

DISSERTATION

POST-BACCALAUREATE REVERSE TRANSFER STUDENTS AND  
TWO-YEAR RESTRICTIVE ACCESS ALLIED HEALTH PROGRAMS

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

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Fort Collins, Colorado

Summer 2003

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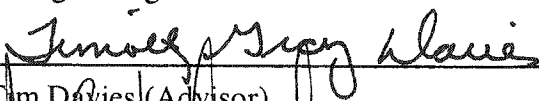
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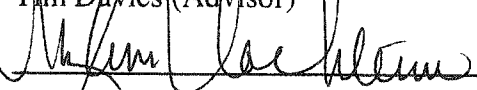
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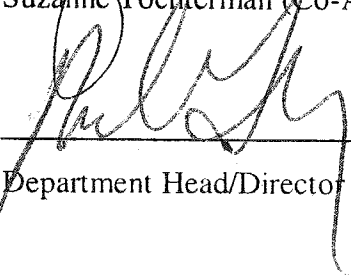
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## ABSTRACT OF DISSERTATION

### POST-BACCALAUREATE REVERSE TRANSFER STUDENTS AND TWO-YEAR RESTRICTIVE ACCESS ALLIED HEALTH PROGRAMS

This dissertation presents and compares the demographics and pre-admission profiles of post-baccalaureate reverse transfer (PBRT) students who apply to the restricted allied health programs of nursing (ADN), dental hygiene (ADH) and radiological technology (ART) to non-bachelor degree students applying to the same program. In addition, information concerning the impact PBRT students who are accepted into restricted access allied health programs are having on the mission statement of the institution is also presented. Eleven allied health programs (5-nursing, 3-dental hygiene, 3-radiological technology) in the state of Colorado provided grade point averages of prerequisite coursework, pre-entrance exam scores and whether the applicants were accepted or not into the program.

The numbers of PBRT students applying to restricted access allied health programs is small and does not seem to be an issue at this time. However, the numbers of PBRT students who apply to these restricted access allied health programs could possibly increase if other factors such as a weak economy come into play. The pre-admission profile of PBRT students and non-bachelor degree students applying to the restricted access allied health programs showed no statistically significant differences in age, grade point average of required prerequisite coursework, or performance on pre-entrance exam except for radiological technology, where PBRT students were significantly older.

In three programs, one nursing and two dental hygiene, non-bachelor degree students were seen as being denied access because PBRT students were accepted into the program. However, in comparison of the two groups of students a chi square analysis of accepted and not accepted PBRT students and non-bachelor degree students shows no statistical difference in PBRT students being accepted as compared to non-bachelor degree students into the eleven restricted access allied health programs.

For the selection criteria of the eleven programs studied, the diversity of criteria used was extensive. Findings provided evidence that the programs which have a restricted access type of selection operate on an autonomous design where interviews with the chairs of these programs expressed that they wanted to maintain their autonomy. However, recent state mandates have threatened this autonomous existence for the nursing programs in Colorado and all nursing programs now operate by a first-come, first-served design.

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# CHAPTER I

## INTRODUCTION

### *Overview*

Traditionally, college transfer has been the vertical progression of a student's academic career from either a secondary school or a two-year institution to a four-year college or university. Yet today, transfer has become tremendously varied (de los Santos & Wright, 1990). Students not only transfer from the community college to the four-year college or university, but laterally transfer to other two-year schools as well. In addition, students can "reverse transfer" from a four-year institution to a two-year institution. Students who reverse transfer without obtaining an undergraduate degree are identified as undergraduate reverse transfer (URT) students. Students who reverse transfer after having earned a four-year degree or a graduate degree are known as post-baccalaureate reverse transfer (PBRT) students. This study will focus on post-baccalaureate reverse transfer students, their demographics and pre-admission academic profile, and how their admission into a restricted access allied health program impacts both non-bachelor degree students who have applied to the same program and the community college mission statement.

Historically, early studies that have been done on reverse transfer students have not differentiated between those transfer students who have earned a baccalaureate degree and those who have not (Heinze & Daniels, 1970; Kuznik, 1972; Hudak, 1983). In these early years, some reverse transfer students who did not have a four-year degree were described by Lee (1975) as a "retread function." The expanded interpretation of "retread function" is that a community college now represents the way of academically educating

(retreading) students who are seen as seeking more than remedial academic records, but also seeking less pressure of intense competition, more realistic educational goals, more personal assistance or guidance in selecting educational or occupational objectives, less financial burdens in achieving their goals or other adjustments to individual problems (Lee, 1975). Or, some reverse transfer students in these earlier studies were seen as a "salvage effort," or a way to recoup "second chance" students by receiving low grade point average university students, improving their grade point average at the 2-year institution, and then having them return to the 4-year school with greater chance for success (Brimm & Achilles, 1977). These two terms, retread function and salvage effort, along with other terms such as second-chance (Lock, 1964) and cooling-out (Clark, 1960; Simon, 1967) became the ways of identifying these academically disadvantaged reverse transfer students in the 1960s and 1970s.

Yet, studies in the 1980s have shown that the majority of reverse transfer students attending community colleges were not experiencing academic difficulty at the four year institution; instead they enrolled based on lower cost (Slark, 1982), smaller size of the institution, faster preparation for job opportunities (Benedict, 1987), and the flexible schedule along with a convenient location (Hill-Brown, 1989). It was here in the mid to late 1980s when the reverse transfer student group was seen as two separate groups of students, PBRT students and URT students. Hogan (1986) showed that of the 11,803 students who newly enrolled in Fall 1984 into 13 unidentified two-year colleges in Kentucky, 2715 (23%) were reverse transfer students and 570 (21%) of that group were PBRT students. She showed that PBRT students had enrolled in the community college to satisfy short-term occupational goals aimed at upgrading job skills or making themselves

more employable. Her study contributed to a study done by Harris (1997) that focused on PBRT student demographics.

Since the early 1990s research data presented information concerning the PBRT student demographics exclusively (Jackson, 1990; Kajstura & Keim, 1992). The PBRT student demographics presented in these studies are limited; yet, significant details to these studies follow. Jackson (1990) examined students' reverse transferring from North Texas area senior colleges to Tarrant County Junior College (Texas) in the fall 1984. Out of 608 transcripts that were reviewed, 133 (22%) were PBRT students. Jackson (1990) showed that PBRT students had earned a higher grade point average than non-bachelor degree students. In addition, PBRT students often enrolled in the two-year college to supplement occupationally related skills in computer sciences, foreign languages, business administration, and accounting. Kajstura and Keim (1992) surveyed 525 reverse transfer students (both part-time and full-time) in spring 1989. There were 306 students who responded (62%) and 296 surveys were by reverse transfer students. The 296 surveys included 86 (29%) from PBRT students. Within these 86 surveys there were 22% indicating a bachelor's degree and seven percent had graduate degrees. Kajstura and Keim (1992) compared PBRT students' and URT students' demographics. The mean age for the entire sample of 296 was 29.6 years. However, the mean age for PBRT students was 36.7 years. More than half (52%) of the sample students were married, 75% of the PBRT students and 38% of the URT students. Over two-thirds of the PBRT students (68%) were holding full-time jobs and only 7% of PBRT students. In career direction, 74% of PBRT students were seeking a change of occupation.

As has been presented, PBRT student research has been fairly recent. In fact, it hasn't been until the late 1990s that PBRT student research has increased. Harris (1997) provided the following data concerning PBRT student demographics. A total of 885 reverse transfer students in the Kentucky Community College system had completed a survey. Of that number, 148 were PBRT students. The mean age for this group of students was 37.5. The gender difference showed 39.2% were male and 60.8% female. Ethnicity, 93.2% of all PBRT students were white, 2.7% were African American, 2.7% were Hispanic American, and 1.4% were Native American. In marital status, PBRT students are 37.8% single, 48.6 % married, 10.1% divorced and 3.4% widowed. Lastly, in employment status 58.1% of PBRT students were employed full-time while 27% were employed part-time. There were 14.9% of the PBRT students who were unemployed while attending school.

The American Association of Community Colleges has estimated that the PBRT student population represents between 10-20% of the current national two-year institutional population (Gose, 1997). Depending on geography and community demographics, PBRT student enrollment has varied from less than one percent for rural Dyersburg State Community College (Townsend, 1997) to over 20% at Piedmont Virginia Community College, a suburban school in Charlottesville, Virginia (Klepper, 1991). In addition, the academic services that the community college can provide to PBRT students can vary from one or two courses that assist in an area of life-long learning to a completely different career change requiring an Associate's degree.

In the area of career change and opportunity, post-baccalaureate reverse transfer students have been a focus of research in determining what their needs are and how the

community college can meet those needs (Delaney, 1995). Trombley (1993) showed that for 60% of the 130,000 baccalaureate degree holders in California in order to stay employed, each must attend the community college for job retraining or professional development, a service that two-year institutions provide very well. Delaney classified PBRT students as completer reverse transfer and shared the following: "The success of the completer reverse transfer [PBRT] student is a key weapon in the battle of unemployment. Community college educators need to make efforts to assure that this population attains its goals" (1995, p. 5). Thus, a rationale for admitting PBRT students can be attributed to not only an increase in tuition revenue for the institution, but for the retraining of this population (Trombley, 1993) and the potential of reducing unemployment (Delaney, 1995).

Yet, if PBRT students are admitted to restricted access allied health programs which are associated with higher paying jobs (Lambert, 1993), it would seem to figure that someone else applying for the same allied health program could very well be denied a seat in the program. PBRT students gain the admission while at the same time deny someone else with equal qualifications, potentially someone who does not have a four-year degree from being selected for that same position. Unemployment numbers would decrease for PBRT students going into the allied health field, but what would happen to the unemployment numbers of those who do not have a four-year degree?

The rest of this chapter will present the rationale for admitting PBRT students into two-year programs and how their admission could impact students who do not have a four-year degree and the community college mission. Questions will be presented in the Mission Statement and Rationale section providing a foundation for the research problem

and research questions. The Significance of the Study section will provide the importance of this research with respect to policy and legislative decision-making. Lastly, the chapter will conclude with a definition of terms and the limitations and delimitations associated with this project.

### *Mission Statement and Rationale*

Townsend (2000) qualitatively investigated a number of documents in an attempt to determine if the rationale for the admission of PBRT students into the community college was justified by the community college mission statement. Rationales for admission included, but were not limited, to the following:

1. Life long learning. (Rue, 1976)
2. Improving academic quality. Raising the standards for the school. (Templin, 1983)
3. Serving community members. (Lambert, 1994)
4. Second Chance for PBRT students to enter the job market. (Townsend, 2000)
5. Continuing Education for careers. (Townsend, 2000)

Yet, are these rationales complete? Are PBRT students taking courses to improve their own personal interests through life-long learning or are they taking specific courses to pursue a new career? Weaver (1999) discovered that 90% of 296 PBRT students enrolled in three South Carolina Technical Colleges had chosen associate degree programs in fields different from their undergraduate discipline. Thus, Weaver presented the following question for possible further study: "...why would such a large percentage (91.2 percent) of adult students deem it necessary, or preferred, to pursue a terminal program different from what they had already spent four or more years studying?" (Weaver, 1999, p. 112).

Weaver feels this to be a possible school-to-work mismatch at the four-year and graduate level.

### *Impact of PBRT Students on the Community College*

Do PBRT students improve the academic quality of the community college, or do they make it harder for students who do not have a previous undergraduate degree to attain academic success in their coursework by “raising the scholastic bar”? Heath’s (1965) model of maturing states that the college experience creates a special form of maturation separate from the maturity that occurs as a function of aging could well apply here. Post-baccalaureate students differ in maturity from either younger community college students or other adult students who do not already have a college degree. This could be an important issue, specifically if a pre-assessment exam such as the Nursing Entrance Test (NET) or an interview is required in the application process for a restricted access program, where a limited number of students are admitted.

Heath’s assumption that maturation occurs in the college environment raises important questions about differences between bachelor degree graduates and non-bachelor degree college students. Do PBRT students interpret their environment differently and behave differently from other students on community college campuses (Lambert, 1993)? Does this gain in maturity provide an academic advantage for them? Heath’s (1965) model of maturity level provides strength in the view that PBRT students would have an academic edge over non-bachelor degree students and would create an unlevelled playing field in regard to academic performance.

If grades for prerequisite courses are required in the selection process for a restricted access program, the advantage certainly becomes clear. Post-baccalaureate

reverse transfer students may provide academic quality to the community college by raising the scholastic bar, but there are potentially negative aspects associated with their admission, which may require community college leadership to address future policy and procedure decisions so that the needs of all students can be met fully.

Are community members having their needs met by having PBRT students enrolled in the community college? For a post-baccalaureate reverse transfer student seeking to enter a nursing program and pursue a higher paying career, the answer would be yes. In another case, there are students who are less academically prepared in the community unable to enroll because a PBRT student has taken their seat in a limited access program. What this dilemma leads to is a reevaluation of the mission statement of the community college. Whose needs have priority, non-bachelor degree students or PBRT students?

Throughout the 1990s, communities nationwide had to deal with conditions of unemployment or underemployment. Delaney (1995) feels that two issues come to the forefront when people begin to believe that obtaining a vocational education will lead to employment opportunities, and therefore an improvement in the community by providing a workforce. The first issue she raises is whether community colleges should determine what is good for the community. The community college can develop and increase the number of skilled students to fill various jobs in the community. But, by adding more skilled labor the college can eventually flood the market and lead to the lowering of hourly wages. Her second issue is, "If the community college can only accept a certain number of students into vocational education, then who will be left out?" (Delaney, 1995, p. 40). Templin (1983) feels that the admission of PBRT students goes against the original

mission of the community college, which is to provide for those students classified as second chance, i.e., students who did not do well in K-12 education. Templin (1983) argues, "The danger is confusing improving quality with the abandonment of institutional mission, for whom community colleges have been the last chance – the only chance" (p.39). Interestingly, Delaney (1995) stated, "In the future, unless the mission of the community college is narrowed and focused, administrators will have to rely on other resources in order to make decisions" (p. 41). This was the case in California when a differential fee was applied to PBRT students (Hagedorn & Castro, 1999). This was the higher fee structure that the California Governor and legislature implemented in 1993 on PBRT students as a way of partially addressing the fiscal crisis that community colleges were experiencing due to proposition 13 in 1978 and the California recession in 1988. Students with baccalaureate degrees were required to pay an additional \$50 per unit credit hour "differential fee" to enroll in community colleges. However, the result was a severe decline in enrollment. Sixty thousand students (41%) who had four-year degrees and who were enrolled at two-year institutions immediately dropped out. "A monumental paradox emerged: the policy that was designed to pull the community colleges up from the depths of financial devastation was instead pushing them down deeper into the mire" (Townsend, 1999 p. 19).

Do some PBRT students require a second chance to getting back on their feet financially, or are they already financially solvent and want to improve their skills? Klepper (1991) and Lambert (1993) found that the predominate reasons PBRT students enroll into two-year programs are employment and personal growth. Renkiewicz, Hirsch, Drummond and Mitchell (1982) in their earlier study of reverse transfer students that

included PBRT students presented similar responses. Reverse transfer students were asked why they decided to pursue school, and three responses emerged. They were (1) improving occupational skills; (2) training to get a job; and (3) discovering career interest. These reasons tend to reflect students who are trying to turn their lives around but seeking new ways to better their marketability in the workforce and to enhance their own personal desires.

What careers are PBRT students pursuing that a two-year institution would have to offer them? Looking at the health care industry, forecasts show that tremendous growth is expected in the twenty-first century (Bureau of Labor Statistics, 1995). Careers such as dental hygiene, radiological technology, and nursing are but a few of the many health areas expecting such growth. Each of these allied health areas begins with training that could start and end at the community college level. If enrollment increases should take place in the years to come (Greenwald, 1993), then the potential for PBRT students to apply could increase as well.

Lambert (1993) attempted to answer questions surrounding PBRT students' presence in a Maryland community college and uncover issues that might arise based on their attendance. One important finding was that administrators and faculty were split in determining whether PBRT students had any affect on first time students who attended the community college, did not have a degree, and planned to apply to a restricted access program. This issue of PBRT students being admitted into restricted access courses such as Nursing (ADN), Dental Hygiene (ADH) and Radiological Technology (ART) presents the focus of this study. Are PBRT students in fact present in restricted access allied health associate degree programs that are linked to higher paying jobs? If so, are non-bachelor

degree students who meet the requirements for being selected being denied access to the program?

### *Purpose Statement*

This study will investigate whether PBRT students attending community colleges have an advantage in accessing restricted access programs by means of selection criteria as compared to students who do not have a four-year degree. This research will present the actual numbers of students who apply and the pre-admission demographics of both PBRT students and students who do not have a previous four-year degree and who apply to the two-year restricted access allied health associate programs of nursing (ADN), dental hygiene (ADH), and radiological technology (ART). From their prior academic performance, PBRT students and students who do not have a four-year degree will be compared to each other in pre-requisite grade point average and performance on a pre-entrance exam. In addition, demographic data will be compared to present similarities and differences in the two groups of applicants.

### *Research Questions*

The following research questions guided this study:

1. How many and what percent of post-baccalaureate reverse transfer and non-bachelor degree students are accepted in these restricted access allied health associate degree programs: nursing (ADN), dental hygiene (ADH) and radiological technology (ART) for the entering class of Fall 2001?

2. What is the demographic and pre-admissions profile of a post-baccalaureate reverse transfer student applying to a restricted access allied health program? How does the PBRT student profile compare to those who do not have a four-year degree?

3. Are the selective criteria for admission uniform throughout the Colorado Community College System (CCCS) or are they unique to each institution?

4. Are students who do not have a previous four-year degree and who meet the admission criteria for a two-year restricted access program being denied access to ADN, ADH, and ART programs because PBRT students are being admitted?

5. Do post-baccalaureate reverse transfer students gain an advantage through the admission selection criteria used in restricted access programs over students who do not have a four-year degree?

#### *Significance of the Study*

PBRT students are an increasing segment of community college enrollment. As the PBRT student population increases, more information will be required by two-year schools, elected officials, and state legislators to better understand the needs of not only PBRT students, but the entire community college population so that decisions such as the one concerning the differential fee in California can be made with greater understanding and assurance. Focusing on the PBRT student population and their admission into restricted access programs will help to provide needed information for future decisions at both the institutional and state levels.

This study will determine whether PBRT students are in fact applying to restricted access programs and if so, whether they are displacing students who do not possess a four-year degree. The significance of this finding will provide quantifiable evidence of whether PBRT students are being admitted to restricted allied health programs. In addition, interviews with discipline chairs of these programs will provide insight into whether their respective community college mission statement is being followed or has been abandoned

with respect to the admittance of post-baccalaureate reverse transfer students into restricted access programs. The significance for these interviews will provide the philosophical views of programs and why they have adopted various selection criteria to their admissions.

### *Definition of Terms*

The following terms used in this investigation are given the specific definitions below:

1. Post-Baccalaureate Reverse Transfer (PBRT) Students– Students who already have at least a bachelor’s degree before they enroll at a two-year college (Townsend, 1999).
2. Undergraduate reverse transfer (URT) students – Students who begin their education at a four-year school and then transfer to a two-year school and stay there, perhaps to degree completion (Townsend, 1999).
3. Non-Bachelor Students –Students who do not have a four-year degree while attending a two-year institution.
4. Reverse Transfer Students – Students who have attended a four-year institution at least once before enrolling in a two-year institution. It includes both PBRT students and (URT) students (Townsend, 1999).
5. Restricted Access Programs (Selective College Admissions) – The exercise of discretionary powers of selection by an institution of higher education. Selection is based on merit as determined by the college rather than on order of application and is limited to those who are judged to have a reasonable probability of success in their chosen program of studies. Academic achievement, recommendations, reports of character, personal

qualities, and entrance examinations are important elements in the selective admissions procedure. Personal interviews are sometimes required. The policy is sometimes referred to as restrictive admissions (United States Office of Education, 1968)

### *Limitations and Delimitations*

There are several restrictions in this research study concerning post-baccalaureate reverse transfer students and their admission in restricted access allied health programs within the Colorado Community College System (CCCS).

1. The research population was limited to the students who applied to the ADN, ADH and ART programs within the Colorado Community College System (CCCS). Data were collected for the entering class Fall 2001. Aims Community College and Colorado Mountain College were not included in this study because they are not in the Colorado Community College System (CCCS).

2. This study examined only the allied health programs of associate degree nursing, dental hygiene, and radiological technology. Other programs such as optical technician, surgery technician, and pharmacy technician were not included in this study because the number of programs active in the state was too small, and they enrolled too few students.

3. A limitation of this study related to differences in schools, their application processes, and whether uniformity exists in the information each application seeks.

4. Another limitation related to differences between schools in applicant selection criteria. The criteria varied among schools, leading to many variables that contribute to the selection of candidates.

## CHAPTER 2

### REVIEW OF LITERATURE

A review of the professional literature relating to this study is presented in this chapter. The chapter begins with an overview representing the research on post-baccalaureate reverse transfer (PBRT) students. The overview will address the community college mission statement and its chronology, demographics and characteristics of PBRT students, and developmental theories associated with them as well. Next, the overall research problem concerning the application and admission of PBRT students into restricted access allied health programs is presented. A brief summary concludes the chapter.

Literature concerning post-baccalaureate reverse transfer (PBRT) students has been nearly non-existent before the 1980s. Reverse transfer research done before the 1980s did not differentiate between PBRT students and non-bachelor's degree students. Both unique sets of students were incorporated as one group and were addressed as reverse transfer students. However, after 1980 research has addressed PBRT students specifically.

#### *Mission Statement Chronology and PBRT Student Admission*

From its beginning, the community college mission has been grounded in the transfer function (Cohen, 2003). President William Rainey Harper, a proponent of the German model of higher education, believed that not only the student, but also the university faculty members would benefit if the student would attend a junior college. He

suggested that students might not have the bravery to enter a four-year institution but a willingness to proceed to a two-year institution and then enter a business or professional school (Brick, 1965). Thus, the junior college was to provide the vertical transfer function from the junior college to the university.

Today, the community college is viewed not only as a pathway to higher education, but also as an expressway to employment (Delaney, 1995). In fact, since the 1970s, the number of traditional vertical transfers has been on the decline (Lambert, 1993). What has increased is the diversity of transfer possibilities, such as students' reverse transferring with a baccalaureate degree from a four-year college or university to the community college. And, with this country's economic and employment changes, PBRT student enrollments have been on the increase in community colleges (Klepper, 1991).

The community college mission has been evolving in accommodating the community needs it was designed to serve. Yet, an underlying fundamental still remains: to be a higher education institution that serves the needs of its community. In its earlier years, the junior college was designed primarily to provide general education for students before they attended a four-year college or university. Eells found in his 1930 study of 279 junior colleges that the type of curricula offered was 69% in the form of academic subjects (modern foreign languages, social sciences, and natural sciences) and 31% non-academic subjects (music, education, and home economics) (Cohen & Brawer, 2003).

By 1958 public two-year institutions had grown to 400, but the transfer function began to decline while the vocational education function began to expand. The recession of the late 1970s initiated a response by the community colleges to provide more

vocational skill programs and expand its comprehensiveness in serving the community. This was numerically shown through enrollment increases of 114% between the years of 1970 and 1980, while the rest of the higher education institutions grew by a moderate 19% (Grubb, 1984). The two-year institutions took advantage of various federal programs designed to retrain technologically displaced workers and other unemployed people using funds provided by the Manpower Development Training Act of 1962, the Comprehensive Employment Act of 1973, and the Job Training Partnership Act of 1983 (Cohen & Brawer, 2003). The community college was easily accessible, value-added, and offered affordable programs. In 1986 the Center for the Study of Community Colleges conducted a national study revealing that while 50% of the students at the community colleges were seeking job entry or upgrading skills for work, only 36% of the students were seeking transfer (Cohen & Brawer, 2003). In 1980 Pincus stated that more than two-thirds of degree seeking students were enrolled in vocational programs and that 71% of all associate degrees and certificates were vocational (1986). With this shift in providing services from its original mission of serving as a transfer function to a vocational one, the comprehensiveness of the community college began to grow. With that growth came criticisms on which type of program the community college should support, academic or vocational. This debate is a separate discussion not addressed here; however, what is important is that PBRT students have enrolled in both academic transfer and vocational programs. The success of the community college vocational programs has led to students with baccalaureate degrees transferring to community colleges in the hope of receiving the job training that four year colleges and universities were not providing (Knoell, 1983).

The community college's mission always has been to serve the people within its respective community, but the two-year institution's new dilemma was now determining which citizen needs were most important. Students in the 1990s were seeking jobs, and the community college was providing that service the best it could. However, community colleges began to realize that they could not offer every program for which a community had a need. The community college was faced with the awareness that it could not be all things to all people. Its comprehensive design was being challenged fiscally and philosophically. Templin (1983) reports, "The community college is rapidly becoming a predominately middle-class college, accepted among white, educated middle income Americans as a higher education institution for themselves and their children" (p.39). PBRT student enrollment could be a significant contribution to this swift change in the student population. However, programs that in the past were designed for displaced workers to retrain and increase their employment opportunities could now see more PBRT students being admitted. Morgan (1979) expressed concern about this issue and inquired whether PBRT students being admitted into vocational programs as a second chance are replacing first chance students. Should slots designed for a specific portion of the population become available to PBRT students or should there be restrictions placed on their admission? This issue of PBRT student admission verses the mission statement of the community college represents a key focus for this study.

#### *Demographics and Characteristics of Post-Baccalaureate Reverse Transfer Students*

From the earliest discovery of reverse transfer students transferring from four-year colleges and universities to community colleges (Clark, 1960), researchers have conducted studies to learn more about who they are and their reasons for being enrolled (Fuller,

1987; Klepper, 1991; Kajstura, 1989). More importantly, reverse transfer students, students who may or may not have a four-year degree are becoming a significant component of community college enrollment. A nationwide study conducted by Heinze and Daniels (1970) showed that 9.44% of community college students were reverse transfer students. However, it was not until the early 1980s that reverse transfer students were found to be two groups, PBRT students and non-bachelor's degree students. Data collection concerning reverse transfers was then focused on the PBRT student component to determine the number enrolled in two-year schools. The Center for the Study of Community Colleges at the University of California at Los Angeles estimated that 7.8% of community college students nationwide were PBRT (Klepper, 1991). The January 6, 1988, edition of the *Chronicle of Higher Education* reported that the Foothill-DeAnza Community College District's enrollment was made up of nearly 10% PBRT students. Post-baccalaureate reverse transfer students at Piedmont Virginia Community College grew from 13% in 1981 (Ross, 1981) to 24% in 1991 (Klepper, 1991). Thus, within an approximate twenty-year span, PBRT students have gone from being part of the 10% group of reverse transfers in the Heinze and Daniels (1970) study to their own identified group in the community college ranging from 10 to 24% of the student population depending on its location and the programs it provides (Ross, 1982; Klepper, 1991).

What students enroll in the two-year colleges? What do they seek and why do they enroll? The answers to these questions certainly depend on the type of college, its location and mission. However, general profiles of the two-year student have been identified. A 1989 study found that 43% of all undergraduate students were enrolled in two-year institutions of higher education (Carter, 1989). Carter's study was able to piece

together a description of the average community college student: female, 28 years old, from middle to lower economic background, and a part-time attendee. Overall, of the five million students enrolled in two-year colleges, 53% are female, 50% are older than the traditional 18-24 year old college-age student, and 67% part-time students (Carter, 1989). In another study, it was determined that two-year colleges attracted students who were minorities, came from low-income families, were less academically prepared, were older, and were classified as non-traditional students (Donavan, Schaier-Pelaeg & Forer, 1987).

The demographics of reverse transfer students have been compiled by Anderson (1982) in his survey of transfer students at the Community College of Denver. Anderson surveyed 566 reverse transfer students and received a 337 (59.5%) response. He characterized the reverse transfer student as single, Caucasian, with mean and median ages of 28 and 25 respectively, self-supporting, working 40 hours a week, enrolling part-time, and attending evening classes. Additional demographic data are presented by Swedler (1980) who reported that the majority of reverse transfer students enrolled in community college were employed 20 hours weekly or less and that only 25% were employed full-time. Lastly, Hogan (1986) in a study of thirteen two-year colleges and official student records of 1984 provided additional demographic data of 86 surveyed PBRT students and is summarized in Table 1.

From this point, research began to focus on the component of reverse transfer students known as post-baccalaureate reverse transfer (PBRT) students (Kajstura & Keim, 1992; Harris, 1997; Klepper, 1991; Weaver, 1999; Delaney, 1995; Lambert, 1993). Research on the demographics (Kajstura & Keim, 1992; Klepper, 1991; Harris, 1997; Weaver, 1999; Delaney, 1995) and how PBRT students have influenced the community

college (Lambert, 1993) have been done to better understand this component of the two-year institution student body.

For PBRT students, demographics have been presented only recently, as shown by the dates of the studies. Kajstura and Keim (1992) described PBRT students through a survey of 296 reverse transfer students in ten Illinois community colleges as married, having children, working full-time and carrying fewer credits than non-bachelor's degree students. Delaney's study (1995) had 63 returned student surveys out of 138 that were sent out to PBRT students who attended Quinsigamond Community College, a comprehensive two-year college located in Worcester, Massachusetts. Their characteristics are identified in Tables 2 and 3. These data provide the demographic and educational characteristics of the PBRT students attending Quinsigamond Community College.

Lastly, of all the research studies concerning demographics and characteristics of PBRT students, Harris (1997) has been the most comprehensive and recent. Gender, race, marital status, and employment status were the descriptive areas investigated in his study with the major purpose of developing a demographic profile of post baccalaureate reverse transfer students in the state of Kentucky to assist in tracking student transfer. The Kentucky system at that time had no way of tracking reverse transfer students from the four-year university into the community college. Data from Harris' work is summarized in Tables 4 and 5 and represents 148 PBRT students.

Why then do PBRT students seek additional credit programs at the two-year level after receiving their baccalaureate degree? This question was foundational to a study done by Weaver (1999). Generally, the top four motivational factors responsible in why PBRT students pursue additional credit at technical colleges in South Carolina are professional

Table 1

*Demographic and Background Information of Reverse Transfer Students as Presented by Hogan*

Kind	Percent
Employment	
Full-time	57.1%
Part-time	17.3
Caring for family	17.4
Not employed	8.1
Two-Year Educational Goal	
Obtain two-year degree	17.5
Work toward four-year degree	23.8
Personal enrichment	36.3
Career courses to obtain job	10.0
No definite purpose	3.8
Job advancement	8.8
Ultimate Educational Goal	
No degree	22.8
Associate	15.2
Bachelor's	24.1
Master's	26.6
Professional	3.8
Doctorate	7.6
Reasons for Attending	
Low cost	46.5
Convenient location	72.1
Offered courses I wanted	62.8
Could work while attending	53.5
College reputation	14.0
Social atmosphere	10.5
Size of College	11.6
Good chance of success	22.1
Aid or scholarship	7.0

*Note.* From "An Update on Reverse Transfer to Two-Year Colleges" by R. R. Hogan, 1986, *Community/Junior College Quarterly*, 10, pp. 299, 301, 303. Copyright 1986 by Hemisphere Publishing Corporation. Reprinted with permission.

Table 2

*Demographic Characteristics as Presented by Delaney (1995) N=63*

Kind	Total	Percent
Male	28	44.4
Female	35	55.5
Married	44	69.8
Single	19	30.2
Dependents		
Yes	37	58.7
No	26	41.3
Field of BA		
Arts and Humanities	16	25.8
Business	8	12.9
Social Science	14	22.6
Science and Technology	24	38.7
Missing	1	
Length of time between degrees		
< 2 years	6	9.5
between 2 and 5 years	13	20.6
between 5 and 10 years	16	25.4
> 10 years	28	44.4

*Note.* From *Reverse Registrants in Community Colleges* (pp. 85, 87, 89), by M. A. Delaney, 1995, University of Connecticut. Reprinted with permission

Table 3

*Educational Characteristics as Presented by Delaney (1995) N=63*

Kind	Total	Percent
Field of degree at Quinsigamond		
Business	6	9.5
Health	38	60.3
Science and Technology	19	30.2
Field of degree of allied health majors		
Dental Hygiene	2	3.2
Nursing	23	36.5
Occupational Therapy	4	6.3
Respiratory Therapy	3	4.8
Radiological Technology	3	4.8
EMT Certificate	3	4.8
Attendance Status		
Predominantly Part-time	11	17.5
Part-time	21	33.3
Predominately Full-time	14	22.2
Full-time	17	27
Length of time to complete AS or certificate degree.		
Less than two years	16	25.4
Two years	32	50.8
Between 3-4 years	12	19
Four years	3	4.8

*Note.* From *Reverse Registrants in Community Colleges* (pp. 91, 92, 95), by M. A. Delaney, 1995, University of Connecticut. Reprinted with permission.

Table 4

*Demographic and Characteristic Percentages of PBRT Students as Presented by Harris:  
N=148*

Kinds	Percent
Gender	
Male	39.2
Female	60.8
Race	
White	93.2
African American	2.7
Asian American	2.7
Hispanic American	0.0
Native American	1.4
Marital Status	
Single	37.8
Married	48.6
Divorced	10.1
Employment Status	
Full-time	58.1
Part-time	27.0

*Note.* From *Reverse Transfers in the Kentucky Community College System* (pp. 103, 104), by M. R. Harris, 1997, University of Louisville: Copyright 1998 by UMI. Reprinted with permission.

Table 5

*Characteristics of PBRT Students Mean Values with Standard Deviations as Presented in Harris: N=148*

Kind	Mean Value	Standard Deviation
Age	37.46	12.22
Dependents	.80	1.44
Credit hours taken that semester	5.39	3.69
Hours Completed at 2-year so far	23.13	26.15
G.P.A.	3.49	.53

*Note.* From *Reverse Transfers in the Kentucky Community College System* (p. 69), by M. R. Harris, 1997, University of Louisville: Copyright 1998 by UMI. Reprinted with permission.

advancement, cognitive interest, educational preparation, and social stimulation. Of these four areas, the one that occurs most often is educational preparation. However, Weaver (1999) showed that out of 296 students surveyed, a very large percentage (91.2 percent) of the sample chose an associate degree program in a discipline different from their baccalaureate degree. Weaver concludes that PBRT students were not able to find employment with their four-year degree and chose a completely different career pathway in order to obtain a job.

#### *PBRT Student Background before Enrolling into Community Colleges*

In addition to the demographic data displayed in tables 2-5, Quinley and Quinley (2000) provide additional insight into who the PBRT student is. Their work combined an examination of student records to investigate demographics along with a telephone survey of students who had a four-year degree and were enrolled as first-time community college students. The college was a large urban community college; the study ran from Summer

1993 through Spring 1997; the students in the study had completed 15 credit hours at the community college. The survey included interviews and questions concerning career exploration, current job skill updates, possible supplemental income, and potential new career focus. The following information summarizes what PBRT students shared with the interviewers. When asked about career exploration, one student spoke of taking a few courses in real estate and insurance before engaging seriously in that major. Commenting on attending a large urban community college, the respondent said, "It was a good place to try courses out to see how I might like them. The college made it economically feasible to try different things" (Quinley & Quinley, 2000, p. 15). Another student decided to start a family and set aside an earned four-year degree in history. When time came to pursue a job, she recognized that her four-year degree in history and no work experience resulted in limited employment opportunities. Therefore, she chose to enroll in a smorgasbord of classes at the local community college that were of personal interest to her to determine if any one would become a dominant interest. With this strategy, the student eventually discovered law classes and entered a career in the paralegal field.

In another case, supplemental income became the reason why this person chose to pursue additional education at the community college. This respondent shared that after having a ten-year career in banking, he began pursuing courses in food preparation based on a personal interest. The respondent eventually developed a small catering business on the side and as the business grew, the respondent began taking additional classes in food and hospitality. The respondent remarked, "I started for personal interest, but I am also interested in getting a degree in nutrition and then possibly changing careers" (Quinley & Quinley, 2000, p. 17).

Three other PBRT student respondents pursued new careers completely different from their original baccalaureate degree. All three shared that they never intended to use their four-year degree as educational preparation for a career. Two of the three respondents had earned a four-year degree in the arts. Of those two, one later enrolled in the fire science field and is now employed as a fire fighter. The other was accepted into the associate degree in nursing program but later chose not to enroll, choosing to take courses for personal reasons due to the declining nursing program at the school. The third respondent had a four-year degree in human services but never intended to work in the field. The respondent worked in a dentist's office for four years before then deciding to enroll in the dental hygiene program at the community college (Quinley & Quinley, 2000).

These interviews by Quinley and Quinley (2000) presented various experiences of PBRT students and a glimpse of the diversity that PBRT students bring to the community college. The two-year institution and its comprehensive role of transfer and career/technical programs available to the community, quickly provides reasons why PBRT students are drawn into its halls. The programs are providing the answer for PBRT students to find work, programs that represent an expressway to employment as expressed by Delaney (1995).

Though this population of the two-year student body is still being researched, the demographics for PBRT students and the various reasons for why they enroll in the community college provides some backdrop on who they are and what they desire. However, theoretical support for the psychological and sociological and career development understanding of PBRT students can provide additional information on this student population component. With many of the psycho-social theories focused on

college-aged students (ages 18-22), there are some theories that can be used to address PBRT student thought and function.

### *Student and Career Development Theories*

Fundamental to educational research are the psychological, sociological and career development theories that provide a theoretical framework for the behaviors of and the decisions made by students. All attempt to explain essentially similar processes, but do so in a way that involves different approaches and dimensions (Pascarella & Terenzini, 1991). Pascarella and Terenzini (1991) provide a rich resource of the various theories and models of student behavior on specifically traditional-aged undergraduates between 18 and 22 years of age. Yet, those who attend the community colleges are becoming increasingly diverse in age, academic abilities, and social interaction. This requires that theories have a more “life-span” design and provide more generalized information so as to meet the needs of all ages. This section will present some of these theories and attempt to synthesize how each identifies the behaviors of PBRT students.

### *Psychosocial Theory and Theorists*

“Since the late 1960s and early 1970s, an impressive number of formal theories (and some less well developed but still useful ‘models’) of student change have been advanced” (Pascarella & Terenzini, 1991, p. 15). With this large number of theories came a remarkable unity distinguished by their psychological character. Most of the prominent contributors to theory development and research on the impact of college on students are psychologists. Some of these various psychosocial and college impact models of student change that in one way or another may identify PBRT student views and characteristics are now presented below.

“The family of psychosocial theories includes those theories that view individual development essentially as a process that involves the accomplishment of a series of ‘developmental tasks’” (Pascarella & Terenzini, 1991, p. 19). In a combination of chronological age progression and an environmental or socio-cultural influence, people experience numerous developmental challenges directly affecting their current identity or developmental status. While these tasks tend to be introduced in an order strongly influenced by psychological, maturational, and biological processes, they may not be changed in the progression of how they are presented. Lastly, these theories emphasize that the individual’s success in resolving each task will then see resolution of future tasks, leading to greater psychosocial development (Rogers, 1989).

Influence on a significant number of psychosocial theories concerning college student development stem from three elements developed by Erikson (1959, 1963, 1968). The first is Erikson's articulation of the “epigenetic principle,” which states that “anything that grows has a ground plan, and that out of this ground plan the parts arise, each part having its time of special ascendancy, until all parts have arisen to form a functioning whole” (Erikson, 1968, p. 92). In essence, a particular person’s growth and development stem from not only biological and psychological development, but external influences as well.

The second part of Erikson’s theory is the concept of tasks or “crises.” He theorizes eight stages or periods in psychosocial development when biological and psychological changes interact with sociocultural demands to present a “crisis” that is characteristic of a given state (Pascarella & Terenzini, 1991). The word “crisis” is not taken as the literal interpretation, but refers to how a person confronts and makes a very

carefully and thoughtful decision in his or her life. This decision may lead to progression in life, regression, or stasis. Generally speaking, an individual encounters challenge, and a response must be made to address the challenge. Development is determined by the nature of the response made.

Erikson's (1968) eight stages of his psychosocial theory development relating to college students are (a) Basic trust versus mistrust (birth to two years), (b) Autonomy versus shame and doubt (ages three to six), (c) Initiative versus guilt (ages six to ten), (d) Industry versus inferiority (ages ten to fourteen), (e) Identity versus identity confusion (ages fourteen to twenty), (f) Intimacy versus isolation (ages twenty to forty), (g) Generativity versus stagnation (ages forty to sixty-five), (h) Integrity versus despair (ages sixty-five and older). A majority of Erikson's stages (1-5) have to do with the first twenty years, or the adolescence years of a student's life as he or she moves towards developing and sustaining personal relationships as a primary focus. Intimacy vs. isolation represents the "young adult emerging from the search for and the insistence on identity, becoming eager and willing to fuse his identity with that of others. He is ready for intimacy, that is, the capacity to commit himself to concrete affiliations and partnerships and to develop the ethical strength to abide by such commitments, even though they may call for significant sacrifices and compromises" (Erikson, 1969, p. 263). Here, the individual is seeking at least tentative forms of playful intimacy in friendship and competition. However, where a young adult is not able to make successful relationships, he may isolate himself and enter, at best, only stereotyped and formalized interpersonal relations. Here, relationships can have direct influence on how PBRT students make decisions on pursuing a possible new career change or obtaining additional schooling. However, isolation, a result of

unsuccessful attempts in developing relationships may navigate the PBRT student towards a completely different direction of additional coursework and career placement. This provides the preliminary step to stage 7-generativity versus stagnation.

“Generativity, then is primarily the concern in establishing and guiding the next generation, although there are individuals who, through misfortune or because of special and genuine gifts in other directions, do not apply this drive to their own offspring” (Erikson, 1969, p. 267). It is here that “the ability to be productive and creative in many years of life, particularly those that show a concern for the welfare of ensuing generations” becomes the focus of the person (Engler, 1979, p. 85). PBRT students could potentially come to a place in their lives where they are given an ability to see into their future and reevaluate their current lives so that the legacy they want to leave can become a reality.

Chickering (1969) identified seven “vectors of development” having both magnitude and direction associated with each. “Identity” development represents the central place in Chickering’s theory, and each vector can be viewed as giving greater specificity to this basic foundation. His seven vectors are: (a) Vector 1 Achieving Competence, (b) Vector 2 Managing Emotions, (c) Vector 3 Developing Autonomy, (d) Vector 4 Establishing Identity, (e) Vector 5 Freeing Interpersonal Relationships, (f) Vector 6 Developing Purpose, (g) Vector 7 Developing Integrity. Chickering’s work focuses on the psychosocial development that occurs in traditional-aged college students (Lambert, 1993). There are some PBRT students who potentially could be 21 or 22 years old and could be identified as falling under vector 7, developing integrity. However, it is because of this focus towards traditionally aged students that his seven vectors are not as useful

with respect to study of PBRT students, who are assumed to be older than traditional college-aged students.

A particular model used by Lambert (1993) in his study of PBRT students attending Baltimore Community Colleges is developed by Heath (1977). His maturity model was chosen due to its encompassing aspects of the personality. Maturing, as Heath sees it, is a reciprocal, systemic, organismic, and unending process that is reached by means of a liberal education. Heath's model of the person is "a maturing system who can be described in terms of five interdependent dimensions in the four principal sectors of his life" (Heath, 1977, p.7). The five dimensions of maturing are: (a) more able to symbolize one's experiences, (b) more allocentric, (c) more integrated, (d) more stable and (e) more autonomous. With these dimensions, Heath theorizes that the college experience "matures the personality, his descriptions of the 'more mature' personality refer to a special kind of maturation produced by exposure to a college education, as opposed to the maturation that is achieved by virtue of age alone" (Lambert, 1993 pg. 41).

Maturing along these five dimensions occurs in four "self systems" (Widick, Knefelkamp, & Parker, 1980, pp. 99-100) sectors or structures: (a) cognitive skills, (b) values, (c) self-concept, and (d) interpersonal relations. Lambert used three of the four sectors in developing questions for his study. Three of the four were used exclusively: (a) intellect, (b) self-concept and (c) interpersonal relations. Though questions were not developed surrounding the self-system or what Heath calls values, Lambert nevertheless felt that Heath's maturational theory was the most comprehensive and more importantly, most inclusive regarding PBRT students. Lambert's requirement for any theoretical application was that it not only relate to the traditional aged (18-22) student in college, but

to the PBRT student whose demographics and characteristics are more diverse. Here, Heath provided the theoretical framework for Lambert's study in asking whether PBRT students' maturity, after completing a four-year program, is greater than non-baccalaureate students and if so, what are their impressions of the community college.

Lambert (1993) interviewed twenty PBRT students (ten who attended Catonsville Community College and ten from Essex Community College in the city of Baltimore, Maryland) for the three areas pertaining to Heath's theory of intellect, self-concept and interpersonal relations. The students shared that "in spite of the relatively high degree of intellectual challenge [PBRT student's] faced, they were very satisfied with their academic performance" (Lambert, 1993, p118) which supports Heath's hypothesis of the intellectual functioning of the mature personality. For self-concept, the student subjects characterized themselves as goal-oriented, focused and highly motivated regarding their academic achievements, which also supports Heath's hypothesis of the self-concept of the mature personality. Lastly, as for interpersonal relationships, the students in Lambert's study characterized themselves as willing to participate in collaborative learning when it was personally helpful to do so, as relatively uninfluenced by their employers when making educational decisions and far more collegial than subordinate in their relationships with faculty. Thus, Lambert asserts that Heath's hypothesis of the nature of the interpersonal relationships in the mature personality would seem to be supported.

Consequently, and perhaps unavoidably, very few of these theories examine in any detail the environmental conditions and processes leading to development of any kind or at any particular stage (Pascarella & Terenzini, 1991). While the individual's environment is perceived to be a significant element of development, it tends nevertheless to be handled

theoretically as a nondescript set of circumstances. Plus, with a very limited source of information where these theories have been applied towards the theoretical framework of PBRT students, the need for environmental influences and their contributions to how PBRT students perceive is also needed. Social impact models provide an insight into the environmental influences on PBRT view and characteristics and are presented next.

### *Sociological Impact Models*

Theories of the environmental or sociological origins of change in college students constitute a second general family of models of student development. Dubbed “impact models,” they are not classified as theories for they are not as specific in their explanation of the particular changes students undergo. They are less detailed and have a less explicit base compared to other theories in the fields of sociology and industrial psychology.

Astin’s (1970) “input-process-output” model is centered around one basic premise: involvement. According to Astin, “Students learn by becoming involved” (1985, p. 133). Through involvement, the amount of learning or development can be directly correlated and measured both qualitatively and quantitatively. Astin’s theory has psychosocial and sociological components embedded into its design with respect to student change. However, Astin more recently assigns the institutional environment as a critical role in that it affords students a greater number and variety of opportunities for encounters with other ideas and people (Pascarella & Terenzini, 1991). The student must actively exploit the opportunities presented by the environment. The collegiate “impact” is not the factor that causes the change, but it is the student’s direct determination of how much growth is gained based on the quality of effort or involvement with the resources provided by the environment.

Astin's model correlates to how an institution of previous attendance can provide greater numbers and varieties of opportunities for PBRT students. It addresses the issue of what resources are available to PBRT students and their ability to use those resources to actively exploit the opportunities presented by the environment. An example would be the experience gained through assessment practices at a four-year institution. If a program requires a preliminary exam for placement, students not having the experience of "taking tests" may be "psyched out" by the implications of doing poorly on the test. However, completing a four-year program gives the PBRT student a wealth of experience in taking tests and writing essays, which could in turn reduce anxiety of performance on an entrance test. The collegiate experience becomes an advantage for those students who possess it, potentially in competing for a limited number of chairs available within a restricted access program. This resource advantage could be a PBRT student characteristic as well.

An impact model fairly similar to Astin's theory of "Involvement" is Tinto's (1975) theory of student departure. His theory presents the idea that upon entering college, students bring with them various patterns of personal, family, and academic characteristics and skills. Ever changing intentions and commitments due to continually modified and reformulated interactions between the individual and the structures and members of the academic and social systems of the environment become the way a student is integrated into the system. Academic and social integration may describe where an individual is located in an academic or social system and how the individual perceives that location. PBRT students bring with them academic characteristics and skills that help them gain access, or become integrated into a program. However, if the interactions become negative, individuals tend to deintegrate from the system, which can ultimately lead to

dismissal or withdrawal. Tinto's more explicit theoretical structure provides researchers the ability to study the college student change process with better validity. With respect to non-baccalaureate degree students, Tinto's model concerning the negative impact of interactions may potentially be an issue if they are not accepted into a restricted access program due to PBRT students being accepted instead. His model could be a way of investigating the college student change process for both kinds of populations enrolling into restricted access programs and a possible future study.

One last impact model of student change is Weidman's (1984) model of undergraduate socialization. This model is more comprehensive, extensive and explicit than either of the previous two models. It gives particular attention to noncognitive changes, such as those involving career choices, life-style preferences, values, and aspirations. The diagram of this model is given in Figure 1 (Weidman, 1989). Weidman hypothesizes that students bring to college with them a set of important orienting background characteristics (socioeconomic status, aptitudes, career preferences, both parents and other non-college reference groups, peers, and employers.) This model's complexity takes into consideration a greater diversity of influences associated with student change. Its design is not limited to undergraduate students exclusively but is more inclusive to students of all academic backgrounds and character demographics. PBRT students have not only the academic characteristic of completing a four-year degree, but possible socioeconomic status, past career and employment experiences along with views of what they value in life. For many undergraduates, one of the main tasks during college is to make decisions (some certainly more tentative than others) about the type of career or career preparation to pursue upon graduation (Weidman, 1989). Weidman feels that

undergraduate students are not only determining their suitability for an occupation but are sensitive to the reactions of significant others in their decision making. "During college, the passage of four years in the life of a late adolescent can result in considerable maturation that may influence receptivity to socialization influences" (Weidman, 1989, p. 296).

PBRT students' desire to pursue a career through a two-year institution certainly can be influenced by outcomes of a socialized nature, and Weidman's model is concerned primarily with a noncognitive socialization type of outcome. And of considerable

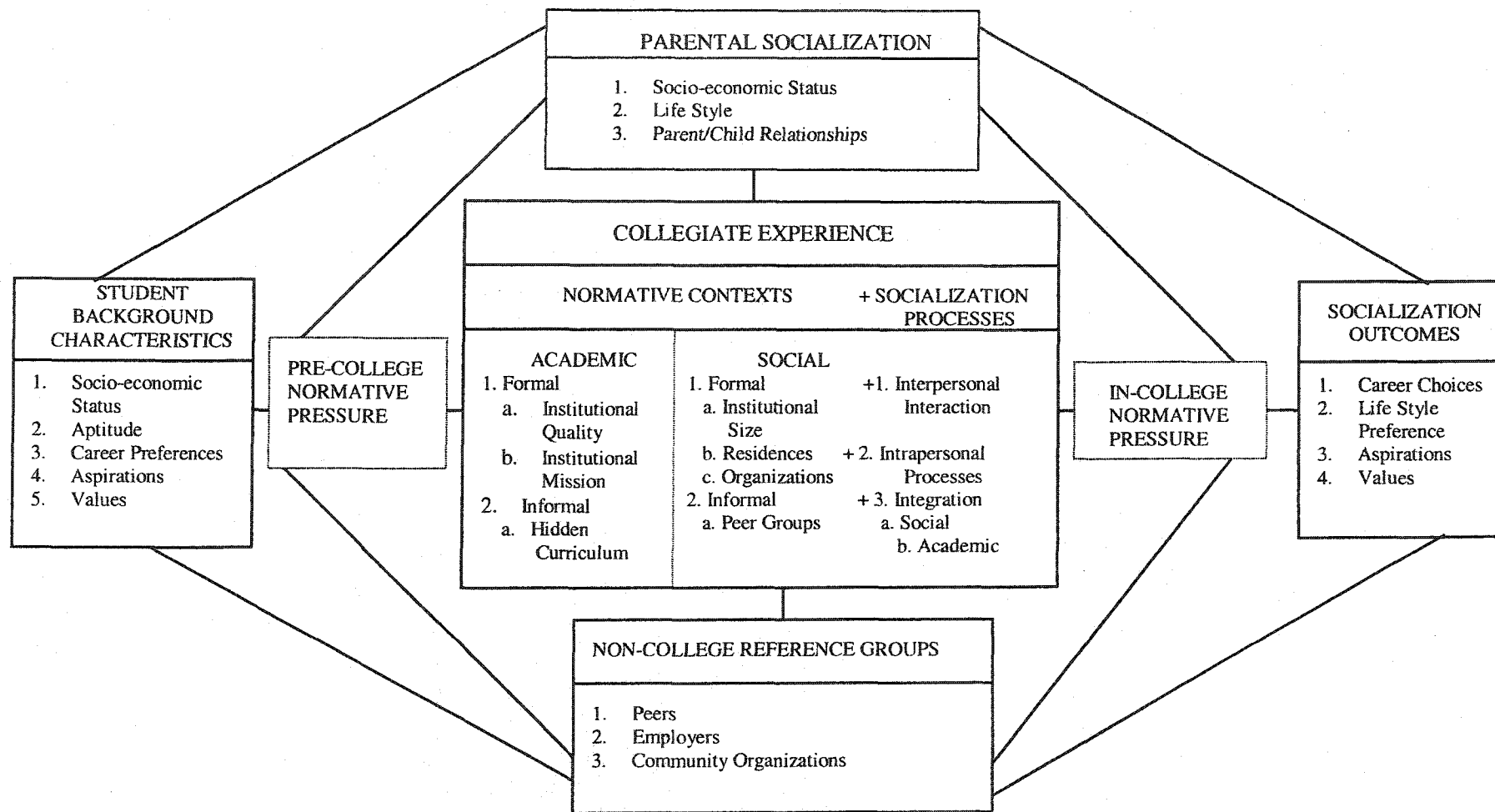


Figure 1. Weidman's Model for Undergraduate Socialization

Note: Weidman, John C. "Undergraduate Socialization: A Conceptual Approach." Pp. 289-322 in John C. Smart (Ed.), *Higher Education: Handbook of Theory and Research*, Vol. V. New York: Agathon Press, 1989. Reprinted with permission

importance is career choice, a process that involves not only the selection of a career field, but also an assessment of the implications of particular occupations for “a style of life and a place in the community status system” (Beardsley & O’Dowd, 1962, pp. 606-607). PBRT students may have made decisions in college to meet the desire to find a specific career, yet according to Weidman have had socialization influences that have initiated decisions to pursue a career field by means of a community college. However, because of its rather recent introduction into the literature, this model’s validity and use in research has been unexamined with respect to post-baccalaureate reverse transfer students. His model could, however, provide a critical component to the views for why PBRT students enroll in two-year colleges and certainly a potential future research study.

These theorists, along with their contributions to psychosocial, psychoanalytical, and sociological theories and models provide a foundation for student thought, response, and behavior. PBRT students and their diversity in experience, both psychologically and sociologically, certainly bring opportunities and challenges to the community college and its programs. More information will be needed to address the complexity of PBRT student enrollment into community colleges and how these various theories can provide the ability to extrapolate when and why students with a bachelor’s degree make this decision. Nonetheless, these theorists provide a beginning for a needed theoretical framework in understanding the characteristics and views that PBRT students possess.

#### *Career Theory and Theorists*

Career theory and theorists have been around since the late 1950s. Their contribution stems from the influence work has on career development. Work, as a concept, has had many variations and levels of importance. Leach and Chakiris (1988)

defined work as, “any purposeful activity in which someone exerts physical activity or mental effort to perform a task, whether or not this activity generates wages or contributes to the GNP” (p. 50). On the other hand, occupation has an entirely different meaning, but one that is closely related to work. Roe (1958) defines occupation as one’s habitual employment, business, trade, or calling. During a person’s life, he or she may have an occupation or potentially many occupations. But, the obtaining of each of these occupations requires career exploration and with investigation comes career development. Super (1958), a career theorist, looks at choosing an occupation as a process and not a single event. In his view, an individual must go through a series of choices, selecting some and rejecting others “until in due course the narrowing down process results in what might perhaps be called an occupational choice” (p. 184). Post baccalaureate reverse transfer students are in fact going through that very process towards selecting a career. It is interesting, however, that in four years of undergraduate education, the process of choosing an occupation still continues for PBRT students. Though the process of reverse transfer for baccalaureate degree students is not traditionally what has taken place in the past, a process of vertical transfer, represents another separate pathway for students to narrow down and make an occupational choice.

Numerous career development theories focus on the importance of the individual having an understanding of the world of work, the different stages of development, and the career opportunities available. After agreeing upon the importance of an individual being knowledgeable of career development, career theorists differ on the factors that lead to job obtainment and satisfaction (Delaney, 1995).

A study that is focused towards PBRT students in a community college in Worcester, Massachusetts (Delaney, 1995), career theory was examined closely to investigate how successful PBRT students were with finding employment after they completed their two-year program and the satisfaction with their employment. She found that PBRT students (N=63) were fairly successful (76.2%) in obtaining employment related to the degree or certificate they received at Quinsigamond. Of those 48 students who found employment, thirty-eight ((79.2%) were either completely satisfied or more than completely satisfied with the employment they received after graduating from Quinsigamond (Delaney, 1995). Her study also has a strong component associated with PBRT students enrolling in restricted access programs and supports the study done by Lambert (1999) where these programs are the ones linked to higher paying jobs. Community colleges were instrumental in providing PBRT students opportunities to narrow down their career pathways, and Delaney believes two-year institutions should continue to provide assistance and resources to seeing this continue.

For a specific set of career development theories, individual personality provides the ability to predict occupations. The trait-factor theory postulates that people seek employment based on requirements set by a person's personality traits. As further defined, "occupational achievement, stability, and satisfaction depend on congruence between one's personality and job environment" (Brown & Brooks, 1984, p. 63). A similar theory proposed by Roe (1956) states that "people select a certain occupation because it satisfies an important psychological need" (p.5). The career theorist Holland believes people select employment environments that are harmonious with their personality types. His theory is based on the premise that career interests are one segment

of personality, the one that defines an individual's personality (Weinrach, 1984). As an example, if a person is introverted, working with people would not be a career interest.

Another view of career development focuses on the role social factors play in job attainment and satisfaction. The sociological approach is "based upon the notion that elements beyond the individual's control exert a major influence on the course of life, including educational and vocational decisions" (Osipow, 1983, p. 225). The sociological approach, as stated by Hotchkiss and Borow (1984), emphasizes "the influence of factors beyond the control of the individual, such as the demand for labor and structural constraint imposed by technology and impersonal market forces" (p. 137). According to Osipow (1983), people who support the sociological perspective believe the individual has less degree of freedom in occupational choice than one anticipated. He also states that one's self-expectations are not independent from society's expectations. In another way, when a person is laid off, choices of new job opportunities decreases.

Osipow's view certainly applies today with respect to the labor market and the uncertainties associated with that market. Technological advancements, downsizing, foreign competition, and sluggish consumer spending are all examples of reasons why companies lay-off or encourage early retirement for employees, forcing these workers to change occupations. Thus, it is seen that the demand for labor also has a key role in an individual's job selection. At one time, the supply of workers in a particular field led to job development, but now it is the demand of the employers that creates jobs (Delaney, 1995). In addition, some proponents of the sociological theory believe that status, occupation, and income are passed from generation to generation by a sequence of interpersonal processes. For example, "motivation to achieve one's career appears to be

related to middle class status and hence to the judged desirability and presumed attainability of goals” (Super, 1958, p. 240).

Education is often mentioned in discussion of career development theory. It is a key component in Ginzberg’s theory of career development. Ginzberg believes “the amount and kind of education a person has had will limit or facilitate the flexibility and type of vocational choices he or she makes” (Brown & Brooks, 1984, p. 197). However, contrary to Ginzberg’s theory of career development are Hotchkiss and Borow (1984) who state “education is, in itself, not the determining factor in the course of one’s life work history” (p. 157). In addition, others have commented “being in the right place at the right time may have more to do with the vocational decisions people make than systematic planning and vocational counseling” (Osipow, 1983, p. 225).

Each of the above theories and models are but a small attempt in providing understanding concerning PBRT students in two-year institutions. One area is certain when applying these theories and models to the understanding of views and characteristics in decision making of PBRT students, they must be comprehensive and all inclusive. PBRT students, though not a large part of the student population with respect to the community college, are themselves a distinct group, all having a previous four-year degree completed before attending the two-year college. Having completed the four-year degree is a step in increased diversity of abilities and views. Psychological, sociological impact and career development theories provide some insight into who PBRT students are characteristically and additionally, how they view employment and occupational opportunities. Though not a focus of this study, these theories and models can provide foundation for future researchers in investigating PBRT students in two-year institution.

### *Overall Research Problem*

The basic purpose for this study is to investigate PBRT students who have been admitted into restricted access allied health programs and that impact on both students who do not possess a bachelor's degree and to the mission statement of the community college. One foundational question for this section was, "How did PBRT students end up investigating, applying, and being admitted to a community college allied health program after completing a four-year degree?"

### *Restricted Admission and PBRT Students*

Restricted access programs, as defined in this study, are those programs within the community college that allow only a predetermined number of students to be accepted and pursue a specific career area. Allied health programs such as nursing, dental hygiene and radiological technology, due to their high cost and limited accessibility to clinical facilities, are designated restricted access.

When restricted access programs receive applications from students with bachelor's degrees, the belief is that an academically more qualified person in the pool of applicants has an advantage in being accepted. According to Templin (1983), "If admissions criteria are constructed along traditional lines, the post-baccalaureate reverse transfer student emerges as a highly desirable candidate, often exceeding admission's criteria and having many other desirable attributes as well" (p. 48). However, admissions personnel are torn between seeing a student who already has a college degree secure a seat in a restricted program as opposed to a student who may be disadvantaged academically by not having a four-year degree but still meet the minimum requirements for acceptance and who could benefit from the education in a greater way (Lambert,

1994). Templin (1983) warned, "The danger is confusing improving quality with the abandonment of institutional mission" (p. 51). With an institutional mission of being an educational provider for those who are academically and financially disadvantaged, the selection of PBRT students into restricted access allied health programs, students that by all means would not be classified as being disadvantaged, will reveal the philosophical views of that program towards what is more important, quality or the mission of the institution.

Lambert (1994), in his study of administrators and faculty, demonstrated the two differing opinions regarding whether a quota should be placed on PBRT students and the dichotomy with the mission statement. In one response, a participant in the study stated, "I don't have any problem with it at all. I think if we're serving the community, we are serving the needs of the state, and the state includes people with bachelor's degrees who do not have an opportunity to take [this] training elsewhere" (Lambert, 1993, p. 140).

Yet, another administrator stated,

A part of me says that this is a community college to serve the needs of the community, and if you come and you're a part of the community and you've got a need and you fit the criteria, well more power to you. Then there's the other side of me that knows that, in all of our [allied health] programs, we have a limited number of students we take, and....these [PBRT] students are beating out the others for these spots, and it isn't fair.... I think that we as a college would not be following our mission exactly if we continue to cater to the post-baccalaureate students" (p. 142).

Criteria for selection into programs of restricted access vary in kinds such as prerequisite grade point average, pre-entrance exam scores, interviews, letters of recommendation and how points are assigned to each these measures. Grades from previous coursework, both secondary and post-secondary, along with different aptitude exam scores are frequently used for evaluating candidates. Interviews and letters of

recommendation provide additional information avenues by which the selection committee is able to choose between candidates.

One program in selecting students for a nursing program in a community college was in fact evaluated to determine whether the criteria by which students were selected had any correlation to eventual success and completion in the program (Capoor, 1983). Capoor's study focused its attention to the cost effectiveness of the program and the implications for the community of an open-door policy. The selection criteria were based on high school grades in chemistry and biology, scores on a pre-entrance test for allied health programs, and a locally developed noncognitive instrument. Applicants had to have a combined score of 200 to be admitted. What Capoor found was that it cost half as much to produce a qualified nurse who met the selective criteria than one who did not meet the criteria.

A study of Lawson State Community Colleges' Nursing program looked at students' performances over an extended 7-year period (Berry, 1980). In this study, information was obtained from each student in the following three areas: Demographic/biographic data, selective admission criteria, and performance in nursing courses and on standardized achievement tests. These three focus areas were used in evaluating potential candidates. Findings were that pre-nursing and guidance examination composite scores were not the single best predictor of successful performance on the State Board Examination. Grade-point average prior to being admitting in the nursing program was significantly correlated to performance on the State Board Examination demonstrating that previous coursework performance does provide an important means of selecting students. PBRT students basically have these two areas

of pre-exam and coursework performance to their advantage. They have the experience factor when it comes to taking tests and an extensive number of courses listed on transcripts which allows a selection committee to see their prior academic performance.

Comparing PBRT students with students who do not have a previous four-year degree gives rise to one of the most pressing policy issues related to post-baccalaureate reverse transfer students attending the community college. "Are PBRT students in fact over-represented in associate degree programs such as allied health and high technology that are linked to higher paying jobs" (Lambert, 1999, p. 59)? A possible argument against the comprehensive community college would be that the PBRT student is part of the community and all members of the community have a right to enroll in restricted access courses. Also, another argument for PBRT students to be included in the choice of potential applicants is that the country needs the most capable students to practice in the professions associated with these programs and if PBRT students represent those students and are not included, the result would be a less able work force. "Since finding employment or upgrading current positions is of primary importance to [PBRT] students, their success at reaching these goals should be the standard by which the community college evaluates itself in respect to assisting these students" (Delaney, 1995, p. 4). "The success of the [PBRT] student is a key weapon in the battle of unemployment. Community college educators need to make efforts to assure that this population attains its goals" (Delaney, 1995, p.3).

Templin (1983) identifies the influx of PBRT students into these occupational programs as a major factor in pushing disadvantaged students out of higher education altogether. He asserts that the disadvantaged student, who has traditionally been served

by the community college, “will not be able to compete effectively against PBRT students on admissions criteria” (p. 46-7) and that, as a result, disadvantaged students will lose their place even at the community college which Templin characterizes as being “at the bottom of the education hierarchy” (Lambert, 1999, p.46). Lastly, according to Templin (1983), having lost a seat at the bottom in a restricted access program within a community college, he asserts disadvantaged students can find no place in the higher education system at all.

Lambert’s qualitative study of PBRT students in Maryland’s community colleges attempted to discover whether in fact these students are displacing disadvantaged students. By interviewing various faculty and administrators, Lambert revealed the philosophical viewpoints towards Templin’s assertion of PBRT students “pushing out” disadvantaged students from participating in restricted access programs. Lambert reported the “over-representation is a significant issue, albeit primarily, if not exclusively, where the competition for admission to a particular academic program is strong. If a seat exists for every student who wants one, the problem of over-representation does not arise” (1993, p. 159) However, to this point in time, no quantitative data have surfaced to determine whether Templin’s assertion is indeed true. Certainly from the demographic data of PBRT students throughout the years, their enrollment has increased and their admission into the specific allied health programs has been detected. But, this information does not provide insight into whether students who do not possess a previous four-year degree are in fact being displaced by PBRT students.

Allied health programs provide a solid backdrop for investigation due to the large number of these programs having restricted access associated with their design.

Depending on the institution, allied health programs have a formal admissions evaluation procedure that can be used as a means to identify both PBRT students and students who do not possess a four-year and ultimately who are accepted and who are not. Because the allied health programs of nursing and dental hygiene have restricted access designs and PBRT students have the potential to apply and be accepted, the researcher has chosen these two disciplines, along with radiological technology to determine whether students who have equal academic qualifications and who do not possess a four-year degree are being denied access to these allied health programs.

#### *Summary*

This chapter presented not only a historical perspective surrounding PBRT students and the mission statement of the community college, but the demographics of this component of the community college enrollment. Psychosocial, sociological impact and career theories and theorists who have provided framework for the behavior and characteristics of PBRT students were also presented. In addition, current research focused around PBRT student enrollment in two-year institutions has provided a foundation for why this study was conducted.

Post-baccalaureate reverse transfer students are seen as a separate group in the enrollment of the community college. This separate status has triggered many to reevaluate the mission statement of the community college and determine whether their admission goes against the mission statement, supports the open door philosophy of the institution, or both. PBRT students who have been admitted in not only the community college, but a restricted access program of the school places an additional debate pertaining to how the mission statement of the college is to be viewed, especially if

students who do not have a previous four-year degree are in fact being pushed out (Templin, 1983) from gaining access to the program.

## CHAPTER 3

### RESEARCH DESIGN

This chapter presents the design and methods used to investigate the demographic and admission characteristics of post-baccalaureate reverse transfer students admitted into the restricted access allied health programs of nursing (ADN), dental hygiene (ADH) and radiological technology (ART). Non-bachelor degree students are compared to PBRT students in demographics, academic performance, and selection into the programs stated. The chapter will also describe the specific areas of sampling, instrumentation, data collection, and data analysis.

#### *Purpose for the Study*

The admission of PBRT students in two-year institutions has been a focus of increased research in the past ten years (Delaney, 1995; Gose, 1997; Harris, 1997; Klepper, 1991; Lambert, 1994; Townsend, 1999; Vaala, 1991). Many of these studies have been descriptive in design and have provided a wealth of information pertaining to PBRT students. Yet, there is still additional information that can be obtained pertaining to the PBRT student population. When a PBRT student applies and receives admission into a restricted allied health program, the following provide areas of additional study: (a) What are the demographic and pre-admissions profile of PBRT students within various allied health restricted access programs of two-year institutions? (b) Do PBRT students have an advantage in being accepted into these restricted access programs over students who do not have a four-year degree? (c) What are the selection criteria for the restricted

access programs of the ADN, ADH and ART programs and are they uniform in their design among the institutions of the Colorado Community College System (CCCS)? This study will compare demographics and the pre-admission academic profiles of PBRT students enrolled in restricted access programs to non-bachelor degree students who apply to an ADN, ADH, or ART program. This study will also provide information pertaining to whether PBRT students are being selected over students who do not have a four-year degree and yet still meet the selection criteria of a restricted access allied health program. The selection criteria of each Colorado community college that participated in this study within the state of Colorado will be presented and compared to evaluate for similarities and differences. Then, those same criteria will be evaluated to determine whether they provide admission advantages to PBRT students.

#### *Research Design*

The paradigm for this study is a mixed methodology. The quantitative portion is designed to provide information on both the demographic profile and the pre-admission profile of PBRT students through the results earned on pre-entrance tests and the prerequisite grade point average. The academic portion of these data along with student age was in a *t* test statistical comparison of PBRT students to non-baccalaureate degree students who have also applied for the same position. The quantitative portion provided descriptive and inferential information important in helping to reveal any differences between the PBRT group and the non-bachelor degree group.

After the collection of quantitative data, a qualitative study was performed to investigate the views of the various nursing, dental hygiene and radiological technology program chairs who are directly responsible for student selection into their respective

programs. This information provided additional insight into how PBRT students are viewed by the program chairs in restricted access allied health programs.

### *The Population*

The target population for this study is all applicants applying to restricted access two-year associate degree programs in nursing, dental hygiene and radiological technology within the United States. The accessible population or sampling frame will be all applicants who applied for the Fall 2001 cohorts of nursing, dental hygiene and radiological technology within the Colorado Community College System (CCCS).

Eleven of thirteen institutions within the Colorado Community College System have at least one of the three programs included in this study. With respect to the Associate Degree in Nursing (ADN) program, nine schools have active programs operating in the CCCS; three schools have dental hygiene (ADH) programs in operation within the CCCS and three schools have radiological technology (ART) programs operating within the CCCS. All allied health program chairs in nursing, dental hygiene and radiological technology who were part of the Colorado Community College System were contacted and asked to participate in this study. Five out of the eleven nursing program chairs agreed to participate, along with all three dental hygiene program chairs and all three radiological technology program chairs. There was one additional program in radiological technology in the state of Colorado; however, since the community college with which it was associated was not part of the Colorado Community College System, the program chair was not invited to participate. The reason for this decision was based on the logistics of the data collecting design for this study. Since all data needed to go through the state system for the inclusion of demographic data, it would increase the

difficulty in gaining that information if the institution was not in the CCCS; thus, the decision was made to not include that program. The total number of students who officially applied to the five nursing programs, three dental hygiene programs, and three radiological technology programs is given in Table 6.

Table 6

*Number of Students Who Officially Applied for Each of the Three Allied Health Programs of Study for the Fall of 2001*

Program	<i>N</i>
Nursing	357
Dental Hygiene	159
Radiological Technology	68

*Data Collection Procedure*

Quantitative data were collected in two parts. The first part required the eleven individual allied health programs to assemble and organize the social security numbers, prerequisite grades, pre-entrance exam scores, and acceptance information of program applicants for the Fall 2001 cohort. Grades were assigned a number D=1, C=2, B=3 or A=4 with no (+) or (-) designations and placed in a column to represent the grade received for each respective prerequisite course. Table 7 represents how student data were organized. All data from each program were placed onto an Excel spreadsheet completing the first portion of the quantitative data gathering design.

The data sets from each allied health program containing the data on students who applied and were either accepted, denied or placed onto a wait list were then sent to the Colorado Community College System office located in Denver, Colorado, for the

Table 7

*Example Student Data Received from Each Allied Health Program*

Student I.D.	Prerequisite Courses				Exam Score	Accepted
	BIO 201	BIO 202	ENG 121	PSY 101		
123456789	3	3	2	4	75	Y

inclusion of gender, age, race, and previous education. While the data were in Denver, the state system's computer data coordinator was able to use the social security (student I.D.) numbers to include student demographic data. The demographic data on each student were obtained from the information students submitted on their general application form required for enrolling in the respective institution. After the demographic data were inserted, the social security numbers were then removed by the research coordinator at the CCCS so that the educational information would remain in compliance with the Family Educational Rights and Privacy Act (FERPA). After the demographic data were added and the social security numbers were removed, the completed (edited) data forms were sent to the researcher by e-mail. Because of the complexity of the quantitative data-gathering portion of this study, a pilot study was attempted the year before to provide the researcher with some assurance that the data collection process would be successful. After the success with the pilot study, the actual study proceeded to collect the official data for the Fall 2001 cohort and did not include any data from the pilot study. The data were placed entirely on Excel spreadsheets which provided the opportunity for statistical comparison analysis.

The qualitative data collection involved interviewing. Five of the eleven allied health chairs were interviewed. Each program chair of the fifteen allied health programs

operating in the CCCS was asked by e-mail and/or phone to participate in an interview. Each chair was presented examples of questions that would be asked, that a consent form would be required by each who did the interview, and that the researcher would come to conduct the interview on a pre-scheduled time and location. Five chairs responded to the invitation voluntarily and were interviewed. The interviews lasted approximately 30-45 minutes and were audio recorded. Each text was transcribed and Hyper Research software was used for first level coding. From there themes (2<sup>nd</sup> level coding) emerged, were developed and used in addressing the questions presented in chapter one.

Questions used during the qualitative interviews were representative of, but not limited to, the following:

1. Do you believe PBRT students shall displace students who do not have a four-year degree in restricted access programs such as nursing, dental hygiene and radiological technology?

2. Lambert (1993) writes “The literature on post-baccalaureate reverse transfer students suggests that they are disproportionately represented in occupational programs that lead to higher paying and more secure jobs in relation to their numbers in the overall community college population. This is particularly the case for allied health and other curricula into which entrance is limited by the number of clinical facilities”(p. 59).

- A. What do you think of this issue?

- B. Do you believe this is happening in the community college? To what degree? What do you see as the trend in PBRT students and admission for the next five years with respect to restricted access allied health programs?

- C. With welfare reform being a concern, do you see this issue of PBRT

student admission in restricted access programs becoming a detriment to the welfare reform process?

3. If the state dictated to you what the selection criteria are to be for your program, and/or made it an order to place restrictions on how many PBRT students were allowed to enroll in any one year, what would your reaction be? Could you see this mandate happening in the near future?

4. Due to the attacks on the World Trade Center and subsequent downturn in the economy, do you see PBRT students now enrolling in allied health programs in greater numbers?

5. What are your views with respect to having PBRT students in your program? Does having a previous four-year degree provide an advantage over a student who does not possess a bachelor's degree in being accepted into a restricted allied health program?

#### *Data Analysis*

Data collected via the students' applications to the nursing, dental hygiene or radiological technology programs were analyzed using parametric statistical *t*-test techniques. Independent variables were both nominal and normal concerning those students who applied. Those variables were: (a) Gender – dichotomous attribute variable; (b) Ethnicity – nominal attribute variable; (c) Age – could be normally distributed attribute variable; (d) Previous Degree – nominal attribute variable; (e) Grade Point Average for Prerequisite Courses – could be normally distributed attribute variable; (f) Score on Entrance Exam – could be normally distributed attribute variable.

For the qualitative portion of this study, the interview text was analyzed through deep-level reading using first level coding. Hyper Research software was used, and codes

that were from two to six words in length were used and were placed conveniently to the left of the appropriate text. This provided the researcher the ability to identify what part of the text each word statement was associated. A list of those word statement codes are: (a) past experience of chair; (b) enrollment history of students; (c) recent influences affecting enrollment; (d) student's incoming academic and socioeconomic status; (e) advising of students; (f) selection criteria for admission; (g) results of current admission selection criteria; (h) interview information; (k) previous education and experience in selection; (l) selection criteria – team effort or individual; (m) selection criteria tally sheet; (n) state mandated changes and views; (o) views of PBRT students in programs; (p) disproportionality of PBRT students; (q) PBRT academic advantage; (r) PBRT student reasons for enrolling; (s) PBRT advantage/disadvantage in selection criteria; (t) views of an all PBRT class; (u) future difficulties for allied health programs; (v) view of open door policy; (w) issues pertaining to autonomy; (x) issues pertaining to accreditation; (y) issues pertaining to attrition and (z) state mandated changes and views.

After first level coding, the portions of text that fell under one code were combined together and read repeatedly for emerging themes. These themes were developed and incorporated into the results section in chapter four and discussed in chapter five. The themes that emerged from the text were represented by: (a) PBRT student enrollment is not an issue with respect to numbers being admitted; (b) open door verses mission statement; (c) autonomy and state mandates; (d) restricted access verses first-come first-served.

### *Statistical Applications*

The data were subjected to various computations. Excel software was used in a number of ways to assist in making these computations easier. Excel was used to transform pre-entrance exam scores for the health occupations basic entrance test (HOBET) and nursing entrance test (NET) into an equal scaled value where the mean was 50 and the standard deviation 10. In addition, Excel assisted in the calculation of grade point average of the prerequisite courses by taking the number assigned to the grade earned (A=4, B=3, C=2 and D=1) and multiplying it by the number of credit hours assigned to that class. Total points were summed and divided by the total sum of credit hours. Lastly, the software Excel was used to test the assumption of equal variances and *t* tests to compare mean grade point averages, pre-entrance exam scores and ages of PBRT students and non-bachelor degree students. If the assumption of variance was not satisfied, an adjusted *t* test was used.

### *Questions For Study*

#### *Research Question 1*

How many and what percent of post-baccalaureate reverse transfer students are accepted in these restricted access allied health associate degree programs: nursing (ADN), dental hygiene (ADH) and radiological technology (ART) for the entering class of Fall 2001?

*Method of addressing.* To address question 1, the actual number and percents of both PBRT students and non-bachelor degree students who applied to various restricted allied health programs were determined and the numbers of the two groups were compared.

## *Research Question 2*

What is the demographic and pre-admissions profile of a post-baccalaureate reverse transfer student applying to a restricted access allied health program? How does the PBRT student profile compare to those who do not have a four-year degree?

*Method of addressing.* To address research question 2, the demographic profile of PBRT students was determined and compared to the demographic profiles of students who did not have a four-year degree. For age, an independent samples *t*-test was performed to compare the ages of PBRT students with non-bachelor degree students. Age approximates a normally distributed data set and was the dependent variable. The independent variable had two levels, PBRT or not PBRT. Data collected for all schools were analyzed together to investigate this question.

For the nominal data of ethnicity, a descriptive analysis was applied and percentages calculated on how race was associated with PBRT students and non-bachelor degree students. For the dichotomous variable of gender, a descriptive analysis was applied and percentages calculated on how gender was associated with PBRT students and non-bachelor degree students.

Academic data will consist of performance on the pre-entrance exam and grade point average for prerequisite coursework. A *t* test was used to compare PBRT academic performance to non-bachelor degree students in each of the allied health programs of study. Results will be presented as to whether there are any statistical significant differences in the two groups in with respect to pre-admission academic performance.

### *Research Question 3*

Are the selective criteria for admission uniform throughout the Colorado Community College System (CCCS) or are they unique to each institution?

*Method of addressing.* To address research question 3 regarding uniformity of selection criteria, all criteria that were made available to the researcher were compared across programs. Criteria such as grade point average, score on pre-entrance exam, selection and evaluation on an interview, previous degree status and/or experience were evaluated to determine whether uniformity among programs exists. All were evaluated dichotomously by determining whether they did or did not use the criteria. In addition, interviews of program chairs provided additional insights into the uniformity of the selection process over the State of Colorado and how it can and has been influenced.

### *Research Question 4*

Are students who do not have a previous four-year degree and who meet the admission criteria for a two-year restricted access program being denied access to ADN, ADH, and ART programs because PBRT students are being admitted?

*Method of addressing.* To address research question 4, a comparison of application information was made between PBRT students who were accepted into individual allied health programs and non-bachelor degree students who were not accepted. The academic performance of non-bachelor degree students who were not accepted into each of the various allied health programs are presented to determine whether they meet the program's selection criteria. In addition, if a PBRT student is selected, that student's academic performance is also presented. A non-bachelor degree

student will be classified as being “denied access” if a non-bachelor degree student meets the criteria for selection but is not selected and a PBRT student is selected into the class.

#### *Research Question 5*

Do post-baccalaureate reverse transfer students gain an advantage through the admission selection criteria used in restricted access programs over students who do not have a four-year degree?

*Method of addressing.* To address research question 5, the researcher asked for the selection criteria by which each individual program tabulated and quantitatively selected each applicant. Each document received was evaluated on whether there were weights included in the criteria that enhanced the selection of PBRT students. In addition, each area of the selection process (grades, pre-entrance exam score, interview, letters of recommendation, previous degree) was evaluated to determine whether PBRT students gain an advantage. Lastly, qualitative interviews were conducted with five program chairs to obtain their views on selection criteria. The interviews were taped, transcribed, coded using Hype Research software and analyzed for emerging themes pertaining to PBRT students enrolled in two-year allied health programs to determine their view of whether PBRT students were being provided an advantage in the selection process.

#### *Measurement Validity*

When conducting a research study where information from applications is required, truthfulness of responses can and will threaten validity. For this study, data concerning grades on prerequisite courses and scores on pre-entrance exams required proof from the test proctoring organization that the test score was legitimate and that the official transcripts from previous college work were sent pertaining to the prerequisite

courses required. This process helped in increasing validity by reducing the chances of false information being included in the selection process of applicants.

Demographic data that were included through the state system's research division could not, however, be as closely evaluated for truthfulness. As students filled out the standardized form required by all institutions within the state system to apply for and take courses, they could mark responses on the form that may not be honest with respect to age, ethnicity or previous degree. This may in fact lead to a reduction in validity and to the strength that this research design is built. It is hoped that this potential threat to validity is low to non-existent.

#### *Internal Validity*

By definition, according to Borg and Gall (1989), "internal validity of an experiment is the extent to which extraneous variables have been controlled by the researcher" (p. 642). Equivalence of the groups on attributes is low due to differences in not only degree status, but in age, I.Q., high school rank, high school and college background, etc. and adequacy to equate or check participant characteristics was not attempted. Overall, a rating of low with respect to internal validity would be expected for this study.

With respect to controlling extraneous experiences and environmental variables, this study would rate low to medium in internal validity. There are certainly other events that can have an affect on the selection process of applicants, which there is no way to monitor unless in a laboratory setting. Qualitative interviews were implemented to provide a greater understanding and additional insight concerning the selection process.

In addition, applicants come from all types of backgrounds and environments. In trying to control for these variables, the study would have a difficult time.

#### *External Validity*

The findings for this study and the external validity that accompanies those findings are represented by the extent to which those findings can be generalizable to other settings. This study took place in the state of Colorado where there are a total of fifteen community colleges, thirteen governed by a state system, and two governed by their respective local governing boards. The external validity pertaining to the population is as follows:

Representativeness of the sample of programs and students would be rated medium based on being a good attempt to obtain all students who applied for either nursing, dental hygiene or radiological technology programs, but not all programs chose to participate in the study. In addition, weakness could be attributed to not including the applications of students in other allied health programs available to students at Colorado Community Colleges, e.g., optical technology and pharmacy technology. And for that matter, other allied health programs in the state of Colorado that are not a part of the Colorado Community College System (CCCS) were not included. In addition, comparisons of Colorado's programs with other states has not been done and would reduce the external validity of this study.

## CHAPTER 4

### ANALYSIS OF DATA AND RESULTS

The purpose of this investigation was to collect and compare the quantitative and qualitative data pertaining to students who have earned a minimum of a four-year degree and who are enrolled in one of three restricted two-year allied health programs: (a) nursing (ADN); (b) dental hygiene (ADH); and (c) radiological technology (ART) to non-bachelor degree students in the same programs. This chapter will present the results received in this study that pertain to each of the research questions. The data collection process will once again be presented, followed by the data which apply to each research question. The individual research questions will be presented in order. After each question has been stated, the results received pertaining to that question will be presented, beginning with the quantitative data first and then ending with the qualitative data. Each question may be answered in order of either the individual programs (ADN, ADH, and ART), or by the various selection criteria (grade point average, pre-entrance exam score, interview, letters of recommendation) that were used. An additional "Unexpected Results" section was included to address information received in the study but did not fall under any one of the five questions.

#### *Data Collection Discrepancies*

The number of students varied in each program. Depending on the program, its geographic location, (rural, suburban or urban) and the clinical facilities each has, specific numbers of students were selected to begin studies for Fall 2001 semester. One

program, because of its design, began its registration of applications for students in the fall semester, and then began coursework in the spring. Some schools did not provide “not accepted” student data for one of three reasons: (a) the data were not available; (b) they accepted all applicants into the program; or (c) they operated on a first-come, first-served basis and did not have a selection process per se. In the latter case, the selection process was dependent on which students completed their academic prerequisite courses and other requirement minimums first.

In addition, all allied health programs that participated in this study and operated on a restricted access design (four out of five nursing programs, all three dental hygiene programs and two out of three radiological technology programs) volunteered their selection criteria on how students were quantitatively scored and accepted. However, one program, for reasons not disclosed, did not provide information on how applicants were rated in each of their required selection criteria. Therefore, the ability to determine the weights that contributed to each area of the selection process was not possible.

One of two pre-entrance exams was used by four out of the five nursing programs. One nursing program used the Psychological Services Bureau (PSB) pre-entrance test while the other three used the Nursing Entrance Test (NET). The fifth program had a first-come, first-served selection process and did not require applicants to take a pre-entrance exam. In addition, the Health Occupations Basic Entrance Test (HOBET) was used by one radiological technology program. Because there were three different pre-entrance exams, raw scores were subjected to a quantitative transformation to have all scores on an equal scale. The national mean and standard deviation values for all three tests were obtained from the companies who designed them. With these

numerical values, T-scores were calculated and all scores were transformed into a scale where the mean grade was 50 and the standard deviation was 10.

Only one program in dental hygiene required applicants to take a pre-entrance test. The test used for this program is the American College Testing (ACT) exam. This program required not only the composite score for the exam, but the individual reading and science scores as well. The remaining two other dental hygiene programs did not require a pre-entrance test for their applicants. These scores were not converted to z-scores due to having only one PBRT student in the entire 25 students who applied.

In each of the five interviews, the interviewee's were given instructions on what was to take place before the actual tape-recorded interview. If the interviewee was still in agreement, a consent form was presented for him/her to sign. The interviewer began each interview seeking the interviewee's past experience and history concerning his or her employment and discipline. From there, additional questions were asked depending on how the interviewee was responding to previous questions. For example, if the interviewee began addressing an area within his/her discipline, the next questions would continue to pursue additional clarification on that area. This provided for a relaxed and non-threatening atmosphere for the interviewee to provide in depth answers to the questions presented.

#### *Question One*

How many and what percent of post-baccalaureate reverse transfer and non-bachelor degree students are accepted in these restricted access allied health associate degree programs: nursing (ADN), dental hygiene (ADH) and radiological technology (ART) for the entering class Fall 2001?

### *Quantitative Response*

In addressing question number one, Table 8 provides both the actual number of accepted and not accepted PBRT students and non-bachelor degree students along with the percents of their populations who were admitted into the three restricted allied health programs. One hundred percent ( $N=11$ ) of all PBRT students who applied to four out of the five nursing programs were accepted into the program compared to 91% ( $N=166$ ) of all non-bachelor degree students. One hundred percent ( $N=3$ ) of all PBRT students who applied to two out of the three radiological technology programs were accepted into the program compared to 83.7% ( $N=43$ ) of all non-bachelor degree students. All three dental hygiene programs, however, showed only 40% ( $N=10$ ) of PBRT students being accepted into the program. This represented an equal percentage of non-bachelor degree students ( $N= 149$ ) being accepted as well.

Table 9 shows the Pearson chi-square results and indicates that PBRT students and non-bachelor's degree student acceptances into restricted access allied health programs are not significantly different ( $\chi^2=0.382$ ,  $df=1$ ,  $N=382$   $p=.537$ ). *Phi* indicates that the strength of the association between the two variables is .032 and thus, the effect size is very small. Chi-square tests could not be done on individual disciplines such as radiological technology due to values being less than 1. In addition to this caution, there were values that were less than five and represented 25% of the chi-square entries.

Table 8

*Number of Post-Baccalaureate Reverse Transfer and Non-Bachelor Degree Students Who Applied, Both Accepted and Not Accepted and Their Percentages for Each Restricted Access Allied Health Program*

Programs (N)	Total Applicants	PBRT Students			PBRT Acceptance	Non-Bachelor Students		
		Accepted	Not Accepted	% Accepted	Total	Accepted	Not Accepted	% Accepted
Nursing (4)	177	11	0	100%	6.2%	151	15	91.0%
Dental Hygiene (3)	159	4	6	40%	2.1%	60	89	40.3%
Radiological Technology (2)	46	3	0	100%	6.5%	36	7	83.7%
Total (9)	412	18	6	75%	7.3%	247	111	69.0%

Table 9

*Chi-Square Analysis of Acceptance of PBRT Students and Non-Bachelor Degree Students Into Eight Restricted Access Allied Health Programs*

Variable	N	Accepted	Not Accepted	$\chi^2$	p
PBRT Students	24	18	6	.382	.537
Non-Bachelor Students	358	247	111		
Totals	382	265	117		

*Qualitative Response*

To provide insight into the reasons for the number of PBRT students applying to restricted allied health programs, interviews were conducted with allied health program chairs and the following perspectives are presented. One response that seemed to reoccur pertaining to PBRT student admission was that PBRT students were not, in countable numbers, a real issue in applicants. Their numbers did not comprise a high percentage of students in these restricted allied health programs studied. Participant #3 said,

Well, let's put it this way: I don't see as many baccalaureate students coming back to earn an ...associate's degree. I mean, when I look at the classes we've put through the last seven years, I may only have at the most three baccalaureate students that have come back for an associate's degree. (personal communication, May 15, 2002)

Participant # 1 shared information covering a two-year span and said,

We may have out of 30 this year, we had 30 qualified applicants. And, ah, I take it back. That was the year before. Thirty qualified applicants. We may have had two people (PBRT students) that were in that category. This year we had 21 qualified applicants. I think there may have been one [PBRT]. So, I don't feel that there are a lot of degree people coming back into it. It doesn't show in our admissions. They're not making application. (personal communication, May 9, 2002)

Another perspective provided by this research came from the chronological order of the quantitative data collected and the qualitative interview data received. All quantitative data were gathered before the September 11, 2001, attack on the World Trade Center. In contrast, all interviews were conducted after this date. Since this horrible tragedy, job layoffs have increased in Colorado, especially in the transportation and tourism markets. The Legislative Council, the research arm of the Colorado General Assembly reported in November 2001 that Colorado's economy continues to weaken. "The state [of Colorado] was hit hard by the cutbacks that followed the September 11 attacks, especially in the transportation and tourism industries. Declines from one year ago [2000] can also be seen in the manufacturing and construction sectors. The economy has been further weakened due to slowing job growth, anemic retail sales, and subpart income growth" (Colorado Economic Chronicle, 2001, p. 3). In addition, the December unemployment for the state of Colorado in 2001 was 5.2%, up from 2.5% the year before. "The economic glance as presented by the Legislative Council for unemployment in the state of Colorado was classified as 'bad'" (Colorado Economic Chronicle, 2002, p.2). Therefore, during interviews, interviewee's were asked about this perspective and whether they could foresee an increase in PBRT applications for future classes based on these layoffs. This provided an opportunity to address potential economic variables that could possibly come into play and extrapolate what those effects would have on the possible number of PBRT applications. Participant #4 felt that the high disproportionality of PBRT students that Lambert (1993) presented became evident this year for her, after September 11.

Everybody took a step back and reevaluated where they were [after 9/11]. And, I know there's no such thing as security, and ...with baccalaureate [PBRT]

people...they had higher paying jobs before sure, and did not work as hard at least physically as you would in the allied health field. But, there is so much security in health occupations. People are just gonna get older and sicker, and the baby boom is gray, and there will always be a job. Prediction or not, the open market is huge. (personal communication, May 13, 2002)

Job security, as stated by Participant #4 provides great incentive to pursue an allied health field, especially during a time when unemployment is increasing. Participant #2 shared similar information concerning the economy of Colorado just after the September 11 attacks and recent PBRT student advisee responses:

The economy slumping has made a major factor change. We see a lot of people who have lost their positions, we also have a lot of people that are retiring here from the military, their spouses are coming in and saying, 'Now I want a different career,' or 'We know we're going to be settled for a while.' We have people inquire with Master's in geology, who tell me up front they know that rocks and nursing are different, but they want to go back to school. They want to get a job. I see a lot of people with a computer background that are coming in for advising. We see quite a bit of that. (personal communication, May 14, 2002)

The weak job market that has become more pronounced since the September 11 tragedy has not been the only event that has encouraged students to pursue allied health as a career. Two nursing program chairs shared that because of the large demand needed in the nursing industry, advertising has been the most important role in bringing in the numbers. The shortages in nursing have been ongoing even before the 9/11 attacks. It has really been the media who have communicated to the masses that nursing is a profession that provides security and more recently, has increased salaries. Participant #3 shared these comments:

What I see occurring is that you're starting to see more and more ads, more and more advertising. For instance, Johnson & Johnson's new ads that they're putting out and the articles you seen in the paper on the national shortages, the articles you see in the paper on hospitals being in need of nurses. I think people see that there are jobs out there that the field is paying well right now. (personal communication, May 15, 2002)

Participant #1, however, did not feel that the 9/11 incident and sluggish economy had anything to do with admission for her program. She responded this way when asked whether she had seen a difference in the two years, comparing Fall 2001 applicants to the Fall 2002. "I wouldn't say so. I would say 'no' that 9/11 incident did not affect our admissions, our applicant pool, or anything." (personal communication, May 9, 2002)

Therefore, as a result, four program chairs expressed their opinion that future PBRT student application numbers have the potential of increasing while one chair did not foresee an increase. In addition, two of those programs did not link the potential of increased PBRT student application numbers to the weak employment conditions but increased advertising in addressing the future nursing shortages. Unfortunately, no quantitative data were obtained for the Fall 2002 class of allied health applicants to provide additional information of whether these variables contributed to an increase in PBRT student application numbers.

### *Question 2*

What is the demographic and pre-admissions profile of a post-baccalaureate reverse transfer student applying to a restricted access allied health program? How does the PBRT student profile compare to those who do not have a four-year degree?

#### *Demographic Profile*

Demographic data were included in each student's academic data file by way of the institutional research department at the Colorado Community Colleges System (CCCS) office. Tables 10 - 12 provide the numbers and averages pertaining to gender, age, and race for both

PBRT students and non-bachelor degree students who applied to the three individual allied health programs for the Fall 2001.

As can be seen in the non-bachelor sections of Table 11 and Table 12, the total number of male and female students in some cases does not equal the total number of students tabulated for race. This is due to students having a choice in completing or not completing the demographic data portion of the application for each school. However, the general application form for each institution had no bearing on whether a student was accepted into an allied health program, only that the student was officially enrolled in the school. Therefore, a small number of students chose not to complete the demographic information asked in the general application.

Post-baccalaureate reverse transfer students (N=42) applying to these restricted allied health programs (nursing, dental hygiene, or radiological technology) were more likely to be Caucasian, female, and older (average age of 32.2 years) than non-bachelor degree students who tended to have greater diversity in race and gender and be somewhat younger (average age is 28.3 years).

The difference in mean ages of PBRT students and non-bachelor degree students were compared for nursing programs:  $t(163) = +1.65, p = 0.12$  and dental hygiene programs:  $t(152) = +1.11, p = 0.29$  and these two programs showed no statistically significant difference in age. However, for radiological technology, a statistically significant difference in mean ages was shown to exist:  $t(61) = 2.50, p < 0.015$ .

Table 10

*Demographic Profile by Percent of the Total Number of Applicants of PBRT Students and Non-Bachelor Degree Students who Applied Either to the Four Restricted Access or one First-Come, First-Served Nursing Programs*

Student	Age	Gender		Race				
	Average	M	F	Black	Hispanic	Caucasian	Asian	American Indian
Non-Bachelor Students (N=272)	30.97	28	244	4	40	217	5	6
Percent		10.3%	89.7%	1.5%	14.7%	79.8%	1.8	2.2%
PBRT Students (N=26)	34.60	6	20	0	1	24	1	0
Percent		23.1%	76.9%	0%	3.8%	92.3%	3.8%	0%

Table 11

*Demographic Profile of PBRT Students and Non-Degree Students Who Applied Fall 2001 Dental Hygiene Programs*

Student	Age	Gender		Race				
	Average	M	F	Black	Hispanic	Caucasian	Asian	American Indian
Non-Bachelor Students (N=145)	27.70	7	138	3	18	115	2	1
Percent		4.8%	95.2%	2.2%	12.9%	82.7%	1.4%	.72%
PBRT Students (N=10)	30.2	1	9	0	0	9	1	0
Percent		10%	90%	0%	0%	90%	10%	0%

Table 12

*Demographic Profile of PBRT Students and Non-Degree Students Who Applied to Fall 2001 Radiological Technology Programs*

Student	Age	Gender		Race				
	Average	M	F	Black	Hispanic	Caucasian	Asian	American Indian
Non-Bachelor Students (N=58)	26.17	13	45	3	13	42	0	0
Percent		22.4%	77.6%	5.2%	22.4%	72.4%	0%	0%
PBRT Students (N=6)	31.83	0	6	0	0	6	0	0
Percent		0%	100%	0%	0%	100%	0%	0%

For non four-year degree students, Table 13 represents the number and percentages of highest degree held at the time of application. Choices were the general education diploma (GED), high school diploma (HS), certificate (CE), associate degree (AD). As can be seen in Table 13, a majority of non four-year degree students have as their highest attained degree the high school diploma.

*Pre-Admission Profile*

The pre-entrance test scores and grade point averages for prerequisite coursework for PBRT students and non-bachelor degree students were compared to address the academic pre-admission profile. The data for these two academic selective criteria were

Table 13

*Numbers and Percentages of Highest Degrees Obtained for Non Four-Year Degree Applicants in Nursing, Dental Hygiene and Radiological Technology*

	GED	HS	CE	AD
<b>Nursing</b>				
Number	2	223	68	33
Percent	.62%	69%	21%	10%
<b>Dental Hygiene</b>				
Number	0	111	12	25
Percent	0%	75%	8.0%	17%
<b>Radiological Technology</b>				
Number	0	57	1	4
Percent	0%	92%	2%	6%

subjected to *t* tests to provide a comparison analysis of both PBRT students and non-bachelor degree students at the time when they applied to one of the allied health programs under study. Pre-entrance test information was provided by five programs (four nursing and one radiological technology) and was used based on having similar pre-entrance exams. Dental hygiene only had one school out of the three using a pre-entrance exam (American College Testing). Prerequisite grade point averages were also calculated for each student in each allied health program and the mean grade point averages for PBRT students were compared to the mean grade point averages for non-bachelor degree students.

In the area of pre-entrance exam scores, no statistically significant difference was found,  $t(124)=0.41$ ,  $p=.68$  between PBRT student performance and non-bachelor degree student performance using scores from four nursing programs and one radiological technology program pre-entrance tests. These results are provided in Table 14. The results for the one dental hygiene program that required a pre-entrance exam were not included in the *t* test due to having only one PBRT student who applied and a different pre-entrance test than the four nursing programs and the one radiological technology program. Comparing academic performances of PBRT students to non-bachelor degree students, grade point averages of the prerequisite courses were subjected to a *t* test for nursing, dental hygiene and radiological technology applicants. Tables 15, 16 and 17 provide the *t* tests results for nursing, dental hygiene and radiological technology. For nursing, the prerequisite grade point average means between PBRT students and non-bachelor degree students shows no statistically significant difference  $t(126) = -0.072$ ,  $p = 0.94$ . For dental hygiene, the test statistic showed no statistical difference between

the mean grade point average for the PBRT students and the mean grade point average for the non-bachelor degree students:  $t(62) = 1.25, p = 0.22$ . For radiological technology, the difference in mean grade point averages for PBRT students and non-bachelor

Table 14

*Pre-Entrance Test Means for PBRT Students and Non-Degree Students for both Nursing and Radiological Technology Programs*

	<u>Non-degree students N=113</u>		<u>PBRT N=13</u>		<u>t(124)</u>	<u>p</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Grade Point Average	57.7	10.65	59.0	7.40	-0.41	0.68

Table 15

*Grade Point Average Means for PBRT Students and Non-Degree Students Applying to four Nursing Programs*

	<u>Non-degree students N=121</u>		<u>PBRT N=7</u>		<u>t(124)</u>	<u>p</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Grade Point Average	3.15	0.49	3.14	0.50	-0.72	0.94

Table 16

*Grade Point Average Means of PBRT Students and Non-Degree Students Applying to Dental Hygiene School*

	<u>Non-degree students N=57</u>		<u>PBRT N=7</u>		<u>t(124)</u>	<u>p</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Grade Point Average	3.14	0.423	2.94	0.272	1.25	0.218

Table 17

*Grade Point Average Means for PBRT Students and Non-Degree Students Applying to Radiological Technology School*

	Non-degree students N=42		PBRT N=5		<i>t</i> (45)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Grade Point Average	3.09	0.49	3.50	0.34	-1.83	0.075

degree students is found not to be statistically significant  $t(45) = -1.83, p=0.075$ . All  $t$  tests were performed at the  $\alpha = .05$  level. Different programs required different numbers and kinds of prerequisite courses for their programs. Because of this diversity in prerequisite courses required, each student's grade point average from each program was calculated using the total hours required by that program. In addition, only students who had completed all of their prerequisites and had grades recorded were included in the  $t$  test analysis. Lastly, four nursing programs utilized selection criteria and one program accepted students on a first-come, first-served design. Because the latter design does not select based on academic performance but on when a student can complete the minimum requirements to become eligible for being selected, grade point averages were not calculated and thus not included in the  $t$  test comparison analysis of mean grade point averages.

*Question 3*

Are the selective criteria for admission uniform throughout the Colorado Community College System (CCCS) or are they unique to each institution?

Admission criteria are not uniform throughout the Colorado Community College System and vary widely among each institution. The diversity in admission selection

criteria between not only the various allied health programs but also within the same discipline was large. The restricted access allied health programs within this study had a very strong existence of autonomy with respect to their admission selective criteria and represents a focus point for this study which will be presented in greater detail in chapter 5.

#### *Prerequisite Grades and Coursework*

Completion of prerequisite courses with a grade of C or better represents one selection criterion that is representative of all eleven programs in this study. However, the names and numbers of prerequisite courses required by each program were diverse. Three courses were foundational in the selection into nursing, dental hygiene and radiological technology. Those three courses were anatomy and physiology I and II (BIO 201, 201) and English composition (ENG 121). The two biology courses are both four-semester credit hours and have a lab included in their curriculum while the English composition course is three semester credit hours. Only a few exceptions applied to these courses. In one case, a program required only the first course in the Biology sequence, (BIO 201) prior to admission. BIO 202 could be taken while the student was in the program. In another program, a one-semester introductory anatomy and physiology course could be substituted for the two-course sequence. However, beyond these three courses and their two small exceptions, variance increased regarding the choices of required prerequisites among the different allied health programs of nursing, dental hygiene and radiological technology, and within a specific discipline as well.

In mathematics there were a wide variety of choices pertaining to what a school requires as a minimum competency for a student to have completed before beginning a

program. One nursing program, one dental hygiene program and all three radiological technology programs require intermediate algebra (MAT 105); one dental hygiene program required college algebra (MAT 121). Three out of the five remaining programs, all nursing programs required applicants to take a placement exam to determine what mathematical competency an applicant had achieved. If students placed into a level not acknowledged as a minimum math level, they would be required to make up the deficiency before they could apply. The last nursing program investigated its needs mathematically and incorporated the interdepartmental course, math calculations for nursing (NUR 151) into its required prerequisite courses. The last dental hygiene program had no math prerequisite at all in its selection prerequisites. It was believed at this school that students applying to the program would have needed to complete a specific level of competency in math before they were allowed to enroll in prerequisite courses. For example, if an allied health program required chemistry in its group of prerequisites, chemistry has itself a prerequisite of introductory algebra (MAT 090), then this prerequisite for chemistry would satisfy the math competency required for success in the program.

Psychology 101 (PSY 101) was fairly uniform as a required prerequisite course throughout the three disciplines except for a few variances. Psychology 101 was required for seven out of the eleven programs studied. For the other four programs that did not have Psychology 101 as a prerequisite, two schools used the course Human Development (PSY 235) instead. One program had a choice between Psychology 101 and Sociology 101 and lastly, one course did not require Psychology 101 in its prerequisite course requirements and did not expect the applicant to take another course in its place.

Three out of the eleven allied health programs required additional biology courses beyond BIO 201 and 202 before students could apply to their programs. A nursing program and dental hygiene program required microbiology (BIO 205) while one nursing program had pathophysiology (BIO 216). Table 18 provides a visual of the prerequisite courses required by each school. Clarification for some course prefixes and numbers on Table 18 of exclusive prerequisite courses required by individual programs are as follows: (a) HUM 101 – humanities course, (b) NUR 116 – medical terminology, (c) DIT 115, NUT 100 and PED 115 – nutrition, (d) SPE 115 – Principles of Speech Communication, (e) CIS 105 – Introduction to computers and (f) CHE 101 – Introduction to chemistry. The average number of prerequisite courses required for the various disciplines is shown in Table 19.

#### *Pre-Entrance Exam*

Another variance in the selection criteria for the various programs and disciplines was in the pre-entrance exam required by four nursing programs, one dental hygiene program and two radiological technology programs. Nursing programs have a choice of entrance exams by which they assess their incoming applicants. One pre-entrance exam option is the Nursing Entrance Test (NET) from Educational Resources Incorporated. Of the five nursing programs that elected to participate in this study, three used the NET exam as an instrument for selection. The average score on the NET nationally was 64 while a score of 50 represented a passing mark. Of the three nursing programs using this assessment, two schools presented data that showed where students scoring above 50 were admitted into the program. The third nursing program presented data showing two students being admitted with scores on the NET test of 45 and 42, scores below the

Table 18

*Minimum Prerequisite Courses Required by Each School*

School	BIO 201	BIO 202	BIO 205	BIO 216	ENG 121	PSY 101	PSY 235	HUM 101	MAT 105	MAT 121	NUR 116	NUR 121	NUR 151	DIT 115	CIS 105	CHE 101	NUT 100	SPE 115	PED 115
Nursing School A	X	X	X		X	X	X												
Nursing School B	X	X		X	X		X	X					X		X				
Nursing School C	X	X			X	X						X							
Nursing School D	X	X			X				X		X			X					
Nursing School E*	X	X			X	X	X	X											
Dental Hygiene A	X	X			X	X			X										
Dental Hygiene B	X	X			X	X		X								X			X
Dental Hygiene C	X	X	X		X	X				X						X	X	X	
Radio Tech A	X				X	X		X	X										
Radio Tech B	X	X			X	X			X										
Radio Tech B	X	X			X	X			X										
Radio Tech C	X	X			X			X	X										

\*First-come, first-served program

Table 19

*Average Number of Required Prerequisite Courses and Semester Hours per Discipline*

Discipline	Ave. Number Pre-Requisites Courses	Sem. Hours
Nursing	5.8	19.6
Dental Hygiene	8.3	30.0
Radiological Technology	5.0	18.0

minimum for being selected. There was no information available as to why students below the minimum were accepted into the program. In addition, this same nursing program also had seven missing pre-entrance scores when the data were submitted for this study. It is not known whether those scores were eventually included but not added to the data with this project, or they were not available at the time when applications were due.

Another choice used by one nursing programs is the Psychological Services Bureau (PSB) Nursing School Aptitude Examination (RN) exam developed by Psychological Services Bureau, Inc. Only one program in this study used the PSB as part of its selection criteria for the 2001 class. However, that school has changed to the NET exam since the writing of this study. The test is broken down into five parts: Academic Aptitude, which contains verbal, arithmetic and nonverbal subtests; Spelling; Reading Comprehension; Information in the Natural Sciences; and the Vocational Adjustment Index. The vocational adjustment index provides information pertaining to significant personality attributes such as whether the individual is cheerful, objective, dependable

self-reliate, helpful, insightful, and conscientious (Psychological Services Bureau, 2000)

Raw scores are typically transformed into percentile scores for the students to see.

An assessment instrument used by one radiological technology program as a means of selection is the Health Occupations Basic Entrance Test (HOBET) from Educational Resources, Inc. Scores for this test in the 2000-2001 school year averaged 56, while a score below 42 represented not passing. All scores were above 42 except for one and that student was not accepted. For the other radiological technology program that operates by a first-come, first-served design, a minimum score is required on a placement level test (Basic Skills Assessment Test –BSAT) for students to complete their application package and be eligible to begin the program.

The last testing tool used by an allied health program for selection of applicants for this study was the American College Testing (ACT) exam. One dental hygiene program required its applicants to take this assessment and three scores were included from this test in the decision making process of the program. Those scores were the ACT composite score, and the individual scores for science and reading. Each must be included in the application package to be considered. The average ACT composite score, determined by using the scores of high school seniors planning to graduate in 2001 in the state of Colorado (C.D.E, 2001) was 21.5. How the scores were calculated into the selection of students was not provided by the institution, and so its impact was not able to be determined. But, for the students' scores that were submitted, the average scores of students admitted and students not admitted for the ACT composite, science, and reading portions of the test are provided in table 20. Scores do not seem to show much difference between the two groups but an interesting result is revealed in the composite score. The

not-admitted student's average score of 20.7 was higher than that for admitted students, which is 20.4.

*Interview*

The interview has been a part of the selection criteria for a number of programs. It provides the selection committee with the opportunity to meet the applicant. However, studies have shown that the interview as a means to predict applicant success is not

Table 20

*Average ACT Science, Reading and Composite Scores for Not-Admitted and Admitted Students in one Colorado Dental Hygiene Program*

Student	N	ACT Science	ACT Reading	ACT Composite
Not Accepted	10	20.1	22.1	20.7
Accepted	15	20.0	23.1	20.4

statistically significant (Shehane, 1995; Shahani, Dipboye, & Gehrelin, 1991; McGinnis, 1984; Schmalz, Rohr & Allen, 1990). Five programs out of the eleven studied used the interview as part of their selection criteria. Three were dental hygiene while two were radiological technology programs. No nursing programs used the interview for their selection criteria. The various chairs around the state of Colorado expressed concern regarding the subjectivity of the interview and whether it is a good use of time in predicting whether the student will be successful. Participant #2 said, "There's no interview because we thought it was so subjective. We got rid of everything we thought was subjective, including letters of reference" (personal communication, May 13, 2002). She was streamlining the process of selecting applicants by making it as objective as possible, strictly based on test result and prior academic achievement. Participant #5

shared the issue of time and said, "I mean if you have 40 spots, and you're interviewing 80 people, you're looking at a significant amount of interview time" (personal communication, May 15, 2002). Lastly, after discussing attrition in her program, participant #4 was presented the question of whether she would like to go back to an interview type of process. "Absolutely not! I think it's a waste of my very valuable time. And, no, I will not interview again" (personal communication, May 13, 2002).

#### *Selection Criteria vs. First-Come, First-Served*

All eleven programs included in this study had various selection criteria for students to be admitted into their program. Two programs, however, did not base their selection of students on academic performance and other selective criteria. Their selection was based on which students could complete the prerequisite requirements for selection first. Their selection process is described as being a first-come, first served design. This doesn't mean that most programs in the state of Colorado have elected to have their own selection criteria as a means to select candidates. Two urban nursing programs that elected not to participate in the study also used the first-come, first-served policy. Either way, each program chair, whether by means of an interview or by a casual conversation over the phone has taken a strong view towards one or the other designs of selection.

#### *Question 4*

Are students who do not have a previous four-year degree and who meet the admission criteria for a two-year restricted access program being denied access to ADN, ADH, and ART programs because PBRT students are being admitted?

This question will be applied to each of the three allied health programs, nursing (ADN), dental hygiene (ADH), and radiological technology (ART). Individual student quantitative data for PBRT students and non-bachelor degree students will be presented to determine whether non-bachelor degree student(s) who meet the minimum selection criteria and qualify to be admitted are being denied. For the condition of a non-bachelor degree student being denied to exist, a condition of a PBRT student who qualifies and is selected into the program must have taken place causing a non-bachelor degree student to not be admitted.

#### *Quantitative Response*

*Nursing program.* Out of the five nursing programs two had accepted all students, both non-bachelor degree and PBRT students, with no alternates or wait-listed students. Two other nursing programs accepted all PBRT students who applied, and a list of students who did not have a four-year degree was generated. The students who did not have a four-year degree and who were not accepted were either placed on a wait list, or the students were not accepted. The data for these two programs will be presented in detail later. Lastly, the fifth program had PBRT students who had applied, but some were either placed on a wait list or were not accepted. However, this program's selection process was a first-come, first-served design and only required applicants to complete the requirements and apply before all of the seats were taken.

The first of the two nursing programs where all PBRT students who applied were accepted had one PBRT student accepted and a list of data on only two students who did not have a four-year degree and who did not make the cut for acceptance. The first student did not have a score for the pre-entrance test on her application, which is required

for a student to be placed in the pool of applicants for selection. Therefore, that student did not qualify for a spot in the Fall 2001 cohort based on not fulfilling the requirements for selection. The other student, compared strictly by academic standards to the one PBRT student who was selected, had a grade point average for the prerequisite coursework of 2.71 and a pre-entrance exam score of 30 out of a possible 100. The score of 30 on the pre-entrance exam eliminated this student from being selected to the program. The grade point average for the one PBRT student who was selected was 3.875, and she had a score on the pre-entrance exam of 55 out of a possible 100. In this case, no PBRT students could be seen as denying access to a qualified non-bachelor degree student, as these two non four-year degree students did not initially qualify.

The second nursing program had thirteen non-bachelor degree students who were not accepted into the Fall 2001 cohort. Six of the thirteen students did not have a score for the required pre-entrance exam and were thus pulled from the pool as potential candidates. Of the other seven remaining, two students had one grade missing from the pre-requisite courses, one had two missing grades, and one had three missing grades. Of the three with completed prerequisite grades and pre-entrance exam scores, the grade point averages and exam scores were: (3.14, 66%), (2.64, 45%) and (2.50, 50%) respectively. Two of these students meet the minimum requirements for being accepted while the one who scored a 45% did not make the minimum. For the two PBRT students who were accepted into this program, their grade point averages and scores on pre-entrance exams were (3.57, 72%) and (3.00, 80%) respectively. One of the two post-baccalaureate reverse transfer students had one grade missing for one of the required pre-requisite courses. When a student has a missing score, it is usually due to the course

being taken during the spring semester, which is concurrent to the time when applications are being submitted. It is a common practice in the selection process for many programs that if a student is selected and has coursework not officially completed, he or she is accepted pending the completion of the course and official transcripts being submitted. To the two non-bachelor degree students who were not accepted and missing one-prerequisite grade, the grade point averages and pre-entrance exam scores were: (2.27, 60%) and (3.45, 56%). The grade point averages for the students who had one course missing were tabulated with only the grades that were provided. What the final grades were for the missing coursework was not provided. Table 21 represents these grade point averages and pre-entrance scores for these students. For this program, of the three non-bachelor degree students who appear to have met the minimum requirements for entrance into the program, two can be seen as being denied access by the two PBRT students who were accepted. The two remaining nursing programs accepted all students who applied, and therefore, no non-bachelor degree students could be seen as being denied access. Of these two nursing programs, one had six PBRT students who applied which represented 11.8% (N=51) of the entire applicant pool for that school's program. The second program had two PBRT students representing 12.5% (N= 16) of the applicant pool for that school's program.

*Dental hygiene.* The three dental hygiene programs all have academic criteria by which students are selected. Out of the total of 10 PBRT students who applied to these three programs, two were accepted, two were accepted but later declined, one was placed on a wait list and then accepted, and five were not accepted. Of the three who were selected but later declined, information on whether they applied to multiple institutions

and declined one acceptance to accept another is not known. As for the two PBRT students who were accepted outright, each attended separate institutions. All three institutions provided criteria by which their students were selected.

Table 21

*G.P.A. and Pre-Entrance Scores for Non Four-Year Degree Students Who Were Both Not Accepted and Accepted and PBRT Students Who Were Accepted at One Nursing School.*

Students	G.P.A.	Exam Score
<u>Not Accepted/ Non-Degree</u>		
Missing one prerequisite grade		
Student A	2.27	60
Student B	3.45	56
Missing no prerequisite grades		
Student C	3.14	66
Student D	2.64	45
Student E	2.50	50
Average	2.76	54
<u>Accepted/ Non-Degree</u>		
All remaining students (N=38)		
Average	2.67	72
<u>Accepted/PBRT Students</u>		
Missing one prerequisite grade		
Student F	3.57	72
Missing no prerequisite grades		
Student G	3.00	80
Average	3.285	76

*Note.* Averages were also included.

The first program provided data for twenty-five students of whom fifteen were accepted into the program, one of those being a PBRT student. Of the three programs,

this program provided the smallest amount of student information. This program required the American College Testing (ACT) pre-entrance exam in its selection process. In addition, it not only required the composite score from the ACT in its selection process, but also the separate science and reading portions as well.

The one PBRT student for this first dental hygiene program had a grade point average for prerequisite courses of 2.83 and pre-entrance ACT scores of 20 composite, 22 for science and 25 for reading. Of the ten students who were not accepted into the program, five did not have prerequisite courses completed and were thus not eligible for selection. The remaining five non-bachelor degree students had the following grade point average for prerequisites and pre-entrance test score presented in Table 22. In addition, though the selection criteria tally sheet was provided, the mathematical factors by which academic performance scores could be calculated for this program's applicants were not included. Thus, comparison of the PBRT student's performance with other non-bachelor degree students who were not accepted could not be done. Not knowing how academic points are assigned, and how the applicant is scored by means of an interview, results in not having a clear determinant in how a student is selected. Nonetheless, one non-bachelor degree student out of the five who qualified could be seen as being denied access to the dental hygiene program by the one PBRT student who was accepted.

The overall results for the second dental hygiene program were that a total of 55 students applied: five were accepted unconditionally, 14 were accepted provisionally, provided that courses were completed with at least a grade of C by the time the program began, two were accepted and later declined. There were 7 alternates and 27 were denied admission. Seven out of the total who applied were PBRT students. One PBRT student

Table 22

*Grade Point Average and ACT Scores for Five Non-Degree Students in One Dental Hygiene Program and Who Were Not Accepted*

Student	Grade Point Average		ACT	
	Prerequisite Courses	Composite	Science	Reading
A	3.44	19	15	23
B	3.83	20	20	22
C	3.06	21	17	25
D	3.22	19	22	20
E	3.78	24	21	23

was accepted outright, one was accepted provisionally, one was accepted and later declined, and four were not accepted. The PBRT student who was accepted unconditionally had a grade point average of prerequisite coursework of 3.44 while the provisional PBRT student had a grade point average of 3.75. Of the four who were not accepted, one had earned a D in one of the prerequisite courses and was thus eliminated from the selection process. A second student had three prerequisite grades missing from her application and the last two had grade point averages of 3.13 and 3.52 for their prerequisite coursework. There is no pre-exam score required for this program and interviews were used as part of the selection process. Out of the total number of students who applied, 9.0% (5/55) were PBRT students who did not get accepted and 3.6% (2/55) were accepted. No PBRT student was an alternate for this program. Of the seven alternates for this program who were all non-bachelor degree students, the following grade point averages were calculated for prerequisite courses and displayed in table 23.

Table 23

*Grade Point Averages of Seven Alternate Non-Degree Students in a Second Dental Hygiene Program and Number of Courses Still in Progress at Time of Application*

Student	Grade Point Average	
	Prerequisite Courses	Number of Courses in Progress
A	3.63	0
B	3.34	0
C	3.22	0
D	3.00	0
E	2.91	0
F	3.03	1
G	3.50	3

For non-bachelor degree students who applied and who were not accepted to this second dental hygiene school, three students had all prerequisite courses completed, four had one grade missing, four had two grades missing, seven had three grades missing, one had four grades missing, and three had six or more grades missing. The grade point averages for the three non-bachelor degree students who completed their entire prerequisite coursework and were not accepted were 3.03, 2.81 and 2.75. The four students who had one prerequisite course grade missing had the following grade point averages excluding the one missing grade: 3.61, 3.39, 3.21 and 2.69. For the data, the following grade point averages were calculated excluding the two missing grades: 3.67, 3.04, 2.88 and 2.40. Of these ten non-bachelor degree students who have as a minimum two courses missing from their data, five had grade point averages above 3.00, presenting

supportive academic evidence to be successful in the program. Thus, because there were two PBRT students accepted, one unconditionally and one provisionally and assumed accepted, two non-bachelor degree students out of the five with grade point averages above 3.00 were seen as having their access denied to the program.

For the last dental hygiene program, 79 students applied and 20 were accepted. Of the 79 total students who applied, two were PBRT students. One PBRT student was accepted but declined while the last student was not accepted. In this program, PBRT students made up only 2.5% of the total number of students applying, and neither, after the selection period concluded, was selected to begin the program in 2001. This program did not require a pre-entrance exam in the selection process but did require an interview. Because no PBRT student began the program even though one was accepted and later declined, this program did not display a condition of non-bachelor degree students being denied access due to a PBRT student being accepted.

*Radiological technology.* In radiological technology, one program had no PBRT students apply out of 23 total applicants. Since there were no PBRT students in this program, it can be concluded that no non-bachelor degree students were denied access from the program based on a PBRT student admission.

In a second program, three PBRT students applied and were accepted out of a total number of 23 applicants. Out of the total number of students who applied to this second program, four were not accepted. Those four had at least one grade missing when they applied to the program which, in this case, excluded them from further opportunity to pursue being selected. The chair for this program shared that the completion of all prerequisites before applicants could be an official choice in the selection process was

required. Basically, as was discussed with the chair of this program, if you could complete the requirements before the application due date, you would be allowed into the program. This second radiological technology program, though labeled a restricted access program, seemed to operate by a first come, first served design.

The last program in radiological technology had a first-come first-served design in its acceptance. If students completed their requirements, then, the first number of students to get their materials in would be included in the program. The only selection criterion was basically who submitted their completed materials first. All other students would then be placed on a wait list that would then be carried over to next year's class. In this program, 13.6% of the applicants applying for the Fall 2001 class were PBRT students.

#### *Qualitative Response*

The qualitative reply pertaining to question four had mixed responses. The question that seemed to begin discussion surrounding this issue was one that came from literature and was presented to each interviewee. Lambert (1993) writes "The literature on post-baccalaureate reverse transfer students suggests that they are disproportionately represented in occupational programs that lead to higher paying and more secure jobs, in relation to their numbers in the overall community college population. This is particularly the case for allied health and other curricula into which entrance is limited by the number of clinical facilities." (p. 59) This statement was posed as a question to the interviewees to determine whether in fact they believe PBRT students are applying and being admitted to allied health programs. Depending on the responses, the interviewer determined

whether to seek their views pertaining to whether PBRT students are denying access to non-bachelor degree students.

Two chairs agreed when presented the question on whether they sensed that PBRT students are in fact denying access to non four-year degree students. Participant #4 answered,

Absolutely. ....this is a drawback of my first-come, first serve [program]. We have Bachelor's-degree people, and they have almost all the prereqs. You know they have an intro to psych or soc, the math, the English. The only thing they might be missing is the BIO. So, they complete their prereqs far quicker now with online courses even quicker than the student who is struggling, raising a family, taking a course here and a course there. ....looking at any health program, you have clinical placements because we have clinical internships. Well, I have only so many clinical spots. So, when you look at the first-come, first-serve and the people that are already completed with all the requirements to get into the program, then I say they are ready to go. Here's your clinical spot. The person who is taking one course here and there, by the time they're finished, those clinical spots are gone. It's almost, I don't want to say, it's almost like the haves and have-nots, but the people that have had great support systems, have had access to a wonderful education, have already got the networking of who the right people to know and what calls to make and how to get the information; Do they have an advantage? Yes, over the person who's struggling and doesn't have it. Yes, it is happening in this program. (personal communication, May 13, 2002)

Participant #5 shared that though she has not experienced it personally, if pressure was on a program to produce better graduates, selecting a PBRT would be a lower risk than someone with the same qualifications but no degree.

I can see again where we have pressure on us to graduate successful graduates, and so, you know, it kind of makes sense to take the person that you know is already going to be successful over the person that is going to have other challenges, not only academically, but babysitting and the car breaks down, and they can't get to clinical. (personal communication, May 15, 2002)

But, when asked what she would do if placed into a scenario of being the chair of a program where this may be going on, the following response was given.

Well, do you want a personal answer? I probably wouldn't have the job very long. Because I would go for the person that's improving his/her life. I think

nursing has to get real and put programs into place for these, reverse transfer students. Offer them a different track that does not involve, perhaps, as much classroom time because they at least can succeed with less classroom time, less seat time. I know many schools do have fast-track programs or whatnot. I think that there's an opportunity there if that's not in place. That there are ways to accommodate those students [PBRT] without having to make a choice of who's going to get the seat in the classroom. I would be probably making my decisions on the socioeconomic-change person. But that's because I am a very altruistic person. (personal communication, May 15, 2002)

By having another curriculum for the PBRT students tailored for their already proven academic abilities, participant #2 presented an idea of having not just the traditional ADN program, but a specialized programs which would be for PBRT students exclusively. She shared this very idea with her dean as a step towards making it a reality. This chair says,

I think we can do more; however, if we had enough four-year [PBRT] people, we have talked about a fast-track program. We even had the science teachers agreeing to do a fast-track science course for them, even online, but we would need to have a minimum number of students, and I would look at 15 to 20. Let's move them through faster because they know how to study. They know what their goals are and they are more focused. I've actually talked to our dean with that one and the biology teachers, and you know, if we could figure out a way to do it, we would. If we had clinical, if we had faculty, and those are some of the 'ifs' out there right now, if they've been a good candidate, let's go for it. (personal communication, May 14, 2002)

Thus, discussion has taken place that could lead to success for both PBRT students, and those who do not have a previous four-year degree. The only issue that could prove difficult would be the availability of clinical facilities for this additional special group of students, which could return the original concern of denying access to non-bachelor degree students out of the acceptance process.

#### *Question 5*

Do post-baccalaureate reverse transfer students gain an advantage through admission selection criteria used in restricted access programs?

The attempt to address this question centered on the admission criteria, tally sheets used by each program to calculate a student's score and whether PBRT students benefited from the rubric, and interview discussions to determine whether there were advantages. This section will present each program's selection criteria and how each applicant's score is configured to determine who is accepted and who is not. In addition, PBRT status is addressed to determine if having a four-year degree provides an advantage in the selection process. One area that has already been presented in this chapter under the results of question three is the autonomy of a program and how applicants are selected. Autonomy will be further shown in the result for question five.

#### *Selection Criteria and Tally Sheets*

*Nursing programs.* Within the nursing discipline, four programs had selection criteria and one operated on a first-come, first-served basis. Of the four nursing programs that had a selection criteria design, all required students to have completed various prerequisite courses with a minimum grade of C. Grades for the prerequisite courses were assigned a value in the selection process. In addition, all applicants were required to complete either the Psychological Services Bureau (PSB) pre-entrance exam or the Nursing Entrance Test (NET) with at least a score of 50%. This represented the entire selection criteria for three of the four programs. The fourth program provided additional points for having a four-year degree on its selection criteria tally sheet. In addition, this same program awarded points for having a previous associate's degree as well and for nursing experience concerning students who had completed a certificate PN program and worked for either 5 or 10 years. It was not know if there were any PBRT students who had previous nursing experience. In all, if a student scored the maximum number of

points based on the tally sheet for this program, a score of 93 could be achieved. Thus, if a student had a previous four-year degree, the student could increase his or her score by almost 11%. Overall, 22% of the points for this one program were available for experience and/or degree with this scoring tool. The most significant contribution to the tally sheet comes from grade point average however with 30 points possible if a student earns a grade point average of 3.90 – 4.0, down to 2-points for a grade point average of 2.50 – 2.59. In addition, the pre-entrance exam performance also contributes a high score of 25-points and a low of 5-points. This one program had its entire selection criteria quantified to provide an objective way of selecting its applicants. Two-points were granted for each course completed, for a maximum score of 18-points. The more pre-nursing classes a student could complete before beginning the program, the stronger application score for admittance a student could achieve. As for the other three nursing programs, no additional points were granted for having an additional four-year degree. Tally sheets representing the point value for prerequisite courses completed for the remaining three nursing programs were not provided to the researcher.

*Radiological technology.* In the radiological technology programs, two schools have a selection criteria design for their applicants while one has a first-come, first-served organized acceptance plan. In the first restricted access radiological technology program, points were awarded for high school grade point average: (a) 2.0 – 2.3 worth 1 point; (b) 2.4 – 2.8 worth 2 points; (c) 2.9 – 3.2 worth 3 points; (d) 3.3 – 3.6 worth 4 points and (e) 3.7 – 4.0 worth 5 points. GED was also accepted and one point was given for each category national percentile achieved. The maximum point value for the GED is three points. For semester college credit completed, the following points were assigned: (a) 1 –

14 worth 2 points; (b) 15 – 29 worth 4 points; (c) 30 – 40 worth 6 points; (d) 40+ or AAS degree worth 8 points and (e) baccalaureate degree worth 10 points. Previous work experience was broken down into x-ray related worth 4 points and health related worth 2 points. A prerequisite course within the radiological technology program at this school was required before a person could be cleared to apply. With the completion of this course, points were assigned for the grade attained: (a) C worth 2 points; (b) B worth 3 points; (c) A (93-96%) worth 4 points and (d) A (97 – 100%) worth 6 points. Information as to why the points were assigned the way they were was not provided. There was a personal interview required for this program but ratings associated with this part of the admission screening were not provided.

The second radiological technology program required students to complete seven prerequisite courses with at least a grade of C and take the Health Occupations Basic Entrance Test (HOBET). If students were able to complete these requirements, they were accepted into the program. It is a selection criterion restricted access design, but there have not been enough applicants to demonstrate candidates being denied access. Lastly, this program requires an interview where scores for interviewing skills, personal appearance and overall impression are rated on a scale from 1 to 10. The same eleven questions are asked of each candidate and remarks are written based on how the applicant is able to respond.

*Dental hygiene.* Two of the three dental hygiene programs studied in this research did not have tally sheets available to show how students are scored. The third program had a tally sheet, but the numerical values associated for each criteria were deleted. Nonetheless, there was a hierarchy on the tally sheet with respect to points assigned for

previous college coursework completed and degrees earned. Again, what those actual point values were was not provided.

A second dental hygiene program did not have a point value assigned for completing a four-year degree. If applicants scored above an established minimum value based on grade point average on prerequisite courses and ACT scores, they were granted an interview. From the interview, the committee may take into consideration the completion of a degree, for that information would be available to each committee member in a file containing the transcripts of all previous college work. However, as was presented in the results of question three, the interview is able to identify precursors for success when addressing the area of clinical, and this represents a critically important component of the curriculum for the dental hygiene program. Therefore, for this program, the interview represents the place in the application process which takes into consideration all the components of the applicants' information for the final decision of acceptance. How applicants were actually scored was not available.

The last dental hygiene program ranks all the initial applicants by means of grade point average on prerequisite coursework alone. There is no pre-entrance exam in the application requirements. From this information, the top thirty in-state students and top ten out-of-state students are selected for an interview representing a grand total of 40 students. After the interview, the top 20 students are selected to begin in the fall. For the initial interview selection, having a four-year degree was not an advantage in getting to the interview, only grade point average represented the initial selection for the interview. As for the interview, it is not known whether having a previous four-year degree would give an advantage to the student over a non four-year degree student.

### *Unexpected Results*

When addressing the geographical location of being rural, suburban or urban, and the number of PBRT students who apply, percentages take on a different value, as shown in Table 23. These values are based on the number of applicants applying for all three programs. As can be seen, the percentage of PBRT student applications increases in urban populations. Geography, though not in the scope of this study, was one variable that the researcher had believed would display a difference in number of PBRT students applying at a specific location. The percentages in Table 24 show overall numbers of PBRT students as geographic location changes.

Table 24

#### *Comparison of Numbers and Averages of PBRT Students With Respect to Geography*

Geographic Location	# of PBRT	<i>N</i>	% PBRT
Rural	7	142	4.90%
Suburban	25	308	8.11%
Urban	13	100	13.00%

It is interesting that one chair shared this same view without knowing quantitatively this result. When asked whether PBRT students are given advantages over a student who does not have a degree, this interviewee shared that if she was in an urban program, where she believed this could be an issue, meaning, she believed that the sheer numbers of PBRT students enrolling in an urban program is greater, that this would potentially lead to PBRT students enrolling in greater numbers to non-degree students

and influence the change of PBRT students potentially denying access of acceptance to equally qualified non-bachelor degree students.

### *Conclusion*

This chapter presents the quantitative and qualitative data received in this study to address the questions presented in chapter one. In addition, interpretations of the data were included for clarification within the text and in various tables. PBRT student numbers, both accepted and not accepted were presented as percentages of the total number of applicants. Percentages of PBRT students admitted with respect to the total number of applicants into the three allied health programs were nursing: 6.2%, dental hygiene: 2.1% and radiological technology: 6.5% and an overall average of 7.3% (18/247) for all three programs combined. Chi square analysis was conducted to show that there is no statistically significant difference between the proportion of PBRT students accepted into restricted access allied health programs as compared to the proportion of non-bachelor degree students admitted.

The demographics of a PBRT student who applies to a restricted allied health program are white, female, with an average age of 32.7 years of age. As for non-bachelor degree students, their demographics tended to have greater diversity in race, showing greater numbers of Hispanic students (22.4% in radiological technology and 12.9% in dental hygiene). Mean grade point averages and pre-entrance test scores for PBRT students and non-bachelor degree students were subjected to a *t* test to present the pre-admission profile of each group. In all three programs, no statistical significance in the difference of the means was found, even though in some programs, the mean PBRT grade

point average was less than the mean grade point average for non-bachelor degree students.

The prerequisite courses required in some cases were similar (BIO 201, 202 and ENG 121) but in many others, variety was diverse providing for an autonomous view of choices pertaining to prerequisite course requirements. Uniformity of the selection processes for the many programs throughout Colorado seems to be non-existent. There is a large diversity in how students are selected from program to program and institution to institution.

In 3 out of the 11 programs (1-nursing and 2-dental hygiene) studied, five non-bachelor degree students who qualified and had met the requirements for acceptance were not selected and were seen as being denied access to the program by PBRT students who were accepted. In the selection criteria for one nursing program and one radiological technology program, PBRT students were given additional points towards acceptance. As for the interview and whether PBRT gain an advantage in being accepted, no information was available. Two programs did not have a selection criterion due to operating by a first come, first served design. For the remaining nine programs, selection criteria were varied in how completed prerequisite courses were tabulated, the pre-entrance test score was incorporated into points, and whether an interview was used and if used, how applicants were rated.

## CHAPTER 5

### DISCUSSION

Post-baccalaureate reverse transfer students and their presence in two-year institutions has certainly become a topic of research over the past three to five years. Since the Clark (1960) study identifying reverse transfer students, there has been an increase in studies evaluating and understanding this community college population and its effect on the environment of a two-year institution. Townsend (1999) has presented some of the most recent studies pertaining to PBRT students. She pooled recently completed works involving PBRT students in the community college in an attempt to bring PBRT students to the attention of researchers and the need to further investigate this population. Townsend's work was a catalyst for this project.

This study represents a contribution to the many other studies attempting to enhance the understanding of the growing group of students identified as post-baccalaureate reverse transfer students. Its rationale is to reveal a larger picture of who PBRT students are, their reason for attending a two-year institution, and what their impact may be on those affiliated with the community college and the community college mission statement. This chapter evaluates the results presented in chapter 4 and compares those results with the literature from chapter 2. In addition, possible future studies pertaining to PBRT students in allied health programs, and the community college in general will be presented. Each question addressed in this study will be presented and then followed by the appropriate conclusions.

### *Question 1*

How many and what percent of post-baccalaureate reverse transfer students were accepted to these restricted access allied health associate degree programs: nursing (ADN), dental hygiene (ADH) and radiological technology (ART) for the entering class of Fall 2001?

The number of post-baccalaureate reverse transfer students enrolled in allied health programs was determined and the following percentages were found. Nursing had 6.2% PBRT students apply out of a possible 177 applicants for Fall 2001. Dental hygiene had 2.1% PBRT students out of 159 applicants, and radiological technology had 6.5% out of 46 total applicants. These results do not support the studies of Klepper (1990) that 7.8% of all students nationwide who attend community colleges in general are PBRT, the Foothill-DeAnza Community College District's enrollment study where PBRT students make up nearly 10% of the student body (Trombley, 1993) and the American Association of Community Colleges and their finding that PBRT students make up from 10 to 20 percent of current community college students (Gose, 1997). The results of this study however do support the interview responses that PBRT students are not applying to restricted access courses in any great numbers. What this result presents is that the overall PBRT enrollment for a community college should not be used as a predictor for the enrollment in an individual allied health program for that institution.

Since the results for this study were obtained from eleven programs within eight schools over the entire state of Colorado, excluding the three nursing programs who chose not to participate and the one radiological technology program not in the Colorado Community Colleges system, percentages of PBRT student enrollment can certainly vary

in geography as was shown in the unexpected results in chapter 4. Programs classified as urban were in cities that have populations over 1-million. Programs classified as suburban were populations of less than one million but greater than 10,000. Rural were classified as in towns being less than 10,000 in population. For these three geographically classified areas, PBRT students were grouped together for all three allied health programs present and their percentages are shown in Table 24. Percentages seem to increase as geography changes from rural to urban. The percentages applying to urban programs seem to support the American Association of Community Colleges study of 10-20% of students in community colleges are PBRT students (Gose, 1997).

The numbers of PBRT students enrolled in allied health programs, as compared to the studies of Klepper (1990) being 7.8%, Foothill-DeAnza Community College (Trombley, 1993) of 10% and the American Association of Community Colleges study (Gose, 1997) of between 10-20% of PBRT students being enrolled in community colleges in general does not seem to be the same. The chairs representing the restricted allied health programs who were interviewed seem to share this same result with PBRT students not applying in any disproportionate number, specifically in nursing. Participant #3 shared a point that certainly provides a reason why he believes PBRT students do not apply in nursing programs in any disproportionate number:

...my feeling is that if they [PBRT students] have a baccalaureate degree, most generally, they'll go back for a *baccalaureate* [italics added] in nursing simply because of the fact-well, depending again, too, on the major, most probably because they've already gotten so many of their upper-division credits anyway. So for them, it's another two years to go for an Associate's degree versus another two years to go for an added baccalaureate degree. So, I think we don't have that many baccalaureates at least here that I've seen. (personal communication, May 15, 2002)

There are certain allied health degree programs at the two-year level that are also available at the four-year level. Nursing and dental hygiene have four-year programs at various institutions in Colorado. If there were a choice, certainly PBRT students would investigate the two possibilities, especially if they are able to earn a second baccalaureate degree using courses from their first degree. PBRT students would need to determine which degree would work best for their needs.

A reason for why there are fewer PBRT students who apply into restricted access allied health programs as compared to the overall enrollment of PBRT students throughout the college may be due to a number of reasons. One reason is that PBRT students who view and use the community college as a way of pursuing a life-long interest or desire and not a career change could represent overall greater numbers. A desire to take art, dance, or a literature class provides opportunities for PBRT students who are already satisfied with the current career they have. Secondly, if a business is updating its software and needs its staff trained on the latest edition of a specific program, students with previous four-year degrees would need that one course but their numbers would be included in the head count for the school. They are taking the class not for a career change, but a career enhancement. Lastly, a community where the opportunity to start a home business can encourage PBRT students to enroll in classes such as small business management, accounting, or entrepreneurship can provide the skill necessary to see a home business become marketable. Quinley and Quinley (2000) presented numbers of PBRT students who took courses to pursue a career field that did not replace their current employment, but increase their present take-home pay by providing an additional source of revenue. In either of these examples, “non-career change” PBRT students

could be seen to have greater numbers than those pursuing a new career; however, additional research would need to be done to verify this assertion.

Lastly, the difference in numbers of PBRT students applying to restricted access allied health programs and being accepted as compared to non-bachelor degree students is not statistically significant ( $\chi^2 = .382, df=1, N=382, p=.537$ ). This finding is believed to be the first quantitative evidence comparing the acceptance numbers of PBRT students to that of non-bachelor degree students. PBRT students are not being accepted in any greater numbers than are non-bachelor degree students applying for the same position. This result could be due to the low numbers of PBRT students in general who are applying to restricted access allied health programs, but, additional research would be needed to verify this assertion.

#### *Question 2*

What is the demographic profile of a post-baccalaureate reverse transfer student enrolling in a restricted access allied health program? How does this profile compare to those who do not have a four-year degree?

The demographic profile of a post-baccalaureate reverse transfer student enrolling into a restricted access allied health program shows little variation among the three allied health programs studied except for age. For all allied health programs, PBRT students tend to be white, female; age-wise nursing PBRT students were in their mid-thirties (34.6 years) while for dental hygiene and radiological technology students were in their early thirties (30.2 and 31.83 respectively). In comparison, students who do not have a four-year degree, the profile is similar but non-bachelor degree students tend to have greater diversity in race than PBRT students. A notable gender difference can be seen in the

applications between non-degree students and PBRT students. PBRT students tend to show greater numbers of males as applicants than non-bachelor degree students except for radiological technology. Male PBRT students apply in a 2-to-1 margin as compared to non-bachelor degree students. Whether their percentages are contributing to the recent increases in males entering into nursing would require further study.

#### *Demographic Study Comparison*

PBRT student demographics have been done in past studies (Delaney, 1995; Harris, 1997). Table 23 represents the comparison of this study representing the demographics of applicants applying to restricted access allied health programs with those of Delaney and Harris. The percentages and mean ages for the Harris study are representative of the entire Kentucky Community College System while that of the Delaney study is representative of Quinsigamond Community College in Worcester, Massachusetts. As for gender there seems to be a greater discrepancy in PBRT males who attend the community college as an institution, and PBRT males who attend individual allied health programs. Males have been a minority with respect to representation in allied health programs like nursing. This has been shown by a recent survey of the Health Resources and Service Administration's National Sample Survey of 2000 nurses. It shows that of the estimated 2,696,540 registered nurses in the United States, 5.9 percent are male (Health Resources and Service Administration [HRSA], 2000). About 6 percent of nurses today are male, representing the highest percentage since the 1900s, which is when these statistics began being documented (Hilton, 2001), and a possible career trend of increasing numbers of males pursuing nursing in the future. In fact, the number of males in nursing in 1984 was 3.3%. In four-year increments from that date to the year 2000, male numbers have

Table 23

*Comparison of demographics of PBRT students in three studies*

Demographics	Delaney	Harris	This Study					
			Nursing		Dental Hygiene		Radiology	
			ND	PBRT	ND	PBRT	ND	PBRT
Male	44.4%	39.2%	10.3%	23.1%	4.8%	10%	22.4%	0%
Female	55.5%	60.8%	89.7%	76.9%	95.2%	90%	77.6%	100%
African American		2.7%	1.5%	0.0%	2.2%	2.2%	5.2%	0%
Asian American		2.7%	1.8%	3.8%	1.4%	10%	0%	0%
Hispanic American		0.0%	14.7%	3.8%	12.9%	0.0%	22.4%	0%
Native American		1.4%	2.2%	0.0%	.72	0.0%	0.0%	0%
Caucasian		93.2%	79.8%	92.3%	95.2%	90.0%	72.4%	100%
Age		37.46	30.97	34.6	27.7	30.2	26.17	31.83

ND = non-degree

increased .3% in 1988, .7% in 1992, and 1.1% in 1996 (Health Resources and Service Administration [HRSA] 1996). However, the percentages still represent a small component to the entire nursing population. The same result with respect to females provides insight into the high percent of allied health applicants, and the much lower percent of females who attend the institution (Delaney, 1995), or combined Kentucky state system (Harris, 1997). Females have traditionally been high in enrollment concerning allied health programs and Colorado's numbers certainly reflect that tradition. Thus, with respect to gender, Colorado's PBRT male students are applying in greater numbers than the percentages presented nationally for the nursing profession and this finding could provide support for male PBRT students seeking career changes in greater numbers than those of female PBRT students. A possible answer to this finding could be determined through responses from a job satisfaction survey of PBRT students before they enroll in these allied health programs.

Race seems to be similar in comparison. Caucasian percentages as presented in the Harris study of 90+%, parallels the findings within each of the three programs of 90+% as well, with one discipline showing exclusively Caucasian. Minority numbers are in the low single digit range except for the 10% Asian American value for dental hygiene. However, non-degree students tend to show a greater number of minority, specifically Hispanic students, with numbers in the teens and twenties. The higher number of Hispanic students is representative of a higher Hispanic population in a number of towns and cities where community colleges contributed to this study.

With PBRT student numbers being low with respect to race, diversity within a class could possibly decrease if PBRT student numbers are increased within a program.

For example, if a selection criteria for a restricted allied health program favored PBRT students, and PBRT students were in fact selected in greater numbers, then, because of the smaller diversity within the PBRT demographics, the overall diversity of the entering class could potentially diminish. With this scenario, an argument supporting affirmative action could potentially be addressed through the removal of the selection criteria where PBRT student acceptance is enhanced.

### *Question 3*

Are the selective criteria for admission uniform throughout the Colorado Community College System (CCCS) or are they unique to each institution?

An immediate answer to question three would certainly be “No” with respect to uniformity of selection criteria and “Yes” with being unique to each institution. One issue that repeatedly was presented, both quantitatively and qualitatively in this study, was that of autonomy of each program studied.

Autonomy (noun) is defined as the quality or state of being self-governing; right of self-government; a self-governing state (1993). The diversity and variance in the selection parameters and designs existing at each of the restricted access allied health programs studied clearly demonstrate autonomous practices. Autonomy seems to be the reason why each program had the diversity in its selection process as compared to other programs of similar or equal content fields. Each program had individualized or unique reasons for why they chose the various criteria for how their students were selected. Program chairs were able to present their own reasons as to why a specific form of selection was used at their institution and could back those decisions with past results whereby improving completion and retention, and decreasing in attrition. Autonomy has

provided each restricted allied health program the flexibility to change and adjust selection options when they sensed improvement could be made in their programs and how they could better meet the community's needs.

### *Prerequisite Courses*

With respect to the number of prerequisite courses, the following averages for the various disciplines are shown in Table 19. One statistic becomes evident, dental hygiene has a greater number of prerequisite hours and courses to be completed before students are allowed to begin their program. All two-year dental hygiene programs in the state of Colorado have a restricted access design of applicant selection. Students graduating from these two-year restricted access dental hygiene programs gain the skills necessary to obtain positions as dental hygienists in private dental practices within the community.

Along with the three two-year Associate of Dental Hygiene (ADH) programs is a four-year program through the University of Colorado Dental School located at the University Health Sciences Center in Denver. Students graduating from the dental hygiene school at the University Health Sciences Center would earn a bachelor's degree rather than a two-year associate's degree. This has been an issue within the dental hygiene discipline with respect to the two-year program and the four-year program. Little and Lysaught (1978) presented the question "If the outcome of the two dental hygiene programs is truly the same, it seems pointless for students to spend four years in preparation instead of two years in an associate degree program" (p. 21). However, after completing the two-year program along with the thirty-semester hours average of prerequisite courses, it seems students have nearly completed the equivalent of a bachelor's degree already, yet it is labeled an associate's degree.

The University of Colorado School of Dentistry's Bachelor's degree in dental hygiene provide the following information on their web page: "With the advanced degree [four-year degree], students can work in a variety of settings including, but not limited to, private dental practices, research, education, pharmaceutical or businesses. A baccalaureate degree in Dental Hygiene may afford a greater amount of flexibility than will the associate degree. Deciding whether to obtain the associate or baccalaureate degree is a personal decision and should be a decision on which type of program best meets students' needs and career goals" (University of Colorado School of Dentistry [On-line]). If a student completes the advanced or four-year degree in dental hygiene program, a greater number of choices, as stated by the information on the University of Colorado Dental School's web page, are provided to the student. But, would a private dental practice pay a student with a four-year degree more than a student having a two-year degree in dental hygiene? The researcher called four private dental offices in the Colorado Springs area to ask if there was an advantage. Each private dental office shared that there is no advantage and that either degree would pay the same amount. I believe it is here that dental hygiene chairs desire to keep and maintain autonomy of their programs. The two-year programs provide the numerous private dental practices within the community the reservoir of qualified dental hygienists. The two-year dental hygiene program chairs have connections to many of the private dental practices that they serve through their local advisory committee . It is the desire of each dental hygiene program chair to have the ability to make the decisions necessary for their programs to be tailored for the needs of their community. Having the restricted access philosophy for their program is but one way where these program chairs can obtain what they believe are the

best candidates for their program, which in turn become career dental hygienists to various community private dental practices.

The difference in prerequisite course requirements depends on the needs of the community that is being served. A dated study by Perry (1982) reviewed nine dental hygiene programs in California and found that there was great variation in prerequisite requirements. The range of zero to 36 semester credits required as college preparation presented a large discrepancy in what the community college educators defined as entry-level knowledge for dental hygiene students (Perry, 1982). In addition, as was discovered in some of the dental hygiene programs in Colorado, some courses that were outside of the major were required as general education while students were engaged in the program. Perry (1982) showed for the nine dental hygiene programs in California that the total semester hours for completing the Associate's Degree in Dental Hygiene ranged from 72 semester hours to 101.5 semester hours with a mean of 83.7 semester hours. In comparison, Perry (1982) showed that the number of prerequisite semester hours for radiological technology was 18 semester hours, the same for Colorado's programs, and for the ADN program was 33 semester hours, much higher than Colorado's nursing program requirements. This wide variety of prerequisite course requirements provides support for why autonomy is needed in the allied health area of dental hygiene. The needs in and around the Los Angeles area concerning dental hygiene would be different from the northeastern rural part of the state of California. To have a uniform number of prerequisite courses that all dental hygiene programs throughout a state must adhere to would take away the ability for dental hygiene programs to tailor their curriculum and selection requirements to the needs of the community they serve.

## *Interview*

Allied health programs are not liberal arts transfer types of courses. They are very hands-on in design and have within their curriculum extensive clinical and applicational types of instruction. Thus, the interview does provide a resource by which an interview committee may be able to determine not only the academic potential in a candidate, but the clinical (hands-on) requirement for success in a program. In fact, studies have shown that a correlation of interview scores with clinical performance has been achieved (Balogun, 1988; Holt and Dunlevy, 1992). Holt and Dunlevy support the findings that interviews are not effective predictors of academic success, but that “they are important in determining the potential of clinical skills and affective attributes” (p. 440).

To have or not have the interview is another way for faculty to address what they are looking for in a candidate and support for being autonomous in design. Having a 4.0 grade point average from the various prerequisite courses may demonstrate that the student academically is ready for this program. However, the associate degree programs of nursing, dental hygiene and radiological technology have a very concentrated curriculum that is hands-on in design. The interview provides the raters a glimpse of how a student may perform in the clinical (hands-on) portion of the program. The interview is used for some programs and not used in others due to the number of applicants. Either way, each program chooses by means of its autonomy if it wants to use the interview and obtain information necessary for the student to be successful in the program.

With respect to the interview and PBRT students, two of the three dental hygiene programs, despite the academics and performance at the interview, did not accept seven PBRT students. How much the interview played into the overall score for selection was

not provided, and so cannot represent the only reason for them not being selected. In the two radiological technology programs that required an interview, one did not have any PBRT students apply while the other had three PBRT students apply and all three were accepted. As with dental hygiene, information on the performance of the three PBRT students who were accepted into the radiological technology program by means of the interview was not provided. Rather, results of all applicant interviews for comparison with PBRT performance were not included in this study and may be a valuable study for the future.

Dental hygiene and most radiological technology programs throughout the state of Colorado have made the decision to keep the interview component of the selection criteria with the understanding of the positive correlation it has with success. Yet, there is another issue that comes into play that a program chair would need to decide concerning the interview, and that is the time factor that is required for such a process to be used. Dental hygiene and the two radiological technology programs recognize that the time required completing interviews does not outweigh the information gained on determining success of a candidate and have chosen to continue requiring the interview in their selection. The nursing programs, due to small numbers of faculty and administrative assistants and large numbers of applicants, cannot take on the time and energy required to interview and have disregarded its use.

#### *Pre-Entrance Exam*

The pre-entrance exam was used by four out of the five nursing programs in this study, one out of the three dental hygiene programs, and two out of the three radiological technology programs. There were two different pre-entrance test designs within the

nursing programs, one exam for radiological technology and the American College Testing (ACT) exam for dental hygiene. Each chair interviewed shared their reasons for why they chose to include a pre-entrance test in the selection process. Participant #1 shared that her program required the American College Testing (ACT) test and she shared one example of why it is required. "...to score a minimum of 20 on the ACT reading, or they [student applicants] are not eligible for our program, and that's one point below the national 12<sup>th</sup> grade average. When we evaluated the reading comprehension of our textbooks, it's at the 17<sup>th</sup> plus grade level. If we're not getting reading levels where we need to be we're setting a student up for failure" (personal communication, May 9, 2002). Participant #3 shared this thought concerning the use of the NET test: "We also scored on the NET test, and there are certain values we found on the assessment test that were indicative of success for the student. And so we use certain values off of that [test] we also score" (personal communication, May 15, 2002). Both of these chairs were able, through years of autonomous decision making, able to connect exam performance to student success in the program and assign score minimums to the selection process of applicants. In addition, participant #4 shared these comments pertaining to a pre-entrance Basic Skills Assessment (BSAT) test required for student applicants even though her program was a first-come, first-served design: "students.....take the BSAT, when they don't meet that elementary algebra score, they retake it because that's when they actually date the application. They have to meet those requirements. The application package is completed when the BSAT application to the program and all the prerequisites are completed" (personal communication, May 13, 2002). She has a minimum cut score required for applicants to be made eligible and qualify to begin the program and that

score, if not achieved in the first time testing, can be retaken until that score has been reached. Of all the program chairs who were interviewed in this study, all required a pre-entrance test for their programs. Yet, the overall diversity in either having the pre-entrance test or not, and which kind of test is used, provides another example in the autonomy that each program possesses in their selection process.

In summary, when autonomy is present within the decision making process of student selection, student success in completing the program is directly connected. The actual numbers of PBRT students, as presented in this study have just not created a real sense of urgency to see that actual selection criteria that enhances PBRT chances of being accepted be changed according to some chairs. Their concerns have revolved around the communities they serve and the advisory committees that dictate the needs for that community. The low number of PBRT student enrollment, as stated by a number of chairs, is not a reason for changing the entrance requirements if they are told to for their programs.

Animosity, however, seems to be creeping into the views of each faculty member towards seeing any kind of future rewards of unifying the selection criteria statewide. Faculty who has been under a highly autonomous design for years, will be difficult to convince that a uniform design will work for them. Participant #1 shared these views pertaining to autonomy when asked what she would desire to have for her program, which is currently undergoing a state mandated change in the curriculum: "That we should have autonomy in the curriculum, ... the content of the curriculum, the design of the curriculum, and the sequence of the curriculum need to be determined by the market,

the advisory committee, the employers, and not by [the] powers that be that aren't experts in the field" (personal communication, May 9, 2002).

The reason many allied health programs have selection criteria in their application procedures stems from the consequence that attrition can impose on a program if students with weaker abilities are provided a way to begin the program. Autonomy has carried each of these programs through many years of success and accomplishments and a number of chairs do not want to see their already established and success proven selection criteria removed. The cost to a program that attrition brings when a student(s) drops out of the program becomes very concerning. The seat that a student has been selected for is a seat that represents two full years of study to complete. If a class begins with 20 students, and graduates only 6 because 14 students were not academically prepared to complete the program, this would represent a very costly, inefficient program to taxpayers, not to mention a program that could be cut from an institution's budget. With this uncertainty, proponents who support the existence of a selection criteria type admittance design and favor the philosophy of being autonomous become reluctant to go to a uniform selection process such as first-come, first-served.

#### *Question 4*

Are students who do not have a previous four-year degree and who meet the admission criteria for a two-year restricted access program being denied access to ADN, ADH, and ART programs because PBRT students are being admitted?

For one nursing program and two dental hygiene programs, non-bachelor degree students who met the admission criteria for the program were denied access by PBRT students. Prerequisites were completed along with pre-entrance exam scores that

exceeded the admission criteria required for acceptance for a number of non-bachelor degree students and who were not accepted. Because PBRT students were accepted, these qualifying non-bachelor degree students can be identified as being denied access to these allied health programs.

Academic performance is certainly a predictor for future success. Brown (1978) studied the applicant selection process for a nursing program at the City College of San Francisco and recommended that the process include requiring applicants to keep a 2.5 pre-nursing grade point average. Allied health programs are demanding and require students to be academically prepared for successful completion of a program.

The academic performance of PBRT students has not been an issue, as these students have already demonstrated the ability to complete a baccalaureate degree (Townsend, 1999). The issue is whether this academic advantage provides for unequal benefits for the PBRT student over a student who does not have a degree to gain acceptance into a restricted access program. Results show no statistical difference in either grade point average or pre-entrance exam score for PBRT students who were accepted and non-degree students who were not accepted. This seems to present that academically both sets of applicants have similar academic abilities with respect to these two areas of selection and that possibly, another area within the selection criteria could be influencing a greater affect on the decision making process.

A study that could provide additional insight into whether grade point average and/or pre-entrance test scores could be predictors for selection would be to apply discriminate analysis and make acceptance or no acceptance as the dependent variable. This would provide for a greater ability in determining whether PBRT students do in fact

have an advantage in the selection process. However, one issue that would present a difficulty with this type of analysis, is the variability in the tally sheet rubrics for each institution's program, where philosophy of its existence tends to have a significant influence. Thus, discriminate analysis would need to be applied on programs individually. But, if data for a multitude of years for one program were applied, this inferential technique could prove worthy in determining which program granted greater predictability for academic advantage pertaining to PBRT students and could provide for additional study.

In summary, out of the eleven programs studied three programs, one nursing and two dental hygiene, displayed a condition where PBRT students were accepted into a program and "pushed out" students who did not have a four-year degree. These non-bachelor degree students academically met the criteria for acceptance and therefore, their academic performance could not be used as a means to eliminate them from being accepted. The other eight programs did not display conditions where non-bachelor degree students were seen as being denied. Reasons for this stemmed from the programs accepting all students who applied, when there were no PBRT students applying in the first place, or the program had a first come, first served acceptance format in its applicant selection design. The latter reason based not on an academic performance, but on a chronological one where the time at which an applicant could complete the required application materials and become eligible for the program determined whether a student would begin in the fall semester.

### *Question 5*

Do post-baccalaureate reverse transfer students gain an advantage through the admission selection criteria used in restricted access programs over students who do not have a four-year degree?

For one nursing, one dental hygiene and one radiological technology program, PBRT students were given various levels of advantage through numerical values assigned to having a four-year degree. However, through interviews with the program chairs it was shared that these weights were not a factor because few PBRT students applied. In addition, the tally sheets had additional selection criteria whereby students who did not have a four-year degree could increase their chances of gaining an acceptance through experience, grade point average and previous degrees such as a high school degree, a certificate or an Associates degree. PBRT students may not have previous experience and, if academic performance were similar, would seem to be equal in the selection process. However, this would depend on the numerical values assigned to each category in the selection process, which is dependent on the philosophy of the program. Nonetheless, in addressing question five there were programs that had selection criteria that provided an advantage in being accepted if an applicant possessed a four-year degree.

#### *Institutional Tally Sheet Findings*

Of all the three allied health disciplines studied, six out of the eleven programs had tally sheets by which applicant's scores were tabulated using selection criteria such as grade point average, pre-entrance scores, previous experience, previous degree, interview, letters of recommendation, etcetera. However, out of the six programs that had

a tally sheet, only two programs provided the quantitative values associated with having a four-year degree. If there was a numerical value to having a four-year degree, the four remaining programs did not provide that information. Some tally sheets were as simple as seeking an applicant's overall grade point average and a letter of recommendation, while others required grades obtained on each prerequisite course taken, grade point average for college work, and previous experience and/or degree. In addition, for two of the nursing programs, the number of applicants represented the number of students selected. Even though there is a selection process in place, the actual number of applicants was fewer than the number of seats available and thus, all applicants were accepted.

The five other programs that did not provide a tally sheet for the selection of applicants, had various combinations of selection criteria to which they were able to base their selections of applicants. The first two out of these five programs had a first-come, first-served design. The second two programs had applicants submit their grade point average of their prerequisite courses only. For these two programs that required students to submit their grade point average only, no course grades could be less than a C. If this minimum was met, the students were granted an interview. After the interview, the selection of applicants was made for the Fall class. The last of the five programs required both college transcripts and taking a pre-entrance test to determine whether applicants were granted an interview. In all five of these programs, a minimum number of prerequisite courses were required to be taken and completed with at least a grade of C before an applicant could be either accepted into a first-come, first-served programs, or become eligible for the second round of the selection process which was to earn an interview.

For the five programs that required applicants to have completed a minimum number of courses, PBRT students may have the advantage in having the courses completed before a student who does not have a previous degree. This condition was shared by participant #4 who said:

So when you look at the first-come, first-served and the people [PBRT students] that are already completed with all the requirements to get into the program, the pre-test, the application, and the prerequisites, then I say they are ready to go. There's a clinical spot. The person who is taking one course here and there, by the time they're finished, those clinical spots are gone. (personal communication, May 13, 2002)

In addition, after completing the minimum requirements for some of these programs, applicants were then granted an interview. This could also be a point where PBRT students could also gain an advantage based on their previous college experience to communicate and express effectively what they want to say, support for Heath's maturity model. However, two programs out of the five that required an interview after applicants had met the minimums showed a different response. The first program had 79 applicants, two of whom were PBRT students. One student was accepted but later declined while the second student was declined. The second program had 55 students apply and seven were PBRT. One PBRT student was accepted outright, a second was accepted provisionally, and five were declined. In the case of the second program, the only selection criteria that could be labeled as one where PBRT students would gain an advantage, the interview, did not seem to provide that advantage as demonstrated by the five who were declined.

For the six programs that had a tally sheet where scores were tabulated and applicants were either selected or were declined, the advantage for PBRT students was dependent upon the numerical value assigned (if it is assigned) to students who have a

four-year degree. In addition, these numerical values seem to be determined by the philosophical view of the program's chair and faculty.

Was there an advantage on any tally sheet that would assign a greater number of points for having a four-year degree? For two programs, the answer is yes. However, a student with a certificate and work experience could score just as many percentage points as a PBRT student with no experience for these two programs. It just depends on how the program views and rates specific areas for the selection of candidates. What this tends to communicate is that though PBRT students are in fact rewarded for the completion of a four-year degree, its contribution overall may not provide them enough additional scoring strength for them to be accepted. The diversity in selection criteria creates an avenue for all students to gain an equal opportunity for acceptance. But, if a program views PBRT students philosophically as students who lower the risk of not completing the program, and as the desire to increase the enrollment in their classes with PBRT students, then the program's leaders have only to change the requirements and enhance the numerical value pertaining to having a four-year degree to maximize their enrollments. For example, if a tally sheet had the following numerical values assigned to the previous education: 2-points for having a certificate, 4-points for an Associate's, and 6- points for a bachelor's, if a program has a desire to guarantee any and all PBRT students who apply to be included in a class, a program chair operating under an autonomous philosophy could raise the numerical value assigned to having a bachelor's degree from 6 to 16. Would this be right in having enhanced PBRT enrollments in restricted allied health programs? That is a question that would need to be addressed at

either the institutional or state level and would present a spectrum of philosophical views pertaining to PBRT enrollments.

One area that provided difficulty with the determination of whether PBRT students would gain an advantage through admission selection criteria, was the reluctance by one program within the study to share the numerical values assigned to the various educational levels and on how an applicant is tabulated and selected. One program provided their tabulation sheet showing which criteria was scored, but had the numerical values of each criteria removed from the sheet. The reason for this was the program wanted to keep its overall selection process confidential. However in another case, the program chair provided information on how a student was scored and ranked. In fact, the tally sheets were available on the Internet for students. This wide spectrum of views towards how each allied health program conducted its application process, was another example of the autonomy that currently exists in these programs.

The differences in the selection criteria for the three disciplines studied in this project were certainly diverse. Defending for these differences seemed to begin with the program chair who represented his/her program and provided the real support for the selection criteria that was in place. In fact, when a program chair was changed or replaced, philosophical views towards the selection criteria would seem to change as well. This was evident in one of the interviews conducted. Participant #2, though bound by state board decisions, had the opportunity to reevaluate the current selection process and, with her staff, had begun to organize and present the program based on the philosophy and mission that governs what that program's faculty and chair believes is

important. A number of changes were issued in the program once this chair became the head of the department.

I can speak for the last two years frankly the easiest. What they had done in the past, and we did some modification with it. We implemented the nurse entrance test *NET test* [italics added] the last two years, and you had to at least pass that test, and it's used by about 450 schools. With the biology fields being on our interdisciplinary admission team and also because the sciences are so critical, we gave more points for an A in science than we did for an A in psychology, for example. We also awarded something called 'Points for a Narrative.' The first year here they could take it home and do it. After this, they started doing it in the testing center with the nurse entrance test so that nobody else could write the test for them and write the answers to these questions. It was really just to give us a feel on how they thought, and the same teacher taught it and graded it the whole time. The reason for the change was three years ago, students were being accepted here without all their general *education* [italics added] requirements. Then they were finishing nursing courses, struggling, and taking the general *education* [italics added] after they finished the nursing, sometimes up to a year, and then flunking boards. And the Board scores were like 75% particularly with this bridging group. And we said we can't continue with that. First of all, we wouldn't get accredited. So we changed a number of things. But we try to incorporate a community college philosophy of *giving* [italics added] people a chance, but put them in the right courses first and give them the background they need. And we are seeing it make a difference. And I say this year's class, particularly, we're very optimistic. It's a good class, and they will tell you that up front. (personal communication, May 14, 2002)

In addition, this participant shared that the interview was eliminated due to being too subjective and the enhanced score for having a previous four-year degree did not seem right for students having degrees such as drama or history to be seen academically better than someone who does not have a degree. Autonomy at this point becomes a very important asset towards a chair's ability to construct an environment for his/her program which will meet the mission of the college, increase academic achievement, strengthen accreditation with various accrediting boards, and gain greater respect within the community.

This philosophical view towards rewarding or not rewarding applicants having a previous bachelor's degree seems to be grounded in how the leadership of the program views the institutional mission. Templin (1983) warned, "The danger is confusing improving quality with the abandonment of institutional mission" (p. 51). One side views the mission of the college as accepting the absolute best candidates for its program and having the lowest attrition possible. Having a selection criteria process provides the best way of obtaining the best candidates. The opposing side views the mission of the college as an institution willing to help others in need to get on their feet and become successful, but the result can result in experiencing greater attrition. Participant #4 whose program is first-come, first-served made this statement: "Attrition has always been nationally 50% in radiology programs. We keep records. We have in the past, way past, matched the national average. This year I had 25% attrition...maybe it was the class that started two years ago, we started 19 and graduated 7" (personal communication, May 13, 2002). Having a first-come, first-served design eliminates choice and provides all applicants an equal chance of being selected. Templin stated "If admissions criteria are constructed along traditional lines, the post baccalaureate reverse transfer student emerges as a highly desirable candidate, often exceeding admission's criteria and having many other desirable attributes as well" (p. 48). Post baccalaureate reverse transfer students have been provided additional points on specific tally sheets obtained for this study. PBRT students do come with added academic abilities so that they will be successful in not only completing a program, but also obtaining employment within the community. Yet, this dual view of the mission of the institution will need to be addressed

for all who have leadership roles in the allied health fields and certainly can provide for a future investigation.

*Autonomy Threatened*

A recent development in the nursing discipline, however, has threatened the autonomy of the nursing programs that use a selection criteria design. While this study was being conducted, the Colorado Community Colleges System (CCCS) has implemented a statewide first-come, first-served admission policy for all CCCS nursing programs throughout the state. This design went into operation for nursing applicants applying for the Fall 2002 ADN program. The only criteria required for students to gain admission into a program is the documented evidence that applicants score on a basic

Table 22

*Cut Scores Required For Nursing Applicants to Become Eligible for a Nursing Program*

Discipline	Assessment Tests			Grade of C in Coursework
	Accuplacer	Compass	Asset	
Reading	>RC 83	or >RS 75	or >RS 41	or REA 090
English	>SS 86	or >WS 70	or >WS 41	or ENG 090 or ENG 121
Mathematics	>EA 55	or >ALG 45	or >IA 35	or MAT 090 or MAT 114

skills assessment test the following cut scores given in Table 22 and to take either anatomy and physiology I or II (BIO 201, 202) and English Composition I (ENG 121) and complete them with a minimum grade of C. Once these requirements are met, the applicant becomes eligible to apply to the nursing program. This newly implemented policy did not become a reality without concerns from the nursing community.

Participant #2 shared these remarks concerning how the program was put together and the original diversity existing in the nursing programs statewide:

[State System President] wanted to have everybody in the state to have the same guidelines. We got together as a state. We did express our concern, but we were told we needed to have the same guidelines, and there was just discrepancy in the state. Some required nurse aide courses. Some simply if you took a medical terminology and another course your name was on a list. And the idea is to increase the number of nursing students. So, if we have 100 on a list, they can say, for example, 60 will go in this year and the next group, .... maybe in two years, they can be accepted, pending not flunking in between. (personal communication, May 14, 2002)

In addition to those comments, participant #2 shared these words of uncertainty pertaining to this mandated selection process from the state:

Others are feeling like we are abolishing the nurse entrance test and changing the grade point average is going to lower our standards, and we'll probably lose some of our better students. They're going to go to a school with higher standards. And our issue, very honestly, we're worried about the attrition rate. I also find that when we're advising students, when I have a 3.7 and a 3.5 come in here, that's one of their first questions. 'What is your grade point average?' And if they think everybody else in the class is not up to the level, they're worried about whether [italics added] they are going to be bored in class. 'Are they going to get what they need?' 'Are we going to dummy down?' And those are the exact words I've had in advising. (personal communication, May 15, 2002)

The diversity of the selection process for past nursing programs has now been eliminated through this mandated policy and the nursing program has been required to eliminate the criteria by which they have operated. Is the state dictating what the mission should be for these programs? Is this first-come, first-served design the right answer for all programs? What will accrediting agencies have to say pertaining to these kinds of changes? Interestingly, there are certain nursing programs who were not included in this study yet operate by this mandated design, and have remarkable tutoring and in place assistance programs to provide for weaker academic students. For programs who have not operated this way in the past and who have been forced to adapt this is virgin territory

for these programs and they are understandably reacting towards the uncertainty of what to expect in the years to come. As for PBRT applicants pursuing nursing today, this first come, first served program required by the state does not give individual programs the autonomy to enhance selection criteria for having a previous four-year degree. PBRT students are being made equal in acceptance requirements with a student who does not have a four-year degree.

### *Curriculum and State Policy*

With this information pertaining to prerequisite courses and the variation in numbers of semester hours to complete a program, comes another recent legislative action in the state of Colorado. A recently passed bill in the state legislature known as the Common Course Numbering System bill (HB01-1298, 2001), which has passed the Colorado state legislature has mandated that similar classes have the same prefixes and numbers statewide. Known within the Colorado Community College System (CCCS) as the Colorado Common Course Numbering System (CCCNS), all disciplines are required to come together and reorganize their curricula so that each program would deliver the same courses and content statewide. This was done to ease the transferability of courses between programs throughout the state. However, for allied health programs, the numbers of students who transfer between two-year institutions is minimal at best. The law was designed mainly to assist students in increasing their chances of having transfer courses articulate from two-year to two-year and two-year to four-year institutions, not career/technical courses. Basically, what has provided assistance to students with transfer course articulation, has sacrificed the autonomy of various allied health programs and the curriculum they use at the institutional level. For example, a dental hygiene program in

Denver that has tailored its curriculum by organizing content material to meet the needs of private dental practices in and around Denver, has had to work with a rural dental hygiene program whose courses are sequentially organized in a different order. Both programs, which have operated autonomously, are being required to readdress their curricula and have a uniform number for each course taught. Courses that were individual to each program are now becoming combined to create a common course to both programs. Previous allied health curriculum that was applied at the individual colleges and given the ok by accrediting agencies in the past, is being told to become uniform throughout the state for reasons that do not apply to their programs in the first place. Transfer between allied health programs within the state of Colorado is nearly zero.

#### *Final Statement*

Post-baccalaureate reverse transfer students' impact on policy, philosophy, and mission has raised many questions on their inclusion in restricted access programs. Yet, this study provides some additional insight into how future policy and mission decisions can be made with respect to restricted allied health programs in two-year institutions. The numbers of PBRT students who enroll in restricted access allied health programs do not reflect by percent the number of PBRT students who enroll in the institution as a whole and could not be used as a predictor for PBRT student enrollment for individual programs.

Academically, PBRT students seem to have similar performances as students who do not have a previous four-year degree and who have not been accepted. Yet, since the writing of this study, selection criteria for one discipline, nursing, has been changed and a first-come, first-served design has been implemented throughout the state of Colorado.

Therefore academic advantage would not be present unless PBRT students had prerequisites completed from their original baccalaureate degree, which would then be used to meet the requirements for the allied health prerequisite requirement. This provides for a faster opportunity to have materials ready and be accepted above someone else.

If selection criteria are to be used for various restrictive access programs, discussion will be needed at the program level to reassess these criteria and to determine whether the points assigned onto various selection criteria need to be changed, or removed. The philosophy of program chairs and the mission of the institution may be of different paths, each having reasons for why their way seems best. But both may need to come to a common ground with respect to how students are selected for restricted allied health programs, especially if PBRT student numbers increase in enrollments. For the various selection processes of this study, the actual PBRT student numbers that applied did not provide an advantage even though two programs provided "extra points" towards having a four-year degree. However, if PBRT numbers increase, which could become possible during an economic downturn, extra points may in fact present a distinct disadvantage towards students who do not have a degree. This would require programs to reevaluate their selection criteria and determine whether the mission of the college is being adhered to.

Demographic data pertaining to PBRT students showed minimal differences with demographic data of PBRT students enrolling in institutions overall. As compared with other studies (Delaney, 1992; Harris, 1997), gender was the only area not representative towards being a predictor with the data of PBRT students enrolling in an institution.

Allied health programs, especially nursing and dental hygiene, have higher numbers of females who enroll than males. As for race, geographic location could possibly play a role where specific cultures tend to exhibit larger numbers in their population; southwest United States having greater number of Hispanics and the southeast United States having a greater number of African American applicants. A study however would need to be done to validate this assertion.

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## Appendices

07/17/01

As a department chair, I have been clearly presented the entire design for the research dissertation being conducted by Evan James McHugh, who is under the direction of Tim Davies Ph.D., director of the Community College Leadership Program at Colorado State University. I have been made fully aware of what would be required for the entire data collecting process of acquiring pre-requisite grades of students applying for either the fall 2001 (and fall 2000 if available) class of nursing, dental hygiene or radiological technology. In addition, information on whether students were accepted or not accepted into the program would be included. I would then have this information sent to the research division of the Community Colleges of Colorado State System Office once the data collection has been completed. If I voluntarily agree to participate, I am able to begin immediately according to the directions given by Evan McHugh.

Yes, I want to participate in this research.

No, I do not want to participate in this research.

Signature\_\_\_\_\_

Signature\_\_\_\_\_

Title\_\_\_\_\_

Title\_\_\_\_\_

School\_\_\_\_\_

School\_\_\_\_\_

Yes ( ) or No ( ) Would want a copy of the dissertation once it is completed. Can answer yes only if have voluntarily signed to participate.

Please sign and return to:

Evan McHugh  
Chemistry Instructor  
Pikes Peak Community College  
Rampart Range Campus  
11195 Highway 83  
Box R13  
Colorado Springs, CO 80921

Or Fax: (719) 538-5439

Post-Baccalaureate Reverse Transfer Study Interview

Statement of Permission

I \_\_\_\_\_ have been made fully aware of what is expected of me pertaining to this interview process. I have been instructed by Evan McHugh and have been given written documentation guiding me through this process. I have the right to read the completed transcript of this interview if I sign below acknowledging my desire to have it sent to me.

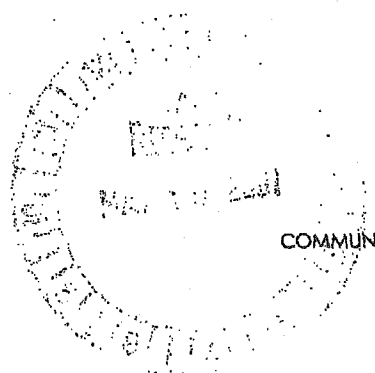
Signed \_\_\_\_\_

Community College \_\_\_\_\_

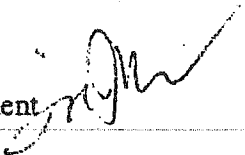
I desire to have the transcript sent to me upon completion of writing the transcript \_\_\_\_\_

I do not desire to have the transcript sent to me upon completion of writing the transcript. \_\_\_\_\_

1391 N. Speer Blvd., Suite 600  
Denver, CO 80204-2554  
Tel 303.620.4000  
Fax 303.825.4295



COMMUNITY COLLEGES OF  
COLORADO

**TO:** Community Colleges of Colorado Staff  
**RE:** RESEARCH PROJECT, EVAN McHUGH  
**DATE:** February 21, 2001  
**FROM:** Joe D. May, Interim President 

The Community Colleges of Colorado State System has been reviewed the design for the doctoral dissertation being conducted by Evan James McHugh, who is under the direction of Dr. Tim Davies, director of the Community College Leadership Program at Colorado State University. CC of C supports this project including the collection of demographic data of those students who have applied to the schools of nursing, dental hygiene and radiological technology for the year 2000. CC of C has determined that necessary safeguards are in place to protect the identity of each and every student used in the study. Those requesting further details should contact Dr. Richard A. Voorhees, Associate Vice President, Community Colleges of Colorado at 303-595-1558. Thank you.

Serving a quarter million students through 14 State system community colleges, two local district community colleges, four area vocational schools and career/technical programs in more than 150 school districts throughout the state.

Dear Colleague:

My name is Evan McHugh, a chemistry faculty member at Pikes Peak Community College. I am also a doctoral student in the Community College Leadership Program at Colorado State University. My dissertation will explore factors relating to post-baccalaureate reverse transfer students enrolling in restricted access programs at the two-year level. The programs that I will be focusing on are the allied health programs of nursing, dental hygiene and radiological technology.

I am hoping you would agree to participate in my study. Your involvement would entail sitting down with me at a given time or if you prefer, being called on the phone and asked questions pertaining to my research area. The total amount of time it would take would be approximately 45 minutes. The interviews would be tape-recorded but your name would not appear anywhere after the interview has been completed. The kinds of questions I will be asking would have to do with a description of your program, and then what you think the selection criteria should be, whether you think post-baccalaureate reverse transfer students have increased opportunities and abilities in being selected and what your personal views are towards having them in your program. There isn't any benefit to you personally, but I am hoping the results will help us become better aware of this unique component of the enrollment, and ultimately, how we can best provide for our students. There will not be any risk to you, because again, your name will not be used.

If you'd be willing to help out in this respect, and help your future students, please call me at home (719)260-1966 or e-mail at:

evan.mchugh@ppcc.cccoes.edu

I will then set up a time that would be convenient for you to meet with me. When that time comes, I will provide more details on what will be needed of you. If you have any questions at all before then, please don't hesitate to contact me.

Thank you,

Evan McHugh  
Pikes Peak Community College  
Chemistry/Physics Instructor  
Colorado Springs, CO 80906  
(719)540-7386 (office)

Tim Davies Ph.D. (Committee Chair)  
Community College Leadership Program  
233 Education Bldg  
School of Education  
Colorado State University  
Fort Collins, CO 80523  
Phone: (970) 491-5199

Dear Department Chairs:

My name is Evan McHugh, a faculty member of chemistry at Pikes Peak Community College. I am also a doctoral student in the Community College Leadership Program at Colorado State University. I am presently working on gathering data for my dissertation that pertains to post-baccalaureate reverse transfer students enrolling in restricted access programs at the two-year level. The programs that I am focused on are the allied health programs of nursing, dental hygiene and radiological technology. I am writing this letter to inform you of what I would be asking each of you to do, so that you would be made fully aware of what is required for this project. Then, there is a voluntary approval letter that accompanies this attachment that I would ask you to sign to seek your approval to conduct this research project.

What will be asked of your program will be the gathering of data from each student who applied for the fall 2001 class, and if possible, fall 2000 if files are still available. Data would include social security number, grade in pre-requisite courses required for your program, and score on pre-entrance exam. Grades would be entered numerically according to the following scale: A = 4, B = 3, C = 2, D = 1. Below represents an example of how a student's information would be entered:

	Bio 201	Bio 202	Bio 203	Eng 121	Psy 101	Pre-Nursing Exam Score	Accepted Y/N
Soc. Security #	3	3	2	4	3	75	Y

This project would require an administrative assistant who is directly responsible for the receiving and filing of students applications for the fall 2001 school year, (and fall of 2000 if it is available) to retrieve this information and place it on an Excel spreadsheet. In addition, I am asking that information from both students who were accepted and those who were not accepted be included. This would be identified by placing a "Y" or "N" for yes or no in the "accepted" column. For those programs that have an "open door" policy towards the entrance of students, I ask for the same information, however, exclude answering the "accepted" column.

Once this is completed, I ask that the data be sent as an attachment to Rick Voorhees, head of research for the Community Colleges of Colorado State System Office by means of e-mail. There, his team will add demographic information pertaining to the social security number of the student. This information would include gender, date of birth, ethnicity and whether the student had a previous four-year degree or higher. After that, Rick will e-mail me the combined spreadsheet, **EXCLUDING** the social security number so that no connection can be made to the student. Once the data gathering is done, please name the completed Excel spread sheet file as "your school – program - year." An example would be  
Pikes Peak Community College – Nursing - 2001

Rick Voorhees e-mail address is:

[Rick.Voorhees@potter.cccs.cccoes.edu](mailto:Rick.Voorhees@potter.cccs.cccoes.edu)

This certainly will take time and I know that time for each of us is limited. However, here at Pikes Peak Community College, I had the administrative assistant put together this information as a pilot study last year to see what kind of time it would require. There were approximately 60+ students she needed to place on a spread sheet and it took her approximately 3 hours. I am asking that if you voluntarily sign to participate, you would provide this set of directions to your administrative assistant to go about retrieving and eventually typing in the data that I am asking for. As a colleague, I am asking for your help in gathering this data and eventually completing my dissertation. If you choose to participate, I would certainly provide each of you a copy of this study once it is completed. I hope you will consider participating in this study.

Thank you.

Sincerely,

Evan McHugh  
PPCC Chemistry Faculty  
Rampart Campus  
Pikes Peak Community College  
11195 Highway 83  
Box R13  
Colorado Springs, CO 80921  
(719) 538-5402

Dear Department Chairs:

My name is Evan McHugh, a faculty member of chemistry at Pikes Peak Community College. I am also a doctoral student in the Community College Leadership Program at Colorado State University. I am presently working on gathering data for my dissertation that pertains to post-baccalaureate reverse transfer students enrolling in restricted access programs at the two-year level. The programs that I am focused on are the allied health programs of nursing, dental hygiene and radiological technology. I am writing this letter to seek your voluntary approval for obtaining the data of students who have applied to your program for the fall of 2001. My research questions for this study are presented below:

**Research Question 1**

What numbers of post-baccalaureate reverse transfer students are enrolled in restricted access associate allied health degree programs such as nursing, dental hygiene and radiological technology for the entering class of 2000?

**Research Question 2**

Are students who meet the admission criteria for a two year restricted access program but who do not have a four-year degree being denied access to restricted access programs because of the admission of post-baccalaureate reverse transfer students?

**Research Question 3**

Does selection criteria exist for restricted access programs and if so, do post-baccalaureate reverse transfer students gain an advantage by those criteria?

**Research Question 4**

Are these criteria for selection uniform throughout a state system or are they unique to each institution?

**Research Question 5**

What is the demographic profile of a post-baccalaureate reverse transfer student enrolling in a restricted access allied health programs and is there a difference to those who do not have a degree?

**Research Question 6**

Grade point average of prerequisite coursework and performance on a pre-entrance exam are but some of the criteria used in selecting candidates for restricted access programs. Does being a post-baccalaureate reverse transfer student provide an advantage in being selected or not selected in addition to the predictors of grade point average and score on a pre-entrance exam?

What will be asked of your program, will be the gathering of data that each student who applies to your program. Data would include social security number, grade in prerequisite courses, and score on pre-entrance exam. Grades would be entered numerically according to the following scale: A = 4, B = 3, C = 2, D = 1. Below represents an example of how a student's information would be tabulated:

	Bio 201	Bio 202	Bio 203	Eng 121	Psy 101	Pre-Nursing Exam Score	Accepted Y/N
Soc. Security #	3	3	2	4	3	75	Y

This project would require an administrative assistant who is directly responsible for the receiving and filing of students applications to retrieve this information.

I hope you will consider participating in this study. Thank you.

Sincerely,

Evan McHugh  
PPCC Chemistry Faculty