’s interesting in it. The choice is yours really.” But I think they do get the idea to put their all into it. They seem enthused and love what they do.

David: We have sporadically done case reviews and that sort of thing. It takes time and effort. But you also need more than one person to do that. It can come from peers but ultimately it should come from, in the lab environment, the professionals as well. We get a lot of opportunity for that. I really encourage the students to do that sort of thing. With [tech name] and the hematology interest group, we always tell the students about it and invite them. We have hematology rounds at the hospital that we always invite them to. They know they are welcome to go and they are made aware. Those opportunities are available. Within the department, I’ve done case reviews. I put out a slide and say, “Do a differential and tell me what you think.” Then a week later, or two weeks later, after everyone on all shifts gets a chance, then I’d say, “Okay this is what it was.” And maybe pull some stuff out of the internet, background on the disease, whatever the case may be. There’s some of that, the key to success in that is that you can’t do the same thing every time. So if I put out a different case every month eventually they get bored of that and they want something different. I got bored of it, plus it takes a lot of time. So ultimately if you had more time, more people involved you could vary the cases, and enlist other departments and other areas. My feeling is it doesn’t have to always be a hematology case it could be a multi-disciplinary case or flow cytometry, microbiology, just anything. So I think diversity is the key to making that successful and the way it’s presented. You don’t always do slides, maybe do a coagulopathy if you’re going to stay in hematology. But those things don’t come up frequently. So you have to invent! [laugh] The good teaching resources aren’t always there or the time you need or a combination of the two.

Nancy: We do have our meetings once a year. Now that I have my students I focus on them and don’t think about meetings. They have guest speakers and some of them are radiologists. For our students we have a future techs seminar every March, and they get
together for PowerPoint presentations. And we have had radiologists come in and speak. Some of them, most of the ones that come in and speak, give glowing reports about the x-ray technologists. Because without us, you know, they don't get their films.

Sonia: I want them to care and take an interest so I take them off to the CAMRT meetings in the evenings, under great protest [laughter]! And we attend sessions, because I think in the end what you want to produce, because for them to graduate and to take general x-rays, that's the goal, but you want somebody to graduate, continue to be interested and move on. That's the goal you have to try to reach. That's what I want. So I want them to love to learn so that they won't stay there, they'll continue to grow, continue to take courses and to move onwards and upwards.

Allied health professionals require life long learning lasting well beyond the entry-level, so I asked what role the clinical practice educator played in terms of continuing professional education. The responses for these practice educators at least, indicated they were less inclined to participate in continuing education than I had expected, but perhaps this was another example of confusion around what was considered legitimate ‘teaching’ and education. They mentioned course work and formalized learning in terms of case reviews with assessments and often stated that there was lack of time, support, and commitment by others. Professional society meetings and seminars occur infrequently and while a very good place to network with peers, they do not provide all the necessary ongoing education required for career development. There seemed to be a lack of appreciation for the workplace as a site for informal learning, which is absolutely necessary for ongoing development.

5.5 Teaching Influenced by the Department

The interview questions focused initially on the clinical practice educator and aspects of student learning as a function of the educator's approach, preparation, influences, role and identity. The answers indirectly referred to context. The question asking, “What do you think the student learns from the department itself, what do they learn from the place?” focused a discussion directly on how the context of the clinical placement, as quite separate from the clinical practice educator, will also “teach” students.

Tracy: Say they were completing a cross-match, they are waiting for the blood in the medical day unit; the student would actually call the nurse in the day unit to let them know the blood is ready. So they're having that interaction with different areas of the hospital as well. And that's also a bit apprehensive about it sometimes. Just to be able to get that experience. It's really nothing they just have to get that comfort level to be able to say, “The
blood's ready. "But it's stuff they haven't done before in the classroom. Communication that needs to happen throughout the hospital is key.

Alice: From the context I think they learn a lot of communication and the value of effective and ineffective communication. I'm not one to say okay this is a problem so I'm going to take this over and phone the ward or the doctor or whatever. I make them phone through and we discuss what we're going to discuss. To realize that you're part of a bigger team, you're part of the whole healthcare team and you have to communicate with doctors and nurses to get to the correct conclusions, and the pharmacists. And I think that they learn that you don't have to be afraid to talk to these people. You don't have to know everything and they don't have to know everything, but that it is really a team effort. Any one patient has a team of probably close to a hundred of us working to make it work. The other thing that I think they get is the value of all the different team players: the clerk who entered the patient information into the system when they came in; the phlebotomist who took the blood and labeled it; the porter that brought it down; the person who entered it in accessioning. Each one of those people is no less important as you or the pathologist who finally signs it out. That the value of everybody from the person who sweeps the floor. Because you know, who's more important, the surgeon or the guy who cleaned the instruments?

David: I don't spend a lot of time with the student just teaching. We're either applying teaching or we spend the time evaluating what we've looked at or what we've done. I do separate that. But for the rest of the time, like if I was in coagulation, then I'd be teaching coagulation. If it got extremely busy, sometimes it does, it's not frequent, and then I would say, "I want you to handle the routine stuff. I've got some special stuff I have to do and it's really intense right now, I'll have to go over it with you later because right now it's complicated." I give them some responsibility, give them something to do. I wouldn't ask them to step off and not do anything because you can actually help me get through this. I make them feel a part of the team. I know some people like to say I can't do this with you right now, can you just go and read. I don't like to. I don't think I've ever done that because I don't think they get any value out of that. They need to see the reality too; they need to see it gets busy or stressed, and proper communication with your co-worker. So telling them, "Look, this is how it is." Good communication hopefully.

Nancy: They are learning to multitask, they learn that there are different ways of doing things. If you notice in x-ray, it's not always a straight line. And that's something I try to impart on the technologists too. Some of them like to stay in one room and work in the same room all the time, but that can hold us up because of the huge workload. And tempers can flair; patients get frustrated if they are not being done in a timely manner. Techs get frustrated because the tray is full. But I always say to my students "You don't always have to take that one case room, you can learn to adapt and use different rooms. " Say a lumbar spine comes, well all the big rooms are busy – well go take them into Room 4. Nothing is wrong with Room 4 but people are afraid to use that room because they don't use it all the time and they don't know how to use it. As long as you know your equipment, and know the views required of you, you can use any room. So in that way I guess I'm kind of bossy out there [laughter]. But I try to impart to my students – I don't want you to only learn how to do something one way. There's many ways – like trying different rooms. What I worry about is what if they leave here and they go to a new site – how are they going to adapt? They need to learn the confidence that yes I can do this. I don't push them too hard. If they feel uncomfortable, I don't let them go in there on their own. I'll say let's do it together. So I'm a
big person on letting them do it together, and I try and stand back. I explain it to them, he
explains it to me visa versa and he goes in and does it. The other one can do it, but the apron
strings are quite tight. She's very attached and she's afraid to do it by herself. I tell her you
know we're slowly pulling the apron strings. And she says I don't want them to be let out! I
said you have to - I'm not always going to be there. You know what you're doing. She's very
organized, and very methodical, perfect, but she has no confidence in herself.

Sonia: I'm not solely involved with their learning. The entire environment with all the
people, the expectations of the other technologists also influence their learning. That was a
challenge and was something I didn't anticipate. I didn't anticipate being this almost
always, conflict resolution officer, to change the environment. So my job initially when I
took it, I thought I was going to be the Clinical Instructor (CI) for 7 students. No, I became
the CI for the entire environment. I then realized that some educating had to go on within
the entire environment to be able to produce one that is conducive to learning. It isn't an
isolated thing. You didn't get to be a clinical instructor for 7 students and do your job really
well and go home. No, the environment that they worked in had to go along with the
philosophical changes that I with as a clinical instructor with time and experience, but the
clinical environment had to come along with it. Part of the educating didn't go along only
with students, but went on at every staff meeting, reflections, asking as many people to go
to workshops, encouraging them to go workshops that the hospital puts on. They put on
preceptor workshops. We now encourage not only the CI to go to them, but to take along a
couple of the technologists who play that role every day. I think that's what we have to think
of. That this is a team, inclusive, and that the whole area needs to grow, change and adapt,
to make the environment conducive to learning.

This question on how the department influences teaching, perhaps more than others,
brought out more examples of how the workplace context provides valuable learning for students
learning to become technologists. There were still references to education being formal student
learning, but the most common response for how the department influences teaching was in the
need to learn communication and team skills, both within the department itself and extending to
other areas of the hospital.

A summary for each clinical practice educator's interview responses relating to teaching
perspective follows (Table 1). All five educators could rationalize their approach and identify
that their approach is integrated into who they are as teachers. Four of the five focused on
negotiating work as a means of preparing for teaching, while both David and Nancy identified a
second goal to help the student develop professional behaviors which influenced their
preparation. Four of the five educators rationalize their experiences as students influenced their
approach to teaching, Nancy added that she was also naturally nurturing, and Sonia could not
separate her personality from her approach to teaching. Alice and David are involved in teaching
beyond their role as clinical practice educators, teaching others in a continuing education.
capacity. The educators identified that the departmental context influences learning in terms of learning appropriate communication, that they are part of a team, and that they need to be able to adapt to new situations.

Table 1. Representativeness of Teaching Perspectives across Five Perspectives.

<table>
<thead>
<tr>
<th>Use of Teaching Perspective</th>
<th>Transmission (Tracy)</th>
<th>Apprenticeship (Alice)</th>
<th>Developmental (David)</th>
<th>Nurturing (Nancy)</th>
<th>Social Reform (Sonia)</th>
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<tr>
<td>5.1.0 Approach</td>
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<tr>
<td>5.1.1 Rationalization</td>
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<td>5.1.2 Self perception</td>
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<tr>
<td>5.2.0 Preparation</td>
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<td>5.2.1 Negotiating work</td>
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<td>X</td>
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<tr>
<td>5.2.2 Developing professional behaviors</td>
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<td>5.3.0 Influences</td>
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<td>5.3.1 As learner</td>
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<td>5.3.2 Personality</td>
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<td>5.4.0 Continuing Education</td>
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<td>5.4.1 Teaching others</td>
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<td>5.4.2 Informal learning</td>
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<td>5.5.0 Department Influence</td>
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<tr>
<td>5.5.1 Communication</td>
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<tr>
<td>5.5.2 Team</td>
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<td>5.5.3 Adapting</td>
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5.6 Conclusions

At interview, the five clinical practice educators in this study exhibited different approaches to teaching in clinical practice; the specific approach for each educator was consistent with their teaching perspective. The educator often rationalized their individual
approach as having been influenced by their own experiences as student, whether positive or negative at the time.

Educators identified several ways in which they used the context of work in teaching, usually as it presented in the moment (e.g., involving students in relaying results on the phone or reporting to the pathologist, and selecting cases or work that will challenge or provide students with confidence to continue learning). The lack of planning may be yet another example of the view of education as being only formal and not inclusive of informal and non-formal. The next chapter discusses this in greater detail.

The power of disciplinary practice and the location of practice, and even the politics and economics of practice do not seem to be sufficient to override the visibility of perspectives in teaching.
Chapter 6
Four Questions: Comparison Across Five Educator’s Use of Context in Teaching

6.0 Introduction

Excerpt from observational field notes:

A student and technologist are reviewing stained blood film slides at a multi-head teaching microscope while two technologists work at other stations. A fourth technologist comes in momentarily to deliver patient samples. Technologist asks, “What did you learn at the hematologist’s review session yesterday?” David checks in with the student then leaves again. The technologist refers to blood cell images in a reference manual. “The patient had a blood transfusion two days ago,” the student offers. They confer with another technologist on a platelet count, “IVP; difficult; patient is very low; schistocytes are counted as platelets – problem! Cell wall is thicker so they don’t lyse therefore are counted as platelets so you have to adjust. Patient’s red count is very low. Icteric, lipemic, need to do the drop.” They confer about cold agglutinin procedure, talk about rules for warm drop and previous history versus refer. A technologist is on the phone asking if there’s been a splenectomy, then decides to refer to [doctor]. She records something, student stays at the microscope. “Can you do a retic count?” “Okay, but I have to leave in 10 minutes so can you check the computer records for this patient because her slide has Howell Jolly bodies and we need to phone [another hospital]?”

Technologist checks the microscope and says to the student “Oh yeah, viral, slightly more lymphs; viral.” They enter results into the LIS (computer). The other technologist calls back about HJ bodies, then leaves. Technologist tells student so they’ll both remember to follow up on this patient tomorrow. They begin another slide; target cells. The student has the microscope controls, “Small size.” “Okay, let’s look around a bit. Why don’t we try 50X? So what do you think?” The technologist reports the retic count, “Thank-you”, and then leaves. Technologist files her printed reports and talks to the technologist with the student. “Polychromasia, microcytic, occasional, it’s not part of the hematological picture, just along for the ride. One rbc, elipto, target, true story will come out when they give him...” Student enters results into the LIS and returns to the microscope.

David was present only briefly in the one hour observation depicted in the above vignette. The technologists who worked with the student told me, apologetically, “We’re so busy here that we don’t have time to teach.” Yet clearly the student was learning. The vignette illustrates an educator’s use of the context in teaching students. At the very least, the use of context that presents itself in the course of carrying out the work. To what extent is context used by clinical practice educators, and is context used intentionally to teach? This chapter presents a comprehensive characterization of context, and examples of the use of context in teaching in clinical placements.
6.0.1 Defining the Context in a Clinical Practicum

A curriculum is more than a list of topics to be covered by an educational programme, for which the more commonly accepted word is a ‘syllabus’. A curriculum is first of all a policy statement about a piece of education, and secondly an indication as to the ways in which that policy is to be realized through a programme of action. In practice, though, a curriculum is more than even this; it is useful to think of it as being much wider. As a working definition of a curriculum I would say that it is the sum of all the activities, experiences and learning opportunities for which an institution (such as the Society) or a teacher (such as a faculty member) takes responsibility – either deliberately or by default (J. Collins, personal communication, July 7, 2008). This includes in such a broad concept of curriculum. In Pratt's model, the formal curriculum is most often "the content" (Pratt & Associates, 1998/2005). But curriculum's other two aspects are contextual; non-formal and hidden. Coles argues that curriculum is much more than that:

.. the formal and the informal, the overt and the covert, the recognised and the overlooked, the intentional and the unintentional. A curriculum is determined as much by what is not offered, and what has been rejected, as it is by positive actions. And very importantly the curriculum that actually happens – that is what is realised in practice – includes informal contact between teachers and learners as well as between the learners themselves, and this has been termed 'the hidden curriculum' which often has as much influence on what is learnt as the formal curriculum that is written down as a set of intentions. And it includes what you decide to do on the spur of the moment. So in fact it is useful to think of there being three faces to a curriculum: the curriculum on paper; the curriculum in action; and the curriculum that participants actually learn (Coles, C., 2003).

Pollard argues that “processes of non-formal learning and unconscious role modeling in [practice placement] settings are key to students’ developing collaborative skills” (Pollard 2008). Rogers’ review finds confusion around what counts as non-formal education, but presents it generally as structured learning taking place outside the school, college or university (Rogers, 2005). Hidden curriculum, by contrast, is not structured “all the messages that a school conveys to pupils which are not written down as the formal curriculum, eg caring attitudes” (Google MetaGlossary.com). So it would seem a reasonable assertion then, that along with experiencing specific technical competencies required for student success in a clinical practicum, experiencing the hospital surroundings inclusive of interactions with the people, places and functions are important and integral to the transition from student to entry-level technologist. Research has
long shown that instructional settings influence behavioral development, "an ecological model recognizes the multiple contexts, and the interactions within and between these contexts that influence human development" (Barker & Gump, 1964).

Context, for the purposes of this study, was first defined by asking the educators how they structured student learning (e.g., schedule, specific people, spaces). Grounded in ecological psychology theory of Barker and Gump, my thesis committee member John Collins expanded the possible breadth of context to over 60 items. My research transcripts and field notes were reviewed for instances of each context item and the list was refined to include only those for which at least one instance could be identified. The items were further refined to name the specific items observed or narrated. Evidence within nine categories of context were found, that of physical features of the clinical placement site, workflow issues, time management, curriculum issues, emotional climate, social features, reporting responsibilities, pecking order, and professional and regulatory expectations.

Table 2 presents itemized instances of use of context in teaching either observed, or as narrated by the clinical practice educator in this study.
Table 2. Respondents' References to 55 Context Features of Department-Situated Teaching

<table>
<thead>
<tr>
<th>Context-as-Teacher</th>
<th>Transmission (Tracy)</th>
<th>Apprentice-ship (Alice)</th>
<th>Development (David)</th>
<th>Nurturing (Nancy)</th>
<th>Social Reform (Sonia)</th>
<th>Total</th>
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<td>Obs Nar</td>
<td>Obs Nar</td>
<td>Obs Nar</td>
<td>Obs Nar</td>
<td>Obs Nar</td>
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<td>Social Reform (Sonia)</td>
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| Obs Sub-Totals | 5 | 3 | 2 | 4 | 1 | 15 |
| Nar Sub-Totals | 15 | 5 | 3 | 2 | 3 | 28 |

Time Management Observation + Narrative Total | 43 |

4.0 Curriculum Issues

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| Obs Sub-Totals | 11 | 4 | 6 | 6 | 3 | 30 |
| Nar Sub-Totals | 12 | 14 | 43 | 12 | 17 | 98 |

Curriculum Issues Observation + Narrative Total | 128 |
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<th>Nar</th>
<th>Obs</th>
<th>Nar</th>
<th>Obs</th>
<th>Nar</th>
<th>Obs</th>
<th>Nar</th>
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<td>Development (David)</td>
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<td>Nurturing (Nancy)</td>
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<td>Social Reform (Sonia)</td>
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Table 2 continued,

### 5.0 Emotional Climate

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<th>Obs</th>
<th>Nar</th>
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<th>Nar</th>
<th>Obs</th>
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| 5.5 Supportive      | 4   | 9   | 0   | 5   | 1   | 4   | 2   | 0   | 0   | 5   | 30  |
| Obs Sub-Total       | 6   | 3   | 7   | 9   | 3   | 18  |
| Nar Sub-Total       | 19  | 10  | 13  | 9   | 18  | 69  |

Emotional Climate Observation + Narrative Total 97

### 6.0 Social Features

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Social Features Observation + Narrative Total 131
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<td></td>
</tr>
<tr>
<td>7.3 Lack of control</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
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<tr>
<td>Obs Sub-Totals</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Nar Sub-Totals</td>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>

Reporting responsibilities Observation + Narrative Total | 17 |

### 8.0 Pecking Order

<table>
<thead>
<tr>
<th>8.1 Who bosses whom</th>
<th>3</th>
<th>9</th>
<th>0</th>
<th>5</th>
<th>3</th>
<th>0</th>
<th>0</th>
<th>3</th>
<th>0</th>
<th>10</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.2 Who defers to whom</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>8.3 Who picks on whom</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>8.4 Who's the matriarch/patriarch</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>8.5 Who's the clown</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Obs Sub-Totals</td>
<td>9</td>
<td></td>
<td>3</td>
<td></td>
<td>7</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Nar Sub-Totals</td>
<td>15</td>
<td>13</td>
<td>0</td>
<td>7</td>
<td>15</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pecking Order Observation + Narrative Total | 69 |
Table 2 reports on 55 specific topics about “context” grouped into nine categories which summarize a total of 955 instances observed or mentioned by the five respondents. Clinical practice educators’ use of context is distributed across the categories with work-flow issues and physical features mentioned most often at 29% and 15% respectively. This is not surprising in that the space contains the workflow which is central to attaining clinical competencies. The remaining categories were: 14% social features, 13% curriculum issues, 10% emotional climate, 7% pecking order, 5% time management, 5% professional and regulatory expectations, and 2% reporting responsibilities.
When considering the average rather than percent of total numbers of instances, the order of frequency by category changes (Table 3). The overall average number of “hits” per category is 17.4. Curriculum, at 42.7, has by far the highest average number of mentions per topic which might be expected as this study involved educators talking about how they organize their teaching and also demonstrating their teaching in practice. Physical features and workflow issues categories are again notably higher than average (24.2:22.8), while reporting responsibilities and time management receive almost no mention (5.7:4.7).

Topics with the highest mention (i.e., more than 50) include internal communication, co-workers and non-formal curriculum. Internal communication was used as a means for negotiating workloads for students and involved deliberate interaction among co-workers. Role modeling and involving students in the workflow are examples of non-formal curriculum. Clinical practice educators negotiated work, and in some cases students engaged in these negotiations. During my observation stages however, educators were more likely to engage students in external communication and in particular, by telephone.

Table 3. Average Number of Mentions per Context Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Sub-categories</th>
<th>Number of Observations/Narratives</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Physical Features</td>
<td>6</td>
<td>73/72</td>
<td>145</td>
<td>24.2</td>
</tr>
<tr>
<td>2.0 Work-Flow Issues</td>
<td>12</td>
<td>126/148</td>
<td>274</td>
<td>22.8</td>
</tr>
<tr>
<td>3.0 Time Management</td>
<td>9</td>
<td>15/28</td>
<td>43</td>
<td>4.7</td>
</tr>
<tr>
<td>4.0 Curriculum Issues</td>
<td>3</td>
<td>30/98</td>
<td>128</td>
<td>42.7</td>
</tr>
<tr>
<td>5.0 Emotional Climate</td>
<td>5</td>
<td>28/69</td>
<td>97</td>
<td>19.4</td>
</tr>
<tr>
<td>6.0 Social Features</td>
<td>7</td>
<td>41/90</td>
<td>131</td>
<td>18.7</td>
</tr>
<tr>
<td>7.0 Reporting Responsibilities</td>
<td>3</td>
<td>1/16</td>
<td>17</td>
<td>5.7</td>
</tr>
<tr>
<td>8.0 Pecking Order</td>
<td>5</td>
<td>19/50</td>
<td>69</td>
<td>13.8</td>
</tr>
<tr>
<td>9.0 Professional &amp; Regulatory</td>
<td>5</td>
<td>4/47</td>
<td>51</td>
<td>10.2</td>
</tr>
<tr>
<td>Expectations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>55</td>
<td>337/618</td>
<td>955</td>
<td>17.4</td>
</tr>
</tbody>
</table>
Topics with the least mention (i.e., 2 or less) include when to arrive, start working, depart, mention of janitorial or maintenance staff, and who reports to whom. Students had been in the departments for several weeks, thus familiar with the expectations around time to arrive, start work, take breaks, and to depart. One educator felt strongly that students should understand that all members of the healthcare team were important, including the janitorial staff. None of the others mentioned this group specifically. It is surprising that in this group, there was little mention of who reports to whom. When asked about it specifically, one educator offered, “They learn about it just by working here.”

Educators scheduled students’ learning experiences to include a wide variety of procedures performed by technologists in the department. In my experience as BCIT Clinical Coordinator, time management is often cited as a reason for an unsuccessful clinical placement; technologists complain when a student leaves at the end of the shift without concern for work left undone. I saw and heard relatively little about time management during this research (1-5 instances per time responsibility category). Technologists occasionally engaged in office chit-chat (10 instances) but students did not participate during my observation. Technologists modeled multitasking with greater ease than students. The issue of separating instructional time from performing work was raised (9 instances), as most of the educators in this research felt more formal education would benefit student learning in practice. In addition to non-formal curriculum (58 instances) mentioned previously, clinical practice educators also used formal curriculum (29 instances) to plan their teaching and assess student performance (e.g., a list of competencies set by the educational institution based on national standards), and demonstrated hidden curriculum (41 instances) where their beliefs about teaching (e.g., how it ought to be done and by whom), their profession (e.g., how technologists succeed, barriers to success, issues of power, etc.), their workplace (e.g., response to change, uncertainty, conflict) were passed along to students without forethought and in the course of learning to do technologists’ work.

The emotional climate in the clinical setting contained casual and tense moments (20:32 instances), occasional instances of work-to-rule (4 instances at a single hospital), some evidence of teamwork (11 instances), and a fair amount of (emotional) support for clinical practice educators (30 instances). Students were introduced to social features of context by exposure to hierarchy, co-workers, other instructors, other students, patients, and support staff. Students interact with other healthcare professionals or staff to discover where technologists fit in the
medical team. Discussions around family matters and out-of-office issues were minimal, and may even be discouraged as a distraction from the work. There was little evidence of reporting relationships (2 instances), with more pecking order relationships (33 instances of ‘boss’; 23 instances of ‘deferring’ to another; 7 instances of ‘picked-on’ by other technologists; 3 instances of ‘matriarch/patriarch’ medical staff; 3 instances of ‘clown’ from one educator). Professional and regulatory expectations were seldom present in three of the five educators’ data (3, 3, and 4 instances), and quite frequent in the remaining two educators (20 and 21 instances).

Nancy and Sonia were more likely to use an office (7 instances each) for film review and weekly exams which is a function of the Medical Radiography training program and not likely related to their teaching perspectives. Patient Care was noted in 25 instances by the Medical Radiography Technologists (Nancy and Sonia) and only twice by the Medical Laboratory Technologists (Tracy, Alice and David) likely due to the direct and frequent patient interaction required to take X-rays and not related to the individual teaching perspectives. Of note, Tracy’s instances of “Instructional time vs. On-task time” were more frequent than others possibly due to her Transmission preference for giving information up front in the form of notes, textbook reading, and study before experience takes place. David spoke of curriculum more than the others, possibly due to his having thought extensively about how students learn and set out learning plans in several forms (formal, non-formal). He also scored high on hidden curriculum. He spoke quite a lot about the ways students and new technologists ‘should’ think about their clinical practicum experiences. More specifically they should think about their career development, move ‘out of their comfort zone’ and take advantage of opportunities to interact with other professions in the hospital.

Nancy referred to her workplace as having a tense atmosphere more frequently. She often spoke of her need to protect students from being taking advantage of by the other technologists in the department. Sonia maintained a group-centered approach throughout her interviews, speaking of the goal for participatory democracy in the workplace. Instances of support (Table 2 item #5.5) for teaching were evident across all educators, workplaces, and teaching perspective. Alice and Sonia were more likely to talk about professional issues such as maintaining continuing education and association membership.
While there was evidence for use of context in teaching, there were many areas shown in Table 2 where context was used far less than others or not at all. The uneven use of context may be attributable to a lack of awareness of context doing the teaching.

6.0.2 Clinical Practice Educator’s Awareness of Context as Curriculum

Students expect to be judged against discrete competencies, and to prove a certain level of skill. Clinical practice educators however, embed aspects of workflow in the setting into the competencies and the competencies are then socially constructed. For example, “read and interpret a gram stained smear”. The student understands a literal interpretation, while technologists will understand it to include all related procedures in that workplace setting (reading smears at the appropriate time as defined by other technologists, relating results to clinical presentation, understanding why certain results are treated differently, and reporting results appropriately). There is an initial communication disconnect between student and clinical practice educator until the student begins to understand what each educator expects of them. Marton and Booth’s conceptual framework of learning and awareness plots awareness as a function of simultaneity and discernment (Marton & Booth, 1997). I propose that awareness of context as teacher is a function of the clinical practice educator’s ability to balance teaching and working (simultaneity) and attend to providing a learning experience for students (discernment) (Figure 1).
When the work is considered a barrier to teaching (e.g., "we are so busy we don’t have enough time to teach"), there is a lack of awareness that students learn from the context itself resulting in lost opportunities for providing a meaningful learning experiences. Of course learning takes place regardless but with awareness, the learning could be enhanced.

6.0.3 Relationship Between Context and Teaching Perspective

The workplace is organized by historical conventions, within a tug-of-war between the medical model and the business model. Each clinical practice educator used the context with similar relative frequency across each category in Table 2. Lesser use of context such as time management, reporting responsibilities, pecking order, and professional and regulatory responsibilities suggests that educators either do not consider these as parts of the teaching agenda, or feel they have little control over these aspects of context, perhaps explaining (at least in part) why these educators had difficulty identifying how the larger context contributes to teaching. In terms of feeling lack of control in the larger workplace context (6 instances), several comments were made about the impact of repeated re-structuring:

*Our staff decreases from five to three, now chemistry staff decreases from seven to two. How do you value, how do you function, how do you teach, how do you do the work, how do you
do all of it when you're faced with those kinds of obstacles? Some days it's fine and others it's very hectic and difficult. Again it comes down to doing the best you can do.

As technologists, we don't have direct consultation so we aren't really representing ourselves within the hospital. We're behind the walls doing the testing. With more direct discussion and communication, you might be part of the team process.

Each educator used context in teaching, but did they have an appreciation for the context itself doing the teaching? And did they use context deliberately in setting out learning opportunities for students? To answer these questions, the case stories were analyzed for educators' descriptions of their sense-making of the role of context in clinical teaching. In order to locate an integrated meaning, I probed the data gathered from the five clinical practice educators for evidence in each of four categories. The following section presents the findings for the four questions framing this chapter:

1. How do the five teaching perspectives manifest in practice?
2. How do they rationalize their approach to teaching?
3. How do they invoke context in their teaching explicitly, knowingly?
4. How do their experiences affirm the power of teaching within external forces?

6.1 Elaborating on Five Perspectives in Practice

I had expected to see common approaches to teaching in procedures-based contexts of diagnostic health technologies. The work requires strict adherence to written procedures for the purpose of consistent accurate patient results and to reduce medical error. The pilot interview involved a clinical practice educator with an Apprenticeship approach as it was the most abundant perspective to choose from. I was not surprised by what I saw and quickly set out to interview Alice and Nancy. The interviews and observations flowed well and I began to wonder if I would be able to accomplish anything with this research. When I moved on to David, Tracy and Sonia, I quickly realized that my assumptions where derived through my own preferred approach to teaching. My Apprenticeship/Nurturing approach was what I expected to see. I was surprised, pleasantly, to see other approaches in action. Tracy's approach was probably the most different from my own, and her interviews did not flow as well for me. She needed far more explanation and clarification from me in the beginning and with each question. Once she had the information she required, she offered very well thought out and detailed answers. David's
interviews were interesting as I felt I was being interviewed in turn. His second interview seemed to be focused on linking his teaching to his personal values, a subject we had discussed during the first interview. He then answered each question with this philosophy. Sonia’s interviews were the most enjoyable for me. She initially did not want to participate, but when I explained her social reform approach was very rare, she began to think of this project as an important ‘cause’ and that her approach needed to representation in this study. She set out to juggle her many responsibilities to accommodate my request. I had the feeling that her life was a constant juggling act but that she had an interesting life to juggle. There was no ‘one size fits all’ approach to teaching students to work within procedures-based professions. All five clinical practice educators demonstrated their unique teaching perspective, as shown in Chapters 4, 5 and the many examples included in the following sections of Chapter 6.

No one would disagree that Canadian healthcare is highly infused with political interests. We are reminded of the “high costs of medicine” and are asked at every election, and questions about what percentage of our tax dollars should go towards healthcare. Diagnostic services such as laboratory and radiography are costly. Managers must reduce waste and one way to do that without compromising patient care is to standardize. The practice of technologists today focuses on process and procedural standardization and ‘best practice’. Standardization is a quality management goal and a means towards patient safety and the overall reduction in instances of diagnostic error. Despite efforts to standardize processes, variations in approach to teaching exist.

There was an expectation that technologist’s work would be handled according to prescribed workload patterns. There was variation in how a technologist might use their context (e.g., which room was used to take X-ray films) but the goal was to follow set guidelines for consistent outcome regardless of which technologist performed the tasks. Preferred approaches to teaching for each of the five clinical practice educators, as identified by their TPI profile, were different from each other and the differences were visible during the observation phases of the study. Since the profession does not yet have ‘best practice’ guidelines for teaching (unlike the standardized procedures of their work), each educator is free to use whatever approach they wish. Although David spoke about the need for standards, I believe he was referring to standardized content (learning outcomes) rather than standardized approaches to teaching.
Several of the clinical practice educators recognized the diversity in approach to teaching as beneficial.

Emerging theme – the power of disciplinary practice and the location of practice, and even the politics and economics of practice do not seem to be sufficient to override the visibility of perspectives in teaching: the power of the TPI profiles across constancy of disciplines, place and nature of work.

6.2 Clinical Practice Educators Rationalization of their Approach

A clinical practice educator’s approach to teaching says very much about what he or she believes important to establishing a starting point for student learning. Whether it is attending to student confidence, considering students an empty slate to be filled with knowledge in a logical manner, or ensuring that the patient remains first and foremost in the student’s mind, each educator’s approach to teaching can be closely linked with their approach to work and also to their individual personalities.

Tracy: *I tend to think of students as coming is with very little, no exposure to the lab.*

Alice: *To see it do it with guidance and then do it by myself. And this little tube of blood represents someone’s mother, child, or relative.*

David: *It’s practical; very hands on.*

Nancy: *I think I teach this way because I care. I care about everyone. More so my students because I feel they are more vulnerable. I like the interaction with the student and even before I decided to do this, I always liked training new staff because I believe in following protocols set up by the department. There are many ways of doing something and you do have to learn to adapt. I tell them how I would do it. I want things done, not always a certain way, but I want all the protocols to be followed. I want to instill confidence in my students.*

Sonia: *I want to add someone who can work in the healthcare system and who cares about her patients. I need people to have a sense of ethics to be able to think about their patients. Patient care is high on my list.*

The clinical practice educators’ common Apprenticeship approach was both observed and discussed at interview. Students are allowed to learn (and take responsibility) gradually and with lessening direct support as competence develops. The other approaches were evident when
beliefs about how to best teach professional behaviors around the importance of their work, for example, consideration for patients or quality of work. Several issues relating to how clinical practice educators rationalize their approach to teaching emerged. Issues of identity, workplace frame factors, how they learn, how best to teach others to do the work, surprise that more than one approach might exist, assumptions for how others need to be taught, and tensions between teaching a service.

6.2.1 Identity as Teacher

Each clinical practice educator expressed a great satisfaction with their role with students, however, they think of themselves first as technologists in a profession they enjoy, and second as educators.

Tracy: I find it refreshing. It keeps me on top of things when I communicate what I know to the students. And I like the interaction with students. I like them individually; I like to see their different personalities.

Alice: I love what I do. I want my students to have the same enthusiasm for this profession. I want them to be conscientious of doing your work well. I think I'm a mentor or a role model.

David: I am available for them, approachable. I like to show them that work should be enjoyable. You're supposed to enjoy what you do. It's not all serious, so kind of by example I hope they see the way I work. I can get serious things done, but I can also get along with people and be part of the work environment.

Nancy: I love to interact with my students, guiding or directing them. I don't like to be away from them for any length of time. I miss my students a lot and I worry about them.

Sonia: I teach by example. I'm there to help them with it and to set a sort of role model for them. I talk to them about issues like intergenerational communication because I want them to think about these things. Meeting new students and learning about their lives enriches my life. It makes you so much less judgmental. I enjoy students as a whole, I really do.

The clinical practice educators' identity as teacher and the enjoyment derived from this identity rationalizes their approach to teaching.
6.2.2 Frame Factors

The literature describes frame factors as contextual factors that influence curriculum, such as subject matter, groupings of participants, institutional customs and policies, healthcare system, political climate, economic situation and resources (Jarvis, 2003; Keating, 2006).

The clinical practice educators described frame factors as the work itself (high pace), the other technologists (sharing teaching and workloads), and upper management support for teaching in their setting. Most frame factors detract from a positive learning environment in the educator’s view, thus negotiation was required to ensure students experienced what was believed an acceptable learning environment.

Tracy: This is a very busy and complicated department. You have to know what’s going on around you and be ready to jump in whenever a crisis arises.

Alice: There are nine of us in the department and seven are over the age of 50 or 55. A lot of them don’t want anything to do with it. They prefer to stick the student in the corner if I have a day off.

David: Teaching is an individual thing; the onus is on the individual teacher. Upper management states they endorse teaching (it’s a teaching hospital) but they do nothing concrete to support it.

Nancy: You have to be so aware of everything that’s going on around you to make things flow. If you don’t, there are huge repercussions on everyone else. Students learn to multitask and they learn different ways for doing one thing.

Sonia: We work in a national healthcare system that is under a lot of scrutiny and a lot of change is going to be taking place so I want them to reflect on that. The whole emphasis is pushing through the numbers. Hospitals are cutting back on budgets and students are not employed by the hospital, that’s a cost for the hospital. So I fight for the whole month of May to get them into things available only for people who are employed by this hospital because they are in that setting, they should be getting everything anyone coming to work here is getting.

While colleagues are supportive of Alice’s educator role, they themselves do not want to be involved in teaching Clinical practice educators willingly take on responsibility for teaching students; see it as their role to facilitate the student learning by negotiating workloads with other technologists with a lack of management support for teaching, which in turn rationalizes their
approach to teaching. Their challenges with teaching within these frame factors are discussed further in section 6.4.

6.2.3 Clinical Practice Educators as Learners

Each educator spoke of her/his own preferred learning style informed their preferred approach to teaching others. Upon reflection they believed their approach had not changed over time. Alice recognized she had maintained an Apprenticeship approach over her career as educator; however, she now cares more about the student understanding why things are done a certain way over simply performing the task at hand. *I really care that they get it.*

Alice: *My style is how it works best for me. To see it, do it with guidance, then do it by myself. Most of us that teach in the hospital have that sort of apprenticeship style. Some like to quiz on paper more.* "She went on to say she developed this approach because of what did not work for her in her past. "There were unrealistic expectations of having to learn on your own and I couldn’t do that; that was beyond me at that point.

Nancy: *I try not to be condescending to anyone because I’ve been spoken to that way and I don’t like it. I do stand up for what I know is right. Things happened to me as a student that made me realize that I don’t want that to happen to anyone else. And I can’t protect them from everything. I am nurturing, I can’t help it because I don’t want those things to happen to them and the students to have a negative feeling toward the profession. I love this job. I don’t want them to feel worried about making mistakes while they are learning. I always say you can make a mistake but you have to account for that mistake.*

David said he learned from technologists who were very positive and enthusiastic. He wants to emulate them. *I learned on the job by people who loved to share and show you things that they found exciting. That was where I really learned.*

Tracy: *When I was a student I wanted to be given the information I needed rather than be challenged on what I know. I wanted thorough explanations on how and why to do things. That’s how I feel I learn so that’s how I teach I guess.*

Sonia: *People call it a style I think it’s me. First, I come from somewhere else and that influences who I am. Second, I look at things from a minority point of view because I am a minority and that makes me a little more sensitive cross-culturally and I can bring that to my students. It’s not that it’s a style I developed, it’s just who I am really. I come from a country where we had to fight for everything so I’m a little impatient with Canadians who don’t take full advantage of opportunities available to them.*
Teaching perspectives are based on beliefs on teaching and therefore, relate to beliefs on learning. For the most part, the educators believed that students would naturally be inclined to learn the way they themselves believe best. David was the only educator to discuss changing his approach to benefit a student with a different preference for learning. This lack of awareness of the existence of different learning styles stems from a lack of training on how to teach to different learning styles in the clinical setting.

6.2.4 Teaching Others to Do the Work (v. How Educators Do the Work)

Just as each educator teaches according to their own learning style, they think about teaching how to tackle the work in terms of how they themselves do the work. Each frames the work around her or his own precepts of importance.

Alice: It's better to make a decision and live with the consequences than to never make a decision and always rely on others. Always have the patient's best interests in mind.

Nancy: Be adaptable and follow protocols (including patient safety). The hardest thing about being a student is that you always have to stand back (to an authority). I'm trying to get them to stand up. They should not be afraid to ask for clarification when they need it.

David: I expect the students to take the initiative to make sense of what they are doing. I provide guidance in the form of an outline, and explanation where necessary, but the onus is really on them to learn. I keep regular tabs on their progress.

Tracy: Everyone has their own approach to the work and the diversity is great. We learn so much from each other.

Sonia: I encourage them to reflect on what they do, we talk about it. I also encourage them to get involved, I bring their feedback to staff meetings and bring the staff's feedback back to them. They can see if their suggestions are implemented and become part of the process.

Despite having clear procedural guidelines and role models as examples of how to do the work appropriately, there is little discussion around how to be a technologist. Yet this is learned by engaging with the context.
6.2.5 My Teaching Approach is Good; Could There Be Another?

Since the Apprenticeship approach is so very dominant in technologist training, it is not surprising that technologists think of it as the only approach. Alice remarked that everyone teaches with an Apprenticeship approach. Upon reflection, she agreed that there may be other approaches but they would not work for her (or the way she learns best). She did not go so far as to consider the student might learn differently from herself. Tracy learned that her TPI indicated a Transmission approach and remarked, "What else is there? Blood Bank is a stressful department and we try not to make them even more nervous, but try to give them that information so they can do as good a job as they can."

Sonia knew her Social Reform approach was rarely expressed and worried than she may be neglecting her technical sciences in favor of social sciences. Upon reflection she decided that her approach was a useful balance for student learning. Clinical practice educators in this study cared about student learning but did not readily adapt their approach for the consideration of students with learning needs different from their own.

6.2.6 Tendencles to See Through Rather Than At Perspectives

When asked to reflect, all five clinical practice educators directly attributed their preferred teaching approach to their own learning style. "That's how I learn best." They could also accept that differences might exist across the many technologists who teach students. Most, however, did not extend that line of thinking to their students' preference for learning. The clinical practice educators could defend their approach as the one that works for them as teachers. David recalled one student he recognized as having a different learning style and that, he would "spend more time with her up front." This was a change from his usual pattern in that he usually would provide an overview of expectations and then check in on their progress at the end of the week. His greater sensitivity to, or awareness of, student learning needs came from our one-day workshop held at BCIT. He reflected that with training he could adapt his approach to teaching.
6.2.7 Tension Between Teaching and Service

Healthcare settings are fast paced and facing a human resource crisis. Getting the patient’s work done first takes precedence over teaching, and without apology. The tension raises the question, what is teaching in the clinical setting, if not the actual day to day pressures of workload?

Alice: For the most part, we help each other here. But sometimes I need to limit what the student is involved with and redirect their work to others. Sometimes I give them other work to practice on while I pick up some work. When they are capable, I ask them to contribute in the part they can do; an important part of the work, but not a difficult part. I try to make them feel valid and that they are important to me and to the hospital.

Nancy: I rarely ask them to stand aside while I pick up the work. I usually try to keep them going and it does teach them the flow of the department. If the student is causing the department to slow down too much I’m going to get it, which is fine. I would explain my actions and why we were holding things up.

David: When it gets really busy, I don’t send them away I ask them to help. I don’t think there is any value at all in sending them away to do practice work.

Tracy: It doesn’t happen very often but sometimes I need to explain to the students that they have to just watch for the time being because I need to tune into what’s happening in the department because what we need to do is we need to provide service for our patients. I think they are still getting good training; observation is very good too. They see a busy day and how it’s handled. I think everyone values education; it’s just frustrating for everyone because you know it could be better [with more time and resources from the organization level].

Sonia: I try to be proactive and ask if the student and I can go to where the work is busiest to help out. When I’m not on the floor, they sometimes call and I am willing to help out for a few hours when necessary.

A tense work environment was discussed at each interview and observed for moments at one or more educator observation period in this study. All clinical practice educators saw value in allowing the student to experience the tension as long as patient safety is not compromised.

The next section moves beyond how they rationalize their approach to how they use the context in their teaching.
6.3 Invoking Context in Teaching Explicitly

When interviewees were asked this how they use context in their teaching, in each case without exception they needed clarification on what was meant by “context”. After my initial observation periods with the clinical practice educators, my impression was that it meant the space, the schedule, and the people with whom the student interacted. I asked them how the student learned to communicate with the various department members including the pathologist, attending physicians, managers, supervisors, etc. They seemed puzzled by this, as they only considered the content of the learning as significant. The time between the first and second interview proved helpful as each person had time to reflect on how they used context in their teaching. As was the case for how they rationalized their approach, several issues emerged for how they explicitly invoked the context in their teaching. Issues of identity, planning, people, space, and communication are reported below.

6.3.1 Identity – Maintaining Teaching in the Face of Resistance

Each interviewee said they were encouraged by their colleagues to consider the teaching role. Several said they felt their main role was as “protector” and described the learning environment as uncooperative, oppressive, and in some cases hostile. When asked whether they had to defend their approach to teaching to others, David said the technologists had expressed that he should take the students away from the work to “teach them more”.

Alice: I think it (teaching) needs more focus as a profession. Many technologists see it as a means to an end, a necessary evil that has to be done if you want to hire somebody so that you can retire. I think they just think of it as an evil to go through to get somebody to replace them to work the crappy shifts. A lot of them, unfortunately, do think that way because they don’t want to work nights anymore.

Sonia: I think that being the liaison between students and staff is probably the most difficult role I have. The role with students I find, I don’t struggle with. I am really the advocate for the students. Everyone teaches and I wanted them to be recognized so I negotiated for an increase in wage and the attitudes towards the students have improved.

Four of five clinical practice educators in this study said that their workplace was very supportive of students. Nancy did not mention it, but two instances of support were noted at
observation. Still, very few technologists agree to take on the role and complaints about the extra effort required to “carry students” in not infrequent. Some suggest students be moved away from the workflow to quicken the pace of productivity. Clinical practice educators maintain teaching in the face of resistance from fellow technologists and those at a supervisory level.

6.3.2 Planning – Sequencing the Learning

For the most part, students are scheduled around the competency areas they must meet for certification. Within that framework, their schedules can change depending on the work (which cannot be foreseen) and the goals of the individual educator (which are based on their approach to learning).

Alice prefers to capitalize on opportunities as they present. Her colleagues are very accommodating and will pass work over the student if he/she would benefit. “I guess because, everything doesn’t come in exactly when you want it to. We have a sort of plan, but always know that these things can be popped in or out anywhere [in the schedule].”

Tracy starts with an overview of the department to give them the big picture of what goes on there:

*We try to go through a logical progression so they gain an understanding of the services we provide, the products we have, understanding of the steps that we go through to provide those services. It’s very foreign to them so they need to get a perspective on where things are, how we do things, where we start off in the mornings, gradually getting into how we do things, why we do things, what services we provide. Why, what and how we do things. I’m always trying to give them so much information for them to really be able to understand the steps that they are doing.*

David provides a training guideline. Each week there are goals to meet and he checks up on the progress at the end of each week. Students work with a variety of technologists to meet their goals. David takes note of who the student is interacting with and gauges how often he checks in accordingly. When the student is with a technologist who is not as open to teaching, he will check in more frequently. For the most part, he feels the technologists in the department all enjoy sharing their knowledge.
Nancy: Students spend time in three areas: the operating room, fluoroscopy, and general radiography. They have certain views they must complete. For the most part, there is no schedule to complete each view. When my student needs to do a few competencies, I ask a supervisor to adjust the staffing schedule. One supervisor gets a little frustrated and I've had to learn to deal with that and not back down. I'm here for my students, not to look after them but to make sure they are not run all over. And to say we were all students once and we should give them an opportunity to learn.

Sonia: I have control over the schedule; we are not considered part of the daily workforce so we are lucky that way. I move them as I see appropriate. They start out on easier patients then move onto more complicated cases, so they are not so overwhelmed.

Since the Apprenticeship approach is common to all, learning is most often sequenced from less complex to complex with decreasing support over time. David's use of a framework for sequencing learning and Nancy's insistence on scheduling for the student's benefit are two examples of where educators use their teaching perspectives to influence context and learning.

6.3.3 People – Involving Specific People in Student Development

Clinical practice educators understand that students must gain an appreciation for and ability to work with a variety of people in their workplace setting. In some cases, they see this involvement as helping with the educator's workload, and in others, consulting for various knowledge specialty areas.

Alice: I specifically assign the student to one or two of the people (who agree to teach).

Nancy: When the student is booked in the operating room, they just have to work with whoever is there. When I'm working in the same area, I usually choose to avoid some technologists who use the student to do work they could be doing themselves. I try not to be mean, just divert a little bit. I tell them, we are going to do this case together. Rather than hold up the workload, you could do that one and we'll grab the next one that comes along. When I see the student gravitate towards someone, I let him or her form his or her own opinions. They figure out who carries the workload and who doesn't. I don't want them to avoid a case, ever!

David: Students and technologists are encouraged to interact with a variety of people. They might sit with the haematopathologist to review slides or get involved with external committees. They are part of a team, a part of the workforce. I think they begin to feel responsibility here. They are still babysat, they are protected as students.

Tracy: When I was working with them exclusively, I found I was a bit drained because I try to give them all that I can. I find having one right after another very tiring and it gets
repetitive. Now others also teach and the student benefits from seeing how everyone does things a bit differently. We are very conscious of the student and everyone watches for learning opportunities for them.

Sonia: *They see me interact with the other technologists, asking for consultation sometimes. It's important to show them you don't have to know everything and to go to the people with the knowledge, give them credit for what they know.*

Internal communication was a significant aspect of workflow in this study. Educators encourage students to observe and also engage in communicating workflow issues, thus knowingly using their context in their teaching. In terms of relating the use of communication to a teaching perspective, educator’s explanation of value of learning this communication related to teaching approach. For example, Alice specifically assigns students to particular technologists to support further learning and development in doing the work. Sonia wants students to witness her interaction with the other technologists to learn how to engage and to not avoid those whose experience will no doubt assist their developing competence.

6.3.4 Space – Organizing the Learning Spaces

In most cases, educators identify the space where work is performed in the workplace setting as their only learning space. Sonia was the only educator to expand that to many other spaces in the hospital where learning can and does take place, separate from the work at hand and integral to developing a professional identity.

Alice: *The learning space is the lab. I do not use any other space.*

David: *The lab. We don’t isolate them from the work.*

Tracy: *The lab.*

Nancy: *I am with the students in the department. I also use my office for teaching, and when I feel the student is being overworked or if I see technologists pass off work to the student too readily, we go to the office space. I find some technologists will avoid unfamiliar examination rooms. I encourage students to try all the rooms. They need to learn the confidence that yes I can do this. I don’t push them too hard. If they feel uncomfortable, then I don’t let them go in there on their own. I’ll say, let’s do it together and I try to stand back as they give it a try.*

Sonia: *We have a teaching area where I go over their work and provide an assessment. We have a library and they have access to the hospital library. I brought them to a lunchtime union meeting the other day. They have a union that represents them yet they show no*
interest whatsoever. I take them to a professional society meeting in the evening so they know there is a professional body they belong to.

The context of student’s learning space was almost always limited to the physical space where work was conducted: the lab or the department. And further, within those spaces were the X-ray room, the bench, the instrument, the office, the computer, etc. This is reasonable when considering students are there to learn to do the work, but it does not offer support for the often mentioned larger goal of learning to become and represent an important part of a healthcare team.

6.3.5 Communication - Within the Department and/or Hospital

Communication can also be thought of as part of the context in which medical technologists learn and develop. The ways in which technologists communicate with other technologists, laboratory physicians, and other staff differs from their communication with external healthcare practitioners. I explored both the educators’ awareness of this notion of differences in communication and also how they in turn, helped their students understand how and why communication is used in this profession.

Alice: They learn the value of effective communication, to learn you are part of a bigger team; the whole healthcare team. She has the student use the telephone to call results and encourages them to value each and every team member from the clerk who receives the patient, the phlebotomists who collect the blood samples, the porter who brought in the sample, the technologists, and pathologists who sign out the reports. I have them go on rounds to remind them that the patient is an important part of what we do. They learn that it is [about] people, we are in the people business. We are not in the blood business or the number business.

David: Students are invited to attend rounds, and to the hematology interest group.

Tracy: They see when to talk to the pathologist, contact the ward, or whatever. There are so many steps it’s a lot for a student to think about. Often as a technologist, what you have to bring to the table in important as well. If there’s a breakdown, it’s communication and that’s not in the books. It’s a big part of working and they need to see that.

Sonia: Students are encouraged to give their feedback often. They are encouraged to develop opinions and to express them, and to acknowledge differing opinions of others. It’s important to be accepting of various points of view.
Communication was clearly important both in terms of doing work, and learning to do work. Technologists need to communicate with each other to appropriately distribute and assign workload as it presents. They also need to express and listen to other’s opinions. Students also learn to communicate issues of technical interest for the purposes of sharing and educating others.

So far in this chapter, I have shown that clinical practice educators’ approaches to teaching differ, that they can rationalize their approaches, and that they knowingly invoke some aspects of context in their teaching. The next section addresses the power of teaching within external forces.

6.4 Power of Teaching within External Forces

When asked about external forces on our profession, each clinical practice educator had many experiences to share. They had each suffered setback in their jobs in some way, often due to continued restructuring and re-defining roles, particularly the extent to which teaching roles would be supported in their departments. The most interesting conversations for me were about the culture of technical professionalism we work within. Again, the educators had to first identify that there was indeed an identifiable professional culture setting technologists apart from other healthcare professions, and then consider how their approach to teaching contributes to how technologists learn to think like technologists. The frame factors used to define the external forces in the following section were: political forces, economic forces, and discipline forces.

6.4.1 Political Related Forces

With every sweep of healthcare reforms, new leaders emerge with, among other things, new ideals on how education will be delivered in the workplace. The most common of which is it must be done cheaper, meaning with fewer employees. With fewer dollars to support technologist training, clinical practice educators are increasingly challenged with balancing teaching and performing technical duties contributing to productivity. Technologists feel a lack of political power and some support a substantive move to raising the profession’s political profile by changing entry level qualification from diploma to degree, as the nurses have done with some measure of success.
David: When leadership changes they will instill new values on how they want you to spend your time. If they say as a teaching tech, I expect you to spend 25% of your time either working with the students or on student activities, that's a good thing. If they say I want you to do this first and let the students look after themselves until, whatever.

Tracy: They need to know what your place is, what your responsibilities are, who you need to report to, who you need to consult. You find out where technologists fit in with the doctors, which is usually a place of little power. I don't know how much of a handle they get on that. It's very difficult for technologists because you have a pathologist in charge of the lab. They are the liaison with the doctors so they gain the respect (in terms of knowledge). So as technologists we don't really represent ourselves in the hospital. We are behind the scenes doing the testing. With more direct discussion and communication we might be a part of the team process.

Alice: For issues such as degree for entry level and college formation, the profession seems to be split in thirds: pro, anti, and apathetic. It makes you wonder where the pressure is coming from. Is it just that the pro-people have bigger mouths or is it because they tend to be more professionally minded and get involved with issues? The people on the bench are against the degree and are more threatened by it.

The profession does not have a political voice as British Columbia's provincial government does not yet support a regulatory college for medical laboratory technologists or medical radiology technologists; an application combining the two professions under one umbrella college is currently at the Ministry of Health table for consideration.

Educators adapt to the changing levels of support for teaching, and continue teaching in their new realities.

6.4.2 Economic Related Forces and Changing Nature of Work as a Result

Students will train in each of five major laboratory disciplines in order to qualify for the national certification examination. The five disciplines are clinical chemistry, clinical microbiology, hematology, anatomical pathology, and transfusion science. Medical Radiography also consists of several disciplines or techniques that produce medical images. Once students complete their training and obtain employment as entry level technologists, they may work in several disciplines (usually two or three) as generalists or specialize in only one. Reforms, restructuring, downsizing, right sizing, whatever the term used, it has touched everyone is healthcare is some way. In the laboratory, many technologists were asked to cross-train or retrain to work in a department they had not worked in, possibly for their entire careers. The change
from silo departments to combined function, core laboratories and the necessary retraining of technologists was thought to be more efficient, but it had another outcome as well. Many technologists left their profession, possibly contributing to the shortages we see today.

Nancy: *We have experienced some downsizing here recently and the students have, now that I think of it, heard us complain at coffee breaks and such. I guess they're learning about what's happening in the profession that way. You just pick it up over time, we don't specifically teach them about it.*

David: *When I think back, there's been some sort of shake up every 3-5 years. Students we have now are experiencing the change we are going through. Some of them are influenced by the negativity in the department; staff who are not adapting to the fast pace of change. They see that change is inevitable and that they will have to learn to cope with it.*

Tracy: *Everyone has been through re-structuring several times. They keep flip-flopping what they want to do depending on the circumstances. Where is it coming from? Who are they consulting? At the top they are saying it's a managerial decision, a budgetary thing. They are certainly not consulting the people working in these areas.*

Sonia: *The students were affected by the recent job action at the hospital. They saw the issues come into effect before they left. They saw the cleaning staff change and they saw the cafeteria staff go.*

Healthcare reforms are ever present. Managers continually search for solutions to the rising costs and education is thought of as a cost rather than a benefit or investment. Some managers have deleted the clinical practice educator positions. The workplaces involved in this study supported clinical practice educators, though they felt the pressure from the reality that their position could be cut in future. Despite this pressure, educators continue teaching.

6.4.3 Discipline Related Forces

Not all technologists choose to teach. It can be considered a calling and requires a different skill set from those bringing success as practicing technologists. The educators I spoke with were selected by their peers as having what it takes. The educators themselves described the role as socializing the students into the profession through communication and relationship building. Because the rules of the profession are content focused, there is more leeway for variability in teaching perspectives.

Alice: *I think they learn that what we do makes a difference and that it is important to know more than just what it is – to know why it is that way, and to love this career. Enthusiasm!*
Historically, knowledge has been power and if you have the knowledge then you hold it close to you and you have the power. Now, it doesn't seem to be as territorial as it was. There is a flattened hierarchy within the department now.

David: It's about people and interactions. I mean the technology; if you are a bench tech it becomes very routine very fast. All of a sudden now all you have at work is the satisfaction of output, building your knowledge if you value that, and people. So you've got to be tolerant and accept people. Outside the lab there are the usual tensions between nurses and technologists. Both claim the other doesn't know or value what they do. Inside the lab there are traditional tensions between departments. Hematology laughs at chemistry because all they do is verify results, and chemistry is annoyed by hematology because they sit around looking at things down a microscope. In my mind, it's all about exposure. Get involved with dealing with nurses and other technologists. Find out what their needs are, communicate with each other. Unless you work on committees that communicate with one another, of our needs and wants, our dynamics are, you maintain the isolation.

Sonia: I didn't anticipate that I'd be called on to be a conflict resolution officer, to change the environment. I thought I was going to be the clinical practice educator for seven students, but no, I became the educator for the entire environment. Educating didn't stop with the students, it continued on at staff meetings, reflections, asking people to attend teaching workshops at BCIT, and at the hospital. This is a team, inclusive, and the whole area needs to grow, change and adapt to make the environment conducive to learning.

Technologists in a department have enough to occupy their time without having to include teaching others. Most of the clinical practice educators in this study said they did not choose the teaching vocation, but they discovered a hidden passion for teaching as a result of finding themselves in the position.

The following table summarizes the Chapter 6 analysis of educator use of context in teaching as related to the five teaching perspectives. Spaces without an “X” can be interpreted as meaning the teaching perspective for which they were included in this study was not evident in the educator’s response. The table shows a relationship exists between invoking context in teaching and teaching perspective. It also shows opportunities exist for greater use of context, and opportunities to expanding educators’ awareness of the powerful learning by exposure to context.
Table 4. Representativeness of Teaching Perspectives for Department-Situated Teaching

<table>
<thead>
<tr>
<th>Issue</th>
<th>Elaborating:</th>
<th>Rationalizing:</th>
<th>Social Reform (Sonia)</th>
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<tbody>
<tr>
<td>Explanatory Power</td>
<td>Transmission (Tracy)</td>
<td>Apprenticeship (Alice)</td>
<td>Developmental (David)</td>
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<tr>
<td>6.1.0</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>6.2.0</td>
<td>Self-Perception</td>
<td>Frame Factors</td>
<td>As Learner</td>
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<td>6.2.1</td>
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<tr>
<td>6.3.0</td>
<td>Invoking Context:</td>
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<tr>
<td>6.3.1</td>
<td>Identity</td>
<td>Planning</td>
<td>People</td>
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<td>6.3.2</td>
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<td>6.4.0</td>
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<td>Economic</td>
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Clearly, students gain greater perspective on how to become technologists while in clinical settings. Students experience the clinical practicum either alone or within small groups. The clinical practice educator to student ratio in this study was 1:1. Research has proven that learning in small groups provides greater opportunity to participate in a variety of activities, and
enhancing self development, including leadership skills (Cotton, 1996, Barker & Gump, 1964). Clinical placement is a critical component in learning to think like a technologist.

6.5 Conclusions

Each educator was more than willing to express rich thoughts on her/his practice and welcomed me into their space to observe. They demonstrated variation in approach to teaching (consistent with teaching perspectives) and offered more than 900 instances for the use of context in their teaching. I found the research an invigorating experience, though found it very difficult to “bracket” my beliefs on clinical teaching and discuss this further in the next chapter.

There’s little doubt that the clinical practice educators in this study are also successful and knowledgeable technologists. They know what it means to be expert practitioners, yet they have not considered how the context itself teaches students how to think like technologists, perhaps because they do not feel they have any control over the context of the workplace. When the external forces, or frame factors, are seemingly unmovable there is an increased reliance on the power of teaching. Interestingly, clinical practice educators in this study down-played their roles as teachers and spoke of it as if it were their hidden mission to protect students from negativity in the workplace while encouraging a pride in the profession they are entering.

Three variables in an effective clinical practicum include the student, the clinical practice educator, and the clinical context. The ability of clinical practice educators to use the context in their teaching is key to creating a positive learning environment, but in some cases, the context remains hidden. As to why the student experience seems to be heightened during the clinical phase, Alice offers the following, “for lack of a better word, you grow up. You realize that people are relying on you. Even in such things as being on time. This is real, it isn’t make belief, nobody cooked up the sample, and this is a real situation. That’s a real person. I think it’s awareness that it’s not pretend anymore and it’s the real place. Yeah it’s really up to me!” Nancy suggests the environment is stressful and stress heightens the senses: “I remember I was stressed for the entire year. I was stressed about exams, about people watching me and about making mistakes.”
Nancy enjoys learning teaching skills, in particular how to give effective feedback. She’s noticed a difference in herself and in her students’ reactions. The hints such as using “I” statements and timing for effective feedback have been useful for her. She’s aware of the influence of emotion in giving feedback. “I also find going to those seminars helps me deal with staff because I’m a buffer between students and staff. If we are busy and the student is holding everybody up then I have to deal with that staff member. Some personalities require that I deal with it differently than with another person with a different personality. So it’s about personalities and I like that because there’s a lot of personalities out there!”

David spoke of students developing professional values in the clinical practicum. “I try to be friendly and approachable, but you can’t know if they’ve picked that up as a value of their own until they are in the work environment.” Tracy says it’s a whole different environment in the hospital. “When they see how the big picture works (interaction between departments, professionals, etc.) they see how it works and it’s great.”

Marton and Booth’s conceptual framework is used here to propose that educators’ awareness of context doing the teaching will increase by intentionally using the context to guide students toward learning. As they face increasing challenges in balancing teaching with performing daily work, they need to integrate the new reality into their teaching. Having the awareness that context influences learning offers the instructor increased choice in how they impart knowledge, contributing to how technologists learn to think like technologists.
Chapter 7
Significance of Findings for BCIT and other Health Professions' Training

7.0 Introduction

Excerpt from observational field notes:

Seven technologists are bustling about. "This is normally what it's like by the way, yesterday was not normal." They are concerned about the backlog of patients waiting for X-rays. "But there's a lot of enemas." "Room 3 is out!" "Flip it." "I tried; I can't get it to work." "Maybe leave it awhile and try again later." Everyone talks and walks. Nancy helps the student with a patient on a gurney (an elderly lady who has fallen), helping him maneuver the equipment for optimal views. Nancy notices me, "We're just starting a really good case. Is that okay?" "Yeah!" She returns to the student and patient in the exam room.

Nancy and the student come out to do paperwork and review the films they've just taken. Student (very energized with this experience) shows me that the patient has broken her arm in two places. Nancy and student discuss how to move patient to get the next views, then go into the exam room to tell patient how they have to move her and assure her they will help support her arm. A third technologist moves in to assist, propping her with foam wedges. They discuss the angle, take the shot, and then take care of the patient.

They come out again. "Poor lady!" Discuss angles while writing up paperwork. The three review the new films and discuss ways to improve them. "Lay her flat if she can tolerate it." "Can't move her elbow." "Look how far her shoulder is out of joint." "Nice 'Y'." After a few more attempts, the patient cries out in pain. Nancy comforts her while student completes the task. Last film is good "Yeah!" she pats the student on the back as they prepare to move the patient back to her room.

Students in healthcare professions spend approximately two-thirds of their time in classroom settings and one-third of their time in the real world context surrounded by expert practitioners. As is evident in the above vignette, the patient is the ultimate beneficiary of excellence in clinical training. The clinical practice portion of allied health training is an important element worthy of closer attention. There is a gap in the literature focusing on the clinical practice instructor; several studies have focused on nursing and medicine, while few authors review allied health training. Most of the literature in allied health has focused on changes to classroom instruction, introducing the notion of authentic situated learning. Several studies note student perceptions on qualities of good clinical practice educators. This research study focuses on learning in the authentic workplace setting facilitated by clinical practice educators.
This study began with my wondering why the clinical setting for allied health technology training had such a powerful impact on student learning. What was it about the setting that enhanced learning? I began the study with some pre-conceived understandings of what it meant to be a clinical practice educator; some were borne out of my own experiences some twenty-five years ago. I was also well aware of the socio-political challenges before them today. My awareness of the work of my study participants was both a help and a hindrance to my work as researcher. “The problem of phenomenological inquiry is not always that we know too little about the phenomenon we wish to investigate, but that we know too much.” (van Manen, 1999, p. 46) Knowing too much can block us from seeking further, deeper understandings.

As I was initially interested in context as teacher, I sought examples of clinical practice educator’s understanding, awareness and use of context in their teaching. Clinical placements locate students in the authentic setting: the workplace is where they encounter and are involved with the context. My challenge was to “bracket” my beliefs about clinical teaching, to set them aside and open my mind to accept the experiences of my research participants to guide my new understandings. In order to do this I had to acknowledge my “old” or existing beliefs. Before beginning the interviews with the clinical practice educators, I listed my assumptions about this research, to make them explicit. By doing this and reflecting back to the list long after the interviews had taken place, it became very apparent how our assumptions can seem like fact at the time, but only act to conceal deeper meanings. One striking example of this was my assumption that the workplace was a hostile environment for educators and students alike. I found that most technologists valued this work. By setting aside personal assumptions, the interview brings out the participants own experiences and sense making through their personalized stories. In order to learn from those in practice, educators need to become familiar with the bracketing technique to understand the clinical practice educators’ experience and to better prepare students for the practicum.

Effective clinical teaching involves several parameters: the content (i.e., profession-specific competencies), the context (i.e., healthcare environment including hidden and non-formal teaching opportunities), the clinical practice educator, and the student. Content receives attention while the context receives less attention. Some allied health technologist research examines the clinical practice educator as ‘role model’. By comparison, very little research looks at the role of the context itself as ‘teacher’ which may explain why four of the five clinical
practice educators had difficulty contemplating how their own context influences their own teaching. In a content driven profession, the importance of context is left unexamined. A closer look at context involves a closer look at how technologists are socialized into their profession.

Shulman coined the phrase “signature pedagogies” suggesting that professional cultures begin with how one is educated into the profession. “They implicitly define what counts as knowledge in a field and how things become known. They define how knowledge is analyzed, criticized, accepted, or discarded” (Shulman, 2005). The clinical practicum in the clinical setting has historically been included in one’s training to become a technologist. Shulman speaks of the “pervasive capstone apprenticeships” and the challenge of providing learning experiences that bridge theory and practice. “To put it simply, signature pedagogies simplify the dauntingly complex challenges of professional education because once they are learned and internalized, we don’t have to think about them; we can think with them.” “Habit makes novelty tolerable and surprise sufferable. The well-mastered habit shifts new learning into our zones of proximal development, transforming the impossible to the merely difficult.” The clinical practicum cultivates students to form habits that will grant them access to the professional culture.

One way to describe the goal of clinical training is to teach students to think like technologists. Technologists hold many things in their mind at the same time simultaneously. In order to understand something, one needs to understand the context in which the thing is embedded (Marton). Educators use competencies to guide learning and these competency statements describe “what” students should be able to do, not necessarily how or in what context they are to do them. But the two cannot be separated for effective learning to take place. Context may not be in the educators’ focal awareness; however, context is tacitly used in teaching.

7.1 Implications Arising From This Research

Clinical practice educators need to be aware of the influence of context in their teaching. This research brings attention to context to raise awareness for medical technologist clinical training. Educators who assist clinical practice educators by offering workshops and other forms of training have an opportunity to encourage the use of context as a tool for enhanced student learning on how to become a professional. This awareness could also reduce student attrition due to barriers relating to differing personal values (e.g., Millennial’s ‘attitude issues’,
internationally trained professionals 'language difficulties', and Native American learners 'lack of basic education') partially addressing the very real shortage of trained healthcare professionals. Once the issues are on the table, strategies to prepare the clinical practice educator will further enhance an effective clinical practicum experience.

Some healthcare leaders in government and management suggest removing students from the context, replacing hospital based experience with simulated experience in the educational institutes to relieve some tension. The notion brings up the question "Simulate what?" Simulation extracts something and provides a partial experience. Clearly, is difficult to impossible to invoke context as teacher in simulated experiences. You cannot simulate the context. Students progress from proficient to developing expertise. The difference is context.

7.2 Conclusions

Nancy talks about her satisfaction in seeing her former student's work habits, but does not feel attentive towards a graduate. She immediately turns her attention (and sense of purpose) away from graduating former students towards her new group of students.

Clinical practice educators feel responsible for assisting their work-team colleagues with the workload "pulling their weight" and often experience a tension between doing work and teaching students. Yet teach students they do, and do with passion. Each clinical practice educator brings her or his own preference to an approach to teaching and without extensively examining their approach or their use of context, they are there to shepherd students through the highly charged experience of the clinical placement.

The clinical practice educators in this study received no formal instruction or training in how to teach, though they actively participated in BCIT's Clinical Educator Workshop including the TPI assessment. Through ongoing activities and dialogue on teaching including the notion of mindful use of context in teaching, allows educators to gain an awareness of the role of context and the power of knowingly using context in teaching students in the clinical setting. The educators in this study used the context in their teaching, but were not always aware. Opportunities to intentionally use the context in teaching were lost. This research shows that educators can gain an awareness of the role of context and the power of knowingly using context in teaching students in the clinical setting. By raising the awareness to a level of explicitness, the
role of context in becoming an entry-level medical technologist is apparent to educators and healthcare managers alike, assisting in discussions around the cost of training (i.e., resources). This research sought to understand how context influences learning in clinical practice training and finds that clinical practice educators demonstrate different preferred approaches to teaching (i.e., differentiated by the TPI profile) in the clinical practicum, despite consistencies in technical procedures, training competencies and checklists. In addition, clinical practice educators use the context in teaching (e.g., using a variety of spaces, tools, people, and situations), and there is a systematic relationship between how they use the context and their teaching preference. Through instructors' awareness of context as a useful tool in the educator's toolkit, students' experiences and transitions to technologists will be enhanced because educators will encourage student engagement with context to further students' development and transformation into entry-level technologists.
References


CSMLS (2007). *Simulation-based learning in Medical Laboratory Education*. Hamilton, Canada: CSMLS.


Appendix A: Invitation to Participate Letter

Dear [name of participant]:

RE: Ways of Teaching in Contexts of Professional Practice

I would like to invite you to participate in a clinical instructor study taking place August 2004.

I am contacting you because you completed an on-line Teaching Perspectives Inventory (TPI) and participated in a one-day seminar for Clinical Practice Educators, sponsored by BCIT in March 2003.

Shelley Tiffin is conducting research on the ways in which Clinical Instructor’s teach within contexts of professional practice. The study consists of three, one-hour interviews with you at your convenience, over a three to five day period. The interviews will discuss the ways in which you teach while in the context of your professional practice. In addition to the interviews, Shelley will be onsite as an observer for one hour between each interview. In particular, I am interested in knowing how you enact your own style or perspective on teaching, within your subspecialty of [field of practice]. If you are interested in participating in this project or have questions about it, please contact Shelley at the number below to obtain more information.

Yours Truly,

__________________________
Dan Pratt, Ph.D.
Professor of Adult & Higher Education
Department of Educational Studies
The University of British Columbia

http://www.edst.educ.ubc.ca/pratt.html
http://TeachingPerspectives.com

Shelley Tiffin, ART, BMLSc
Clinical Coordinator
Medical Laboratory Science
British Columbia Institute of Technology
Email: (removed)
Phone: (removed)
Appendix B: Consent Form

Ways of Teaching in Contexts of Professional Practice

Principal Investigator:

Dan Pratt, Professor, Adult & Higher Education, Department of Educational Studies

Co-Investigator:

Shelley Tiffin, Student, Adult & Higher Education, Department of Educational Studies

Purpose:

You have been asked to participate in this study because of your involvement with your Clinical Instructor. The purpose of this study is to determine variations of “good clinical teaching” within the context of your professional practice.

Study Procedures:

Your Clinical Instructor has agreed to participate in this study. The researcher is mainly interested in the clinical instructor’s approach to teaching. The researcher will observe your interactions with the clinical instructor on two occasions during the study week.

There are no known risks associated with this study. However, if you encounter anything that makes you feel uncomfortable, you may ask the researcher to stop observing. If you wish, you may also contact Dan Pratt, principal investigator.

[Consent Form: Version #2, July 27, 2004]
Confidentiality:

Your identity will be kept confidential. Numerical identifiers will be used on field notes. All notes will be taken without describing who made the statement. All field notes will be kept in a locked filing cabinet. Only the researchers will have access to the data. You will not be identified by name in any reports of the completed study. Reports generated from this study will not reveal details about individuals.

Remuneration/ Compensation:

You do not receive remuneration to participate in this study

Contact Information on this study:

If you have questions or desire further information with respect to this study, you may contact Shelley Tiffin, co-investigator, or Dan Pratt, principal investigator.

Contact information about the rights of research subjects:

If you have any concerns about the treatment or rights as a research subject, you may contact the Research Information Line in the UBC Office of Research Services at 604 822 8598.

Consent:

Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without harming your grades.

Your signature below indicates that you have received a copy of this consent form for your own records.

You do not waive any legal rights by signing this consent form.

Your signature indicates that you consent to participate in this study.

Participant’s legal name

Participant’s Signature Date

Signature of Witness Date

Appendix C: UBC BREB Certificate of Approval

The University of British Columbia
Office of Research Services and Administration
Behavioural Research Ethics Board

Certificate of Approval

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<th>PRINCIPAL INVESTIGATOR</th>
<th>DEPARTMENT</th>
<th>INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT</th>
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<td>Educational Studies</td>
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<td>Tiffin, Shelley</td>
<td>Educational Studies</td>
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This Certificate of Approval is valid for the above term provided there is no change in the experimental procedures.

The protocol describing the above-named project has been reviewed by the Committee and the experimental procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval of the Behavioural Research Ethics Board by one of the following:
- Dr. James Frankish, Chair,
- Dr. Cay Holbrook, Associate Chair,
- Dr. Susan Rowley, Associate Chair

March 19, 2004, Consent Form / Feb. 10, 2004, Contact letter / Questionnaire