EFFECTIVE TEACHING FROM A POSTSECONDARY VOCATIONAL EDUCATION PERSPECTIVE

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EFFECTIVE TEACHING FROM
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By
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ABSTRACT

In this study the researcher investigated the nature of effective teaching at the postsecondary vocational education level. The researcher surveyed the technologies and trades instructors at two Saskatchewan Institute of Applied Science and Technology (SIAST) campuses, Kelsey and Wascana, in order to find out their definitions of effective teaching and the skills, knowledge, values, and attributes that they perceived are needed to be an effective instructor. Furthermore, the study aimed to show if there were any significant differences in the instructors’ views of teaching effectiveness and the attributes of effective instructors with respect to teaching discipline, years of teaching experience, gender, age, and level of postsecondary education. In addition to using a survey to collect both quantitative and qualitative data, the researcher convened a focus group.

The study’s findings indicated that there was general agreement on the skills, knowledge, values, and attributes that effective vocational instructors have and that there were in some cases, significant differences in the instructors’ views of teaching effectiveness and the attributes of effective instructors with respect to the demographic variables. Several themes emerged from the respondents’ definitions of effective teaching. These themes showed that there was a diverse range of meanings that instructors ascribe to the concept of effective postsecondary vocational teaching.
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The Computer Operations' employees, University of Saskatchewan, assisted in designing the survey, printed it, and compiled the raw quantitative data.

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Thank you to Ruth Robinson for demonstrating that our advances are made day-by-day. Sincere thanks to my stepdaughter, Andrea Quinlan, for her boundless energy, courageous spirit, intellectual curiosity, SPSS advice, and love. For asking me to be part of the family and showing unwavering support, I am grateful to my loving partner, Elizabeth Quinlan.
DEDICATION

To the memory of my parents—salt of the earth from Ukraine

Kateryna Mazepa Rohatynska (1907 – 1994)

Ivan Rohatynsky (1904 – 1973)
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CHAPTER ONE: BACKGROUND

Teaching effectiveness as a research field has flourished in the decades from the 1960s to the 1990s. Much of that research was focused on has been on the K-12 system, however, the study of teaching in the university and academic college sphere has experienced noticeable growth in quality and quantity in the 1990s (Menges & Austin, 2001). While many studies have been done in university settings, research on teaching effectiveness in postsecondary vocational milieus has not been as prominent.

Achtenhagen and Grubb (2001) asserted that, “attention to teaching and learning” (p. 605) through research is not well developed in this educational field. Grubb and Byrd (1999) stated that, “the nature of instruction in occupational subjects has been almost completely invisible” (p. 97).

In this province, the Saskatchewan Institute of Applied Science and Technology (SIAST) is the largest provider of vocational education, and, according to SIAST’s graduate surveys, a very successful one in meeting the needs of students in finding employment and of employers in locating skilled workers (SIAST, 2005a). SIAST offers about 160 programs to approximately 12,000 full- and part-time students at its four campuses: Kelsey in Saskatoon, Palliser in Moose Jaw, Wascana in Regina, and Woodland in Prince Albert, and through distance learning (SIAST, 2005b).

According to its promotional literature, SIAST provides, “high quality, career-related education, training and re-training in a range of disciplines and diverse diploma and certificate programs” (SIAST, 2005b). Many of these programs fall under the category of technologies and trades. Technologies take in spheres of work that deal primarily with the skilled use and knowledge of sophisticated technological instruments.
such as computers used in industrial, commercial, and healthcare settings. Trades can be broadly understood to include those areas of employment whereby trained personnel use specific skills and knowledge to craft goods and/or maintain equipment in optimal working condition.

Approximately 400 technologies and trades instructors teach at SIAST’s four campuses. Two campuses, Kelsey and Wascana, were selected as the sites from which the data was gathered for this study. This introduction to SIAST provides the context in which this study of teaching effectiveness took place.

Need for the Study

My study of effective teaching is a timely one, in that the growth of economic activity in mining, oil and gas, construction, and in agriculture has meant a growth in full-time jobs (Statistics Canada 2006a, 2006b). In all probability, these jobs include the technologies and trades, because all the above-noted industries depend on a well-educated technical workforce. As mentioned earlier, SIAST’s programs include many technologies and trades. The increase in economic activity has led to an increase in the number of registrations in apprenticeship education programs. According to Statistics Canada (2004), “registration in apprenticeship training programs hit another all-time high in 2002” (p. 1) and apprenticeship programs frequently continue “beyond the required duration” (p. 2)) of two to five years.

In response to the demand for more technologists and tradespersons, SIAST has undertaken a facilities’ expansion at two of its campuses, one of them being at Kelsey Campus. This growth in physical space will accommodate the demand for technologists
and tradespersons. Arising from this demand, there will be a need for more instructors in the technologies and trades.

Although the studies of teaching effectiveness in the K-12 system and in higher education have had a long and rich history, the same cannot be said for research into effective teaching in postsecondary vocational settings. This situation is especially true in Saskatchewan, with specific reference to SIAST. Despite having instituted a Faculty Certification Program (FCP) in the spring of 2004, the institute has not yet undertaken a systematic study of teaching effectiveness within its own instructional ranks. According to the former director of SIAST's Planning, Research, and Development Department—a department that was eliminated in the spring of 2006—there have not been any studies of effective teaching at the institution (G. Sarkar, personal communication, March 2005).

The FCP, a program with formal ties to the Faculty of Education at the University of Regina and the Saskatchewan Instructional Development and Research Unit (SIDRU), is intended to improve the teaching skills of newly hired full-time instructors by requiring them to participate in the courses, which include, for example, the theory and practice of adult instruction, evaluation, program design, and instructional technology. SIAST also recognizes that there is room for its incumbent instructors to improve the quality of their teaching by offering professional developmental workshops on such topics as curriculum design and methods of evaluation, and by financially supporting instructors who continue their own professional education through its Professional Development Fund.

One of the key purposes of vocational education is to prepare students for work in a particular occupation or set of occupations (Achtenhagen & Grubb, 2001). This purpose is evident when one reads SIAST's mission, vision, and values statement.
To meet the employment needs of students, vocational teachers employ a variety of teaching methods whose complexity requires more research because they differ from academic instruction, according to Achtenhagen and Grubb (2001). The complexity must be understood in order, “to improve the way teachers carry out their instruction” (p. 632). The writers stated that teaching effectiveness research is needed because:

vocational instructors need greater mastery of pedagogy, of the alternative approaches to teaching, of the ability to teach those competencies (including the non-cognitive competencies like kinesthetic and visual abilities) necessary in particular occupations, and of the special demands of classrooms, workshops, and work-based settings. (p.632)

I believe that this study of the teaching effectiveness of technologies and trades instructors is needed in order to make a contribution to our understanding of teaching effectiveness within the Province’s publicly funded postsecondary vocational system.

Postsecondary vocational education has tended to take a back seat in funding and status to academic education (Achtenhagen & Grubb, 2001; Grubb & Byrd, 1999; Lewis, 1998; Lyons, Randhawa, & Paulson, 1991). My study provided an opportunity for the participating SIAST instructors to identify what they believed to be the key elements of teaching effectiveness in their teaching areas. It is my hope that the instructors’ participation in the study would be of benefit to them, individually, as they were asked to reflect on their own teaching. This reflection may sustain and perhaps, enhance their work as teachers. To this study, I bring the greatest respect for the instructors and their teaching.
Statement of the Research Problem

The purpose of this study was to investigate the nature of effective vocational teaching at the postsecondary level. I surveyed the technologies and trades instructors at the Kelsey and Wascana campuses in order to find out their definitions of effective teaching, and their views of the skills, knowledge, values, and attributes that they perceived are needed to be an effective instructor. I also wanted to determine if there were any significant differences in the instructors’ views of teaching effectiveness and attributes of effective instructors, with respect to teaching discipline, years of teaching experience, gender, age, and level of postsecondary education.

Research Questions

To guide the research study, the following questions were asked:

1. How do the technologies and trades instructors at SIAST Kelsey and Wascana campuses define effective teaching?
2. What are the skills, knowledge, values, and attributes do they perceived are needed to be an effective instructor in the technologies and trades?
3. What, if any, are the significant differences in instructors’ views of teaching effectiveness and the attributes of effective instructors by teaching discipline, years of teaching experience, gender, age, and level of postsecondary education?

Operational Definitions

I used the following terms and their definitions to help anchor the discussion.

Adult education. Adult education is a teaching-learning process in which “capable, experienced, reasonable, mature and balanced” (Rogers, 2002, p. 55) adult students participate for purposes of professional and personal growth (Rogers).
Attribute. An attribute is a personal and professional characteristic or quality.

Effective teaching. Effective teaching "is an art, and a science, and a craft, in which skilled professionals continuously make instructional decisions about both content and pedagogy for the purpose of optimizing student learning" (Ralph, 2003, p. 100).

"Simply put, we take teaching effectiveness to be the degree to which one has facilitated achievement of educational goals" (McKeachie, 1986, p. 274).

Knowledge. Knowledge is a theoretical and practical understanding of how processes function and structures fit together.

Learning. Learning "is an active process of knowledge construction and sense-making by the student" (Leinhardt, 1992, p. 23).

Skill. A skill is a cognitive, affective or manual ability to perform a task, which may improve with practice, encouragement, and guidance.

Teaching. Teaching is "the intentional arrangement of situations in which appropriate learning will occur" Menges's study (as cited in Menges & Austin, 2001, p. 1122).

Teaching "is not just a mechanical process and teachers are not made to a set recipe—a packet of this, a pinch of that... teaching is an event, a fusion of enthusiasm, of adaptability, of reacting on the spur of the moment" (Rogers, 2002, p. 216).

Technology. Technology is "the development and application of tools, machines, materials and processes that help solve human problems" (Wikipedia, n.d.).

Trade. A trade is "an occupation requiring manual or mechanical skill" (Merriam-Webster's Dictionary of Law, 1966).

Value. A value is a philosophical position that a person adheres to and that guides her/his actions.
Vocational education. Vocational education involves the acquisition and enhancement of occupationaly specific skills and knowledge, and the development of the student as a self-directed learner (Coe, 1973; Titmus, 1996).

Limitations of the Study

One limitation of the study is that results may not be generalizable other vocational instructors who work with students in other departments such as: dental hygiene, teacher assistant preparation, home care aide training, or rehabilitation work. A second limitation of the study is that the findings did not describe or evaluate the instructors’ day-to-day work in the classrooms, shops, or labs. A third limitation is that the results may not be generalizable to the technologies and trades instructors not only at the two other SIAST campuses, Palliser and Woodland, but to other similar instructors in other postsecondary vocational education institutions. A fourth limitation centres on the possibility that the nuances, which may be a part of each respondent’s definition of effective teaching may not have been identified by the researcher because of the subjective nature of interpreting qualitative data. A fifth limitation relates to being able to use only the data provided by respondents who volunteered to participate in the study. Their view many not be necessarily representative of the total population of SIAST instructors.

Delimitations of the Study

This study took into consideration the definitions and views on teaching effectiveness of the technologies and trades instructors at two of SIAST’s campuses, Kelsey and Wascana, only. I have delimited the study to the technologies and trades because these teaching and learning areas form the more traditional basis of vocational
education. Instructors from other program areas at the two campuses and all instructors from the Palliser and Woodland campuses were not included in this study.

Assumptions

This research study was based on the following assumptions. First, the respondents to the survey wrote honest and insightful definitions for the term effective teaching. Second, the survey respondents seriously considered and provided forthright answers to the closed form items. Third, each instructor who answered the survey thought of her/himself as an effective vocational instructor who strives to enthusiastically build a pedagogically informed and respectful environment that supports students’ learning and the development of their occupational skills, knowledge, and attitudes.

Significance of the Study

This study was the first formal study of teaching effectiveness at SIAST and as such may contribute to an understanding of the skills, knowledge, values, and attributes that are needed to be an effective vocational instructor. The study may increase the body of knowledge about what constitutes effective teaching in the technologies and trades. In turn, these contributions may have the potential to become part of the knowledge base upon which SIAST makes decisions regarding professional development opportunities for its instructional staff.

Outline of the Study

In Chapter 2 I provide a survey of the literature on teaching effectiveness by beginning with an explanation of the major themes in early teaching effectiveness research. The chapter contains sections on teaching effectiveness research in general, and in vocational education. I also examined principles of adult education, as well as the
elements and the attributes of teaching effectiveness. This chapter concludes with a synthesis of this literature in the form of a conceptual framework to guide the study.

Chapter 3 focuses on the research methodology that I employed for the study. I present the context and subjects of the study, the sampling method, the data collection instrument and procedures, the data analysis methods, and the ethical considerations required to conduct the study. Included in Chapter 3 is a discussion of the verification procedures that I employed.

In Chapter 4 I analyze the collected data by using descriptive statistics including the use of tables to show the results of cross tabulations and t-tests. I analyze the qualitative data by identifying the themes that emerged from the definitions of effective teaching and examine the respondents' comments with reference to the strength and weaknesses of the survey. The results of the focus group proceedings are disclosed.

Chapter 5 is devoted to a discussion of the conclusions of the quantitative and qualitative results. I connect the results to the research questions and the literature review. In the final section of the chapter, I offer several implications for teaching-practice and further research based on the study's findings.
CHAPTER TWO: LITERATURE REVIEW

Research on teaching effectiveness at the postsecondary vocational level continues to be in its formative stages despite the fact that research on instruction in adult education “has expanded rapidly” (Menges & Austin, 2001, p. 1122). In this literature review I focused on effective teaching in postsecondary vocational education; however, references have been made to the research that has been done on teaching at all levels. I have attempted to find meaningful and illuminating connections between the general research and vocational education. Despite what may sometimes seem to be tenuous links between the results of a particular inquiry and postsecondary vocational education, I argued that the links are real and hold some explanatory power.

In the first section of the chapter I provide a chronology of some of the major topics in teaching effectiveness research. The second part looks at the research into teaching in vocational education. I then outline some of the implications of the research for vocational teaching. I briefly discuss adult education in the next part. The next two sections focus on: (a) several of the key elements of teaching effectiveness and (b) the attributes of effective instructors that have emerged from this literature survey. I conclude the chapter with a conceptual framework of effective instruction in vocational education that I derived from this related research.

A Chronology of Major Topics in Teaching Effectiveness Research

In this section, I provide an overview of the main topics of the research from the 1940s through to the present, in part to see its development, and in part, to acknowledge the diversity and richness of this area of educational research.
Research topics from the 1940s to the early 1960s. In 1963 the first *Handbook of Research on Teaching* was published with N. L. Gage as its editor. It reviewed the research that focused on teaching in American elementary and secondary schools. Heavy as it is, the volume contains only one article on teaching at colleges and universities.

McKeachie (1963) examined a sampling of the teaching effectiveness research that had been conducted in the 1940s and 1950s. One of the focal points of the inquiries was to determine how variables such as teacher motivation and course organization affected student learning as measured by grades. Some of the findings that were uncovered were: (a) students who were motivated by hope tended to stay in the classroom longer during examinations as opposed to the students motivated by fear, and (b) “successful teachers” enabled “students to see meaningful problems” (p. 1119).

McKeachie reviewed the research on teaching methods e.g., lecturing, discussion groups, laboratory teaching, and student-centered learning including the use of projects to promote learning. Research results demonstrated that lectures, despite being generally one-way in communication, can assist students in developing a structure that may make it possible for them to understand the course content more clearly; that group discussions give learners the opportunity to see and formulate different points of view; that laboratory teaching presents students with “direct experience” (p. 1144) in working with materials; and that independent projects can promote learning as an ideal that continues long after one’s formal education is complete.

It is interesting to note that all of these teaching methods that McKeachie referred in his research review are utilized in vocational education. It is common in contemporary postsecondary vocational programs that lectures, independent projects, and discussion
groups are used frequently as a means of enhancing the learning process. It is my experience in vocational teaching that these methods are used regularly and frequently in small group settings, settings that McKeachie believed help to build a communicative and mutually respectful teaching-learning environment. One of the significant variables in studying discussions groups that McKeachie identified was group size.

Yet another aspect of the teaching effectiveness research that McKeachie assessed was “the role of faculty attitudes” (p. 1162) in promoting student learning. He accepted the idea that the strength of any teaching method depends on how competently the teacher employs a specific method as well as the enthusiasm displayed by the instructor while teaching.

McKeachie viewed enthusiasm as an element of the “satisfactions in teaching” (p. 1164) that he believed to be developed by cultivating close relations with students, which in turn are more readily nurtured in small classes. He wrote that, “enjoyment of teaching is important not only for the enthusiasm which the professor communicates to his student but also for his interest in continued improvement” (p. 1164). According to McKeachie’s review of the research, teachers, who take a personal interest in students and remain open to the questions, comments, and criticisms from them, are much more likely to improve their teaching (p. 1164). Years later, Brookfield (1990) took up a similar theme: open communication with students about what goes on in the classroom. He discussed the concept of “teaching responsively” (p. 30), a concept that encompasses the notion of teachers talking regularly and honestly with students about the teaching-learning process. It is important to note that McKeachie’s assessment of the research included the influence of contextual factors such as small class size, specific teaching skills’ effect on learning,
the effects of teachers’ attitudes toward students, and the development of enthusiasm toward learning.

Research topics of the 1960s to the early 1970s. Trent and Cohen (1973) along with their collaborator, Rose, reviewed the research on teaching in postsecondary education, with an emphasis on academic colleges and universities. Their literature reviews were divided into various topic areas such as “teaching environments” (p.1001), “teaching methods” (p. 1028), and “evaluation of teaching” (p. 1041). Each of these areas yielded specific results with respect to effective teaching.

With respect to teaching methods, Haines and McKeachie’s study (as cited in Trent & Cohen, 1973) proposed that competitive class discussions could be divisive and dissatisfying. Beach’s study (as cited in Trent & Cohen, 1973) concluded that small groups and self-directed experiential learning significantly enhance students’ understanding of the course content, increase their interest in the subject matter, and raise their level of satisfaction with the course.

Rose and Cohen’s research (as cited in Trent & Cohen, 1973) emphasized that in order for teaching to be evaluated accurately, a set of criteria to measure effectiveness was required as is the development and use of a tool to measure effectiveness. From their review of the research, the writers highlighted several effectiveness criteria: clarity, expressiveness, warmth, feedback, rapport with student, organization, and student growth, the latter generally measured by achievement tests. Having a set of criteria and evaluation tools and collected data, they believed that college and university teachers must be prepared to use the results of this assessment to improve teaching.
Recently, I asked the students of a professional cooking program what attributes do effective vocational instructors possess. They noted that encouragement, constructive criticism, mutual respect, and trust were key characteristics. These attributes were similar to a number of the effectiveness criteria that had been identified earlier by the researchers cited in the Second Handbook of Research and Teaching.

Having surveyed the teaching effectiveness research of this period, Trent and Cohen (1973) concluded that much research was still needed, and they identified several key areas of inquiry. Here are four of these areas: (a) the “interaction between the student and environmental characteristics” (p. 1056), (b) “clear criteria for judging teacher effectiveness” (p. 1041), (c) ways to assist student learning and encourage their commitment to lifelong learning, and (d) the relationship between a teacher’s concept of teaching and how effectively she/he implements the concept.

Research topics of the mid-1970s and the 1980s. In his assessment of early teacher effectiveness research, particularly that from the 1970s, Brophy (1992) viewed the body of research as having a focus on teachers’ behaviours and the interactions between students and teachers, and the effects of these interactions on student achievement as measured by standardized tests. He concluded that teachers do make a difference in student learning by skillfully organizing and managing classroom activities and by spending more of the available instructional time on “interactive lessons” and “teacher-student discourse” (p. 4). It is true that Brophy’s study of the research centered on the K-12 system; however, all of the literature referred to thus far, has emphasized that the skillful use of interactive teaching can deepen students’ understanding of the course material.
In reviewing the literature from the beginnings of teaching effectiveness research to the time of the publication of the third *Handbook of Research on Teaching*, Shulman (1986b) spoke of the research "as a Great Conversation, an ongoing dialogue among investigators committed to understanding and improving teaching" (p. 9). He noted that a major theme was that of process-product research: studying what teachers do, known as the teaching process, and what happens to students, viewed as the products of learning. Observable teaching skills such as questioning and presentation of lessons practiced within the classroom were analyzed. If students performed well on a standardized achievement tests, their teachers were deemed to be effective in their instruction.

The popularity of product-process research declined as its critics saw that educational goals beyond raising scores on written tests were not being studied and that there was an over-reliance on finding out what instructional methods worked, more than why they worked.

Small groups with the classroom, classrooms, and entire schools were the research sites of educational investigation. The qualitative work of Gertz (as cited in Shulman, 1986b), with its emphasis on very dense descriptions of life in schools, was the method that guided this research. For example, here, researchers attempted to describe the life of the classroom in order to understand teaching and learning from the perspective of both instructors and students.

Another research focus was to study students' "thought processes before, during, and after teaching" (Shulman, 1986b, p. 23) in order to find out what specific teaching skills and knowledge facilitate student learning. Shulman broke down the knowledge that effective teachers need into three categories: (a) content knowledge, which meant
having a firm grasp of the subject material that is being taught; (b) pedagogical knowledge, which connoted having the insight into how students learn, understand, and even forget specific subject material; and (c) curricular knowledge, which signified having the insight into "the ways in which knowledge is organized and packaged for instruction" (p. 26). In his later work Shulman referred to pedagogical knowledge as "pedagogical content knowledge" (Shulman & Shulman, 2004, p. 262). In its simplest form this latter concept referred to "understanding the subject matter" and "comprehending the pedagogical principles and being capable of ...implementing them" (p. 262). Furthermore, Shulman and Sherin (2004) stated that an important "factor influencing the effectiveness of teaching...is the teacher's own subject matter knowledge and pedagogical content knowledge" (p. 136).

In reviewing the research on teaching effectiveness of the 1970s and mid-1980s, Dunkin and Barnes (1986) identified several areas of teaching that were being researched. One subject of inquiry was the "determinants of teaching" (p. 755), which included variables like teachers' and students' attributes such as gender and class. Another topic was the effect of "student participation, student-to-student interaction, and teacher encouragement" (p. 766) on students' ability to think critically. Smith (as cited in Dunkin & Barnes, 1986) found that these elements of what transpired in the classroom "correlated positively" (p. 766) with students' critical thinking development; Foster (as cited in Dunkin & Barnes) found that the effects of these classroom dynamics to be "minimal" (p. 766). The research of this time continued to show that clarity in teaching had a positive effect on student achievement.
Dunkin and Barnes (1986) noted another key area of teaching effectiveness research that needed to be investigated and that area was "the roles played by the teachers' beliefs, values, and attitudes toward teaching and learning" (p. 774).

In his assessment of the teaching effectiveness research in the 1980s Brophy (1992) claimed that it focused on how to improve the methods of teaching content in order that students will understand the subject and make use of the knowledge. Brophy stated:

Current research focuses on attempts to teach both the individual elements in a network of related content and the connections among them, to the point that students can explain the information in their own words and can use it appropriately in and out of school. (p. 5)

In addition to "the vital role teachers play in stimulating student learning" (p. 5), as a subject of research, "the role of the student" (p. 5) in creating knowledge was being studied.

Research issues of the 1990s. From his perspective Shulman in an interview with Brandt (1992) spoke about two important areas of research that were prominent at the time: first, "we're seeing more detailed case studies of teaching" (p. 16), and second, "is that more and more researchers are beginning to treat their own teaching as a proper object of research" (p. 17). Shulman referred to the case studies as "stories about teaching" (p. 17). With reference to the importance of stories Jalongo (1992) wrote, "stories about teaching enable us to organize, articulate, and communicate what we believe about teaching, and to reveal, in a narrative style, what we have become as
educators” (p. 69). These stories are important both as sources of pedagogical insight and of inspiration and support for teachers.

Menges and Austin (2001) reviewed the teaching effectiveness research in higher education of the 1990s. They noted how there were considerably more studies for this level of education, and that the growth had begun in the mid-1980s. One topic of investigation, the two writers explained, was that “faculty knowledge about teaching is beginning to receive research attention, drawing on Shulman’s (1986) distinctions between pedagogical knowledge and pedagogical content knowledge” (p. 1125).

A second object of inquiry was “standards that are pertinent to assessing faculty work” (Menges & Austin, 2001, p. 1129). With respect to this topic they cited the study of Glassick, Huber and Maeroff as an important one in assisting university and college faculty “to think more clearly about faculty work” (Menges & Austin, 2001, p. 1129).

A third research topic centered on student learning with respect to the use of small groups, such as discussions and tutorials. This method of promoting learning in higher education, according to Menges and Austin (2001) “has increased in popularity more that any other college teaching innovation” (p. 1140). Clarke (as cited in Menges & Austin) noted that students valued having the opportunity to discuss the course material in class.

Other research topics that were prominent in the 1990s were: (a) the “dimensions of effective teaching” (Menges & Austin, 2001, p. 1143) as identified through the analysis of student ratings of teaching, (b) formative evaluation methods “that help students develop as learners” (p. 1144), and (c), the impact of “learning environments” (p. 1146) on student learning. With respect to the aspects of teaching that are valued highly by students, Feldman’s research (1997) was noteworthy as it identified “eight
instructional dimensions” (p. 375) such as “rapport”, “interaction”, and
“interest/motivation” (p. 375) as being important from the point of view of students.

There were other research topics that were being studied in the 1990s. For example, Perry (1997) discussed the teaching methods that would be the most efficacious in promoting the “self worth” (p. 161) of students and their “internal locus of control” (p. 164). One such method was that of “organizing content” (p. 162) in ways that encourage learners to see how the various parts of what is being lectured on, and discussed in class and in text, are related to each other. A second example was the work of Murray (1997) who stated that teachers “not only influence students’ learning, but more importantly, influence student motivation for further learning “(p. 174).

Current research topics. McArdle and Coutts (2003) wrote about the development of “the core qualities” (p. 236) that they believe make up the effective teacher. Instead of effective teacher, they use the term “good teacher” (p. 228), a term also used by Hare (1993). From their research and work in the areas of teacher education and “continuing professional development” (p. 224), they identified the five key qualities as being: “a sense of strength”, “confidence”, “balance”, “ballast” (being, “well grounded’), and “value maturity”—“a sense of one’s deeply held (and tested over time) beliefs” (p. 231). Furthermore, McArdle and Coutts claimed that teachers who have and work on developing these qualities “are able to manipulate or contextualise knowledge to make it relevant or interesting for learners” (p. 228).

In a study of teachers in Cyprus, Kyriakides, Demetriou, and Charalambous (2006) used 42 criteria from teaching effectiveness research to create seven models by which the teachers could be assessed for their effectiveness. One finding from the study
was that teachers wanted to be involved with creating these criteria and models of evaluating instructional effectiveness. In addition, the study showed that the ability to organize the classroom was an important aspect of effective teaching.

Van Grinsven and Tillema (2006) studied the use of "different instructional formats" (p. 78) in order to promote student learning. Their research took place in Dutch secondary vocational schools. They reported that, "students feel most supported by a teacher in the instructional formats that focus explicitly on the process of learning to learn" (p. 88). I included this study of teaching effectiveness both as an example of the kind of teaching effectiveness research that is being carried out currently, and as an example from vocational education.

Teaching Effectiveness Research in Vocational Education

Achtenhagen and Grubb (2001) asserted that vocational education makes use of a varied composite of teaching methods, for example, demonstrations, lab/shop floor simulations, lectures, and modeling of employment practices, such as co-operation and respect for others and their work. Furthermore, they suggested, "the potential richness and complexity of vocational education have not been matched by comparable attention to teaching and learning" (p. 605).

The research literature examined in the previous section has described, primarily, teaching effectiveness as it relates to academic teaching at the primary, secondary, and academic college and university levels. By comparison with other teaching effectiveness research, little work has been done on teaching effectiveness in postsecondary vocational settings. Part of the reason for this gap in educational research may be found in Schefller's (1995b) perspective on vocational knowledge as compared to knowledge that
has been amassed and written about with respect to the more academic professions. Scheffler affirmed, “What differentiates the crafts and trades, relatively, from the professions is the comparative isolation from one another of their respective lores and the relative paucity of theoretical explanations of their distinctive procedures and practices” (p. 55).

What this statement implies is that vocational knowledge typically lacks a strong theoretical base because its history has not yet been well documented and examined, and the skills and knowledge that form the core of a particular trade or craft, such as cooking, carpentry, or machining, are lacking an explanatory focus.

Another reason for this lack of teaching effectiveness research in vocational education was identified by reading Lewis (1998). He argued that historically, academic knowledge has been treated as “high-status knowledge” as opposed to vocational knowledge, which has been thought of as “low-status knowledge” (p. 284). Lyons, Randhawa and Paulson (1991) placed this view of the stature of vocational education into a national context when they wrote, “Canadians have historically considered vocational education as preparation for second-class citizenship” (p. 137). Following this perspective, Apple (1998) argued for an equalization of status, “...I’m in fundamental agreement with the position that wants to equalize relations between what traditionally have been seen as high-status (academic) and low-status (vocational) knowledge...” (p. 351).

One example of research on teaching in vocational postsecondary settings was the work on Grubb and Byrd (1999) who focused on the teaching done by vocational instructors in several American community colleges. They concluded that:
Occupational teaching is rich and complex. It incorporates a greater variety of competencies than academic instruction, and it takes place in more varied settings, including workshops with a bewildering variety of activities as well as classrooms, workplaces as well as colleges. Instructors must serve employers as well as students, and sometimes the job demands are powerful. (p. 137)

The researchers pointed out that many vocational instructors strive to meet the employment, academic, and personal needs at the same time as they work to satisfy the employers’ pressing needs for skilled workers.

Grubb and Byrd’s work was part of a larger qualitative study of teaching in community colleges (Grubb et al., 1999). The general objective of this study was to describe the work of instructors at this level of the American educational system.

In a qualitative study of postsecondary vocational teachers in England and “their perceptions of the role and work in preparing their learners for employment” (p. 183), Robson, Bailey, and Larkin (2004) reported that the teachers placed considerable importance on working with students “to ensure conscientious, professional workers” (p. 190) who take pride in their occupations. In addition to this finding, Robson et al. wrote that the instructors were very willing to share their knowledge and experience with students and that they displayed a “commitment and care for others” (p. 189).

Deil-Amin (2006) studied the views of teachers at U.S. community colleges and private occupational colleges with respect to their views on the need and importance of teaching “social” skills. She referred to clear communication, co-operation, and punctuality as examples of social skills. In Canada, we might refer to these skills as employability skills. She reported that the teachers in the private occupational colleges
taught these skills explicitly and valued the inclusion of teaching of them in their curricula more highly that the teachers in the community colleges. Deil-Amin stated “that teaching students social skills and expectations is a project in expanding their cultural repertoire, thereby increasing their economic mobility that they seek through schooling” (p.398).

*Implications for Research on Teaching Effectiveness in Vocational Education*

The implications of all of this research for instruction in the field of vocational education are (a) the gaps in the research are large and need to be addressed, (b) a variety of methods of inquiry are required, and (c) the work of previous researchers have pointed contemporary researchers of the field to possible inquiry themes and sites.

Returning momentarily to McKeachie’s (1963) earlier work, I note that an early research theme in college education teaching was on motivation. McKeachie dealt with the following research questions: What methods motivate students to prepare for examinations? What kinds of personal relationships between students and teachers point toward higher scores on exams and the development of a yearning for more learning? Do small group discussions inhibit or motivate students to openly express their views on specific questions? Does the kind of teaching method affect students’ learning?

Although effective teaching inquiry was in its formative stages when McKeachie was writing his overview article of higher education teaching, these types of research questions were being posed and reported upon. With respect to teaching effectiveness research in postsecondary vocational settings, the above-noted questions need to be refined then, investigated in order to broaden and deepen our knowledge of this field.
In a similar vein, the early research of Trent and Cohen (1973) focused on themes such as the development of criteria to measure teaching effectiveness, teaching methods that promote lifelong learning, instructors' conceptions of effective teaching, the effects of classroom environments on student learning, and the prominence of instructor attributes such as warmth in creating a supportive learning atmosphere.

Because the research projects noted by these writers centered on higher education, it has particular relevance for teaching in vocational institutions. There are many questions that have not been researched in this sphere of education. Examples of these questions are: do trades instructors who display a caring and attentive attitude toward students contribute to their academic success? Are there differences in the level of satisfaction with a course if an instructor has demonstrated personal warmth toward the learners? In shop settings do students who work with instructors who are organized and who clearly demonstrate technical skills achieve higher scores on practical evaluations? What are the elements of effective vocational teaching? What attributes do effective vocational instructors bring to their teaching-learning settings, be it classrooms, shops, labs, or simulated work situations? These questions may further guide some research projects and contribute to our understanding of both teaching and learning in vocational education.

Shulman concentrated on the research on teaching of K-12 pupils; however, his research perspective provides direction for inquiry into teaching vocational subjects at the postsecondary level. If one uses Shulman’s view of research as a starting point, what areas of effective vocational teaching require critical examination? One such sphere of
inquiry is that of determining what skills, knowledge, values and attributes influence effectiveness in vocational teaching in postsecondary settings.

If one considers interactive teaching in the demonstration and practice of manual skills, what would Shulman’s perspective reveal about it? Shulman made the point that the manner by which teachers provide instruction affects students both academically and socially. An example of this interactive teaching might be a cooking instructor demonstrating the safe and efficient use of a chef’s knife in cutting vegetables and then having the students practise what they observed. Using Shulman’s perspective, one could propose a research project that observes the instructor demonstrating the skills and the students practising with a view to determining the nature of the interaction between the teacher and learners. Was the instructor enthusiastic in her description of what she was demonstrating? Were the main skills, the actual cutting of the vegetables into various shapes, broken down into sub-skills (such as the comfortable positioning of the hand on the knife) readily identified and learned by the students? Did the learners have sufficient time to practise the skills? Did the instructor use a respectful voice when giving feedback to the students during their practising of the skill? What did they think while they were observing the demonstration and during their practising of the skills? These are just a few of the research questions that could be investigated in order to extend the knowledge of vocational education, particularly in postsecondary settings.

*Adult Education*

Knowles (as cited in Selman, Cooke, Selman & Dampier, 1998) understood adult education to be a group of activities or programs in which adult students are engaged for the purpose of learning. Learning can be in both formal and informal settings, and can be
directed toward several objectives, for example, vocational objectives as in the acquisition of job skills, social objectives as in the development of citizenship, and recreational objectives as in the enhancement of artistic expression (Selman et al.).

Tight (2002) viewed adult education as a process involving learners who are of an age and have responsibilities associated with that age, and who are part of the process for the purpose of learning in order to fulfill these responsibilities. In contrast, to primary or secondary school education, adult education includes more “negotiation, recognition of experience and a greater degree of partnership between the learner and teacher” (p.29).

For Brookfield (1996) adult education involved “critical reflection” (p.891), which entails thinking critically about “the assumptions and perspectives about knowledge and social processes learned uncritically in childhood and adolescence” (p.891). Brookfield believed that both students and teachers are morally equal partners in the enterprise of critical reflection.

To an extent Rogers (2003) agreed with Tight and Brookfield with respect to the idea of equality between students and teachers. He wrote that in adult education in Western societies, there are “more equal power relationships between the teacher and the student learners” (p. 66). Rogers explained that adults’ and children’s learning programs are not significantly different with respect to “assisting and guiding, learning, of promoting and facilitating learning” (p. 49). The difference from his perspective centered on how students construct themselves “both as adults and students” (p. 68), and how teachers view students “both as adults and students.” For Rogers (2002), what marked adult education as such, is the idea that it treats “the student participants as adults—capable, experienced, reasonable, mature, and balanced people” (p.55).
Rogers (2002) explained his meaning of adult teaching effectiveness; however, he used the phrase, “a good teacher of adults” (p. 225). He wrote that this good teacher shows support toward students by working to meet their learning needs, is enthusiastic about the subject being taught, has an understanding of the philosophy of adult education, strives to develop instructional skills and attitudes, and has “a measure of self-confidence and self-respect based on a belief in our own competence—a feeling that will quickly communicate itself to the student-learners” (p.226).

Elements of Teaching Effectiveness

In this section, I discuss two elements of teaching effectiveness in vocational education, values and purposes. Values form the foundation of an instructor’s educational philosophy. Purposes refer to the fundamental goals of vocational education.

Values. When speaking of values that make for effective teaching, I understand these values to be the philosophical positions that inform, sustain, and drive the efforts of teachers. There will be both agreement and debate on the fundamental values that support and guide the teaching enterprise. However, Brookfield (1990) stated that all teachers must develop “a personal vision of teaching” (p. 15) in order to become skilled in the widest sense of the word, at providing instruction and supporting students in their learning quest. Smyth (as cited in Brookfield, 1990) wrote that all teachers must “develop a critical rationale...a set of values, beliefs, and convictions about the essential forms and fundamental purposes of teaching” (p. 15). Without this core set of values, teachers will not have a set of beliefs that can guide their actions and feelings as they plan curriculum and daily activities, as they present the subject matter, and as they come into personal
education or training experience designed to help people to enter, advance in, retain or change employment, should be considered vocational education” (p. 15). Engeström (1994) identified this kind of education, training, as it is “aimed at particular skills and competencies” for “the production of a labour force for the various branches of the economy” (p. 5). Occupational training forms the dominant theme of the instrumental vocationalists’ view.

Although they do not dispute the necessity of a job skill focus, liberal educators push for a civic component to the employment-readiness programs (Shoemaker, 1973). Civic education strives to prepare students to act as responsible citizens who participate in the social, cultural, and political life of their communities. Further to the point, Olivo (1973) advanced the idea that the purpose of vocational education is not only restricted to the preparation of students for employment but also to promote the development of:

ancillary skills as required of all individuals to live personally, as a member of a family, as a consumer and a citizen. Vocational education curricula must include realistic general education requirements attuned to the needs for the individual and his intellectual capacity. (p. 128)

Olivo apparently believed that vocational education ought to have strong academic and social development aspects to it in order that vocational students are given the tools with which to fully participate in community life.

Another distinctly liberal perspective is that vocational education should bring together the purposes of employment preparation and personal satisfaction. Concepts such as self-fulfillment, autonomy, self-realization, and self-exploration are considered central to the discussion of the intentions of vocational education because these concepts
address the issues of potential employees’ job satisfaction and economic independence or minimally, financial stability (Burke, 1994; Pucel, 1990). Winch (2000) argued that vocational education must emphasize the pursuit of “a satisfying occupation” (p. 31). Having an occupation is vital, but the work itself must be “a worthwhile experience” (p. 31).

The critical theorists have also studied vocational education. They asserted that vocational education should be valued as highly as general education that seems to focus on academic knowledge (Apple, 1998; Lewis, 1998). At the postsecondary level, vocational education should build an environment in which students and teachers not only develop job-related skills, knowledge, and values, but also question them by asking in whose interest are these aspects of education being taught and learned (Gaskell, 1993). Questions and issues centering on feminism, the purposes of technology, and workplace hierarchies should be essential elements of the curricula, teaching, and learning. Jackson (1993) stated, “I want to point toward a restructured vision of the ‘vocational’, not only as a domain of educational action but as an important site of cultural transformation and political struggle” (p. 167). To some educators these words are strong and highly politicized and are intended for all who are involved with the planning, delivery, and development of vocational education programs.

Scheffler (1995b) has written about the purposes of vocational education programs. He asserted that vocational education has two key responsibilities: first, to provide the conditions in which students learn key specific job skill, and second, to encourage the development of workers who strive to understand their workplaces and communities in order to make them safer, more humane, and more just. Scheffler wrote:
Education is, however, charged not only with promoting the survival of the individual but also with the pursuit of the social good. This requires the commitment to the critique of extant social values and their amelioration. And this in turns requires taking an ideal view of vocations—a view that assimilates them to the ideal values of education—as well as a short-term view, defining vocations by the current market demands. (p. 46)

Dewey (1916/1966) devoted a significant part of his book, *Democracy and Education*, to an articulation of his philosophy of vocational education. His views influenced many of the critical theorists, including Scheffler (1995a), who both admired and critically reviewed Dewey’s philosophy in a chapter entitled, *John Dewey on Work and Education*. When Dewey (1916/1966) wrote about a vocation, he referred to it is an occupation or cluster of projects that give direction to a person’s life, and that are of special significance to the person, his/her family, and fellow employees. Dewey turned the reader’s attention to this key aspect of a vocation: its personal and social importance. Jobs and occupations are not just for satisfying individual needs, but also for meeting the needs of others, including family and community.

Continuing on, Dewey stated, “an occupation is a continuous activity having a purpose” (p. 309). In part, this purpose was to make the person who is engaged in the occupation into a productive and reflective citizen. Vocational education’s role is to ensure that it goes beyond trade or technical education whose intention is solely to improve the industrial process.
Dewey was an advocate for that advancement of general education with a strong vocational component for all students. In order to reach beyond job training, he believed that vocational education must have as social change as one of its aims. Dewey wrote:

Put in concrete terms, there is a danger that vocational education will be interpreted in theory and practice as trade education: as a means of securing technical efficiency in specialized future pursuits. Education would then become an instrument for perpetuating unchanged the existing industrial order of society, instead of operating as a means of its transformation. (p. 316)

He also defined the term, transformation as meaning the betterment of society being brought about, in part, by every person having an occupation that contributes to bringing society together. Dewey believed that the core of vocational education was the provision for every student with experiences "to bring the future worker in to touch with the problems of the day and the various methods for its improvement" (p. 318).

One sees that Gaskell (1993), Jackson (1993), and Scheffler (1995a; 1995b), agreed with Dewey's view on the purposes of vocational education. An aspect of that view is that postsecondary vocational programs must extend beyond job skill development and reach into areas of education that give voice to a critique of society. A second aspect is that the solutions to change and improve the conditions of work and community life would emerge from these critical reflections.

In sum, Brookfield (1990) and Hare (1993) stated that the basis for effective or skilled teaching was having a well-thought out philosophy of education. In vocational education, the purposes for teaching the skills and knowledge of the occupation formed
an essential part of an articulated plan for instructors. There were divergent views on the core purposes of adult vocational education, ranging from job preparation, to personal development, and to social development. I will next discuss the attributes or qualities of effective instructors.

Attributes of Effective Instructors

What marks a teacher as being effective at her/his work? What are the essential characteristics of vocational instructors who are recognized as being skilled in their classroom, shop, and lab teaching? Questions surrounding teacher attributes have guided some of the research in teaching effectiveness for some sixty years.

Creating a supportive learning environment. Noddings (2001) spoke of caring as being not only an attitude of the teacher toward the student but also as a relationship between teacher and student. She wrote, “The word caring can, of course, be used to refer to an attitude, but it can also be used to describe a relation or to point to something far deeper and more important—a way of being in the world” (p.100). Caring teachers demonstrate that “more or less regularly” they want the best for their students, and “they listen to students and respect their legitimate interests but they also share their wisdom with students” (p. 101). Caring, then, is not a paternalistic frame of mind, but one of being open to students by responding to their personal and academic needs and by sharing aspects of themselves as teachers.

Hare (1993) asserted that, “the caring teacher, we can say, is anxious for the student to develop as a student and person” (p. 111). He suggested that at the foundation of this genuine interest in a student’s overall development is a respect for students as
sentient and independent thinking persons who have the potential for “autonomous and critical reflection” (p. 111).

Creating the right emotional environment is a predominant construct that emerges from the research of Wall, Nardi, Von Minden, and Hoffman (2002). These researchers designed a study to measure the conceptions of effective and ineffective teaching across the “teaching-experience continuum” (p. 1). Although they used other variables, namely, teacher skill, teacher motivation, student participation, and rules and grades in the research project, the emotional environment stood out as the variable, which prospective, novice, and experienced teachers wrote about the most in their responses to being asked what makes for effective teaching. “Warm, friendly, and caring” (p. 4) were descriptors of effective teachers that emerged from this research study.

Brookfield (1990) claimed that the basis for a supportive learning milieu is “trust between teachers and students” which “is the affective glue binding the educational relationship together” (p. 163). He noted the significance for teachers on a regular basis to validate “a student’s sense of worth” (p. 58) as one of the paths of learning and building trust with students. For Brookfield, a way of doing this validation was for teachers to reveal aspects of themselves that is genuine and honest. However, the corollary of this action is for teachers to be open to students’ emotional responses to learning, even when they become messy and at times, antagonistic towards the teachers.

Ralph (1998) explained that in order to motivate students to learn, effective teachers must “develop positive relationships” (p. 2) with students and build “a positive teaching/learning climate” (p. 29) by being respectful of students, approachable, fair, and
trustworthy. By creating a positive learning and teaching environment, both teachers and students will thrive academically, emotionally, and professionally.

In a small study of faculty members of a vocational institute, I found that being caring, kind, approachable, and patient formed a group of attributes identified as being important to effective instruction (Rohatynsky, 2003). The study’s results corroborated those found in the literature on the significance of these characteristics in creating a supportive learning environment.

Fostering learning. An appreciation for learning and the motivation to continue to learn have been two goals of effective teaching that are cited by educational policy makers, classroom teachers, and educational writers. Concepts such as recurrent education, lifelong education, and continuing education have been in adult education to show that learning does not end when the learner completes the formal learning situation, but it continues for a variety of reasons throughout one’s life (Selman, Cooke, Selman, & Dampier, 1998; Sutton, 1996; Titmus, 1996). Sutton (1996) believed that one of the fundamental objectives of lifelong education is the “promotion in learners of the personal characteristics required for subsequent lifelong learning” (p. 29). Effective teaching, then, is not limited to a series of actions carried out by teachers to ensure that essential, but insufficient, educational objectives are met; effective teaching promotes lifelong learning.

Cross (1981) wrote:

I believe that the single most important goal for educators at all levels and in all agencies of the learning society is the development of lifelong learners who possess the basic skills of learning plus the motivation to pursue a variety of learning interests throughout their lives (p. 249).
Cross believed that an educator’s role is to motivate learners to immerse themselves in learning situations that will develop them personally in whatever capacity they are in as worker, family member, or citizen. One element of teaching effectiveness is the ability to encourage students to become engaged in learning events that stretch their imaginations, and to turn them on to the rich and exciting possibilities that learning can create. Hare (1993) agreed with this point because he noted that teachers must commit themselves to continue on the road of learning and to “encourage others in the same direction” (p. 45).

Brookfield (1990) proposed that by challenging students to learn and working with them to surmount the difficulties in learning, teachers can help create “an appreciation for learning and a desire to keep learning” (p. 48). For Brookfield, who used the term, the “skillful teacher”, an effective educator moves with her/his students in the teaching process to achieve the cognitive and/or vocational goals of a class, and equally important, to develop that sense of excitement for learning in the moment and in the future.

For Brookfield (1990) fostering learning also included learning on the part of teachers. This very theme of teacher learning was taken up by Shulman (2002) when he proposed that his “table of learning” (p. 37), which included such constructs as “engagement and motivation” and “reflection and critique” (p. 37), can “serve as a model for faculty development across the career, reminding us that all education is continuing education” (p. 43).

Dewey (1938/1963) spoke of learning experiences that have more than immediate academic worth as being examples of “collateral learning”: the kind of learning that
forms “enduring attitudes” (p. 48). Dewey explained that, “the most important attitude that can be formed is that of desire to go on learning” (p. 48). Without using the term, “effective teaching”, he suggested that one of its crucial aspects is the notion of building into teaching situations a recognition that learning is a trajectory, the path of which is not always known, yet full of amazement and wonder.

Encouraging learning as an educational goal was noted by McKeachie (1963, 1986) when he wrote, “we can teach students to enjoy learning for its own sake” (1963, p. 1122). He noted this point in the context of teaching, which provides for students being given teacher feedback while practising a skill and in solving problems that are challenging yet within their abilities.

According to Brophy (1992), the focus of teaching effectiveness research in the early 1990s shifted from the role of teaching in raising student achievement to the role of teaching in encouraging an appreciation of and an excitement for learning. Effective teachers inspire students to “engage in self-regulated learning” and collaborate with them to construct “a learning community where dialogue promotes understanding” (p. 6).

*Being reflective.* Beck and Kosnik (2002) argued that teachers must be reflective in their teaching even when they are acting on the spur on the moment in order that they “make the adjustment required of attentive teaching” (p. 217). From their perspective teaching is a process that demands that instructors think about their teaching all of the time in order to be effective in the classroom.

For Conzemius and O’Neill (2002) using qualitative, quantitative, and intuitive data for reflection gives “teachers a powerful and much needed feedback mechanism that furthers their feelings of efficacy” (p. 47). In addition, this thinking about one’s teaching
through a variety of feedback mechanisms motivates teachers to give constructive
guidance to students who may be motivated to think about their own learning.

Brookfield (1996) spoke of critical reflection in adult education as a “negotiation
between moral equals with unhampered access to necessary knowledge” (p. 892) or a
“collaborative probing into experience” (p. 892) by teachers and students whose purpose
is to communicate on an equal footing. For Brookfield (1990), critical reflection has both
political and educational purposes. The political purpose is to encourage students and
teachers to think about the power relationships that exist in the classroom, in families, on
the shop floor, and in the community; and also to begin to question those power
inequalities.

Brookfield (1990) wrote that, “critically responsive teaching” promotes in
students “a critically alert, questioning, cast of mind” (p. 24) and in teachers a sense of
the difficulties and hurdles that students must face in their lives. Critically reflecting on
one’s teaching by asking students how they experience learning can improve one’s
instructional practices. He suggested that teachers ask students to keep track of the highs
and lows of their learning experiences and submit them anonymously as “learning
journals” (p.31) to their instructors. From these journals, teachers could enter into the
thinking and feeling of students in order to grasp more accurately how students perceive
the instruction they receive and how to improve it as the need arises.

McKeachie (1986) claimed that observation of student behaviour in class,
conferences with individual or small groups of students, and the comments of colleagues
who observe each other’s teaching, are valuable sources of data for reflection to enhance
one’s teaching effectiveness. Following a similar line of thinking Ralph (2003)
emphasized that instructors who “engage in professional reflection and self-evaluation” exhibit a strong “desire to improve” their teaching (p. 103).

*Being knowledgeable.* Ralph (2003) and Shulman (1986b) spoke about three kinds of content knowledge that effective teachers utilize. These knowledge areas develop as teachers gain experience, engage in critical reflection, and participate in professional development activities. The three kinds of content knowledge are: “subject matter knowledge, pedagogical knowledge, and curricular knowledge” (Shulman, p.26). Shulman understood subject matter knowledge as understanding the subject as a specialist would; pedagogical knowledge as understanding how the topics of a subject are comprehended and learned by students; curricular knowledge as understanding how the material is organized and managed for instructional purposes. Ralph explained these kinds of knowledge as: “knowledge of the material” (p. 101); knowledge of instructional skills; and knowledge of the subject from a teaching and learning perspective in order to assist students get through difficult areas of the curriculum. Both writers agreed that effective educators posses knowledge that extends beyond content and the application of teaching skills.

With reference to vocational education Achtenhagen and Grubb (2001) wrote that one of the greatest needs is for vocational instructors to have a “greater mastery of pedagogy” (p.632). Most vocational instructors come with rich and varied experiences in learning and in using the subject matter of the technology or trade. It is the other kinds of knowledge noted above that are generally lacking in vocational education.

Dewey (1938/1963) spoke about the need for educators to know how to organize experiences that will develop learners’ skills and knowledge and transfer them to future
learning situations. He wrote that individuals learn from their experiences: "What he has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with situations which follow. The process goes on as long as life and learning continue" (p. 44). Indeed, it is an effective vocational instructor that can provide dynamic learning experiences for her/his students who will transfer the effects to future learning contexts.

In reviewing the effective teaching research literature, Brophy (1992) identified that effective teachers were skilled and knowledgeable in the organization of “interactive lessons”, in the promotion of “teacher-student discourse”, and in creating “a social environment that could be described as a learning community where dialogue promotes understanding” (p.6). Beck and Kosnik (2002) and Roth, Lawless, and Masciotra (2002) noted that effective educators cultivate student-teacher conversations. To be able to conduct instruction along these lines, a teacher must have, in part, a sophisticated knowledge of the subject matter and teaching, as well as the students with whom they co-exist.

Porter and Brophy (1988) proposed that effective teachers are thoroughly familiar with using instructional materials, employing adaptive instruction techniques, and teaching “metacognitive strategies” (p. 75) whereby students learn how to process information, make sense of it, and solve problems using the information.

The application of specific teaching skills presupposes an understanding of effective instructional practices. These skills include lesson planning, lecturing, direct instruction, interactive teaching, and demonstrating. These teaching techniques have been discussed by a number of writers (Brookfield, 1990; McKeachie, 1986; Muijs &
Reynolds, 2001; Porter & Brophy, 1988; Ralph, 1998). Although knowing how to employ these skills is only one element of teaching effectiveness, it is fundamental to ensuring that resources such as students’ time and educational dollars are used wisely. Effective use of these skills can also be motivators for student learning (Ralph, 1998).

*Teaching from the heart.* Many students have sat in on a lecture, been involved in a classroom discussion, viewed a demonstration of a vocational skill, or participated in an artistic exercise and have been with impressed someone who teaches with a genuine energy. Teaching with enthusiasm motivates students to keep up with their studies despite difficulties. Hare (1993) wrote that, “enthusiasm is a vital quality in teachers” (p. 126) because it encourages students to take an interest in learning the material and in learning as a general state of being. In their research study of the characteristics of effective teachers, Wall, Nardi, Von Minden, and Hoffman (2002) found that enthusiasm is an important attribute because it motivated students to learn and teachers to continue to care about teaching. Gusthart and Harrison (2003) noted that enthusiasm was one of the key factors identified by students in rating the quality of their educational experiences.

However, enthusiasm is but one element of teaching from the heart. Brookfield (1990) referred to this way of instructing as “teaching responsively” (p.30). For him teaching moves from the skillful use of pedagogical skills towards teaching with an openness of heart and soul to the students and their learning needs. Teaching is being in tune with the “rhythms of learning” (p. 58) with its shares of learning highs and lows. In his view, the instructor strives to see teaching from a student’s perspective, thereby becoming an ally of the students on the learning path. A disservice would be done to Brookfield if I interpreted his view of teaching as just as an emotional tie with students.
He clearly stated that teaching is also about making decisions and judgments. He asserted, “Making these judgments—sometimes rightly, sometimes wrongly—is the essence of teaching, and no generic model of practice will allow you to abdicate this responsibility” (p. 197). It is a teacher’s responsibility is to work with students in as collaborative fashion as possible in order to foster their learning and our understanding of effective teaching.

For Palmer (1998) teaching came from within the teacher, and he stated, “Teaching, like any truly human activity, emerges from one’s inwardness, for better or worse” (p. 2). For a teacher to become a good teacher, the person must be prepared to look inside and know her or himself. By knowing oneself, understanding the subject matter, and being committed to students, a teacher moves from an emphasis on the mastery of the instructional techniques to a focus on teaching from the heart (p. 11).

Maxine Greene (2001) wrote, “For me, the teacher must communicate a kind of passion—a consciousness of risk and possibility—no matter how much blankness, disinterest, or difference of opinion is expressed by others” (p. 85). Teaching imposes many challenges on teachers, yet at the same time, in the course of meeting the challenges, exciting changes will likely occur both with the students and teachers. To reduce those impediments, teachers must go about their work with the passion, the élan, and the commitment that effective artisans employ.

**Conceptual Framework for Effective Instruction in Vocational Education**

From this literature survey I have synthesized what I believe to be the central elements of teaching effectiveness and formed a conceptual framework for thinking about effective instruction in adult vocational education. The elements that I selected were
based on my interpretation of the key features of effective teaching; however, they do not form a complete list. Some of the prominent aspects, such as teacher enthusiasm (McKeachie, 1963) appeared early in the research literature and continued (Gusthart & Harrison, 2003). Other features, such as teaching knowledge (Shulman, 1986b; Shulman & Shulman, 2004), appeared later. This framework shown in Figure 1 provides direction for the research methods that I employed to gather and interpret that data in this thesis.
The Key Teaching Skills
Organizing classroom/lab activities;
Using questions for clarification purposes;
Communicating clearly;
Encouraging discussion;
Responding appropriately;
Developing learning structures that promote learning;
Managing the classroom/lab to promote learning.

The Essential Knowledge
Subject or content knowledge;
Adult education principles;
Knowledge of teaching methods;
Knowledge of organizing course content to promote learning.

The Key Values
Has a philosophy of education;
Understands the purposes of postsecondary vocational education.

The Key Attributes
Is supportive of students and their learning;
Builds a respectful learning atmosphere;
Participates in learning activities,
Reflects on her/his teaching;
Promotes learning;
Instructs enthusiastically.

Effective Instruction in Vocational Education

Figure 1. A conceptual framework of the essential aspects of effective teaching in vocational education based on a review of the related literature.

Summary
This survey of the literature has linked teaching effectiveness research with postsecondary vocational education. Although much of the research dealt with K - 12 education, there is a transferability to teaching in vocational settings, because, many of
the learning and motivational principles and methods are similar for all stages of human
learning across the developmental life-span. I have also shown that there is a substantial
need for teaching effectiveness research in postsecondary vocational education

Vocational education is a field worthy of more study because of its variety of
teaching and learning methods, its capacity to address the needs of aspiring employees,
and its potential to address the practical interests of both teachers and students. There is
considerable potential to study teaching effectiveness in postsecondary vocational
education, and ultimately, to make the classrooms, shops, labs, and kitchens optimal sites
for student learning and development.

I have created a conceptual framework to show how the elements of teaching
skills, pedagogical knowledge, an instructor's values and views of the purposes of
vocational education are important aspects of an effective teacher. This framework is
used to guide the research methodology that is described in the next chapter.
CHAPTER THREE: RESEARCH METHODOLOGY

In the previous chapter, I developed a conceptual framework to guide the study based on a survey of the research literature on teaching effectiveness. I begin this chapter with a re-statement of the research questions. I describe the context in which the study took place. The methods section includes a description of the survey population and sample. I explain how I chose the items for the data collection instrument and I describe the procedures that I used to gather the data. Under the data analysis section includes a description of the quantitative and qualitative analysis procedures that I employed. I include a section on the verification procedures for reliability, validity, and trustworthiness and credibility. I conclude the chapter with the ethical considerations that I addressed as I organized and conducted the study.

Research Questions

The research questions that guided this study are:

1. How do the technologies and trades instructors at SIAST Kelsey and Wascana campuses define effective teaching?
2. What are the skills, knowledge, values, and attributes do they perceived are needed to be an effective instructor in the technologies and trades?
3. What, if any, are the significant differences in the instructors’ views of teaching effectiveness and the attributes of effective instructors by teaching discipline, years of teaching experience, gender, age, and level of postsecondary education.
Context

SIAST was created in January 1988 through the amalgamation of the province's technical institutes, the community colleges and the Advanced Technology Training Centre. The Institute Act of 1996 provided further legislative direction for SIAST. A Board of Directors guides the work of the institute while a senior management team directs its day-to-day operations. According to its public information, SIAST “provides career-related education, training and retraining for adults” (SIAST, 2005b). The institute is made up of four urban campuses: Kelsey in Saskatoon, Palliser in Moose Jaw, Wascana in Regina, and Woodland in Prince Albert. The two largest campuses, in terms of student enrolments and number of employees, are Kelsey and Wascana. The two campuses have some common programs such as Machine Shop and Welding, but also have programs that are specific to their individual campuses. For example, Wascana offers the Applied/Visual Media and Dental Hygiene programs, while Kelsey offers the Agricultural Machinery Technician and Medical Laboratory Technology programs (SIAST, 2004a).

As noted in Chapter 1 SIAST is currently undertaking a facilities expansion at two of its campuses, one of them being Kelsey, where two new shop areas are being constructed. This expansion demonstrates SIAST's commitment to strengthening technologies and trades education.

Method

In this section, I provide background information about the survey population, the sample, the data collection techniques, and the focus group process.

Survey Population
In order to understand and describe the views of teaching effectiveness, the survey population was made up of 220 instructors teaching in the technologies and trades at SIAST Kelsey and Wascana campuses. These instructors teach a diverse set of programs: in technologies such as office education and graphic arts production, in industrial trades such as machine shop, and in culinary trades such as cooking. The institution has instructors with a range of teaching experience, from those who are new to teaching to those who have been teaching for several or more years. The instructors have professional credentials ranging from trade certificates to doctorates. Both women and men make up the technologies and trades some of whom have education degrees; some who have limited formal instructional education; and others who have no formal teacher preparation.

The two campuses were purposefully chosen because the programs located there are representative of the technologies and trades programs that SIAST offers.

*Sampling*

The sample for this study was made up of the technologies and trades instructors who responded to the survey. The sample consisted of 87 instructors.

*Data Collection*

In this section I describe the techniques that were used to collect the quantitative and qualitative data. For the quantitative data I chose the survey format because it “is relatively economical, has the same questions for all subjects and can ensure anonymity” (McMillan & Schumacher, 2001, p. 257).

I based this survey instrument on an adaptation of the surveys reported by Abrami, D'Apollonia, and Rosenfeld (1997) for evaluating postsecondary teachers’
instruction, because the questionnaires reflected a considerable portion of the research findings from the teaching effectiveness literature, and as portrayed in the conceptual framework of my study.

*Instrument.* Abrami, d’Apollonia, and Rosenfeld (1997) completed a meta-analysis “using factor analysis of collected studies of student ratings of university teachers” (p.355). Their research produced forty categories of teaching performance with definitions and itemized statements that referred to a university teacher’s instructional effectiveness. For example, for the category of “clarity of expression”, the definition was “the students are evaluating the extent to which the instructor delivers, clear, concise, understandable and accurate instruction (e.g., lectures, laboratories, etc.)” (p. 358). Under this category, several items followed, such as: organization of a presentation, use of clarifying material, clear explanations, and synthesis of the ideas.

Therefore, working with the key concepts from the conceptual framework of my study and the research categories noted in the Abrami, d’Apollonia, and Rosenfeld study, I developed a first draft of my survey questionnaire.

Research question one of my study centred on the instructors’ definitions of effective teaching. Part 3, Item 1 (Appendix B) of the survey invited the instructors to write their definitions for the term *effective teaching* in the context of postsecondary vocational education. This item was one of the survey items used to collect qualitative data. Part 3, Item 2 (Appendix B) provided the instructors with a further opportunity to add more details to their definitions and to comment on the survey in general.

The term *effective teaching* came from the early teaching effectiveness research studies that had been surveyed by McKeachie (1963); discussed by Trent and Cohen
(1973), Shulman (1986b), and Achtenhagen and Grubb (2001); and studied by such writers as 1997), Brophy (1993), Porter and Brophy (1988), Ralph (2003) and Wall et al. (2002).

In developing my survey, I used my conceptual framework as reflected in research question two as the basis for the categories of teaching effectiveness—teaching skills, knowledge, values, and attributes—in which the survey's closed form items, Parts 2, Sections A-D were situated (Appendix B). Table 1 illustrates the relationship between Part 2 of the survey's teaching effectiveness categories and the closed form items and the literature review. For a complete wording of the closed form survey items that fall under each of the categories, see Appendix B.
Table 3.1

Effective Teaching Categories of the Survey and A Selection of Authors Cited in the Literature Review

<table>
<thead>
<tr>
<th>Categories</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Skills</td>
<td>Abrami et al. (1997); Brophy (1992); McKeachie (1963, 1986); Rose &amp; Cohen (as cited in Trent &amp; Cohen, 1973)</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Abrami et al. (1997); Knowles (as cited in Selman et al., 1998); Ralph (1998, 2003); Shulman (1986); Tight (2002)</td>
</tr>
<tr>
<td>Attributes</td>
<td>Abrami et al. (1997); Beck &amp; Kosnik (2001); Cross (1981); Brookfield (1990); Dewey (1916/1966, 1939/1963); McKeachie (1963, 1986); Rogers (2002); Wall et al. (2002)</td>
</tr>
</tbody>
</table>

The third research question, which the possibility of discovering significant differences in instructors' views on teaching effectiveness, established the demographic variable items used in Part 1 of the survey. These demographic variables were: teaching discipline, years of teaching experience, gender, age, and levels of postsecondary education. I wished to examine the teaching disciplines because the technologies and trades are included in two of SIAST's traditional groupings of educational programs.

With respect to years of teaching experience, Wall et al. (2001) reported that teachers across the "teaching-experience continuum" (p.1) rated a supportive emotional climate as being a strong "if not predominant" category of effective teaching. Other research both on the stages of teacher concerns (Fuller & Bown, 1975; Ralph, 2004) and on the differences between expert/novice practitioners (Shulman, 1986a, 1987; Veenman.
1984) suggest that experienced teachers focus more on students' learning and success than do beginning teachers, who tend to focus on their own performance and survival. Because of their research, I included years of teaching experience in the demographic variables section of my survey.

I included gender as a demographic variable because McKeachie and Lin (as cited in Trent & Cohen, 1973) found that student achievement tends to be affected by both the gender of the teacher and the "warmth" (p.1047) teachers displayed toward students. I wished to ascertain if female vocational teachers tended to express this characteristic more than did their male counterparts.

Age and levels of postsecondary education are developmental categories. I inserted these categories into Part 1 of the survey in order to find out if there were any significant differences in views of teaching effectiveness and attributes of effective instructors within the categories. I wanted to investigate whether the age and levels of education continuums would have differences or similarities in views as reported by Wall et al. (2001) with reference to the "teacher-experience continuum" (p.1).

To gather the quantitative demographic information I made use of closed form items in Part 1. I wrote closed form statements to address the following aspects of teaching effectiveness: skills, knowledge, values, and attributes. The statements were to be ranked using a five-point Likert scale: strongly disagree, disagree, neither disagree or agree, agree, and strongly agree. Each of the choices on the scale was assigned a numerical value by the optical reader that created the raw data that I entered into the SPSS 11.5 program.
There were open-form items that asked the participants to write their definitions for the term **effective teaching** in postsecondary vocational settings and make additional comments about effective teaching and/or the survey instrument, itself. I used the open-items to gather the qualitative data for the study.

The survey (Appendix B) was divided into three parts: Part 1, five categories of demographic information; Part 2, 28 closed form effective teaching statements; and Part 3, two open-form items.

**Survey procedures.** An initial step in the process of collecting the data was to complete a draft of the survey and submit it to a panel of experts for its opinion on how to improve upon the survey. After I made the suggested changes, the panel, which is the thesis committee, approved the survey. To strengthen the validity of the survey, I asked five instructors at Kelsey Campus to pilot it. I made several changes to the survey based on their comments. Piloting the study helped to ensure that the instructions and closed form and open-form items were clear and that there were no objections to what was being asked of the respondents (Scaife, 2004).

A final version of the survey was written and printed. Using the SIAST internal mailing system I distributed the printed survey and a cover letter (Appendix A) to 220 instructors of Kelsey and Wascana campuses. To achieve the highest possible response rate, I sent out an email reminder urging instructors to complete the survey approximately ten calendar days after the initial mailing.

**Focus group interview procedures.** To gather more qualitative data I conducted one focus group interview. My original plan was to have one focus group for each campus. Initially, I sent out one email notice to the sample group at each of the two
campuses, inviting them to participate in a focus group. A second email reminder was sent encouraging instructors to be a part of the focus group process. In the end, because of conflicts in participants' schedules and logistical constraints, I was able to organize only one focus group of five participants at one campus.

In the focus group interview, I asked the participants to comment on the preliminary results of the survey, which included both quantitative and qualitative data. I made notes during the focus group discussion. These notes included participants' remarks with reference to the survey's response rate, the nature of the survey, and the themes arising from an initial reading of the definitions of the term effective teaching.

Data Analysis

To analyze the participants' perceptions of the attributes of an effective instructor and definitions of effective teaching, I used a mixed method approach employing both quantitative and qualitative techniques. Some of the collected data were analyzed using descriptive statistics in order to “portray and focus on what is with respect to the sample data” (McMillan & Schumacher, 2001, p. 206). Furthermore, according to McMillan and Schumacher (2001), descriptive statistics would allow me to “summarize, organize, and reduce large numbers of observations” (p. 206) that I gathered from surveying the views of the respondents.

The data that were gathered from the demographic part and the scaled section of the survey was summarized using descriptive statistics. The demographic data were analyzed using cross tabulations. I reported the results of these cross tabulations in order to describe in more detail the nature of the sample. I reported the significant differences in instructors' view of teaching effectiveness and the attributes of effective teachers by
each of the demographic variables using t-tests. To carry out the above analysis, I used the statistical program, SPSS, version 11.5.

To analyze the data that were obtained from the third section of the survey, which contained the open-form item relating to a definition for teaching effectiveness in postsecondary vocational settings, I read each definition, found the common words, and them into emerging themes. Ryan and Bernard (2000) noted that an open-ended or open-form item may be used as a free list from which responses are analyzed with reference to “the frequency of mention” of phrases or words and “the co-occurrence of items” (p. 770). Patterns were identified from these word counts and I was able to put form themes around teaching effectiveness that emerged from the participants’ responses (Ryan & Bernard, 2000). In doing this type of text analysis, Silverman (2000) advised researchers to adopt “a clearly defined approach” (p. 828) in order to move from the essential task of coding to the more elaborate task of showing how the coded elements are interrelated and what themes emerged from the coding.

The focus-group discussions centered on several aspects of the results of both the quantitative and qualitative data. The focus group participants provided their opinions on the response rate to the survey, the quality of the survey items in Part 2 (Appendix B), and the themes of what constitutes effective teaching. By having the focus group offer opinions, I gained another set of data with reference to these aspects of the study.

When I completed the analysis of both sets of data I reported the findings of the analysis in Chapter Four of the thesis.

Verification
As is the case with every researcher, I wished to confirm that the findings of my study credible, believable, trustworthy, and accurate; and that they were, in fact, representative of those of the population. I now describe how I sought to achieve these goals.

**Reliability**

According to Wellington (as cited in Scaife, 2004), the reliability of a research method can be measured by how consistent its results are when used in several studies by several researchers. Prior to initiating this study of the technologies and trades instructors, I surveyed several instructors at Kelsey Campus with a simple instrument. The purpose of this early version of the survey was to identify the descriptors that best characterize effective and ineffective instructors (Rohatynsky, 2003). The results of that first teaching effectiveness study contributed to the development of the research questions and subsequently, to the survey’s statements.

I piloted the initial survey for clarity of the instructions and the teaching effectiveness statements. The pilot respondents stated that the instructions and the effective teaching statements were clear. One respondent in the pilot-group wrote on the survey assessment form, which was attached to the pilot survey, that the statements were well thought out. On the other hand, two instructors noted that the statements of effective teaching could only yield an agree or strongly agree response.

In any case, I chose to use the survey that I had designed with some modifications. Piloting the study, I believe, strengthened its reliability. Moreover, if other researchers wished to use my instrument with other samples in the future, then data related to its reliability would accumulate (Wellington as cited in Scaife, 2004).
With respect to the reliability of the quantitative survey, I used the test for internal consistency, and it produced a Cronbach Alpha, a reliability coefficient of .93, which showed the survey to have a high level of internal consistency (McMillan & Schumacher, 2001).

**Validity**

I designed the survey to find answers to the three research questions that guided the study. The quantitative and qualitative data derived from analyzing the instructor’s responses identified the themes of effective teaching in vocational education, as well as the skills, knowledge, values, and attributes that the respondents perceived to be needed to be an effective instructor. In addition to finding this information, I used the survey to discover if there were any significant differences in instructors’ views of teaching effectiveness and the attributes of effective instructors by the demographic variables identified in Research question 3. From my point of view, the data resulting from the survey was “self-consistent and reasonable” (Scaife, 2004, p. 70) in light of the conceptual framework of the study.

Scaife (2004) defined external validity as “an indicator of the extent to which...the findings can be applied beyond its own research content” (p. 70). The external validity of my research may not be adequate in two ways: Was the sample size and was the response rate high enough? Because these values for the study were relatively low, generalizability to the larger population of all postsecondary vocational education instructors is not possible.
Trustworthiness and Credibility

I followed several procedures to ensure that the process of gathering the data and the data itself were both trustworthy and credible (Scaife, 2004). In the introductory letter to the instructors, I explained the nature of the study, noted the ethics approval, ensured their confidentiality and anonymity, and stated how the data would be analyzed and reported. In order to obtain other perspectives on the preliminary results of the survey, I invited the respondents to participate in two focus groups. As reported earlier, I received enough interest at one campus to conduct one focus group. The participants' comments on the strengths and weakness of the survey, and their reactions to the themes that emerged from the respondents' definitions of effective teaching, added credibility to the research process and the findings.

Ethical Considerations

In order to distribute the questionnaire to SIAST instructors I obtained the written permission of the institution by contacting Claude Naud, Vice-president, Programs, who incidentally resigned from SIAST in July 2006. His permission letter (Appendix C) included a general statement of support for the research study by noting that the internal mail service could be used to distribute and collect the survey and that meetings rooms for the focus groups could be booked. In the letter to Mr. Naud I included a note of thanks to SIAST for its support of the research and commitment to share the research results with those in institution who wish to see the results.

I secured the written permission (Appendix D) of the University of Saskatchewan Behavioural Research Ethics Board to conduct the research. The cover letter described below contained a reference to this permission,
The survey was accompanied by my cover letter that asked for the participants' cooperation in completing the survey, outlined the nature of the study, asked participants not to put any identifying marks such personal names, campus names, or program names on the survey in order to ensure anonymity, and stated how a summary of the results could be obtained. The participants were clearly informed of the fact that my research is an independent study designed to describe and understand their views of effective instruction.

The survey contained a section that repeated the instructions on maintaining anonymity and a clear statement that indicated that participants who completed the survey did so voluntarily and gave consent to make use of their responses in the study. In this section I thanked the participants for completing and returning the study to the Curriculum Studies office by using the pre-addressed and postage-paid envelopes.

With respect to the confidentiality of information shared in the focus group, I did not record the participants' names, I made written notes without quoting anyone specifically, and I did not make any audio or video recordings. I created an informational sheet for each focus group participant that explained how the groups were formed, how the proceedings would be used in the summary of the results, and how I could ensure the confidentiality of the information that was discussed during the sessions within certain limits. As each participant agreed with the above information, I asked each one to sign a focus group consent form (Appendix E). As a way of thanking the participants, I arranged for the provision of non-alcoholic beverages and light snacks that were served during the focus group.
CHAPTER FOUR: DATA ANALYSIS

In this chapter I analyze the data that were collected by means both of a mailed survey entitled, *Effective Teaching by Trades and Technologies Instructors of SIAST Kelsey and Wascana Campuses* (Appendix A) and of the focus group interview. The responses from the survey and the proceedings of the focus group yielded both quantitative and qualitative data. I divide the chapter into two main sections, quantitative and qualitative data. The quantitative data are analyzed using descriptive statistics, cross tabulations, and t-tests. I report the results of the reliability analysis using the Cronbach Alpha coefficient. With respect to the qualitative data, I analyze the instructors’ definitions of the term effective teaching by reporting the themes that emerged from their definitions. Additional comments with respect to effective teaching and the survey are also stated, and I report on the results of the focus group discussion.

**Quantitative Data**

I mailed surveys to 220 trades and technologies instructors at SIAST’s two largest campuses, Kelsey and Wascana. At Kelsey there are 163 instructors in these two teaching groups and at Wascana there are 57 instructors. Of the 220 instructors who received the survey, 87 (39.5%) responded.

**Initial Analyses**

I reported the descriptive statistics in the form of tables that show the representation breakdown of the survey population and the sample and cross-tabulations that further describe that sample. I summarized the means and standard deviations for the survey’s 28 teaching effectiveness statements (Appendix B) From this summary, I created a table illustrating the statements that received the strongest agreement from the
respondents. The results of the $t$-tests are included in this section of the chapter. The tables highlighting the results show the differences in the instructors' views of teaching effectiveness and the attributes of effective instructors with respect to the demographic variables.

Response by gender and instructional group. Table 4.1 shows the breakdown of the survey population by gender and instructional group. This table illustrates the differences in representation in the survey population by gender and instructional group. The numerical difference between the numbers of technologies and trades instructors is small. Large numerical differences are evident between the number of female and male instructors. This situation occurs regarding the trades. Of a total of 101 trades instructors, only two were women. In the technologies group the gender difference was not as great (SIAST, 2004b, 2004c).

Table 4.1

<table>
<thead>
<tr>
<th>Gender</th>
<th>Technologies</th>
<th>Trades</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>73 (33.2%)</td>
<td>100 (45.4%)</td>
<td>173 (78.6%)</td>
</tr>
<tr>
<td>Women</td>
<td>45 (20.4%)</td>
<td>2 (1.0%)</td>
<td>47 (21.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>118 (53.6%)</td>
<td>102 (46.4%)</td>
<td>220 (100.0%)</td>
</tr>
</tbody>
</table>

Table 4.2 shows the division of responses by gender and instructional group; nearly equal numbers of men responded from the technologies and trade. The difference between returned responses for women in the technologies and trades was due to the fact that there were only two female trades instructors at the two campuses.
Table 4.2

Responses by Gender and Instructional Group (N = 87)
(Percentages are listed in parentheses.)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Technologies</th>
<th>Trades</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>31 (35.6%)</td>
<td>33 (37.9%)</td>
<td>65 (74.7%)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Women</td>
<td>20 (23.0%)</td>
<td>2 (2.3%)</td>
<td>22 (25.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>51 (58.6%)</td>
<td>35 (40.2%)</td>
<td>87 (100.0%)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>One male did not report his instructional group, therefore, Total Men is greater than the sum of numbers noted in the Men Technologies and Trades cells, and the Total of responses is greater than the sum of the numbers noted in the Total Technologies and Trades cells.

By comparing the data from the two tables, one can determine that the response rates for men and women were moderately different from the representation rates for each gender. The men's response rate decreased with respect to its representation rate, while the women's response rate increased. Table 4.1 also shows that the technologies instructors comprised 53.6% of the survey population, and trades instructors comprised 46.4%, while Table 4.2 shows that technologies instructors comprised 58.6% of the responses and trades instructors 40.2%.

Demographic information. To appreciate who the respondents were, I used a series of cross tabulations. Tables 4.3, 4.4, and 4.5 show the two instructional groups with respect to years of teaching, age, and educational levels. One person did not report her/his instructional group and therefore, the total number of responses for the two instructional groups was 86. As shown in Table 4.3, the largest proportion (48.8%) of the instructors had 10 years or less of instructional experience.
Table 4.3
Distribution by Instructional Groups and Years of Teaching (N = 86)

<table>
<thead>
<tr>
<th>Instructional Group</th>
<th>0 - 5</th>
<th>6 - 10</th>
<th>11 - 15</th>
<th>16 - 20</th>
<th>&gt; 20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td>9</td>
<td>9</td>
<td>51</td>
</tr>
<tr>
<td>Trades</td>
<td>5</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>22</td>
<td>12</td>
<td>13</td>
<td>19</td>
<td>86</td>
</tr>
</tbody>
</table>

Table 4.4 shows that the largest proportion of instructors (45.4%) was in the 41 - 50 years old category and 30 instructors (34.9%) were 51 years of age or older. The smallest proportion (2.3%) was in the 21 - 30 years group.

Table 4.4
Distribution by Instructional Groups and Age (N = 86)

<table>
<thead>
<tr>
<th>Instructional Group</th>
<th>21 - 30</th>
<th>31 - 40</th>
<th>41 - 50</th>
<th>51 - 60</th>
<th>&gt; 60</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies</td>
<td>2</td>
<td>9</td>
<td>23</td>
<td>13</td>
<td>4</td>
<td>51</td>
</tr>
<tr>
<td>Trades</td>
<td>0</td>
<td>6</td>
<td>16</td>
<td>12</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>15</td>
<td>39</td>
<td>25</td>
<td>5</td>
<td>86</td>
</tr>
</tbody>
</table>

Table 4.5 indicates that largest proportion of instructors (52.3%) had completed an undergraduate degree or higher. The smallest proportion (13.9%) was the postgraduate group.

63
Table 4.5

Distribution by Instructional Groups and Educational Levels (N = 86)

<table>
<thead>
<tr>
<th>Instructional Group</th>
<th>Journeyperson, Certificate or Diploma</th>
<th>BA, BSc, or BEd</th>
<th>Postgrad Diploma, MA, MSc, MEd or PhD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies</td>
<td>17</td>
<td>23</td>
<td>11</td>
<td>51</td>
</tr>
<tr>
<td>Trades</td>
<td>24</td>
<td>10</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>33</td>
<td>12</td>
<td>86</td>
</tr>
</tbody>
</table>

In summary, Tables 4.3, 4.4, and 4.5 show several features of the sample. Table 4.3 indicates that there was a reasonably even split between those with 10 years or less of teaching experience and those with more than 10 years of experience. Table 4.4 shows that a noticeable minority of instructors, 19.8%, was in the two youngest age categories. Table 4.5 indicates that there was a reasonably even split between those with a minimum of an undergraduate degree and those with a journeyperson credential, a certificate, and/or a diploma.

The next set of cross tabulations, Tables 4.6, 4.7, and 4.8, show the years of teaching demographic variable with reference to respondents’ gender, age, and educational levels. Table 4.6 indicates out that only two (9%) of the 22 women instructors had taught more than 20 years, while 17 (26%) of the 65 male instructors had been teaching more than 20 years.
Table 4.6

Distribution by Years of Teaching and Gender (N = 87)

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>6</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>6 - 10</td>
<td>5</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>11 - 15</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>16 - 20</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>2</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>65</td>
<td>87</td>
</tr>
</tbody>
</table>

Table 4.7 indicates that 17 (19.5%) instructors who responded were 40 years old or younger, and 70 (80.5%) instructors were at least 41 years old. This table also shows that 40 (45.9%) of the instructors were in the 41 - 50 years range, which corroborates the finding that showed: 30 (34.5%) instructors were 51 years of age or older.

Table 4.7

Distribution by Years of Teaching and Age (N = 87)

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>21 -30</th>
<th>31 -40</th>
<th>41 -50</th>
<th>51 -60</th>
<th>&gt; 60</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>6 - 10</td>
<td>0</td>
<td>7</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>11 - 15</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>16 - 20</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>13</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>15</td>
<td>40</td>
<td>25</td>
<td>5</td>
<td>87</td>
</tr>
</tbody>
</table>

Table 4.8 indicates that in the 0 - 5 and 6 - 10 years categories, 26 of the total of 43 instructors (60.5%) had the minimum trade or technology educational level to teach at SIAST. These instructors represented 60.5% of the respondents in these two categories.
The table also shows that when all the years of teaching categories were taken into account 42 instructors (48.3%) had the minimum trade or technology educational standard to instruct at SIAST.

Table 4.8

Distribution by Years of Teaching and Educational Levels (N = 87)

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>Journeyperson, Certificates or Diploma</th>
<th>BA, BSc or BEd</th>
<th>Postgraduate Diploma, MA, MSc, Med or PhD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>16</td>
<td>3</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>6 - 10</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>11 - 15</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>16 - 20</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>7</td>
<td>7</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>33</td>
<td>12</td>
<td>87</td>
</tr>
</tbody>
</table>

Tables 4.6, 4.7, and 4.8 show other features of the respondents. Table 4.6 indicates that the distribution of women was reasonably even in the first four years of teaching categories, while the distribution of men was uneven over the first four years of teaching categories. Table 4.6 shows the difference in numbers of women and men who were teaching in the technologies and trades.

Table 4.7 shows, as does Table 4.4, that a majority of the instructors were older than 41 years. The data in Table 4.8 show, as was the case for Table 4.5, that the split between those with a journeyperson credential, a diploma, and/or a certificate, and those with a minimum of an undergraduate degree was reasonably even.

Table 4.9 shows for the 41 - 50 years-old category, there were 15 women (68.2%) in the total number of female respondents. In the same category there were 25 men.
(38.5%) in the total number of male respondents. Taken together, these data show that men and women in this age category comprised 46% of the total number of respondents.

Table 4.9

Distribution by Gender and Age (N = 87)

<table>
<thead>
<tr>
<th>Gender</th>
<th>21 - 30</th>
<th>31 - 40</th>
<th>41 - 50</th>
<th>51 - 60</th>
<th>&gt; 60</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>0</td>
<td>12</td>
<td>25</td>
<td>24</td>
<td>4</td>
<td>65</td>
</tr>
<tr>
<td>Women</td>
<td>2</td>
<td>3</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>15</td>
<td>40</td>
<td>25</td>
<td>5</td>
<td>87</td>
</tr>
</tbody>
</table>

Table 4.10 shows that 13 (59.1%) of the female respondents had an undergraduate degree. In contrast, 20 (30.8%) of the male respondents had a bachelor’s degree. In total, 15 (68.2%) of the women who answered the survey possessed a minimum of an undergraduate education. Thirty (34.5%) male respondents had at least a university degree. This difference in percentages may be explained by the required criterion for a particular set of instructional jobs. At SIAST, to teach in many of the technologies where women are more highly represented, a bachelor’s degree is an essential requirement; whereas to teach in the trades where women are very few in number, a bachelor’s degree is not an essential requirement.
Table 4.10

Distribution by Gender and Educational Levels (N = 87)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Journeyperson, Certificate or Diploma</th>
<th>BA, BSc or BEd</th>
<th>Postgraduate Diploma, MA, MSc, MEd or PhD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>35</td>
<td>20</td>
<td>10</td>
<td>65</td>
</tr>
<tr>
<td>Women</td>
<td>7</td>
<td>13</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>33</td>
<td>12</td>
<td>87</td>
</tr>
</tbody>
</table>

Table 4.11 indicates that 42 (48.3%) respondents possessed journeyperson papers, a certificate, or a diploma, 33 (37.9%) had completed an undergraduate degree, and 12 (13.8%) had completed at minimum, a postgraduate diploma.

Table 4.11

Distribution by Age and Educational Levels (N = 87)

<table>
<thead>
<tr>
<th>Age</th>
<th>Journeyperson, Certificate or Diploma</th>
<th>BA, BSc or BEd</th>
<th>Postgraduate Diploma, MA, MSc, MEd or PhD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 - 30</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>31 - 40</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>41 - 50</td>
<td>18</td>
<td>17</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>51 - 60</td>
<td>14</td>
<td>8</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>&gt; 60</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>33</td>
<td>12</td>
<td>87</td>
</tr>
</tbody>
</table>

Means and standard deviations. Table 4.12 provides the descriptive statistics for Part 2 of the survey (Appendix B), which contained the teacher effectiveness items.

Research question two asked: what are the skills, knowledge, values, and attributes do the instructors perceived are needed to be an effective instructor in the trades and
technologies. Table 4.12 shows the mean scores for each of the survey's 28 statements addressing these categories of teacher effectiveness.
Table 4.12
Means and Standard Deviations for the Teacher Effectiveness Items (N = 861)

<table>
<thead>
<tr>
<th>Teacher Effectiveness Item</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Provides a preliminary overview of the lab/shop/classroom activities.</td>
<td>4.56</td>
<td>.523</td>
</tr>
<tr>
<td>2. Organizes her/his presentations in a logical manner.</td>
<td>4.63</td>
<td>.486</td>
</tr>
<tr>
<td>3. Paces the presentations of lecture material and the demonstrations of technical skills in a methodical and complete manner.</td>
<td>4.51</td>
<td>.589</td>
</tr>
<tr>
<td>4. Presents clear explanations of concepts and terms in labs, in shops and in lectures.</td>
<td>4.69</td>
<td>.515</td>
</tr>
<tr>
<td>5. Demonstrates how to use hand tools/utensils, shop/lab equipment, and machinery safely and effectively.</td>
<td>4.76</td>
<td>.459</td>
</tr>
<tr>
<td>6. Asks questions that assist students in understanding the material.</td>
<td>4.52</td>
<td>.627</td>
</tr>
<tr>
<td>7. Responds appropriately so as to encourage student learning and self-worth.</td>
<td>4.66</td>
<td>.586</td>
</tr>
<tr>
<td>8. Encourages class discussions.</td>
<td>4.49</td>
<td>.664</td>
</tr>
<tr>
<td>9. Manages the lab/shop/classroom activities in ways that encourage learning.</td>
<td>4.64</td>
<td>.507</td>
</tr>
<tr>
<td>10. Communicates performance criteria for practical activities and written tests in a clear manner.</td>
<td>4.60</td>
<td>.538</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Has an extensive understanding of the subject material that she/he teaches.</td>
<td>4.60</td>
<td>.559</td>
</tr>
<tr>
<td>12. Has a firm grasp of the technical skills associated with her/his trade or technology.</td>
<td>4.65</td>
<td>.503</td>
</tr>
<tr>
<td>13. Understands the principles of adult vocational education and how adult students learn specific subject material.</td>
<td>4.16</td>
<td>.721</td>
</tr>
<tr>
<td>14. Knows how vocational knowledge is organized for instructional purposes.</td>
<td>4.00</td>
<td>.703</td>
</tr>
<tr>
<td>15. Knows and uses a variety of teaching techniques.</td>
<td>4.33</td>
<td>.676</td>
</tr>
</tbody>
</table>
Table 4.12 continued

Means and Standard Deviations for the Teacher Effectiveness Items \( (N = 86^1) \)

<table>
<thead>
<tr>
<th>Teacher Effectiveness Item</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Has a core set of educational and personal beliefs that guide her/his actions as a teacher.</td>
<td>4.15</td>
<td>.760</td>
</tr>
<tr>
<td>17. Believes that a fundamental purpose of VocEd is to meet the employment needs of students.</td>
<td>4.12</td>
<td>.758</td>
</tr>
<tr>
<td>18. Believes that a fundamental purpose of VocEd is to meet the labour market needs of employers.</td>
<td>3.94</td>
<td>.787</td>
</tr>
<tr>
<td>19. Believes that a fundamental purpose of VocEd is to assist students in understanding the nature of the workplace in order to improve its conditions.</td>
<td>3.66</td>
<td>1.001</td>
</tr>
<tr>
<td>20. Believes that a fundamental purpose of VocEd is to support students in their personal development.</td>
<td>3.83</td>
<td>.829</td>
</tr>
<tr>
<td>Attributes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Creates a supportive and caring learning environment.</td>
<td>4.35</td>
<td>.609</td>
</tr>
<tr>
<td>22. Builds a positive teaching and learning climate.</td>
<td>4.53</td>
<td>.502</td>
</tr>
<tr>
<td>23. Motivates students to appreciate learning.</td>
<td>4.33</td>
<td>.659</td>
</tr>
<tr>
<td>24. Encourages students to continue learning after the completion of their programs.</td>
<td>4.42</td>
<td>.743</td>
</tr>
<tr>
<td>25. Reflects on her/his own teaching practice in order to understand and improve it.</td>
<td>4.56</td>
<td>.625</td>
</tr>
<tr>
<td>26. Participates in professional development activities that enhance her/his technical knowledge and skills.</td>
<td>4.49</td>
<td>.609</td>
</tr>
<tr>
<td>27. Participates in professional development activities that enhance her/his teaching knowledge and skills.</td>
<td>4.44</td>
<td>.588</td>
</tr>
<tr>
<td>28. Displays an enthusiasm for her/his subject and for teaching.</td>
<td>4.67</td>
<td>.471</td>
</tr>
</tbody>
</table>

---

1 Although 87 instructors responded to the survey, not all 28 teacher effectiveness items were answered by each respondent, hence \( N = 86 \) in this table.
Table 4.13 shows the survey’s ranking of the teacher effectiveness items that had the 12 highest mean scores as noted in Table 4.12. Two sets of items: 8a and 8b, and 9a and 9b had the same mean scores. Of the 12 items, seven are in the skills category, two in the knowledge, and three in the attributes.

Table 4.13
Descriptive Statistics for the Top 12 Teacher Effectiveness Items (N = 86)

<table>
<thead>
<tr>
<th>Teacher Effectiveness Item</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Skill: demonstrates how to use hand tools/utensils, shop/lab equipment, and machinery safely and effectively.</td>
<td>4.76</td>
<td>.459</td>
</tr>
<tr>
<td>2. Skill: Presents clear explanations of concepts and terms in labs, in shops and in lectures.</td>
<td>4.69</td>
<td>.515</td>
</tr>
<tr>
<td>3. Attribute: Displays an enthusiasm for her/his subject and for teaching.</td>
<td>4.67</td>
<td>.471</td>
</tr>
<tr>
<td>4. Skill: Responds appropriately so as to encourage student learning and self-worth.</td>
<td>4.66</td>
<td>.586</td>
</tr>
<tr>
<td>5. Knowledge: Has a firm grasp of the technical skills associated with her/his trade or technology.</td>
<td>4.65</td>
<td>.503</td>
</tr>
<tr>
<td>6. Skill: Manages the lab/shop/classroom activities in ways that encourage learning.</td>
<td>4.64</td>
<td>.507</td>
</tr>
<tr>
<td>7. Skill: Organizes her/his presentations in a logical manner.</td>
<td>4.63</td>
<td>.486</td>
</tr>
<tr>
<td>8a. Skill: Communicates performance criteria for practical activities and written tests in a clear manner.</td>
<td>4.60</td>
<td>.538</td>
</tr>
<tr>
<td>8b. Knowledge: Has an extensive understanding of the subject material that she/he teaches.</td>
<td>4.60</td>
<td>.559</td>
</tr>
<tr>
<td>9a. Skill: Provides a preliminary overview of the lab/shop/classroom activities.</td>
<td>4.56</td>
<td>.523</td>
</tr>
<tr>
<td>9b. Attributes: Reflects on her/his own teaching practice in order to understand and improve it.</td>
<td>4.56</td>
<td>.625</td>
</tr>
<tr>
<td>10. Attribute: Builds a positive teaching and learning climate.</td>
<td>4.53</td>
<td>.502</td>
</tr>
</tbody>
</table>
Comparison of groups. In order to compare the means of two sample groups and to find the level of significance between them, I used the independent samples \( t \)-test. This test allows the researcher to determine, for example, if there are any statistically significant differences between the means of the responses for any two sample groups, such as female instructors and male instructors. I used the \( t \)-test to address research question three: What, if any, are the significant differences in instructors' views of teaching effectiveness and the attributes of effective instructors by teaching discipline, years of teaching experience, gender, and level of postsecondary education. In this section I used several tables to show the significant differences.

Table 14 illustrates the differences among the groups for the years of teaching variable. I have retained the number system shown in Table 4.12 and in the original survey (Appendix B). Table 4.14 shows that the significance values for each of the compared sets of means. All the results are \( p < .05 \), which indicates that there are statistically significant differences in the views of teaching effectiveness and the attributes of effective instructors on the part of the respondents with respect to years of teaching. Many of the differences are between the instructors in two sets of teaching experience years: 0 to 5, and more than 20. In general, the differences in views are focused on teaching skills and teaching knowledge. In fact, of the 12 teaching effectiveness items in which differences are identified, nine of those items refer to skills and knowledge.
Table 4.14
Comparison of Years of Teaching

<table>
<thead>
<tr>
<th>Teaching effectiveness statement</th>
<th>Years of teaching</th>
<th>Years of teaching</th>
<th>Obtained $t$</th>
<th>$df$</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Knows how vocational knowledge is organized for instructional purposes.</td>
<td>0 - 5 (n = 21)</td>
<td>6 - 10 (n = 22)</td>
<td>-2.862</td>
<td>41</td>
<td>.007</td>
</tr>
<tr>
<td>$M$</td>
<td>3.71</td>
<td>4.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.561</td>
<td>.612</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Participates in professional development activities that enhance her/his technical knowledge and skills.</td>
<td>0 - 5 (n = 21)</td>
<td>11 - 15 (n = 12)</td>
<td>-2.123</td>
<td>31</td>
<td>.042</td>
</tr>
<tr>
<td>$M$</td>
<td>4.19</td>
<td>4.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.680</td>
<td>.492</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Provides a preliminary overview of the lab/shop/classroom activities.</td>
<td>0 - 5 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>-2.125</td>
<td>38</td>
<td>.040</td>
</tr>
<tr>
<td>$M$</td>
<td>4.38</td>
<td>4.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.590</td>
<td>.452</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Organizes her/his presentations in a logical manner.</td>
<td>0 - 5 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>-2.439</td>
<td>38</td>
<td>.020</td>
</tr>
<tr>
<td>$M$</td>
<td>4.43</td>
<td>4.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.507</td>
<td>.419</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Manages the lab/shop/classroom activities in ways that encourage learning.</td>
<td>0 - 5 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>-2.280</td>
<td>38</td>
<td>.028</td>
</tr>
<tr>
<td>$M$</td>
<td>4.48</td>
<td>4.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.602</td>
<td>.375</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Communicates performance criteria for practical activities and written tests in a clear manner.</td>
<td>0 - 5 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>-2.916</td>
<td>38</td>
<td>.006</td>
</tr>
<tr>
<td>$M$</td>
<td>4.38</td>
<td>4.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.590</td>
<td>.375</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Knows how vocational knowledge is organized for instructional purposes.</td>
<td>0 - 5 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>-2.244</td>
<td>38</td>
<td>.031</td>
</tr>
<tr>
<td>$M$</td>
<td>3.71</td>
<td>4.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.561</td>
<td>.688</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Knows and uses a variety of teaching techniques.</td>
<td>0 - 5 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>-2.457</td>
<td>38</td>
<td>.019</td>
</tr>
<tr>
<td>$M$</td>
<td>4.14</td>
<td>4.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.727</td>
<td>.496</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.14 continued

Comparison of Years of Teaching

<table>
<thead>
<tr>
<th>Teaching effectiveness statement</th>
<th>Years of teaching</th>
<th>Years of teaching</th>
<th>Obtained t</th>
<th>Equal variances assumed</th>
<th>df</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26. Participates in professional development activities that enhance her/his technical knowledge and skills.</td>
<td>0 (n = 21)</td>
<td>&gt; 20 (n = 19)</td>
<td>M 4.19</td>
<td>4.58</td>
<td>SD .680</td>
<td>.507</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Encourages class discussions.</td>
<td>11 (n = 12)</td>
<td>&gt; 20 (n = 19)</td>
<td>M 4.25</td>
<td>4.74</td>
<td>SD .754</td>
<td>.452</td>
</tr>
<tr>
<td>15. Knows and uses a variety of teaching techniques.</td>
<td>11 (n = 12)</td>
<td>&gt; 20 (n = 19)</td>
<td>M 4.17</td>
<td>4.63</td>
<td>SD .718</td>
<td>.496</td>
</tr>
<tr>
<td>27. Participates in professional development activities that enhance her/his teaching knowledge and skills.</td>
<td>16 (n = 11)</td>
<td>&gt; 20 (n = 19)</td>
<td>M 4.73</td>
<td>4.26</td>
<td>SD .467</td>
<td>.452</td>
</tr>
</tbody>
</table>

Table 4.15 shows the differences by gender. In Table 4.14 most of the differences between the groups were in the teaching skills and knowledge categories of teaching effectiveness. In all comparisons of the mean scores in this table, women instructors have agreed with the teaching effectiveness item. With respect to the belief in the item referring to the purpose of vocational education as meeting the labour market needs of the employer, the set of mean values is less than the other sets within the table.
### Table 4.15

Comparison of Gender

<table>
<thead>
<tr>
<th>Teaching effectiveness statement</th>
<th>Female</th>
<th>Male</th>
<th>Obtained $t$</th>
<th>$df$</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Presents clear explanations of concepts and terms in labs, in shops and in lectures.</td>
<td>(n = 22)</td>
<td>(n = 65)</td>
<td>2.384</td>
<td>85</td>
<td>.019</td>
</tr>
<tr>
<td>$M$</td>
<td>4.91</td>
<td>4.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.294</td>
<td>.550</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Believes that a fundamental purpose of VocEd is to meet the labour market needs of employers.</td>
<td>(n = 22)</td>
<td>(n = 65)</td>
<td>2.762</td>
<td>29</td>
<td>.007</td>
</tr>
<tr>
<td>$M$</td>
<td>4.32</td>
<td>3.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.477</td>
<td>.833</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Participates in professional development activities that enhance her/his technical knowledge and skills.</td>
<td>(n = 22)</td>
<td>(n = 65)</td>
<td>2.567</td>
<td>85</td>
<td>.012</td>
</tr>
<tr>
<td>$M$</td>
<td>4.77</td>
<td>4.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.429</td>
<td>.632</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Participates in professional development activities that enhance her/his teaching knowledge and skills.</td>
<td>(n = 22)</td>
<td>(n = 65)</td>
<td>2.351</td>
<td>83</td>
<td>.021</td>
</tr>
<tr>
<td>$M$</td>
<td>4.68</td>
<td>4.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.477</td>
<td>.600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. Displays an enthusiasm for her/his subject and for teaching.</td>
<td>(n = 22)</td>
<td>(n = 85)</td>
<td>2.189</td>
<td>85</td>
<td>.031</td>
</tr>
<tr>
<td>$M$</td>
<td>4.86</td>
<td>4.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.351</td>
<td>.490</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Table 4.16, I compare the differences between groups with respect to age. The differences centre on teaching skills and knowledge. The difference in views on attributes refers to participating in professional development for the purpose of enhancing technical skills and knowledge.
Table 4.16

Comparison of Age

<table>
<thead>
<tr>
<th>Teaching effectiveness statement</th>
<th>Age</th>
<th>Age</th>
<th>Obtained t</th>
<th>df</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Asks questions that assist students in understanding the material.</td>
<td>21 - 30 (n = 2)</td>
<td>31 - 40 (n = 15)</td>
<td>-2.657</td>
<td>15</td>
<td>.018</td>
</tr>
<tr>
<td>M</td>
<td>4.00</td>
<td>4.80</td>
<td>.000</td>
<td>.414</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>.414</td>
<td>.694</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Asks questions that assist students in understanding the material.</td>
<td>31 - 40 (n = 15)</td>
<td>41 - 50 (n = 40)</td>
<td>2.482</td>
<td>53</td>
<td>.016</td>
</tr>
<tr>
<td>M</td>
<td>4.80</td>
<td>4.33</td>
<td>.414</td>
<td>.694</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>.414</td>
<td>.694</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Manages the lab/shop/classroom activities in ways that encourage learning.</td>
<td>41 - 50 (n = 40)</td>
<td>51 - 60 (n = 25)</td>
<td>-2.701</td>
<td>63</td>
<td>.009</td>
</tr>
<tr>
<td>M</td>
<td>4.50</td>
<td>4.84</td>
<td>.555</td>
<td>.374</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>.555</td>
<td>.374</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Understands the principles of adult vocational education and how adult students learn specific subject material.</td>
<td>41 - 50 (n = 40)</td>
<td>51 - 60 (n = 25)</td>
<td>-2.854</td>
<td>62</td>
<td>.006</td>
</tr>
<tr>
<td>M</td>
<td>3.97</td>
<td>4.44</td>
<td>.628</td>
<td>.651</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>.628</td>
<td>.651</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Knows how vocational knowledge is organized for instructional purposes.</td>
<td>41 - 50 (n = 40)</td>
<td>51 - 60 (n = 25)</td>
<td>-2.140</td>
<td>63</td>
<td>.036</td>
</tr>
<tr>
<td>M</td>
<td>3.83</td>
<td>4.20</td>
<td>.675</td>
<td>.707</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>.675</td>
<td>.707</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Knows and uses a variety of teaching techniques.</td>
<td>41 - 50 (n = 40)</td>
<td>51 - 60 (n = 25)</td>
<td>-2.865</td>
<td>63</td>
<td>.006</td>
</tr>
<tr>
<td>M</td>
<td>4.18</td>
<td>4.64</td>
<td>.675</td>
<td>.569</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>.675</td>
<td>.569</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Participates in professional development activities that enhance her/his technical knowledge and skills.</td>
<td>51 - 60 (n = 25)</td>
<td>&gt; 60 (n = 5)</td>
<td>2.291</td>
<td>28</td>
<td>.030</td>
</tr>
<tr>
<td>M</td>
<td>4.60</td>
<td>4.00</td>
<td>.500</td>
<td>.707</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.17 shows the differences in the respondents' views with respect to educational levels. Five of the seven categories of teaching effectiveness in which there
are differences refer to teaching skills and knowledge. The differences occur primarily with respect to the educational level, on the one hand, of persons with a journeyperson, certificate, and/or diploma designation, and on the other, of those who have completed an undergraduate degree. When the sets of mean scores are compared for the purposes of vocational education meeting the students’ employment needs and meeting the employers’ needs, I noted that the instructors who have a university degree more strongly agree with the two survey items.
Table 14.17

Comparison of Educational Levels

<table>
<thead>
<tr>
<th>Teaching effectiveness statement</th>
<th>Educational Level</th>
<th>Educational Level</th>
<th>Obtained $t$</th>
<th>df</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Paces the presentations in a methodical and complete manner.</td>
<td>Jny/cert/dip $^1$ (n = 42)</td>
<td>Undergraduate degree (n = 33)</td>
<td>-2.234</td>
<td>73</td>
<td>.029</td>
</tr>
<tr>
<td>$M$</td>
<td>4.40</td>
<td>4.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.627</td>
<td>.467</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Presents clear explanations.</td>
<td>Jny/cert/dip $^1$ (n = 42)</td>
<td>Undergraduate degree (n = 33)</td>
<td>-3.007</td>
<td>73</td>
<td>.004</td>
</tr>
<tr>
<td>$M$</td>
<td>4.57</td>
<td>4.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.590</td>
<td>.292</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Communicates performance criteria for in a clear manner.</td>
<td>Jny/cert/dip $^1$ (n = 42)</td>
<td>Undergraduate degree (n = 33)</td>
<td>-2.281</td>
<td>73</td>
<td>.025</td>
</tr>
<tr>
<td>$M$</td>
<td>4.48</td>
<td>4.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.552</td>
<td>.502</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Has a firm grasp of the technical skills.</td>
<td>Jny/cert/dip $^1$ (n = 42)</td>
<td>Undergraduate degree (n = 33)</td>
<td>-2.593</td>
<td>73</td>
<td>.011</td>
</tr>
<tr>
<td>$M$</td>
<td>4.52</td>
<td>4.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.552</td>
<td>.392</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Believes that a fundamental purpose is to meet the employment needs of students.</td>
<td>Jny/cert/dip $^1$ (n = 42)</td>
<td>Undergraduate degree (n = 33)</td>
<td>-2.289</td>
<td>73</td>
<td>.025</td>
</tr>
<tr>
<td>$M$</td>
<td>3.95</td>
<td>4.36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.825</td>
<td>.6991</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Believes that a fundamental purpose is to meet the needs of employers.</td>
<td>Jny/cert/dip $^1$ (n = 42)</td>
<td>Undergraduate degree (n = 33)</td>
<td>-2.184</td>
<td>73</td>
<td>.032</td>
</tr>
<tr>
<td>$M$</td>
<td>3.74</td>
<td>4.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.857</td>
<td>.755</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Presents clear explanations.</td>
<td>Undergraduate degree (n = 33)</td>
<td>Postgraduate degree (n = 12)</td>
<td>3.325</td>
<td>43</td>
<td>.002</td>
</tr>
<tr>
<td>$M$</td>
<td>4.91</td>
<td>4.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>.292</td>
<td>.522</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^1$ Jny/cert/dip refers to journey/certificate/diploma.

*Reliability.* To assess the internal consistency of the 28 items that made up the survey in the effective teaching categories of skills, knowledge, values, and attributes, I...
used one of the more common reliability coefficients, the Cronbach Alpha. This test is based on the inter-item correlations. The SPSS-generated coefficient was .93, a number that suggests that the survey instrument had a very high level of internal consistency (McMillan & Schumacher, 2001).

Qualitative Data

To probe more deeply into the question of what constitutes effective teaching in postsecondary vocational settings, I requested that respondents write their definition of effective teaching. One of the research questions asked, What are the skills, knowledge, values, and attributes of an effective instructor in the technologies and trades? Seven themes emerged from the written response data. In this section of the chapter, I discuss the themes that emerged from the respondents’ definitions of the term effective teaching, the respondents’ comments with reference to the survey, and the focus group proceedings.

Theme one: encouraging the development of job-related skills and knowledge. Several quotes taken from the instructors’ responses serve to illustrate this theme. They wrote that effective teaching is “using the skills and knowledge acquired from industry to enhance the knowledge passed on at the postsecondary level”, “allowing the learner to develop the skills and abilities to perform in the area chosen”, “high quality relevant training that is consistent with industry practices”, providing “the learner with knowledge and skill to begin employment in their chosen field”, to “train the student to function fully in their chosen profession”, “providing the student with the practical skills and knowledge in the classroom, so that they can achieve their maximum potential outside of the classroom”, and “giving the students the effective skills necessary, using a variety of techniques, for them, to achieve more meaningful employment”.

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Theme two: presenting material in a clear and organized manner. The respondents who wrote definitions strongly supported this theme. Examples of what the instructors wrote were: effective teaching “means that subject material must be presented in a manner that can be learned by all students”, “the ability to describe a topic in a way that the majority of the students completely understand it”, “will make most of the students in class understand the basic concepts of the topic under discussion”, “making the material easy to understand”, “presenting curriculum and demonstrating skill in a clear, organized manner”, “presenting technical material in such a manner that the student understands the subject”, and “ways to communicate the information/skill in a way that is clear and meaningful”.

Theme three: imparting knowledge in a caring, enthusiastic way. Effective instruction, several teachers noted, involves “a knowledgeable and enthusiastic instructor attempting to pass on their knowledge and skills to a learner”, “a person with a caring heart, knowledge of his trade, enthusiasm for his/her trade”, “communication of theory and skill sets with enthusiasm and commitment in a learner-centered environment”, “knowledgeable instructors who enjoy teaching adult students, an “instructor to impart knowledge, understanding, and the ability to use both to the student in a manner that is enjoyable, positive, and of value to the student”, “creating an interest in the students so as to build an enthusiasm about the subject”, and “a commitment to learning by the student which is enabled by a supportive environment”.

Theme four: promoting lifelong learning. Examples of the instructors’ responses were that effectiveness in teaching “requires a strong background in the real world and a passion for continued self development in lifelong learning. You then are a credible
teacher able to motivate by example”, “preparing a student for the workplace and continued learning”. “instills the belief in the student that they are on an educational journey in life and should never stop learning”, “guide the learner in their own discoveries and instill enthusiasm for lifelong learning within their profession and their lives”, and “acting as a mentor and guide in preparing the student for a career that includes lifelong learning”.

Theme five: meeting the learning needs of students. Several instructors wrote definitions that identified this theme. Some quotes from these instructors were: “allow students to be in control of their own learning”, “to teach the students how to learn effectively in their discipline”, “to effectively facilitate learning for every individual student”, and “effective teaching is the ability to adapt your teaching to meet the needs of various students”.

Theme six: keeping current with technology. This theme was drawn from the responses of three instructors. In their responses, they wrote that effective teaching is “applied by the instructor having the funds and time to keep on top of the tech[ology]”, “presenting up to date (current technology) material to students”, and staying “current with technology”.

Theme seven: sharing and creating knowledge. Instructors noted that effectiveness in teaching was “sharing of expertise and knowledge”: “sharing knowledge and process with individuals so they may build a strong foundation and add value or actualize their experience”; and employing “principles of teamwork, respect and the co-creation of knowledge”.

82
Table 4.18 shows the frequency distribution of the themes. As a percentage of the written responses, Table 4.18 indicates that the theme of encouraging the development of job-related skills and knowledge was the most frequently occurring theme. In terms of a percentage this theme was 32.9% of the total number of written responses.

Table 4.18

Frequencies of Themes (N = 70)

<table>
<thead>
<tr>
<th>Themes</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

Wall, Nardi, Von Minden, and Hoffman (2002) reported that creating a caring, supportive and enthusiastic learning environment is, in general, the most important aspect of effective teaching. My research indicated that there are two other more important aspects of vocational teaching to which instructors must attend. These findings were not surprising, in light of my own experience.

Respondents' comments. Item 2 of Part 3 of the survey invited instructors to add other comments or suggestions. Some of the comments referred specifically to Part 1, the demographic items, and some to Part 2, the teaching effectiveness items. One person wrote, "Part 1 and 2 are all motherhood statements! How can anyone disagree with any of them?" Another respondent stated, "I think that your questions are somewhat leading in that regardless of how an instructor actually performs in the classroom, all the points you mentioned are the ideals to which we aspire. As such I don't think your survey will be too enlightening; it will confirm what we believe the ideals to be." A third comment was, "How could any effective instructor not agree or strongly agree with all the survey questions?" An instructor agreed with this statement when she/he wrote, "I do not see
how anyone could not strongly agree with all these statements. You may learn more if you created a survey, which sets these in groups and have them ranked or if you tried to find out how people do these things.” One instructor responded by stating, “The questions were geared to receive certain positive data. A few statements that were negative or not ideal teaching characteristics would have been beneficial. The survey seemed artificial.”

Other instructors added comments that elaborated on their definitions of effective teaching. For example, one respondent wrote that, “Teaching is more than giving information. It’s also style.” “Students can only be as enthusiastic about a subject as their instructor. Enthusiasm of the instructor is vitally important.” “Effective teaching requires instructors who can teach knowledge and skills that are practical in the workplace.” “Maintaining clinical currency (ability to function safely and competently in the ‘real’ workplace) enable an instructor to keep abreast of technological change and provide realistic, applicable outcomes for the student learning.” “Effective teaching needs to direct or assist the learner with critical thinking skills.”

Focus group interview. I invited respondents to participate in a focus group at each of the two SIAST campuses to discuss the preliminary results of the survey in early October. At one of the campuses, only one person was prepared to participate in a focus group. At the second campus, nine instructors volunteered to attend an hour-long session. In the end, five instructors participated.

I asked the participants to suggest why the response rate was 39.5%. They offered the following reasons: the time commitment of about 25 minutes to complete the survey may have been all that time strapped instructors wished to spend; some instructors do not
fill out any surveys that come across their desks either electronically or in hard-copy form; some instructors do not want to help other instructors; those who did respond were concerned about effective teaching. Despite the lower response rate, the consensus of the focus group was that I would still be able to get a reliable picture of the instructors’ views of effective teaching from the data.

One instructor noted that she/he felt that survey’s teaching effectiveness items led to certain responses and were self-evident statements; however, another participant believed that not everyone who responded would think that these items were self-evident. A third instructor felt that the information about instructing that was contained in the effective teaching statements was valuable in prompting instructors to think about their own teaching. The general view of the participants was that the statements in Part 2 of the survey were all interrelated and important elements of good teaching. One instructor emphasized that the way an instructor presents the teaching and learning material is the most important aspect of effective teaching.

I invited the instructors to comment on items 16 and 17 in the Values section of the survey. With reference to item 16 the participants suggested that, “educational and personal beliefs” are separate concepts and should have been in separate items, and that many instructors do not reflect upon their views, they just teach. In relation to item 17, which relates to the employment readiness aspect of vocational education, the focus group members commented that the item was not clear; that giving students job-related skills is the most important aspect of postsecondary vocational education, and that there is not enough time to teach “softer” skills and/or that these are for universities to offer.
Each member of the focus group was given a copy of the themes of teaching effectiveness that I had identified from the qualitative data. Each person ranked the themes in order of importance from her/his point of view. Among the five participants, there was no general agreement on the order of importance of the themes, although there were two that were ranked highly by most of the instructors. The two themes were: presenting material in an organized and clear manner, and promoting the acquisition of job-related skills and knowledge. Many of the responses from the focus groups corroborated the fact that many of the definitions of effective teaching provided by the instructors in the survey emphasized these two themes. Table 4.18 shows the point that for many technologies and trades instructors, presenting material clearly and working with students to develop job-related skills and knowledge are important aspects of effective teaching at the postsecondary vocational level.

**Summary**

In this chapter I presented an analysis of the quantitative and qualitative data that were gathered by means of the survey and the focus group. Descriptive statistics showed the occupational and gender groups, and the use of cross tabulations provided a more complete picture of the demographic nature of the respondents. Using $t$-tests and mean scores, I showed the significant differences between the instructors’ views of effective teaching and the attributes of effective instructors with respect to the demographic variables. The statistics provided by the $t$-tests also indicated that the instructors were in moderately strong agreement with the teaching effectiveness variables that were presented in the survey.
In analyzing the qualitative data, I identified the themes that emerged from the respondents' definitions of effective teaching. These themes provided a response to the research question, How do technologies and trades instructors at SIAST Kelsey and Wascana campuses define effective teaching?

The two sets of data provided me with a glimpse of the views of the instructors about their teaching world. On the one hand, the quantitative data yielded a general impression of what the instructors think are the important elements of effective teaching. On the other hand, the qualitative data, including the focus group's comments, presented me with a more detailed observation of the instructors' perspectives. In examining the two sets of data, I found the qualitative set to be more stimulating because of its personal, and what I assume to be, honest and forthright nature.

In the next chapter I discuss the results of the data analysis and the implications for teaching-practice and further research.
CHAPTER FIVE: CONCLUSIONS AND IMPLICATIONS

I conducted this research study in the context of postsecondary vocational education. This sector makes significant contributions to Saskatchewan’s economy and social development, by providing educational opportunities for developing technologists and tradespersons. By virtue of its size in terms of student population and four campuses, SIAST is the province’s largest provider of vocational education. SIAST employs instructors who aim to teach students to be capable and skilled employees.

In this chapter I show how the findings that were reported in Chapter 4 relate to the three research questions and the literature review that formed the conceptual framework for this study. I draw conclusions from the reported findings, and provide several suggestions regarding future research in effective teaching in postsecondary vocational education settings.

Research Questions

I undertook this study of effective teaching in the technologies and trades in order to make a contribution to the small but growing body of research focusing on this important component of teaching effectiveness research. SIAST has not systematically studied how instructors of technologies and trades areas perceive effective teaching. In the research literature of teaching effectiveness, there were few studies centering specifically on teaching in postsecondary vocational education contexts. Because of this scarcity, I asked two research questions: How do the technologies and trades instructors at Kelsey and Wascana campuses define effective teaching? and What are the skills, knowledge, values, and attributes that they perceived are needed to be an effective technologies and trades instructor? A third research question emerged: What, if any, are
the significant differences in the instructors' views of effectiveness with respect to teaching discipline, years of teaching, gender, age, and educational levels. The conceptual framework shown in Figure 1 of Chapter 2 and these three research questions guided the development of the survey instrument.

Literature Review

From a review of the teaching effectiveness research literature with respect to postsecondary teaching, several key elements surfaced. These elements helped me as I developed the survey's categories of effective teaching variables. However, the literature not only revealed what constituted good teaching, it also displayed a variety of teaching effectiveness research studies. In my survey I specifically asked for instructors to define the term effective teaching and I compared their definitions and the themes that arose from these responses to the aspects of effective instruction that appeared in the literature.

Initially, the literature review focused on the research studies from the 1940s to the early 1960s. These studies identified such topics as the relationship between course organization, teaching methods, faculty attitudes, and student learning as measured by grades (McKeachie, 1963).

Trent and Cohen (1973) cited studies of teaching effectiveness, which demonstrated that small groups and self-directed learning enhanced students' understanding of the course content and their satisfaction with the course. Brophy's (1992) assessment of the research in the 1970s was that teachers have the capacity to make a positive difference in student learning by promoting a dialogue between students and teachers. Shulman's (1986b) summary of the research of the 1970s and early 1980s
identified themes in effective teaching such as the roles of instruction, the classroom environment, and teachers' knowledge in facilitating student learning.

Further analysis of the literature showed that a set of personal and educational beliefs had the potential to drive and sustain the movement of teaching (Brookfield, 1990; Hare, 1993; McArdle & Coutts, 2003). These authors argued that such beliefs were essential to becoming a skilled instructor who thoughtfully reflected on her/his teaching as it affected students emotionally and academically.

With reference to the purposes of vocational education, the literature provided a diversity of views. Some writers argued that one of vocational education's purposes was to assist people in acquiring employment (Coe, 1973; Glendenning, 1998). Other authors indicated that in addition to the development of job-related skills, the purpose of vocational education was to give students the tools to participate in community life (Olivo, 1973; Shoemaker, 1973). Several researchers promoted the view that working toward personal autonomy and self-exploration was also a critical part of vocational education (Burke, 1994; Pucel, 1990; Winch, 2000). Some writers advanced the position that vocational education needed to provide opportunities for students to think critically about their own educational environment, the workplaces into which they will enter, and the communities in which they live (Dewey, 1916/1966; Gaskell, 1993; Jackson, 1993; Scheffler 1995a, 1995b).

Several writers discussed other important attributes of effective instructors. These attributes were: creating a supportive learning environment (Brookfield, 1990; Noddings, 2001; Ralph, 1998; Rogers, 2002; Wall et al. 2002); fostering lifelong learning (Brophy, 1992; Dewey, 1938/1963; Selman et al., 1998; Sutton, 1996; Van Grinsven & Tillema,
2006); being reflective (Beck & Kosnik, 2002; Brookfield, 1990, 1996; Conzemius & O'Neil, 2002; McKeachie, 1986; Ralph, 2003); being knowledgeable (Achtenhagen & Grubb, 2001; Muijs & Reynolds, 2001; Porter & Brophy, 1998; Ralph, 1998; Shulman & Shulman, 2004); and teaching from the heart (Greene, 2001; Gusthart & Harrison, 2003; Hare, 1993; Palmer, 1998; Wall et al., 2002).

The survey of the literature formed the basis of the conceptual framework. The parts of the diagram shown in Figure 1, Chapter 2 are key teaching skills, the essential knowledge, the key values, and the key attributes. These parts formed the categories of effective instruction in vocational education. I formed these categories by grouping the aspects or dimensions that were discussed in the literature into four general categories of effective teaching.

Discussion of the Quantitative Results

The response rate to the survey was 39.5%, which fell at the lower end of the acceptable 40 to 60 percent of response rate range for surveys that had a sample size greater than 200 (McMillan & Schumacher, 2001).

The response rate was higher for the technologies instructors. An explanation for this higher rate may be that more technologies instructors have an interest in research studies coming out of a university, because as a percentage more of the teachers in this instructional group have a connection with a university. Sixty-seven percent of the technologies instructors had at minimum, an undergraduate degree. In contrast, 31.4% of the trades teachers had at least a bachelor’s degree. It is possible that the number of instructors who pursue a university degree may increase in the future as SIAST moves ahead in requiring all its new full-time instructors to enroll in the Faculty Certificate
Program (FCP). The incentives to move to higher salary levels more quickly, by means of completing university courses, for example, may also encourage more instructors to seek higher academic qualifications. One possible beneficial outcome of this scenario would be an increasing number of SIAST instructors who would have, in addition to their valuable experience in their technological and trade fields, a strong foundation in teaching skills, and an articulated and developing educational philosophy.

I raise the issue that SIAST may face a shortage of technologies and trades instructors within the next 10 years because instructors in the 51 - 60 years old category will be retiring or will have retired. Even some of the instructors in the 41 - 50 years old category may be considering retiring or will have retired. The potential shortage of instructors may negatively affect the ability of SIAST to provide education in the technologies and trades to the extent that it wants to. In turn, this shortage may lead to a drop in course offerings in these two educational areas, thereby leading to fewer technologists and tradespersons being available to meet the anticipated future labour market needs.

If I had subdivided the age categories into smaller groupings of five-year age ranges, I may have been able to be more specific about the possible details. However, with 25 of the 87 instructors being at least 51 years old and edging closer toward the typical retirement age of 60 to 65, SIAST will need to devise ways to recruit new instructors to ensure that it will continue to provide the vocational education opportunities needed to meet the growing demand for technologists and tradespersons (Statistics Canada, 2006a).
Another suggestion to meet the need for experienced instructors is to encourage retired instructors to take up term teaching positions, while an active search for full-time less experienced and younger instructors continues. Less experienced instructors would benefit from this extended relationship with experienced instructors, especially where discussions focusing on teaching are frequent, collegial, and intentional, that is to say, for the purpose of understanding and improving teaching.

Women made up 21.4% of the sample, and they comprised 25.3% of the respondents. In order to address this inequity in the number of female instructors in the two instructional groups, SIAST may need to more actively recruit women who are either technologists or tradespersons. In addition to a recruitment drive, SIAST might consider some forms of affirmative action that would minimally open some of the employment doors for women. Any affirmative action program would need the support of the employees and the in-scope employees’ union, SGEU. Affirmative actions have frequently stirred up debate over the validity, efficacy, and fairness of having a certain number or percentage of positions within a faculty, for instance, reserved for women. The objective fact does remain that there is a paucity of female instructors in the trades, particularly. With a thoughtful recruitment plan based on job-market data, the active input of faculty, and plenty of goodwill, affirmative action may redress the gender imbalance that presently exists, in both the technologies and trades faculties, at least at two of SIAST’s campuses.

The data from the t-tests indicated that in several of the comparisons of the means of two sample groups, there were statistically significant differences in the instructors’
views of teaching effectiveness. Differences were illustrated using the tables in Chapter 4.

Many of the significant differences centre on those instructors with 0–5 years or teaching experience and those with more than 20 years of experience. These differences may be related to the idea that novice or beginning instructors concentrate on their survival more than experienced teachers (Shulman, 1986a, 1987; Veenman, 1984) and that just getting through a teaching day was an accomplishment. Thinking deeply about such teaching dimensions as organizing one’s presentation in a logical manner or knowing how vocational knowledge is organized in a curriculum may not be as important as completing one day and getting prepared for the next. The means, however, shown in Table 14 indicated that even the least experienced instructors still agreed with many of the specific teaching effectiveness statements.

The difference between the instructors with 16–20 years of experience and those with more than 20 may be explained by the idea that the more experienced instructors may believe they have a strongly developed set of teaching skills and understanding of teaching and that professional development with respect to this category of teaching effectiveness at this time in their careers is not pressing.

Of the four independent variables in which differences in responses to the teaching items were illustrated, gender had the least number of differences. In the responses to the five effectiveness items, women instructors were in stronger agreement with them. Although the differences were statistically significant, the means for the male instructors indicated strong agreement with all of the items except for one, and that item dealt with the purpose of vocational education meeting the needs of employers.
The stronger agreement on the part of women instructors for participating in professional development may be connected to the fact that more women having at least, a bachelor’s degree recognize the value and importance of continuing to develop one’s professional competencies.

For the comparison of groups by age two differences are noteworthy. First, the instructors in the 31 – 40 range were in much stronger agreement with the statement regarding asking questions of students, than were younger instructors and those in the age range 41 – 50. This difference may be related to this group of 31 – 40 years old instructors having a greater sense of confidence as explained by McArdle and Coutts (2003). Second, the age group greater than 60 agreed with the importance of professional development less strongly than did the age group 51 – 60. This difference is similar to the one shown where instructors with more than twenty years of experience were not in as strong agreement with the teaching dimension of participating in professional development for the purpose of enhancing teaching skill. The fact that instructors in this age cohort are closer to retirement than the instructors who are 51 –60, may indicate that the older instructors have other more pressing concerns, for example, planning for retirement. The older instructors may also feel that they have participated in enough professional development activities in previous years.

Of the significant differences shown between groups by comparing educational levels, the majority of differences were between the group of instructors who hold certificates and/or diplomas and the group who have undergraduate degrees. Although the instructors with certificates and/or diplomas agreed with the survey items, the agreement was not as strong as those teachers with bachelor’s degrees. These differences may be
connected to the fact that having completed a degree generally indicates that they had been exposed to a variety of teachers and teaching methods. With this exposure comes a more developed sense of the importance of clear communication.

The instructors were in generally, in strong agreement with the teaching effectiveness items. Many of the effective teaching items I included in the survey were derived from the literature review. The Kelsey and Wascana instructors agreed that effective teaching is based on such elements as: enthusiastic and respectful interactions with students, an extensive understanding of the subject material, meeting the employment needs of the students, and reflecting on one’s own teaching practice. The research literature identified similar aspects of teaching effectiveness.

The connection between the findings in the research literature and the respondents’ views of the skills, knowledge, values, and attributes that they perceived are needed to be an effective instructor suggests that effective teaching at all educational levels has several common aspects. More comparative research in effective teaching in academic settings and vocational settings, for example, is needed to describe and explain the differences between the two teaching areas. This research may assist colleges of education and individual instructors in planning courses and personal development activities that focus on improving teaching in specific educational environments. Specifically, for SIAST, offering orientation courses that meet the immediate needs of new instructors and assessing the merit of the classes in its FCP, depend, in part, on what makes for effective teaching in vocational settings.
Discussion of the Qualitative Results

In this section I discuss the results of the qualitative data as reported in Chapter 4.

Definitions of effective teaching. In Chapter 4, I identified seven themes of teaching effectiveness. These themes emerged from the definitions of effective teaching, which 70 instructors wrote in Part 3 of the survey. The seven themes were: encouraging the development of job-related skills and knowledge; presenting material in a clear and organized manner; imparting knowledge in a caring, enthusiastic way; promoting lifelong learning; meeting the students’ learning needs; keeping current with technology; and sharing and creating knowledge. These themes provided answers to the research question that was originally posed to investigate the perceptions of effective teaching. Several teachers stated that teaching effectiveness in postsecondary vocational education must emphasize the development of job-related skills and knowledge. Coe (1973) and Glendenning (1998) asserted that a fundamental characteristic of vocational education was skill development for employment ends. Dewey (1916/1966) and Scheffler (1995b) emphasized that vocational education must include employment preparation. The survey results in this study indicated that a majority (81.6%) of Kelsey and Wascana instructors agreed that one of the beliefs of an effective teacher was that a fundamental purpose of vocational education was to meet the labor needs of employers.

I arranged for five instructors to pilot the survey. Of this number, two of them indicated that effective teaching in vocational education must stress the teaching of practical skills and knowledge that the students will need to be employed. The respondents’ definitions in the survey corroborated the remarks made by the pilot
instructors: the ability to pass on job-related skills and knowledge to students was the most important aspect of effective teaching.

A second theme of skilled teaching arising from the respondents’ definitions was that course materials must be presented clearly and in an organized manner. McKeachie (1963), Trent and Cohen (1973), and Brophy (1992) identified clarity of presentation as a significant feature of effective instruction. The survey addressed this specific aspect of teaching by breaking it down into four components: providing an overview for all lab/shop/classroom activities, logically organizing all teaching presentations, methodically pacing these presentations, and clearly explaining all concepts. Most instructors agreed or strongly agreed with the statements as presented in the survey. The results of the survey supported the theme articulated by the instructors and also found in the literature review.

Imparting knowledge in a caring and enthusiastic way was another theme that emerged. As noted above, several educational researchers addressed this theme. For example, Brookfield (1990) referred to this way of teaching as “teaching responsively” (p.30); and Maxine Green (2001) spoke about teaching as communicating “a kind of passion” (p.85). I interpret this manner of presenting course content and this general interaction with students as teaching from the heart (Palmer, 1998). The survey contained three items that were linked to this theme: responding appropriately so as to encourage learning and self-worth (noted as a skill), creating a supportive and caring learning environment (noted as an attribute), and building a positive teaching and learning environment (noted as an attribute). Almost all instructors agreed that disseminating knowledge was a skill, and the caring manner by which it was practiced, an attribute.
Dewey (1938/1963), Selman et al. (1998), and Sutton (1996) discussed the importance of promoting lifelong learning as a prominent aspect of teaching. Several instructors referred to continued learning or lifelong learning in their definitions of effective teaching. A mean score of 4.42 (See Chapter 4 Table 12.) for the teaching effectiveness statement in the survey (Appendix B, Item24) indicated that the instructors agreed that encouraging students to continue learning after they have completed their programs was an attribute of an effective instructor.

Meeting the learning needs of students was another theme arising from the definitions put forward by the technologies and trades teachers. Skills such as encouraging class discussion and managing the lab/shop/classroom activities in ways that encouraged learning were part of teaching effectiveness. Having knowledge in the areas of adult vocational education and learning, of organizing vocational knowledge for instruction, and of applying a variety of teaching techniques were seen to be aspects of teaching effectiveness. The results of the survey upheld this view. Several authors including Beck and Kosnik (2002), Ralph (1998), Rogers (2002), and Shulman (1986b) stressed the necessity of having knowledge in the areas of content, pedagogy, and curriculum in order to be able to meet students’ learning needs. The instructors’ definitions and the results of the survey supported the finding noted in the research literature, that a notable aspect of teaching effectiveness was satisfying the learning requirements of students.

Only a few instructors wrote that keeping current with technology was a central feature of effective teaching, however a mean score of 4.49 on Item 26 of the survey (Appendix B) indicated strong agreement with the statement that participating in
professional development activities that enhance their technical knowledge and skill was an attribute of effective instructors. Shulman (1986b; Shulman & Shulman, 2004) stated that "subject matter knowledge" (p. 26) was one of the three kinds of knowledge that effective teachers possessed. Ralph (2003) referred to this kind of knowledge as "knowledge of the material" (p. 101). In the view of the Kelsey and Wascana instructors, keeping current was linked to the idea that, if one of vocational education's principal purposes was to promote the development of job-related skills and knowledge, then instructors must keep abreast of the technological advances taking place in their fields of specialization by taking part in professional development.

Beck and Kosnik (2002) and Roth et al. (2002) reported that effective educators encouraged student-teacher conversations. Brophy (1992) stated that skilled instructors created "a social environment that could be described as a learning community where dialogue promotes understanding" (p.6). These thoughts meshed well with the theme of sharing and creating knowledge with students as expressed by several instructors in the study. For these SIAST teachers, knowledge was not transmitted to students but was shared and created with them. Encouraging class discussions and building a positive teaching and learning climate, two statements that received strong support from the instructors, were linked to this notion of student-teacher dialogue.

From my discussions on teaching with my colleagues, I would say that helping students develop their knowledge and job skills is our most important instructional role. However, in working as a cooking instructor, I believe that the foundation upon which this aspect rests is the creation of a caring, supportive, and enthusiastic learning milieu. For many students their ability to develop their employment skills and enhance their trade
knowledge is, in part, affected by the spirit of the classroom, lab, or shop floor. I have found that if my cooking lab is a place where we respect each other, where participants are excited about making delicious food, and where I genuinely care about the students’ well-being, then students liked learning about the cooking trade.

The Kelsey and Wascana instructors perceived effective teaching in multidimensional ways. The views expressed in the definitions of teaching effectiveness formed themes that were strengthened by the strong agreement that the instructors showed for the survey’s statements regarding the skills, knowledge, values, and attributes of an effective vocational education instructor. These elements were documented in the related literature.

Respondents’ comments. In Chapter 4, I included several comments that instructors had provided regarding the nature of the survey’s teaching effectiveness statements. In general, the thrust of the comments was that the survey’s statements articulated the teaching skills, knowledge, values, and attributes that effective teachers value would be difficult to disagree with. A similar concern was raised by two of the instructors who piloted the study. In reflecting upon these remarks and the results of the survey, which showed minor variances in the instructors’ responses, I am aware of the limitations of the data-gathering instrument that I designed. The survey may have generated more revealing data about what instructors believed to be effective teaching skills if, for example, I had asked the teachers to select and comment upon the most important teaching skills from a given list, or if I had asked them to generate the ten most important skills.
However, there were comments that suggested that the survey was a useful instrument. One respondent stated, “I answered the survey by choosing what I believe should be happening.” Another instructor wrote, “Thank you for the chance to share in this dialogue for effective teaching.” One of the key intentions of the survey was to find out what the instructors believed or perceived to be effective teaching.

Two comments that were made in the pilot study lent support to the remarks regarding the strength of the survey. One pilot instructor wrote, “While I was filling out the survey I felt the questions were well thought out.” Another instructor stated, “I found the survey useful in re-evaluating my own instructional methods and their usefulness.” This latter comment was echoed in the focus group, when one participant said that the survey was useful in prompting her/him to reflect upon their teaching.

Overall, the respondents’ comments on the survey and in the pilot study pointed to the strengths and weaknesses of the survey instrument.

*Focus group interview.* The focus group interview provided me with an opportunity to have the participants comment on the preliminary results of the research study. One finding from the focus group discussions was that some respondents felt that the survey lacked statements about effective teaching that would encourage the instructors to think critically about effective teaching in general or about their own teaching practices in particular. On the other hand, another finding was that my study did prompt the instructors to think about their teaching. A third result was the realization that for many instructors, the primary purpose of teaching vocational subjects in postsecondary settings is the development and enhancement of job-related skills and
knowledge. To accomplish this purpose, the respondents emphasized that teachers must be clear and organized in their instruction.

Conclusions

This study of effective teaching has shown that there was general agreement on the part of the respondents regarding their views about the skills, knowledge, values, and attributes that they perceived are needed to be an effective vocational education instructor. The agreement was shown in Chapter 4, Table 12. However, the results of the $t$-tests showed that there were statistically significant differences in the instructors’ views with respect to the teaching experience, gender, age, and educational levels for a selected number of teaching effectiveness statements. Despite these statistical differences, the means scores reported in the $t$-tests, showed that in most cases, there was agreement on the instructors’ views of teaching effectiveness and the attributes of effective instructors. The reported differences related to the strength of the agreement as indicated by the means.

While there was general concurrence on these elements, there were differences in the definitions of what constituted the essential meaning of effective teaching. In Chapter 4, I identified the written themes that emerged from the respondents’ definitions of effective teaching. These themes ranged from conceiving effective teaching as the instructor working with students to develop their job-related skills and knowledge, to seeing effective teaching as the instructor motivating students to appreciate learning as a process that will continue over their lifetimes.

Naturally, instructors will provide different responses to open-ended items on a survey. In the case of the SIAST instructors who have had diverse experiences as
students and as instructors, their answers to the essential nature of effective teaching were diverse. One thing that was common about the themes that emerged from the instructors' responses was that the themes, in general, have a strong student focus. In other words, the themes emphasized that good teaching aims to enhance the quality of the student's learning experience. My belief is that the respondents offered student-focused definitions of effective teaching because they were able to speak both from a student's and an instructor's perspective. The respondents' own experiences in the educational system strongly influenced their views of what constitutes good teaching.

Brookfield (1990) explained that teachers who strive to understand what students experience as they learn are able to skillfully and empathetically match their teaching to the learning needs of students. The thoughtful definitions of effective teaching in this study illustrated Brookfield's point.

The respondents indicated that effective teachers believe that a fundamental purpose of vocational education is the preparation of students for employment. In the literature Dewey (191/1966), Glendenning (1998), and Scheffler (1995a, 1995b) emphasized the importance of this preparation. Working with students to develop their job-related skills is one key difference between effective teaching in postsecondary vocational education settings and that in postsecondary academic education environments. There are exceptions to this difference, however, such as in professional faculties, where for example, dental colleges prepare students for work as dentists.

The study also showed that meeting the labour market needs of the employers was an element of teaching effectiveness of vocational education instructors. Except for those teaching effectiveness studies that focused on vocational education, there were no other
studies that I cited, which referred to meeting the employers’ need for skilled workers as a component of effective teaching. As in the dental example, exceptions to this rule are the professions, such as teaching and nursing. In short, teaching in postsecondary vocational education settings has as one of its purposes, as identified in the study’s findings, meeting the employers’ needs for competent workers.

Because of these two purposes of postsecondary vocational education there is a sense of immediacy associated with teaching technologies and trades. By immediacy, I mean that teaching influences the students’ development of occupationally relevant skills that will be used on the job in the very near future. SIAST’s technologies and trades programs are one to two years in length, while most apprenticeship training blocks are eight weeks long after which, the students are immediately back to their jobs.

The study’s findings also showed that many of the effective teaching variables, which the review of the literature indicated, were similar aspects of teaching effectiveness across all educational levels. For example, presenting clear explanations of concepts and terms and having a core set of educational and personal beliefs that guide instructors appear to be part of effective teaching regardless of the level an instructor teaches. Effective teaching at the postsecondary level, whether vocational or academic, rests on a similar foundation of instructors’ skills, knowledge, values, and attributes.

Implications

Teaching-practice. For SIAST’s administration, this study indicated that the respondents have similar views with reference the views of effective teaching and the qualities that are perceived are needed to an effective instructor. SIAST has demonstrated through the Faculty Certificate Program and the professional development workshops its
commitment to working with instructors to enhance their teaching abilities. I suggest that SIAST will need to continue to provide adequate funding to continue these worthy initiatives.

To strengthen this commitment to teaching, the administration might consider developing and implementing a system of paid educational leaves of absences for instructors who wish to return to industry and/or attend university classes in order to reinvigorate their technical and teaching knowledge and skills. The survey data showed that the instructors believed that participation in professional development activities in both of these aspects related to vocational education were attributes of effective instructors.

SIAST has developed a partnership with the University of Regina (U of R) with reference to the FCP. Those instructors who complete this certificate program can continue at the U of R’s College of Education in the BEd program. The SIAST administration may want to negotiate with the College of Education, University of Saskatchewan (U of S) for a similar agreement regarding the transfer of credits from the FCP to the College’s degree program. At the same time, SIAST may wish to consider lobbying the U of S to increase its course offerings with respect to adult vocational education.

Tardif and Blanchette (2000) described a vocational teacher education program that Quebec has implemented. In that province when vocational teachers are hired by public vocational schools, they “must pursue teacher education” (p. 6). During the time that the new teachers are enrolled in the instructor preparation program, they are matched with mentors who work in the same occupational area. The University of Quebec at
Sherbrooke manages the instructor preparation program. Over the teaching year, the novice instructors have “periods of theoretical instruction and reflection on practice teaching called decontextualization periods” (p. 7) when they work with mentors and periods of time when the new teachers work in their instructional fields. Both the new instructors and the mentors receive support from the university. SIAST administration may wish to consider this method of delivering its FCP for two reasons: one, as a way of involving experienced instructors in the education of their fellow instructors and two, as way of more closely integrating teaching/learning theory and practice throughout the year during normal working hours.

For instructors, the study showed how the respondents perceive effective teaching and what an effective instructor does, knows, and values. The respondents agreed that an effective instructor reflected on her/his own teaching practice in order to understand and improve it. The instructors may wish to encourage each other, in both formal and informal settings, to share their thinking about their teaching practices with a view to strengthening them. Sharing their “best practices” in teaching with each other would be a practical and easily organized professional development and reflective activity.

I can comment on several of the personal and professional benefits that come from an active involvement in professional development activities. As a graduate student, one of the most satisfying activities for me was the discussions with other students that arise from the readings, papers, and presentations that form an integral part of every graduate class. Essentially, many of these discussions centered on sharing our stories as elementary, high school, or postsecondary teachers as we struggled to understand what we did in our daily work and how we go about doing our jobs. The conversations with
other instructors gave me a formal, yet friendly, forum in which to respond to new ideas and new techniques about teaching. From the conversations came changes in the ways I teach and in re-examining the purposes for teaching. In a very personal way, the graduate studies energized my instructional work.

This study also indicated that the respondents were interested in thinking critically about good teaching. Teaching and learning are linked. By virtue of their participation in the study, the instructors may be more inclined to ask students how their teaching influences the students' learning. By opening up the subject of how teaching affects learning, the instructors and students may find new and creative ways to enhance the teaching-learning process. To invite interested SIAST faculty and students to engage in this conversation would be a worthwhile venture.

One suggestion that I offer in order to start this student-faculty conversation is by means of a community-style meeting of interested faculty and students at Kelsey Campus. The purpose of the meeting would be to explore ideas on how teaching could be made more effective and record them in the form of an effective instructor's idea book. A short preliminary document containing several effective teaching ideas from research studies would be written by a small group of students and instructors. Working through the Kelsey Students' Association (KSA) and the Saskatchewan Government and General Employees' Union (SGEU), the organizing committee would distribute the preliminary document and put the call out for interested participants. The community-style meeting would allow for a safe place for people to discuss the contents of the preliminary document and arrive at a consensus as to the contents of the effective instructor's idea book. This book would contain ideas that could serve to make teaching and learning in
vocational settings exciting, attractive, and relevant to the needs of both students and instructors.

Using Table 4.13 in Chapter 4, I present a “portrait of an effective vocational educator”. The instructor has these characteristics:

- Demonstrates how to use hand tools/utensils, shop/lab equipment, and machinery safely and effectively;
- Presents clear explanations of concepts and terms in labs, in shops and in lectures;
- Displays an enthusiasm for her/his subject and for teaching;
- Responds appropriately so as to encourage student learning and self-worth;
- Has a firm grasp of the technical skills associated with her/his trade or technology;
- Manages the lab/shop/classroom activities in ways that encourage learning;
- Organizes her/his presentations in a logical manner;
- Communicates performance criteria for practical activities and written tests in a clear manner;
- Has an extensive understanding of the subject material that she/he teaches;
- Provides a preliminary overview of the lab/shop/classroom activities;
- Reflects on her/his own teaching practice in order to understand and improve it;
- Builds a positive teaching and learning climate.

*Further research.* Further studies into the nature of effective teaching in postsecondary vocational education settings are needed. My study focused on the instructors’ perceptions of teaching effectiveness. Another research focus might be the investigation of what instructors actually do day-by-day in their varied instructional settings. Further qualitative research such as studying instructors’ daily journals and
conducting peer field observations could also be useful data-gathering instruments. Surveys that ask instructors to describe their work in a number of areas such as lab demonstrations, lectures, and group discussions could provide additional rich sources of data in vocational education settings.

Another possibility could be to involve the instructors in the formulation of other research questions of a study and its research design. This initiative could lead to studies that would be of particular benefit to the instructors in their teaching-practice. The instructors may feel a greater commitment to research projects if they play an integral part in all phases of the research studies.

Recently, SIAST appointed a director of applied research whose job is to develop and implement an applied research strategy. Research projects that aim to understand and improve the work of instructors must become a part of SIAST’s applied research strategy. Up to this point, the institution has done little in terms of effective teaching studies. With the active participation of its instructors, SIAST must develop its own sets of both quantitative and qualitative data on what constitutes good teaching. Using this data, the instructors and the administration, could plan professional development activities that offer the possibility for instructors to enhance their teaching abilities.

Furthermore, qualitative and quantitative research that includes the active participation of students is vital. As the focus of teaching should be the enhancement of students’ learning, studies that investigate the effects of teaching on student self-esteem, confidence, academic achievement, and technical skills development could prove to be valuable.
Other possible research studies need to address the gender imbalances that appear to exist in the two instructional groups. The results of my study showed that, in particular, there were only two female trades instructors in the sample of 220. Such studies on the gender issue may find solutions to critical questions as: How can SIAST attract more women into trades education? and How can SIAST more actively recruit female trades instructors?

A research study that would focus on determining the need for, and identifying the potential teaching-effectiveness benefits of a paid back-to-industry and educational leave system would be useful. It would provide data upon which both instructors and SIAST administrators could base their decisions regarding future professional development plans.

Summary

In this chapter I made concluding comments that were based on the analysis of the data from the study. In addition I proposed several implications for both enhancing teaching-practice and conducting future research projects.

It is my hope that this study first may inform the decisions that SIAST takes in planning future professional development initiatives for its instructors. Further, it may provide information for interested educators from other vocational education institutions, who likewise are endeavouring to improve their teaching/learning process.
REFERENCES


September 12, 2005

Dear Instructor,

I am an instructor in the Professional Cooking Program at Kelsey Campus and a part-time master’s student in the College of Education, University of Saskatchewan. This letter is a request for your cooperation in a study I am conducting on teaching effectiveness in postsecondary vocational education. The purpose of the research, titled *A Study of Teaching Effectiveness from a Postsecondary Vocational Education Perspective*, is to obtain information on the views of trades and technologies instructors on teaching effectiveness. The instructors of the Kelsey and Wascana campuses are being surveyed to find out their views of the skills, knowledge, values, and attributes that are needed to be an effective instructor. Also, I wish to find out what effect such factors as years of teaching experience and gender have on instructors’ views of effective instruction.

This research study received ethical approval from the University of Saskatchewan, Behavioural Research Ethics Board on June 24, 2005.

Information will be collected using the attached survey that takes about 20 minutes to complete. To ensure anonymity and confidentiality, please do not put your name or the name of your campus or program on the survey.

Please return the completed survey in the same envelope to my thesis supervisor. A peel-and-stick address label and postage stamp are attached for your convenience. Be assured that I will receive the completed surveys only and not the return envelope. Please ensure that you seal the return envelope. These two measures will aid in protecting your confidentiality and anonymity. By completing and returning the survey, you will have given consent to participating in the study. Would you kindly complete and return the survey by Monday, September 26?

The potential risks to your participation are minimal; however, by marking the survey in any way that could identify you as the respondent would mean that your anonymity and confidentiality are potentially compromised. Surveys that have identifying marks will be destroyed by the research supervisor before the surveys are returned to me.

The survey’s summary results will be available to those SIAST individuals and groups who express an interest in knowing the results. I would be pleased to discuss the results with you and your fellow instructors if you wish. To further aid in protecting your confidentiality and anonymity, the summary of the results will be given as aggregated (or collected together) data and if quotes are used, they will be anonymous. I will also report the statistical results of the study, with some direct quotes taken from the anonymous responses to the statement in Part Three, in my thesis, in journal submissions, and in conference and workshop presentations.

Thank you very much for your anticipated cooperation. If you have questions or comments, please contact me (telephone 306-933-8046; e-mail rohatynsky@siast.sk.ca) or my supervisor, Edwin Ralph (telephone 306-966-7583; e-mail edwin.ralph@usask.ca). If you have questions about your rights as a participant, please contact the Office of Research Services—Ethics Unit, University of Saskatchewan, 306-966-2084.

Sincerely,

Michael Rohatynsky
APPENDIX B: SURVEY
Effective Teaching by Trades and Technologies Instructors of SIAST Kelsey and Wascana Campuses

Thank you for taking the time to complete this short survey that is based on your views of effective teaching in the courses that you teach. In order to assure anonymity, please do not put your name or the name of your campus or program on the survey. By completing the survey it is understood that you do so voluntarily and that you consent to the use of your responses in the study. The survey consists of three parts:

Part 1 Background information. Please clearly indicate your response by shading in the bubble completely. Please do not use checkmarks (√) or an (x).

Example: In responding to this survey, I am doing so for (select one):

Technologies Trades

Part 2 Selected response items. Please indicate your response by shading in the bubble completely. Please do not use checkmarks (√) or an (x).

Part 3 Two open-ended responses. Please write a brief definition for the term effective teaching as it applies to postsecondary vocational education.

Comments and suggestions.

PART 1 Instructions: In responding to the following items, please shade in the bubble completely.

1. In responding to this survey, I am doing so for (select one):

Technologies Trades

2. Years of teaching experience:

0 to 5
6 to 10
11 to 15
16 to 20
More than 20

3. Gender:

Female Male

4. Age:

21 to 30 years
31 to 40 years
41 to 50 years
51 to 60 years
More than 60 years

5. Indicate the level or levels of postsecondary education that you have achieved (select all that apply):

Journeyperson Certificate Diploma
B.A. and/or B.Sc B.Ed.
Post-graduate diploma M.A. and/or M.Sc.
M.Ed. Ph.D.
**PART 2**  

**Instructions:** Please shade the bubble completely for the response that best matches your views of effective teaching in postsecondary vocational education (VocEd).

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Disagree or Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

**An effective VocEd instructor:**

**A. Teaching Skills**

1. Provides a preliminary overview of the lab/shop/classroom activities.

2. Organizes her/his presentations in a logical manner.

3. Paces the presentations of lecture material and the demonstrations of technical skills in a methodical and complete manner.

4. Presents clear explanations of concepts and terms in labs, in shops and in lectures.

5. Demonstrates how to use hand tools/utensils, shop/lab equipment, and machinery safely and effectively.

6. Asks questions that assist students in understanding the material.

7. Responds appropriately so as to encourage student learning and self-worth.

8. Encourages class discussions.

9. Manages the lab/shop/classroom activities in ways that encourage learning.

10. Communicates performance criteria for practical activities and written tests in a clear manner.

**B. Knowledge**

11. Has an extensive understanding of the subject material that she/he teaches.

12. Has a firm grasp of the technical skills associated with her/his trade or technology.
13. Understands the principles of adult vocational education and how adult students learn specific subject material.

14. Knows how vocational knowledge is organized for instructional purposes.

15. Knows and uses a variety of teaching techniques.

C. Values

16. Has a core set of educational and personal beliefs that guide her/his actions as a teacher.

17. Believes that a fundamental purpose of VocEd is to meet the employment needs of students.

18. Believes that a fundamental purpose of VocEd is to meet the labour market needs of employers.

19. Believes that a fundamental purpose of VocEd is to assist students in understanding the nature of the workplace in order to improve its conditions.

20. Believes that a fundamental purpose of VocEd is to support students in their personal development.

D. Attributes

21. Creates a supportive and caring learning environment.

22. Builds a positive teaching and learning climate.

23. Motivates students to appreciate learning.

24. Encourages students to continue learning after the completion of their programs.
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Disagree or Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflects on her/his own teaching practice in order to understand and improve it.</td>
<td></td>
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</tr>
<tr>
<td>Participates in professional development activities that enhance her/his technical knowledge and skills.</td>
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</tr>
<tr>
<td>Participates in professional development activities that enhance her/his teaching knowledge and skills.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displays an enthusiasm for her/his subject and for teaching.</td>
<td></td>
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</tbody>
</table>

**PART 3**

1. Please write your definition for the term *effective teaching* as it applies to postsecondary vocational education.

2. Please add any other general comments or suggestions with reference to the survey and effective teaching.

Thank you for completing this survey.
August 26, 2005

Mr. Michael Rohatynsky  
Instructor, Professional Cooking  
Saskatchewan Institute of Applied Science and Technology  
Kelsey Campus  
Idylwyld Drive and 33rd Street  
Saskatoon SK S7K 3R5

Dear Michael:

Re: Thesis Research – Effective Teaching by Trades and Technologies Instructors

Upon review of your request, it is my pleasure to inform you that permission is granted to conduct on site research at the Saskatchewan Institute of Applied Science and Technology in support of your Master’s studies.

The permission to conduct your research study extends to include the use of a survey and two focus groups as the principal means of gathering and confirming your data. You may refer to this letter of endorsement as a formal commitment of support for the conduct of on site research.

I wish you every success in this interesting doctoral research endeavour.

Sincerely,

Claude Naud  
Vice-President, Programs

lmc
APPENDIX D: ETHICS APPROVAL
NAME: Edwin G. Ralph (Michael Rohatynsky) Curriculum Studies

DATE: June 24, 2005

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the Application for Ethics Approval for your research study "A Study of Teaching Effectiveness: A Postsecondary Vocational Education Perspective" (05-125). Thank you for making the requested revisions and clarifications.

1. Your study has been APPROVED.

2. Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

3. The term of this approval is for 5 years.

4. This approval is valid for one year. A status report form must be submitted annually to the Chair of the Research Ethics Board in order to extend approval. This certificate will automatically be invalidated if a status report form is not received within one month of the anniversary date. Please refer to the website for further instructions http://www.usask.ca/research/behavrec.shtml

I wish you a successful and informative study.

Dr. Valerie Thompson, Chair
University of Saskatchewan
Behavioural Research Ethics Board

VT/ce
APPENDIX E: CONSENT FORM
Consent Form

You are invited to participate in a focus group as part of the study entitled, *A Study of Teaching Effectiveness from a Postsecondary Vocational Education Perspective*. Please read this form carefully, and feel free to ask questions you might have.

**Researcher:** Michael Rohatynsky, Curriculum Studies, College of Education, University of Saskatchewan, contact numbers: (w) 306-933-8046, (h) 306-664-6236, e-mail: rohatynsky@stast.sk.ca

**Research Supervisor:** Edwin Ralph, Graduate Coordinator, Curriculum Studies, College of Education, University of Saskatchewan, contact number: (w) 306-966-7583, e-mail: edwin.ralph@usask.ca

**Purpose and Procedure:** The purpose of the study is to explore the nature of effective vocational teaching at the postsecondary level. The purpose of the focus group is to discuss the preliminary results of the survey data. The focus group will meet for approximately 60 minutes. There will be no audio recording, video recording, or verbatim recording of the proceedings. Using flip chart paper, I will summarize the discussions. There will be no use of the participant’s name on the summary notes. You will be asked before adjourning the focus group to verify that my notes accurately reflect the expression of the group’s views.

**Potential Risks:** There is little social risk; however, if a member of the focus group breaks the confidentiality of the groups by identifying those who participated in the proceedings, then, yes, there is a loss of privacy.

Although the benefits as not necessarily guaranteed, the potential benefits to you are that you will critically discuss the preliminary results of the survey data, make comments to improve the meaning of the data, and suggest future research directions. Your participation has the potential of providing greater understanding of the nature of effective teaching in postsecondary vocational education settings.

**Confidentiality:** The summary notes will be used in the thesis, journal submissions, and conference and workshop proceedings; however, no audio recording, video recording, or verbatim recording will take place that can link you to any of the summary notes. There are limits to which I can ensure your anonymity and confidentiality. I ask that you respect the anonymity and confidentiality of the other members of the groups by not disclosing anyone’s name or what that person said outside of the group, and that you should be aware that others may not respect your anonymity and confidentiality.

**Right to Withdraw:** You may withdraw from the study for any reason at any time without penalty of any sort. If you withdraw from the study, your data will be destroyed.

**Questions:** If you have questions concerning the study, please feel free to ask; you are also free to contact the researcher at the numbers provided above if you have questions at a later date. This study has been approved on ethical grounds by the University of
Saskatchewan Behavioural Sciences Research Ethics board on June 24, 2005. Any questions regarding your rights as a participant may be addressed to the ethics committee through the Office of Research Services (306-966-2084).

The survey's summary results will be available to those SIAST individuals and groups who express an interest in knowing the results.

**Consent to Participant:** I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above and understand that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

_____________________________  _______________________
Signature of Participant                  Date

_____________________________
Signature of Researcher