An Evaluation of Students with Below Minimum Cut Scores

and the Relationship to Grade Point Averages in

the Culinary Arts Program at

Hennepin Technical College

by

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ABSTRACT

This study focused on a diverse sample of 456 2-year college students in the Culinary Arts program from Hennepin Technical College's two campuses, Eden Prairie and Brooklyn Park, MN. The degree to which students with below minimum cut scores and the relation to GPA's were examined from the fiscal school years of 2006, 2007, and 2008 and included those with learning disabilities. A correlation between entrance exam scores, completion in the program, along with grade point averages were examined by analyzing data pulled from Hennepin Tech's system administrator and found the results to be surprising.

Studies have documented that most students are under-prepared for college. From my research, few teachers, counselor, and administrators have much knowledge of college placement and their policies and in addition, not all high school students are held

to high standards. Most students need better information about college preparedness and what to expect when entering college.

My hypothesis between low cut scores and low grade point averages would correlate with high drop out rates and that was not always the case. Analysis indicated data was not significantly related to completion of the program if entrance exam scores were high or low. Some student's with low cut scores graduated and some students with high cut scores dropped out regardless of grade point averages.

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Chapter I: Introduction

Community colleges and technical colleges are historically open-access institutions, designed to serve young people and adults with a range of academic strengths and needs, but as the number of college students has risen, post-secondary graduation rates have stagnated (Prince, 2005). Many entering students are academically unprepared to succeed in college-level courses. To address their academic shortcomings, about one-third of college students nationally take at least one development (or remedial) educational course, a percentage that reaches as high as 90% in some colleges (Prince, 2005). The need for such additional preparation is significant: a recent report cited inadequate academic preparation, especially in reading, as the most serious barrier to degree completion (Wirt, 2004). Also, the traditional approach to dealing with under prepared students has often involved routing them to 2-year institutions (Moore, 2004).

How can high schools prepare students for college? About 67% of U.S. students who graduated from high school in 2004 went on to enroll in college – a higher proportion than in any previous year (National Center for Education Statistics, 2005). Certainly, the rising college attendance rate is an accomplishment, but before this accomplishment can be celebrated, it must considered how many of these hopeful, ambitious young people are likely to thrive in higher education (Conely, 2007). Often the task of preparing students for college falls entirely on the K-12 system and research shows few teachers, counselors, and administrators have much knowledge of college admission and placement policies. Without such knowledge, these entering college students cannot transmit accurate information to students and in addition, not all high school students are held to high standards (Kirst &Venezia, 2001).

Gaps in education programs and student achievement levels have led leaders in nearly all states to fund early outreach and college preparation programs. These programs are diverse in their goals and targeted student populations. Hudson & Hurst (1999) define four such programs. They include:

1. College preparatory only – graduates completed a course of study that was consistent with the prevailing entrance requirements at public four-year colleges.
2. Vocational concentration only – students complete three or more credits in a single occupational program area.
3. Both vocational concentration and college preparatory – students who meet both the college preparatory and vocational concentrator criteria.
4. General preparation – students met neither the vocational nor the college preparatory requirements.

During the 1990's, a number of states began developing new procedures for assessing students' college readiness. Instead of relying on students' grades listed on high school transcripts, these states are allowing schools and students to submit more direct evidence about what students know and are able to do. This usually includes teachers' ratings of the quality of students' performance in defined academic subject areas, and also may include judgments about more generic skills and dispositions such as writing, speaking, planning, organizing, problem-solving, and working in groups (Stern & Briggs, 2001).

Graduation assessments were originally established to ensure that students obtained certain levels of knowledge and skills prior to receiving high school diplomas, hence strengthening the significance of the diploma itself (Yell, 1998). As stated by Tafel & Eberhart (1999), research suggests that one of the major reasons that students falter in college is the gap between their high school experiences and college expectations. Many first-year students find that their college courses are fundamentally different from their high school courses.

According to the National Survey of Student Engagement (2006), the vast majority of first-year college students are expected to work with others in and out of the classroom on complex problems and projects and are expected to make presentations and explain what they have learned (Conley, 2007). College courses require student to be independent, self-reliant learners who recognize when they are having problems and know how to seek help from professors, fellow students, or other sources. If these common requirements are contrasted with high school learning, a consistent and troubling picture emerges. Several observational studies as indicated by Conely (2007) have found that high school students often complete prescribed tasks that require little cognitive engagement and learning deduced to a form of "sleepwalking," requiring no deep mastery or understanding.

Yet another source of pressure on higher education admissions procedures comes from new high school proficiency standards and exit examinations. In recent years, almost all states have formulated explicit standards for student performance in elementary and secondary education. Traditional college admissions procedures do not mesh well with these new, more detailed specifications. Most states recognize that the names of courses taken during high school should matter less than what students actually learn. As of 1999, 40 states had adopted new standards for student performance in core academic subjects (Stern & Briggs, 2001). These standards usually consist of detailed lists of what students are expected to know and be able to do at successive grade levels in each subject, and in most cases the schools are being held accountable for students' progress on these tests through publication of students' test results for each school.

Most American colleges and universities offer special courses for students who lack some of the reading, writing, and mathematics skills that are critical for college-level work (Roueche & Roueche, 1999). This phenomenon is known popularly as remedial education, although many educators avoid that label, preferring terms such as developmental education, skills courses, or college preparation courses. Developmental or remedial education is widespread. According to Woodham (1998), an analysis indicated that about 40% of traditional undergraduates take at least one such course and remediation is even more common among older nontraditional students.

The existence of remediation suggests that some institutions have lowered their standards for admission, and have subsequently "dumbed down" courses so that unprepared students can make their way through college (Bennett, 1994; McDonald, 1997, 1998, 1999). Other critics argue that students get bogged down taking multiple remedial courses, leading many to either give up and drop out or slowing the pace to graduation date, costing students more money (Attewell, Lavin, Domina & Levey, 2006).

Scholars have generally found it difficult to estimate the effectiveness of remedial courses. Few colleges rigorously evaluate their own programs. Earlier studies noted by Glenn (2005), have often found that students who take remedial courses have worse grades and higher dropout rate than their peers. But that in itself is no surprise, since remedial students generally have weaker skills and high-school preparation than the typical college student.

Another group of under-prepared students is those with learning disabilities. With increased accountability, rising academic standards, and high-stakes assessments, pressures on education agencies to provide alternative exit options for high school students with disabilities may pose a risk for academic failure as a result from scholastic, economic, or familial conditions (Giacobbe, 2001). In the right environment, many can "catch-up" with their classmates, indicating that something in their prior educational experience may account for their academic difficulties and there is little, if any evidence that at-risk students cannot learn, that they have radically different "learning-styles" from other students, or they must be segregated to learn (Moore, 2004).

One strategy that colleges and universities recently have adopted to identify students clearly capable of completing college-level work is to put greater emphasis on Advanced Placement (AP) tests, and thus depend less on high school grades. Conceivably, such uses of AP exams could continue to expand, becoming a gold standard to replace the tin standard of high school grades. These tests are not designed to be general–purpose screens for college entry and their levels of difficulty are too high for most postsecondary institutions (Stern & Briggs, 2001). The Scholastic Aptitude Test (SAT) and The American College Test (ACT) are the premier college entrance exams in the United States.

Each of the tests was designed for different purposes. The SAT test focused on measuring high school students' verbal and quantitative aptitudes. The ACT assesses student achievement in four content fields: English, mathematics, reading, and science, and is used more than SAT for college admissions (Popham, 2006). AP courses – for which there are 37 tests in 22 subjects – are intended to give students college-level work in high school (Chute, 2007) across the United States and Canada.

Some main concerns colleges have with student selection are: will the student complete the degree he/she starts if tests scores are low? And will he/she be willing to take remedial courses before starting or in tandem with other required courses in his/her content area? It is difficult for colleges to predict college performance due to the variation of both high school grading standards and course content between schools and even within schools. An example of the net result is that two students whose transcripts both show "A" in eleventh grade biology courses may actually have very different levels of knowledge in the field. Also, students who want to maximize their high school GPA to enhance their college applications have a strong incentive to choose relatively easy courses. To offset this temptation, some colleges award a grade-point bonus for taking Advanced Placement courses (Stern & Briggs, 2001) before entering college.

Technical Colleges want students to succeed. They are dedicated to enhancing students' chances for success and research (Gifford, Briceno-Perriott & Mianzo, 2006) shows the following:

- Students who are tested and placed in the right courses are more likely to be successful in college.
- Students who successfully complete developmental math and English have doubled the overall graduation rate.

The purpose of assessment tests at the technical college level is to provide the student and the college with information about current academic skill levels in reading, writing, and math. This helps the college select appropriate courses and support services at the college to help the student succeed and have a successful experience. A counselor or advisor then helps the student plan a course of study.

Minnesota technical colleges decided that their efforts to improve the educational attainment of students taking developmental courses would include a policy standardizing placement cut off scores across the state's community colleges. Minnesota, which has a centralized state governing board, has established a floor that leaves individual institutions the option of raising the bar for students (Prince, 2005).

In 1998, the Board of the Minnesota State College and Universities established a policy that led to the creation of the system-wide "Assessment for College Readiness." Post-secondary institutions must assess the reading, writing, and math skills of entering students, meet statewide minimum standards for access to the college-level curriculum, and create developmental education courses to bring students with inadequate skills to the minimum standards (Prince, 2005). Following implementation of the assessment, enrollment in developmental education courses increased slightly: from 43.2% of student entering college in 1999, the first year of the new policy, to 44.7% in 2000 (Minnesota State Colleges and Universities and the University of Minnesota, 2002). The board also established minimum standards on the assessment test for access to general education courses. Colleges may set standards that are higher than the minimum established by the state board. Students who score below the minimum standards must complete the appropriate developmental education curricula, either through courses or other means, before enrolling in selected general education courses (Prince, 2005).

Minnesota technical colleges are governed by the Minnesota State Colleges and Universities Organization and Administration (MSCU). The name of the organization is the Board of Trustees of the Minnesota State Colleges and Universities and referred to as the "Board." The Board's vision is: MSCU will enable the people of Minnesota to succeed by providing the most accessible, highest value education in the nation. Their mission is to offer higher education that meets the personal and career goals of a wide range of individual learners, enhances the quality of life for all Minnesotans, and sustains vibrant economies throughout the state. Each college also has its own distinct missions that are consistent with and supportive of the overall mission of MSCU.

Minnesota colleges provide high quality programs comprising of:

- Technical education, which prepares students for skilled occupations that do not require a baccalaureate degree.
- Lower division instruction in academic programs, occupational programs in which all credits earned will be accepted for transfer to a baccalaureate degree in the same field of study and remedial studies (Minnesota State Colleges and Universities and the University of Minnesota, 2002).

Minnesota technical colleges have adopted a uniform policy for awarding credit based on student performance on AP examinations and/or the International Baccalaureate (IB) program. IB offers high-quality programs of international education to a world wide community of schools. The IB program offers high-quality education that encourages international-mindedness and a positive attitude of learning. These programs are aimed at better preparing students for the college experience.

Hennepin Technical College (HTC), located in the northwest suburb of Minneapolis, MN has established an admissions policy that is currently open admission and all applicants are admitted. It is recommended that students entering HTC have taken SAT, ACT, or have enrolled in AP or IB programs in high school. Regardless of having taken any test or not, HTC's potential students take admittance tests.

At HTC, high school students with demonstrated academic achievement and the maturity to succeed in a college environment may be admitted to HTC. Post-secondary Enrollment Options (PSEO) programs are intended to promote a more rigorous curriculum and to provide a wider variety of options to public high school juniors and seniors. The post-secondary enrollment options program allows high school students the opportunity to earn college credits or to use those credits towards the completion of high school graduation requirements. It is then HTC determines entrance in a program.

States have a number of reasons to set standardized cut off scores for placement into developmental education. Policies that are more consistent and predictable when implemented across a state's community colleges and that more accurately assess students' academic readiness for college work could:

- Raise academic performance, persistence and graduation rates
- Improve the ability to place students in appropriate levels of developmental courses
- Establish a common definition of academic proficiency in college-level math, reading, and writing
- Help states' ability to track and analyze the effectiveness of developmental education programs

- Help states measure the performance of community colleges based on common definitions of college
- Facilitate transfer between two- and four-year colleges (Prince, 2005).

The Culinary Arts program at HTC prepares individuals to provide professional chef and related cooking services in restaurants and other commercial food establishments. Classroom participation includes instruction in recipe and menu planning, preparing and cooking of foods, supervising and training kitchen assistants, the management of food supplies and kitchen resources, aesthetics of food presentation, and familiarity or mastery of a wide variety of cuisines and culinary techniques.

Community and technical colleges use cut off score for determining students' placement status. Unlike ACT and SAT scores which have been used by colleges for over 30 years as an objective measure of the ability of graduating high school students to perform academic work at the college level (Bontekoe, 1992), cut scores are determined by program advisors for their content area. The test consists of three categories: math, reading, and writing, consisting of 100 points each. Each category has a designated cut-off point assigned to them. The Culinary Arts program director sets the scores for that program at the following points: math at 41, reading at 56, and writing at 45. The setting of cut scores is key to placement and has direct effects on the size of remedial enrollments. Some colleges grapple with the problem of whether the cut points selected have resulted in satisfactory placement decisions (Perin, 2006).

Statement of the problem

Traditional measures of college readiness like test scores and grade point averages leave much of the variance in college success unexplained. Growing attention to these issues, together with advances in assessment technique, has led to greater interests in developing admissions procedures that are better able to identify students who will actually complete their degrees (Sterns & Briggs, 2001). Also, the traditional approach to dealing with under-prepared students has often involved routing them to 2-year institutions (Moore, 2004).

In the past, Hennepin Technical College has not held test scores to the minimum values. This is up to the discretion of the college. Dr. Jessie Stumpf, Dean, said, "There is no law requiring each technical or community college to hold rigid minimum scores. Students with any test value are not turned away as in some other colleges and universities. Instead, the scores are evaluated by program directors and suggested remedial classes are offered to the student before beginning the desired program" (personal communication, May 29, 2007).

Purpose Statement

The purpose of this research is to evaluate the Culinary Arts program students' entrance exam scores and the relationship to their grade point averages at Hennepin Technical College in Minnesota. The study was conducted during the spring of 2009 by collecting archival data at Hennepin Technical College for the school years of 2006, 2007, and 2008 for all culinary arts students.

Research Questions

In sum, the following questions guided the research:

1) What is the relationship of students' entrance exam scores and grade point averages in the culinary arts program?

2) What is the relationship of students' entrance exam scores and their completion in the culinary arts program?
3) What is the effect of students with learning disabilities and the correlation between entrance exams and grade point averages with the culinary arts program?
4) What is the correlation between high school students' exit exams for college and the college's entrance exam scores for culinary arts students?
5) What is the relationship of selected demographics of student cut scores and grade point averages and completion in the culinary arts program?

Importance of Topic

This Research is important for the following reasons:

1) It is to be speculated that most if not all students with below minimum cut off scores will also have low grade point averages (GPA) or not continue with their education after a period of time spent at the institution. It is also assumed that most or all students with low or below minimum cut off scores may have some type of learning disabilities (LD) of varying degrees. These assumptions do not take into consideration students' inherent interest to succeed, regardless of what their test scores state, background information about family life, attitudinal and cognitive characteristics, financial situations, past experiences, and the like.
2) State colleges and universities rely heavily on ACT and SAT scores for admitting students into programs. Moore (2004) stated that, "To avoid the damaging effect of under prepared student on a school's reputation, these

schools simply exclude them from campus" (p. 32). Community and technical colleges do not exclude any student or rely on these types of tests, but have their own competency-based tests in math, reading and writing. No student fails the test. The test scores are used to see if the student should take remedial classes before starting a desired program.

Limitations of the Study

The researcher has identified several limitations to the study:

1) Variables affecting entrance exam scores. Variables that could have an effect on test taking are: English-as-a-second-language (ESL) students, Latino population, and African Americans. Some student's could have a learning disability, however small, not readily known to authorities in school. Similar variables might be working adults who have been out of high school for some time or are refugees or immigrants. Schools may have different standards in core curriculum throughout the country varying the core knowledge between students. And some people are just not good test takers even if they know more information than the tests shows.
2) Students refusing to take remedial classes if suggested due to below minimum cut off score for the Culinary Arts program. This can only hurt the student's success rate if they want to get an Associate Degree. Most students who refuse remediation are those who feel they can't financially afford to take these extra classes or will set back their anticipated graduation date. Remediation is not mandatory in the state of Minnesota.

3) Students not completing the course resulting in incomplete data analysis. More than a quarter of community college students who are required to take remedial courses fail to complete their remedial coursework (Jenkins & Boswell, 2002).

4) Total number of students evaluated. A low number may have an affect on the outcome of the data.

5) Factoring in scores and GPAs of students with learning disabilities. How will this data affect other data from students without disabilities?

Definition of Terms

To help the reader understand the topic, a few terms are identified here.

Advanced placement (AP) – is a program of the College Examination Board through which secondary students' complete college-level courses in high schools that are designed as AP and earn college credits by demonstrating a specified level of performance on AP examinations. The AP examinations, which are scored on a 5-point scale, can be taken by any student who feels prepared by independent study or other preparation as well as by students who complete AP courses.

Grade Point Averages (GPA) – An acronym for grade point average, a snapshot of your overall academic performance. In most schools, an A equals four points, a B is three points, a C is two points, a D is one point, and an F equals no points (www.southalabama.edu/advising/definitions.html).

International Baccalaureate (IB) – is a school program readying student's for college.

Learning disabilities – the term discussed in the paper refers to students with low IQ's.

Post-secondary Enrollment Options (PSEO) program – is a program enacted by

Minnesota's school choice laws allowing high school juniors and seniors to attend a college or university full or part time, with state funds following the students to pay tuition and lab and book fees. Any student admitted by a college or university is eligible, and the decision to apply is left to the student (Nathan & Boyd, 2003).

Methodology

Data from Hennepin Technical College in Minnesota will be collected from all students from each of the three semesters from the years of 2005 and 2006. Data collected from each student will be anonymous and consist of the entrance exams from the college and any SAT, ACT or AP test result from exit exams from their high school. Data collected will be evaluated to see if there is a correlation between entrance exams and final GPAs.

Chapter II: Literature Review

Introduction

The purpose of this research was to determine student's entrance exams scores, grade point averages, and cut off scores. Further literature analysis will show a relationship between student's entrance exam scores and program completion. It is organized into three sections: (1) students preparing for college, (2) the process at the technical college level, and (3) the correlation between college entrance exam scores and grade point averages in the Culinary Arts Program at Hennepin Technical College. I will consider the differences in high schools preparing students for college. Why some are ready and others are not. Of those not ready but attend college, what are their chances of succeeding or finishing the intended program? Of those ready for college, how will they fare?

Preparing Students for College

Increased accountability, rising academic standards, and high-stakes assessments place pressures on education agencies to provide alternative exit options for high school students who desire to go to college (Vernon, 2004). During the past two decades, state and local policymakers have increased content area standards in all core curriculum subjects in conjunction with developing new procedures for measuring student competency (Guy, Lee, & Thurlow, 1999).

Higher education administrators are seeking to identify additional effective student pre-college predictors of university academic success to utilize in an increasingly competitive admission environment. The National Association for College Admission counseling (NACAC) found that grades in college prep courses, admission test scores, and high school grade point average (GPA) were the most common criteria utilized for college and university admission (Evans, 2000). Thus, higher education administrators are seeking strategies to identify effective predictors of university academic success that they can use as a part of the admission process. The identification of predictors of success can be used to compare individual students to others in order to determine the likelihood of their success in college (Gifford, Briceno-Perriott, & Mianzo, 2006).

Many programs are in place, such as International Baccalaureate (IB), Postsecondary Enrollment Options (PSEO), and Advanced Placement (AP), to ready high school students for college. Approximately 20% of Minnesota high school seniors earn college credits by the time they graduate from high school according to a report on the Postsecondary Enrollment Options Program prepared by the Office of Internal Auditing at the Minnesota State College and Universities (Minnesota Measure, 2007).

Among college outcomes, achievement has been one of the most frequently researched topics (Astin, 1993). College outcomes have been investigated using various predictors, including general verbal abilities, grade point averages, aptitude test scores (e.g., ACT and SAT) and personality traits as well. Since 1979, growing number of states have required high-school students to pass exit examinations before they can receive diplomas. For nearly as long, scholars and policy makers have debated whether such exams do more harm than good. Thomas S. Dee, an associate professor of economics at Swarthmore College, and Brian A. Jacob, an assistant professor of public policy at Harvard University, reported that students in states with relatively easy exit exams are roughly 4% more likely to drop out of high school than similar students in states with no exams. In states with relatively difficult exit exams, students are 5.5% more likely to drop out than their counterparts in states with no exams (Glenn, 2006).

High school exit exam policies require students to achieve a passing score on each subject tested in the exit exam, as well as fulfill all other graduation requirements, to receive a high school diploma. Exit exams vary between states in numerous ways, including the level of content tested (upper middle grades in some states, while upper high school grades in others) and the opportunities for students who do not pass (from none to numerous and detailed appeals procedures and alternative methods of demonstrating competency). As of June 2007, 24 states and the District of Columbia do not have exit exams, citing adequate means to measure student performance and academic rigor in existing state assessments and other mechanisms. Minnesota is one of the 20 states with mandatory high-stakes exit exams – an assessment that a student must pass in order to receive a high school diploma. Two tests used in Minnesota are called the Basic Skills Tests (BST) and the Graduation Required Assessment for Diploma (GRAD) (High School Exit Exams, 2007).

Minnesota is making the transition from using the BST as its exit exam to using the GRAD tests exclusively by 2010. The GRAD tests measure the reading, writing, and mathematics proficiency of high school students. By requiring high school graduates to reach a specified level on each of these assessments, Minnesota students will be on tract for the 21st century education. The BST tests are administered in the 8th grade; whereas the GRAD tests for writing are administered in the 9th grade, the reading test in 10th grade and math in 11th grade (High School Exit Exams, 2007). The purpose of these tests is to ensure that no student graduates from high school without the basic skills necessary to live and work in today's society.

The advantage of the GRAD test over the BST is meeting the No Child Left Behind (NCLB) law. The Minnesota Comprehensive Assessments (MCAs) are state tests that help districts measure student progress toward Minnesota's academic standards and meet the requirements of NCLB. The reading and mathematics tests are used to determine weather schools and districts have made Adequate Yearly Progress (AYP) toward all students being proficient in 2014 (Graduation requirements, 2008). In order to graduate from public high school in the state of Minnesota students are required to successfully complete 22 credits throughout grades 9-12 and must pass the Minnesota Department of Education testing requirements.

Chudowsky (2002) states The Center on Education Policy has collected recent information about the percentages of students who pass exit exams on the first try. The data in math varied considerable between states; 31% passed on the first try in Arizona while Georgia scored the highest of all states at 91% passing. For English, the rates are somewhat higher. In Minnesota 75% of all students in math and 80% of all students in English passed on the first try.

Of those students who pass exit exams from high school and are interested in attending a community or technical college or university must take those colleges' entrance exams. Two major college entrance exam choices are the American College Test (ACT) and the Scholastic Aptitude Test (SAT). These tests give college admission judges the opportunity to evaluate prospective students' general knowledge and whether or not they are a good fit for their particular institution.

ACT is a test to determine knowledge of the subject areas covered while in high school. It covers four areas: English, mathematics, reading and science reasoning. The SAT consists of critical reading, math, and writing and is distributed by the College Board. This test helps admissions officers to analyze a student's ability to think critically and logically and to reason out the answers to problems. The SAT is not an achievement test, but an aptitude test designed to predict college achievement; however, because of its influence on college admissions decisions, it is also considered a high-stakes test. The ACT is quite different than the SAT because it measures knowledge while the latter measures students' ability to reason. (Marchant, 2004).

According to the Minnesota Office of Higher Education (2007), the ACT is the most commonly taken standardized college entrance exam. Approximately two-thirds, or 67%, of Minnesota high school graduates in 2006 took the assessment.

When the outcome of a standardized test is used as the sole determining factor for making a major decision, it is known as high-stakes testing. Common examples of high-stakes testing in the United States include standardized tests administered to measure school progress under No Child Left Behind (NCLB), high school exit exams, and the use of test scores to determine whether or not a school will retain accreditation.

High-stakes testing have created much controversy. Protests over the high failure rates in numerous states have caused some legislators and state school boards to consider delaying the exams. Proponents argue that it leads to achievement and other gains such as:

- Students know what is expected of them
- Schools identity and can address student weaknesses early

- Schools discover areas of overall weakness, prompting them to refocus resources where they are most needed
- Education across the state is more consistent, eliminating situations where schools in some districts are superior to others
- The public sees gains from year to year and regains confidents in public schools (High School Exit Exams, 2007, p. 1)

Critics say (Espejo, 2008, Gifford, Perriott, Mianzo, 2006)) the tests sometimes are too hard, lead teachers to teach to the test, take time away from instruction, are expensive, cause too much stress on students, teachers, parents and school administrators. The idea that performance on a single exam could change the course of someone's life is disastrous, especially those who disapprove of standardized test in general (What Is High-stake Testing?, 2008).

The National Center for Fair and Open Testing (FairTest) is an organization that advocates for the reform of current standardized testing and assessment practice in education and employment. According to FairTest, standardized testing should not be used as the primary tool to assess students' knowledge, progress, and abilities. Instead, comprehensive classroom-based assessments can provide more meaningful insight on students and the quality of their curriculum and instruction than narrow and unreliable multiple-choice exams (Espejo, 2008).

Among investigations of college outcomes using pre-college characteristics, SAT or ACT, high school GPA, and class rank consistently explained the largest variance in college outcomes. However, according to Mouw and Khanna (1993), the unique effect of pre-college predictors (e.g., high school GPA, college entrance exams), for college success was low. Due to a high correlation between these predictors, the unique contribution of each predictor on college outcome was small; thus Mouw and Khanna believe that a large amount of variation on college GPA still needs to be explained.

Some researchers have examined the predictive ability of nontraditional measures on college success. Pascarella (1994) found that pre-college characteristics relate to the outcomes of college not only directly, but also indirectly through college course-taking activities, formal classroom experience, and out-of-class experiences.

Not all high schools are alike regarding students' readiness for college. Of 44,863 students' of the graduating class of 2008, Minnesota fared better on all four tests consisting of college English composition, college algebra, college social science, and college biology when compared to all other states; 32% compared to 22% nationally meet all 4 ACT benchmark scores (The Graduating Class of 2008, Minnesota, 2008).

According to the Minnesota Higher Education Services Office (MHESO) (2004) Minnesota expects a 7% drop in the number of public and nonpublic high school graduates by the year 2013 due two factors: growth in children of baby boomers reaching high school in the late 1990s and increased immigration to Minnesota from both domestic and foreign locations. MHESO also states the number of students of color who enroll in Minnesota K-12 schools will continue to increase while the number of students enrolling in K-12 education is declining. This is a statewide trend.

Growing concerns that our high school graduates are inadequately prepared for college and work, added to high postsecondary remediation rate, are prodding an increasing number of state leaders to reconsider traditional education structures. Policy makers and educators have concluded that to provide a more coherent educational experience for students, the K-12 and postsecondary education systems must be more closely aligned. Creating additional pressures for this alignment are competition for public resources, demand for a highly educated workforce, and awareness that too few students at both the K-12 level and postsecondary levels are able to meet higher academic standards that recently have been introduced in the states (Statewide School-College (K-16) Partnership To Improve Student Performance, 2007).

Alignment would consist of approaches such as early outreach and preparation for college, teacher quality, development of standards, and competencies and assessments across all sectors. These alignments would help ensure more successful transition of students from secondary to postsecondary education.

Minnesota will continue to see a shift in the racial/ethnic makeup of its public high school graduates over the next decade. Minnesota children are becoming increasingly diverse. The number of minority children doubled between 1990 and 2000; minority children made up 9.8% of Minnesota's children in 1990; in 2000, the percentage was 18% (Graduating Requirements, 2008).

The process at the technical college level

Colleges have an obligation to support the educational success of *all* students they enroll. They need to be concerned about retention rates, low rates of access, underrepresented students of color, and graduation success of students. Most colleges and universities base admissions decisions on merit. Merit is typically defined by a students' high school achievements as measured by grades, SAT and ACT scores, and recommendations, regardless of the context in which the achievements occurred (Moore, 2004). One strategy that highly selective colleges and universities recently have adopted to identify students clearly capable of completing college-level work is to put greater emphasis on AP tests, and thus depend less on high school grades. Conceivably, such uses of AP exams could continue to expand, becoming a gold standard to replace the tin standard of high school grades. But these tests were not designed to be general-purpose screens for college entry and their levels of difficulty are too high for most postsecondary institutions. Because high schools in low-income urban and rural communities offer fewer AP courses, increased reliance on AP tests would further exacerbate the difficulty of recruiting low-income and minority students, unless strong measures are taken to equalize access to AP courses while in high school (Stern, Briggs, 2001). Although it is quite plausible to suppose that the students who pass AP exams are more likely to complete their bachelor's degrees, it has not yet been rigorously demonstrated that AP scores add much to the predictability of who will complete a degree when other student characteristics are taken into account (Stern, Briggs, 2001).

Hennepin Technical College (HTC) is an open access college, allowing any student who wishes to attend regardless of age, race, ethnicity, etc. according to Dr. Jessie Stumpf, Dean (personal communication, April 10, 2007). Unlike most universities, technical colleges are not concerned about prepared or under-prepared students. All students are accepted and entrance or placement exams are given. The exam *Accuplacer* helps the college place the student in the correct programs at the correct level. Accuplcer is an untimed, multiple choice test which is taken on a computer and consists of three question sections-reading, comprehension, sentence skills, and math. It is also known as an adaptive test, which means the questions asked will depend on the students' success in answering previous questions. This leads to more difficult questions in order to establish knowledge level ("Accuplacer Test", n. d.). Student's who are tested and placed in the right courses show: 1) students are more likely to be successful in college, and 2) students who successfully complete developmental math and English have doubled the overall graduation rate. The purpose of the assessment tests is to provide the student and the college with information about current academic skill levels in reading, writing, and mathematics to help each student succeed, to plan a course of study, and to have a successful college experience. Students do not fail the test. Cut off scores, most commonly known as cut scores, are set for each of the program areas. A reading score of 56> on the *Accuplacer* test has been set for the culinary arts program. If a student achieves these scores or greater in each area tested, remediation is not required. If students dose not achieve the required minimum score, remediation is suggested but not mandatory. Remediation or remedial education is defined as those courses in reading, writing, and mathematics offered to students lacking the necessary academic skills to perform college-level work (Education Commission of the States, 2002).

Scholars have generally found it difficult to estimate the effectiveness of remedial courses. Few colleges rigorously evaluate their own programs. Earlier studies have often found that students who take remedial courses have worse grades and higher dropout rates than their peers. But that in itself is no surprise, since remedial students generally have weaker skills and high school preparation than the typical college student (Glenn, 2005). Baresic and Gilman, (2001) state proponents of testing argue that it serves as a diagnostic-prescriptive component of remediation. What nobody wants to admit is that most educators know little about remediation other than to present the same old soup, warmed over, in the hope that it well 'take' time. Those who teach remediation course are quick to point out that the emphasis is not on improving students' education, but rather on getting their scores up to a minimum standard of acceptable performance.

In the Education Commission of the States, (2002) report about 45% of students who enter 2 year institutions need remediation. Hennepin Technical College reports about 50% of students in years 2006, 2007, and 2008 that needs remediation.

College graduation rates

According to a report by the Minnesota Office of Higher Education, (2006, March), 64% of Minnesota high school 2004 graduates choose college. Of those choosing college 47% of them attended Minnesota colleges. Forty percent of the students enrolled in Minnesota colleges went to a community or technical college.

In the state of Minnesota, graduation rates at two year colleges for the year 2004 were 35.8% compared to the national average of 32.4%. These rates indicate how many full-time students that are enrolled at two-year colleges stay to complete a diploma, certificate or an associate's degree within three years (Minnesota Measures, 2004).

Chapter III: Methodology

Introduction

Test scores provide a direct measure of student learning, which is viewed as one of the most important outcomes of schooling. Recent federal legislation, the No Child Left Behind Act (NCLB) of 2001, requires that all states begin annual testing of students to measure "adequate yearly progress" of schools and districts in meeting state-defined standards (U.S. Department of Education, 2003).

Correlation research data was conducted at Hennepin Technical College's two campuses. Data collection, data analysis and limitations of the study will be reviewed.

Data Collection

Data was collected in the spring of 2009 from Hennepin Technical College's (HTC) Eden Prairie and Brooklyn Park campuses archived files on students enrolled in the Culinary Arts program who attended in the 2006, 2007 and 2008 school years. Post Secondary Enrollment Option students (PSEO) are also included in the data.

Data collected will be evaluated for each student in the areas of: GPA, gender, ethnicity, math and reading cut off scores, age, and if student graduated or dropped out.

Data Analysis

Two alternative perspectives on the relationship between school characteristics and student outcomes underlie most research on school effectiveness. The first and most widely held perspective is what we characterize as a common view of the schooling process according to which all aspects of school performance – test scores attendance, and dropout – are all influenced by a variety of school characteristics in similar ways (Palardy & Rumberger, 2005). This means factors that influence student learning, such as a rigorous curriculum, greater teacher expectations, and strong academics, are also the ones that influence whether student remain in school. This perspective is consistent with the tenets of school effectiveness research (Purkey & Smith, 1985) as well as several existing theories of school dropout and departure that view student departure as largely voluntary and as the result of students becoming disengaged from school and from learning (Finn, 1989; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989).

The other perspective holds that different factors may influence different student outcomes. An example would be dropout theories which suggest that student departure is related to problems with not only student learning and academic engagement but social engagement as well (Finn, 1989; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989).

The analysis is based on first-time test results of participants which provided cut off scores in the areas of math and reading. Data is interval/ratio in nature; therefore, all appropriate correlational statistics will be run on the data.

My hypothesis is there will be a correlational difference between low cut off scores, corresponding low grade point averages, and drop out rates will be high.

Limitations

Only one college will be participating in the study, therefore any results should be used cautiously to infer to other colleges correlations between entrance exams and cut off scores. Some limitation of the study will be:

- If students who entered college were out of college for many years, then cognitive information may not be retained.
- Students' entrance exams were waived for various reasons including culinary counselors' decisions.

- If the student had a learning disability of some kind and did not disclose that information.
- Students dropping out of the culinary program or changing programs may change the data collected.
- Students taking the tests may be tired or stressed and may not give a reliable result on the first time taking the test.
- The study does not include the award-type of graduates.

Limitations are many, but the two that stand out the most are waived entrance exams and award for graduates. Those tests that are waived skew the data reporting results. Waived tests give us no data to work with or reasons why the tests were not taken by the entering student.

The awards given to graduates can range from A.S., and A.A.S. degrees, Diploma, Advanced Technical Certificate, and Occupational Certificate. Each award comes with varying credit loads. To earn an A.A.S degree in culinary arts, for example, 64 credits are required upon satisfactory completion of all degree requirements, while a certificate is 16 credits, roughly one semester long; a big difference in accumulative grade point average marks and entrance exams score relationships.

Summary

In summary, some existing studies support the idea that a similar array of statistics – high school exits exam scores, college cut off scores, grade point averages, and drop out rates, along with certain student demographics and other indicators (Palardy & Rumberger, 2005) would produce similar results.

Chapter IV: Results

Introduction

This research looked at the correlation between grade point averages of students who completed the culinary program and their entrance exams scores of from a selected set of demographics. The data collected was for the 2006, 2007, and 2008 Hennepin Technical Colleges' school years. Data collected regarding student's information was identified by students' ID numbers only. Cut off scores for math and reading, whether they graduated or dropped out, ethnicity, gender, age, and if the student was in the PSEO (Post Secondary Enrollment Option) program was collected. The data for the current investigation was gathered through Hennepin Technical College's support systems archived files pulled by a system administrator. The system provided current data for all participants enrolled in the culinary program along with their entrance exams scores and grade point averages. Hard copies of raw data were gathered from three consecutive years and analyzed. The variables were then formatted onto data collection sheets. This chapter will discuss demographic information, and item analysis.

Demographic Information

Data was collected in the spring of 2009 from Hennepin Technical college's (HTC) Eden Prairie and Brooklyn Park campuses archived files on students enrolled in the culinary Arts program who attended in the 2006 (n=225), 2007 (n=119), and 2008 (n=112) school years. The present study is based on a total of 456 student's entrance exam scores and the relationship to grade point averages (GPA) from those three years. Students included in the study include those with disabilities and PSEO students.

All students are required to have either a transcript from previous colleges to enter HTC or take the college's entrance exams to see if there is a need for remediation. From the population of all students entering HTC culinary program, all students' records were examined. The sample of 456 students consisted of 223 (49%) males, 233 (51%) females, 317 (70%) Caucasian and the remaining ethnic composition totaled 139 of which 64 (46%) are African American, 27 (19%) are Hispanic, 15 (11%) are Asian, and 33 (24%) are unknown. PSEO students, those taking college culinary arts while still in high school, are included in the total count.

Table 1

Ethnicity and Gender of Total Population (n=456)

	2006		2007		2008	
	Males	Females	Males	Females	Males	Females
Caucasian	79	74	44	37	42	41
African American	9	26	6	10	5	8
Asian	8	7	4	1	3	4
Hispanic	4	3	1	4	1	2
Unknown	9	6	5	7	3	3
TOTAL	109	116	60	59	54	58

The required entrance exam tests for culinary arts are math and reading with minimum cut off scores at 41> and 56> respectively. Any student who does not achieve these minimum cut off scores is required to take remedial classes during the first semester while continuing in the program. Reading Techniques and Applied Reading Techniques are required courses for those students who need remediation reading. Fundamentals of Math is the course for those students who need remediation in math. In years 2006, 2007, and 2008, the proportion of entering students who were enrolled in remedial courses was larger for mathematics than reading and almost half of all demographics researched needed remedial courses. In a 2003 statistical analysis report from National Center for Education Statistics by the U.S. Department of Education reported a national average of 20% for all entering freshmen enrolled in reading remedial courses and 35% of all entering freshmen enrolled in math remedial courses in the year 2000. Comparing those figures to Hennepin Technical College's figures, HTC's are up considerably. Table 2 compares all students who are enrolled in remedial courses at Hennepin Technical College to the national average of other 2-year institutions.

Table 2

Percentages of students enrolled in remedial course for math and reading compared to the national average of 2-year institutions

	National Average, 2000	HTC 2006	HTC 2007	HTC 2008
Math	35%	54%	53%	42%
Reading	20%	39%	39%	33%

In 2006 (n=225), table 3 shows 22% of entering students did not take the required reading entrance exams and 21% did not take the required math entrance exam. In 2007 (n= 119), 15% did not take reading and math entrance exams, and in 2008, (n=112), 12% did not take the math exam and 17% did no take the reading exam.

Table 3

Students who did not take math and reading entrance exams

	2006	2007	2008
Math	21%	15%	12%
Reading	22%	15%	17%

Of those students not taking entrance exams, student's either got their test(s) waived by the culinary counselor for any number of reasons or did not take the test(s) for other unknown reasons. Counselors at HTC have the power to waive test taking based on a particular students' past academic record, including but not limited to high school exit exam scores, prior college transcripts, or returning student. In order to determine grade point average in relation to entrance scores, entrance exams scores were tabulated for each of the three years in question. Results are shown below.

Table 4

Entrance Exam Scores and GPA Correlation of All Students

	2006 N=225	2007 N=119	2008 N=112
GPA 2.0>	173 77%	79 66%	74 66%
Math score 41>	104 46%	58 49%	65 58%
Reading score 56>	132 60%	73 61%	75 67%
Math exams waived	50 22%	17 14.5%	15 13%
Reading exams waived	41 18%	17 14.5%	19 17%

Table 4 shows students who achieved a minimum GPA of 2.0 or greater in relationship to passing math and reading entrance exams accounts for almost three-quarters of the total students. Of the total population for each year, math scores are consistently lower than the reading scores and are also consistently low for three consecutive years averaging 51% of all students taking the math test pass with a score of 41 or greater, while reading scores of 56 or greater are only up slightly over math.

Students who did not take entrance exams accounts for a very small percentage of the total test takers. Of those students whose tests were waived, an ethnic breakdown was analyzed and a combined average of the three years for reading were 10% Caucasian, <1% African American, <1% Hispanic, and the remaining unknown <1%; waived math exams were 9% Caucasian, <1% African American, <1% Hispanic, and the remaining unknown <1%. To determine if there is a correlation between those who graduated with passing math and reading scores, entrance exam scores were tabulated for those completing the program against three years of interest.

Table 5

Entrance Exam Scores and Completion in the Culinary Program of All Students

Completion in Program:	2006 N=42	2007 N=32	2008 N=31
Math 41>	20 48%	16 50%	20 65%
Reading 56>	22 57%	16 50%	20 65%

Table 5 illustrates those students who graduated in 2006, 48% passed math, 57% passed the reading exams. In 2007 50% passed math and reading exams, and in 2008, 65% passed math and reading exams. The remaining graduates failed their entrance exams or had them waived.

The drop-out rate for the culinary program is high; including all ethnic groups with low GPA's, in 2006 (n=225) 39% of students did not continue on to the 2007 year. In 2007 (n=119) 44.5% of students dropped out of the program. For 2008, drop out rate data in not available.

Those with high GPA's and dropped out in 2006 (n=225) accounted for 27% and in 2007 (n=119) 36% dropped out and did not continue the program the following year. For 2008, drop out rate data in not available.

To help determine the effect of students with learning disabilities and the correlation between entrance exams and grade point averages with the culinary arts program, some additional data was collected. Culinary students registered in the indicated fiscal year and who seeked a culinary AAS, Diploma, or Certificate or who are taking culinary classes but are not seeking a degree were identified. Students with disabilities are those with documented disabilities that have requested and been approved for accommodations by Disability Services and are thus coded in the ISRS Disability Module. Students with academic disadvantages are those who tested into the developmental range in reading, writing, and/or math. Completion rate is the number of culinary students who completed their declared award divided by the number of students who completed at least 33% of the credit total for their declared award. Table 6 shows the total number of academically disadvantaged in relation to their GPA and completion in the program.

Table 6

Students with Academic Disadvantages

Culinary Arts Students	FY06 N=225	Fyn=07 N=119	FY08 N=112
# of Academically Disadvantaged	12	9	7
Average Cumulative GPA	1.67	1.85	2.01
Range	.40-4.59	.043-3.57	.64-3.34
Completion rate of above group	35.50%	40.0%	100.0%
Entrance exam score	Not available	Not available	Not available

Hennepin Technical College's Systems Administrator would not provide correlating data for fiscal 2006, 2007, and 2008 school years for the academically disadvantage students entrance exam scores with grade point averages.

To help determine the relationship of selected demographics of student cut scores and grade point averages and completion in the culinary arts program, Table 7 was developed. A fair amount of waived tests (W) for each school year analyzed are reported. A score for reading of 56 or greater is counted as passing and a score for math of 41 or greater is considered passing. All scores are in percents.

Selected demographics represented in this study include Caucasian, African American, Asian Hispanic, and the unknown group of students who chose not to disclose their ethnic background upon entering HTC for Table 7 2006, 2007, and 2008 school years.

Table 7

Selected Demographic correlation between cut off scores and GPA and completion in program for 2006

			2006 READING			MATH		
	Total Pop.	Program Compl.	% W	% passed	% failed	% W	% passed	% failed
Caucasian	153	22%	21	62	38	18	51	49
African American	35	9%	8	46	37	8	26	71
Asian	15	20%	<1	60	40	<1	27	73
Hispanic	7	29%	3	57	43	3	57	43
Unknown	15	20%	<1	53	47	<1	53	47
Academically Disadvantaged of total students	12	35.5%	-	-	-	-	-	-

Of the 42 graduates in 2006, 16 students passed both math and reading exams while 7 students only passed reading and 3 students only passed math. Drop out rates are very high for the culinary arts program including all three years. The three year average is 51% for all demographics. Of the total population for 2006, 42 students graduated while 87 students dropped from the program.

Table 8

Selected Demographic correlation between cut off scores and GPA and completion in program for 2007

			2007 READING			MATH		
	Total Pop.	Program Compl.	% W	% passed	% failed	% W	% passed	% failed
Caucasian	81	21%	19	62	38	20	54	46
African American	16	2%	12	56	44	12	31	69
Asian	5	1.7%	20	60	40	20	20	80
Hispanic	5	<1%	0	80	20	0	60	40

Unknown	12	0%	0	58	42	0	42	58
Academically Disadvantaged of total students	9	40.0%	-	-	-	-	-	-

Of the 32 graduates in 2007, only 11 passed both tests and 3 students only passed math and three students only passed reading. In 2007, 32 students graduated and 53 dropped from the program regardless of entrance exam scores and GPA.

Table 9

Selected Demographic correlation between cut off scores and GPA and completion in program for 2008

			2008 READING			MATH		
	Total Pop.	Program Comp.	% W	% assed	% failed	% W	% passed	% failed
Caucasian	83	22%	20	70	30	13	58	42
African American	13	2%	23	54	46	23	46	54
Asian	7	1%	0	71	29	0	71	29
Hispanic	3	0%	0	33	67	0	100	0
Unknown	6	1%	0	67	33	0	50	50
Academically Disadvantaged of total students	7	100.0%	-	-	-	-	-	-

Of the 31 graduates in 2008, 19 passed both exams while one only passed math and one only passed reading. All other graduate students from 2006, 2007, and 2008 who did not pass test either failed one or both exams or had gotten the tests waived. A combined average for all three years totals about44% of all students who graduated passed both exams.

Students are required to maintain Satisfactory Academic Progress (SAP) for all credits attempted. Satisfactory Academic Progress is defined as, for students who have attempted six or more credits, completing 67% or more of all credits attempted, and maintaining a cumulative GPA of 2.0 (HTC, 2008). Of all those students selected in the demographics, data is not known for those who completed the culinary program with an Associate in Science (A.S.) degree, Associate in Applied Science (A.A.S.) degree, a diploma, an Advanced Technical Certificate, or an Occupational Certificate.

Completion in the program of all ethnic groups is extremely low except for the Academically Disadvantaged group. This group of students must initiate a request and be approved for accommodations by the Disability Services Coordinator. Students entering HTC have the right to disclose or not to disclose any disabilities they may have regardless of entrance exam scores.

Chapter V:

Summary, Conclusions and Recommendations

Introduction

The purpose of this study was to determine if student's entrance exams scores correlate with how many students pass, drop or fail in the culinary program, if remediation plays a role in those students who complete the program, fail or drop out, and students with learning disabilities will also be examined along with the limitations of the study. Cut off scores are another issue the college grapples with; where to set the scores and if that set score has any bearing on student retention or success. Also discussed if most students academically unprepared to enter into college and if national averages compare with Hennepin Technical College.

Summary

Postsecondary education has its strengths and its weakness. And those weaknesses have been the subject of an ongoing debate among educators, policymakers, and the public for a very long time. Weakness include: remediation, waived test, retention/attrition, low test scores from high school exit exams and college entrance exams. As colleges try to attract students in these hard economic times, retention has become a priority concern. Most colleges do not keep good records on drop out rates or why students are dropping out. Hennepin is trying to put in place a small questionnaire for each student to fill out at the end of each semester regarding their goals and aspirations, likes and dislikes, and any changes to their degree or major. We are hoping this data can help explain, at least for those students thinking about leaving, what we can do better to help students succeed.

Technical colleges have open enrollment policies and rarely use high school exit exam scores to determine admittance. I believe all students should take entrance exams not excluding anyone or any race. Waived tests pose a great threat to the stability of the program and its attrition rates. Those who are allowed to continue on in the program with low test scores tend to do more poorly than those who score higher on the tests. It takes students longer to complete their degree and tuition costs go up.

With the open enrollment policy, no student is turned away. Remediation is a tool to use for those who wish to go to college and otherwise would not. Those with learning disabilities account for a small percentage of the student population in the technical colleges and rightfully should be. We have to stop comparing 2-year institutions with 4-year institutions. They are two different beasts. Averaged statistics are lower for two-year institutions in regards to GPA, entrance exams, drop out rates, than 4-year colleges.

Conclusions

In sum, the following research questions guided this research will be answered and concluded:

Research Question #1: What is the relationship of students' entrance exam scores and grade point averages in the culinary arts program?

A three year average showed 71% of students received a grade point average of 2.0 or greater with an average GPA of 3.25 and a range of 1.95 to 4.0 in 2006, 2007, and 2008. Of those with GPA's above 2.0, slightly more than half the population passed the reading exam and while more than 60% failed the math exam, which is consistent in 2006 and 2007and in 2008 figures rose considerably to more than 66% passing reading exams and 59% passing the math exam.

Research Question #2: What is the relationship of students' entrance exam scores and their completion in the culinary arts program?

Of those who completed the program in 2006 (n=42) 38% failed the reading entrance exam and 50% failed the math exam, 2007 (n=32), 50% failed both entrance exams, and 2008 (n=31) 13% failed both reading and math. The completion rate for the culinary program is extremely low, about 18%, compared to those entering the program regardless of who passed or failed the colleges' entrance exams. Entrance exams were not a significant predictor of who will graduate or who will drop out. Data shows those with GPA of 4.0 dropped out with passing entrance exams and those with a GPA of 2.0 or less dropping out with passing and failing entrance exams.

None of the research clearly and definitely identifies students who have low entrance exams will or will not pass/ graduate or have low GPA upon completion in the program. Data also does not suggest students who are under-prepared for college will fail.

Research Question #3: What is the effect of students with learning disabilities and the correlation between entrance exams and grade point averages with the culinary arts program?

Those with learning disabilities (about 5% of the culinary population) faired about the same as those without. An average of 46% of those entering the program, from the three years researched, completed the program with GPAs averaging 1.84. Data to make a correlation between total population and those with learning disabilities regarding entrance exam scores was not provided by Hennepin Technical College.

Research Question #4: What is the correlation between high school students' exit exams for college and the college's entrance exam scores for culinary arts students? High school exit exam data, such as ACT and SAT, is not collected by and could not be provided by Hennepin Technical College for this study.

Research Question #5: What is the relationship of selected demographics of student cut scores and grade point averages and completion in the culinary arts program? Of the selected demographics in years 2006, 2007, and 2008 who completed the program with GPA of 2.0 or greater and passed entrance exams were fairly consistent among Caucasians and Asians. Cut scores for both math and reading varied considerably therefore data was inconclusive between the selected populations. From the three years selected, an average of 30% of those entering the program graduated. And of those who graduated there is no significant correlation between cut scores and GPAs due to a high percentage of waived tests with Caucasians having the highest percentage of waived tests.

The evaluation of cut scores and grade point averages in relation to completion in the program did not support the theory that students with low entrance exams will fail or drop out of the program. Values were across the board of those with 4.0 GPA's dropping out and those with 2.0 GPA's graduating. Clearly more research in a variety of areas including learning disabled, waived testing procedures, and retention needs to be evaluated and examined to understand fully why attrition in the culinary program is lacking.

It seems that most students are academically unprepared to enter into Hennepin Technical College. About half of all entering students do not pass entrance exams. This figure is slowly and steadily climbing over the past decade at HTC. Remediation education opportunities for entering students who lack the appropriate academic skills to succeed in college are determined by a series of exams that assess students' knowledge. Although the percent of students who pass entrance exams are still low, progress has been made by setting cut scores with in the last three years. Of those students with below minimum cut scores, relationship of those scores and their GPA remains good. In 2006 (n=42), a 3.2 GPA average for students with below minimum cut scores ranged from1.95 to 4.0. Of those 42 graduates, 38% failed reading and 50% failed math was reported. In 2007 (n= 32), a 3.25 GPA average for students with a below minimum cut scores ranging from 2.27 to 4.0 was reported. Of those 32 graduates, 50% failed both math and reading exams. In 2008 (n= 31), a 3.6 GPA average for students with a below minimum cut scores ranging from 2.12 to 4.0 was reported. Of those 32 graduates, 13% failed both math and reading exams.

Consequently, the drop out rate for culinary arts is very high. Retention is an ongoing issue at HTC. In 2006, 19% graduated and 40% dropped out and in 2007, 27% graduated and 45% dropped out. No data for 2008 is reported. High drop out rates are due to many factors such as, unprepared students', transportation, health, and family issues and other personal.

Discussion

The purpose of this research was to determine student's entrance exams scores, grade point averages, and cut off scores in relation to completion in the program. Many programs are in place at the high school level to ready students for college. At Hennepin Technical College (HTC) roughly 9% of all students entering culinary arts are in the

PSEO program. Of those PSEO students <1% graduated in a three year average and the remaining students left the program after the first semester. This figure is very low. Many students do not realize how demanding the culinary field can be. In recent years, The Food Network has glamorized cooking and chef celebrities to make both look extremely fun, easy, and exciting. That entices many students into the program. Many grueling hours in the kitchen is not for everyone, and when the students' realize the difficulties, both physical and mental, they leave the program. This is true not just PSEO students but many of the students enrolled in culinary arts program. David Brooks, a columnist for the New York Times, wrote an editorial in the St. Paul Pioneer Press, Monday, July 20, 2009 regarding 2-year institutions stating:

> *". . . . Most schools have poor accountability systems and inadequately track student outcomes. They have little information about what works. They have trouble engaging students on campus. Many remedial classes (60% of students need them) are a joke, often because expectations are too low . . . Lack of student aid is not the major reason students drop out of college. They drop out because they are academically unprepared or emotionally disengaged or because they lack self-discipline or because bad things are happening at home." (p. 9A)*

An informal survey has been conducted during the summer of 2009 by culinary instructors at Hennepin Technical College; students who have dropped before completing the culinary program were contacted to get a first-hand analysis of the retention issue. The results were interesting. Of those he spoke with, he found exactly what David Brooks stated in his July, 2009 editorial. Most did not have financial issues, but numerous family, academic and discipline issues instead.

HTC does not required students to have available exits exams scores from their high schools. Unlike universities, technical colleges do not rely solely on ACT or SAT exams scores for college admission; they rely on each student taking the colleges' entrance exams or supplying recent transcripts from high school or previous college experience and then the tests will be waived if transcript grades are satisfactory.

Remedial enrollment is higher for 2-year colleges than in all other types of institutions. Twenty-eight percent of entering students are enrolled in at least one remedial course (Parsad, Lewis, 2003). At HTC the figures are higher, of the roughly 50% of students who do not pass entrance exams, an average of 100% enroll in one or more remedial courses. Parsad and Lewis also note that most students' complete remediation in one year or less. Also, Statewide School-colleges (K-12) Partnership to Improve Student Performance (2007) states growing concerns over our high school graduates are inadequately prepared for college and work adds to the high postsecondary remediation rate and both hold true for HTC.

Those with learning disabilities enrolled in the program at HTC accounted for <5% of the student base. Figures for those students who complete the program for the three years are greatly different. In 2006, 40% completed the program, 2007, 20% completed the program and in 2008, 100% completed the program. Data does not show what degree they obtained upon completion in the culinary program.

Demographics for this study included Caucasians, African American, Asian, and Hispanic. All groups had higher reading tests scores than math with an average of 60% passing reading exams and less than 45% passing math exams. Caucasians had the most waived tests from the group accounting for about a third of the population.

Recommendations

In terms of the study, data was collected for fiscal years 2006, 2007, and 2008 and used for this study. To get a better long-range picture, several more years of data prior to 2006 and first half of the fiscal 2009 school year data could have been evaluated. Data collected for two and one-half years did not represent a large student body. Data for possibly 2003, 2004, and 2005 could have been collected. This would give us a better picture of those students who might not have dropped out or withdrew but took a semester off or two and then continue on in the program. The data does not tell us if students are full-time, half-time or a part-time which might play a role in data accuracy as well as those students who only took a class or two each semester, while others graduated and came back to continue in culinary classes not needed for their degree.

In terms of the research, data on disadvantaged learners was lacking. Data provided was not as detailed as for all other students. Due to administration policies, data on the learning disabled was given without using student ID numbers. Each and every student is identified by an ID number. System administrators pulled data for this study on all students enrolled in the culinary program including the learning disabled, but could not characterize which of those students were learning impaired. Disability services pulled data on those students with disabilities but would not give student ID. There was no way to make a correlation between those two sets of students' data.

Hennepin Technical College does not require high school exit exam scores for those students entering the college. Therefore, data was not obtained for analysis, comparison or correlation to HTC's standardized admissions test scores and grade point averages among entering college students.

Other issues with data included a large percentage of students not taking college entrance exams. Tests were either noted as waived or left blank on the data sheets. It is hard to compare and contrast that set of data to completion of program data with out complete information.

The addition of ACT or SAT test scores from high school exit exams would help address preparedness for college, comparing those scores to college entrance exams with GPA's at graduation. Questions that arise from this research are: Do other Technical colleges compare to those at HTC? How many colleges would be evaluated to get a clearer picture of students' readiness for college? Do the exit exam scores, high school GPA's, or class rank give any indication of college success? So much of this research and literature review focuses on the high school students entering college. But many students entering technical colleges are those of all ages. At HTC, the culinary program age range is from 18 to 75 years of age. A factor to consider for change would be to evaluate only high school students entering college for the first time narrowing the data field to a specific set of criteria – exit exam correlation to college entrance exam and their GPA upon completion in the program.

This data can be used by administrators and counselors, at high schools and at the college level as a tool to help collaborate between the two institutions. This research in part can be used to improve academic opportunities and the chances of success throughout students' entire educational lives. At the high school level, it can help bridge the gap between K-12 and higher education sectors by defining college-level coursework and remedial courses. This is important for high school students entering college. Most students in high school need better information about college preparation and the task is to get this information into their hands. When counselors and administrators have the knowledge and statistics about college success and failure rates, than chances of college admittance and success will be greater. High schools have to be held accountable for the product they produce. Statistics are rising, slowly, but still not good enough to prepare our children for college and work.

At the college level, if a more consistent prediction is possible, and from data collected annually it can be used to determine who are likely to succeed and those who will not. This data has not been gathered or researched in the past. It can be a useful tool to tailor programs such as entrance exam tests and remedial courses for continued success. Counselors can use this information to help students make better choices for selecting a major or degree.

In the past student successes or failures were noted by the chef instructors, meetings were held to determine the cause and possible solutions to the high drop out rate, and minimum cut off scores were set to help potential students succeed. This data could be evaluated by school administrators and faculty to determine if the current cut scores should be raised or lowered to help retain students.

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