

## **Developmental Education and Emotional Intelligence in Three Rural East Texas Community Colleges**

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### **Abstract**

*Approximately one-half of all first-year freshmen enroll in at least one developmental education class. Community colleges are usually at the forefront of providing educational opportunities for students needing assistance in higher education entry-level skills. The challenge facing higher education has been to increase student achievement and retention for those taking developmental courses. Research is becoming more focused on emotional intelligence for all aspects of education and life. This study identified if a relationship exists between emotional intelligence skills and academic achievement, retention, gender and ethnicity in developmental courses in several rural community colleges. Participants were enrolled in mathematics, reading, or writing developmental education courses at one of three rural colleges. Descriptive statistics, Pearson's product-moment correlations, and regression analyses were used to ascertain the relationship of academic achievement and retention (reenrollment) with ten emotional intelligence skills and three emotional intelligence potential problem areas of the Emotional Skills Assessment Program.*

**Key Words:** Emotional Intelligence, developmental courses, retention, community college, underprepared, academic achievement

**1** As the number of students entering institutions of higher education increases, the demand for developmental classes in reading, writing, and mathematics also increases (Higher Education Research Institute [HERI], 2005). Approximately 100% of all community colleges provide developmental education for students. A large percentage of four-year institutions also provide developmental education classes for students who need help with college level skills (Boylan & Bonham, 2007; Brothen & Wambach, 2004; Kolajo, 2004). Approximately one-half of all first-year freshmen enroll in at least one developmental education class (Jenkins & Boswell, 2002; Kozeracki & Brooks, 2006). Those who graduate from high school underprepared academically or have been out of school for several years and do not pass an approved assessment of college entry-level skills are required to enroll in developmental courses that address the areas of low entry-level skills (Higbee, Arendale, & Lundell, 2005; Moore, 2004). The background of many underprepared students includes first-generation, low-income, English as a Second Language, and older adults (Byrd & MacDonald, 2005; Oudenhoven, 2002). Community colleges are usually at the forefront of providing educational opportunities for students needing help with their higher education entry-level skills. Community colleges also provide programs to help students fulfill their educational goals for a new career, improved career choices, or to complete a degree (Kolajo, 2004). The challenge facing higher education has been to increase student achievement and retention for all students, but it is especially important for those who take developmental courses.

Academic achievement and retention are two primary variables related to student success at the community college (Wild & Ebbers, 2002). Due to a lack of academic achievement, students who take developmental courses are at greater risk of leaving postsecondary education than students enrolled in for-credit courses (Boylan, 1999; Brothen & Wambach, 2004; Higbee, Arendale, & Lundell, 2005; Roueche & Roueche, 1994).

Students who are more academically successful during their first term are more likely to continue their education (Byrd & MacDonald, 2005). Academic success and retention are determined by grade point average (GPA) and continued enrollment in consecutive long semesters (Sydow & Sandel, 1998). According to White and Sedlacek (1986), intelligence scores alone are not and should not be a valid assessment of a student's academic ability. In order to predict a student's ability, Higbee et al. (2005) stated that affective abilities and barriers should be taken into account.

Student ability for success in postsecondary education has been measured by high school graduation rank, which is based on GPA, and various testing instruments administered during high school and upon entering an institution of higher education (Higbee, Arendale, & Lundell, 2005). According to Higbee et al., assessing a student's affective, noncognitive abilities and barriers may need to be an integral part of any testing done when an individual enters higher education. Many noncognitive attributes such as motivation, self-esteem, time management, and other self-management strategies affect student academic achievement and retention (Boylan, Bonham, & White, 1999). When students are successful in their classes, they usually continue their education to goal completion.

According to Byrd and MacDonald (2005), testing for self-governing behaviors in students entering postsecondary institutions for the first time is important in predicting student preparedness for college. The more prepared a student is for the college culture, the better his/her chances are for a successful college career. Many affective behaviors can be taught, while others are a part of a student's background (Byrd & MacDonald). To this end, students should be helped with their educational goals, including those students who lack entry-level skills. Research indicates that students who take developmental courses can and do persist in fulfilling their educational goals with increased academic achievement and retention.

Positive effects on academic achievement and retention have been seen for students who attend developmental classes (Kulik, Kulik, & Shwalb, 1983). Several research studies indicated that developmental education can be successful (Brothen & Wambach, 2004; Moore, 2004). Students requiring developmental education can learn and be successful in higher education. Of all students entering postsecondary institutions, 60% are underprepared high school graduates. The area of developmental education that garners the largest number of students is mathematics (Oudenhoven, 2002). If a student requires developmental classes in reading, his/her probability of completing a degree is drastically reduced (Boylan, 1999; Oudenhoven). Tinto (1975) elucidated that more than half of all students in postsecondary institutions will leave before degree completion, regardless of their ability. A student's need for more than one developmental class also reduces degree attainment chances for that student (Boylan; Boylan & Bonham, 2007; Kolajo, 2004; Oudenhoven). Because of their life experiences, older students in developmental classes, who have actively participated in "life" before entering college, have a better success rate than younger students in similar developmental education classes who lack life experiences (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). Even if students decide not to complete a degree, those who enroll in developmental courses become better employees and citizens because they learned problem solving and higher order thinking skills (Higbee et al., 2005; McCabe, 2000; Moore; Oudenhoven).

A way of retaining college students that appears to be promising is to increase student involvement in their education and increase the emotional intelligence of students through an introductory college class or a college study skills class (Brothen & Wambach, 2004; McCabe, 2000). Educators are being encouraged to implement change and reform in the classroom environment. A change that has been implemented in some higher education institutions is pairing cognitive and noncognitive skills, which include emotional intelligence skills (Astin, 1984; Higbee et al., 2005). By using both domains -together, achievement and retention may be positively impacted for both the college student and the postsecondary institution (Mayer, DiPaolo, & Salovey, 1990).

In 1990, Mayer, DiPaolo, and Salovey described emotional intelligence as "the ability to appraise and express emotions and use them for motivational and decision-making purposes" (Mayer et al., 1990). They continued with the premise that emotional intelligence skills can be assessed because the skills are abilities. Before Mayer, DiPaolo, and Salovey, other researchers like Astin and Tinto had put forth hypotheses about intelligence being more than just cognitive abilities (Goleman, 1995). Intelligence also entails factors of knowing one's own emotions and the emotions of others, which can enable one's ability to cope with personal and environmental stressors (Goleman). Emotional intelligence skills may be the difference between successful and unsuccessful individuals whether in education or career (Cherniss, Extein, Goleman, & Weissberg, 2006).

Students who are successful in their educational goals have better self-regulating skills (Byrd & MacDonald, 2005). A lack of emotional intelligence skills may be a factor that limits the college participation of students in developmental education. Many high school graduates entering postsecondary education do not understand what skills are necessary to be successful in college. They need to be taught (Nelson & Low, 2003). Developmental courses are used to strengthen a student's cognitive development. Understanding a student's weaknesses in emotional intelligence and addressing those weaknesses strengthens cognitive learning ability (Nelson & Low). If emotional intelligence is an important factor for academic achievement and retention for all students, then perhaps it is more important to incorporate the teaching of emotional intelligence skills for those students who require help with their basic skill set for college. When academic achievement and retention are successfully addressed, students become more productive, happy, and responsible citizens (Brothen & Wambach, 2004; Byrd & MacDonald; Higbee et al., 2005; McCabe, 2000).

The purpose of this study was to identify whether or not a relationship exists between emotional intelligence skills and academic achievement and retention by gender and ethnicity in rural East Texas community college students who take developmental classes. Therefore, the following research questions provided guidance for the study:

1. Is there a relationship between emotional intelligence skills and academic achievement among students in developmental education courses?
2. Is there a relationship between emotional intelligence skills and retention among students in developmental education courses?
3. Is there a relationship between emotional intelligence skills and academic achievement among students in developmental education courses based on gender?
4. Is there a relationship between emotional intelligence skills and retention among students in developmental education courses based on gender?
5. Is there a relationship between emotional intelligence skills and academic achievement among students in developmental education courses based on ethnicity?
6. Is there a relationship between emotional intelligence skills and retention among students in developmental education courses based on ethnicity?

## **2. Methodology**

An online self-assessment instrument to measure emotional intelligence skills, a demographic questionnaire, and student data on GPA and reenrollment was used. Because the significance of the relationships between emotional intelligence skills and academic achievement and retention was evaluated, the design of this study was nonexperimental. According to Gall, Gall, and Borg (2003), a nonexperimental design is utilized when subjects are measured through a variety of variables. The variables in this study included 13 emotional intelligence skills and demographic variables along with GPA and reenrollment data. The Emotional Skills Assessment Process (ESAP) variables include Assertion, Aggression, Deference, Comfort, Empathy, Decision Making, Leadership, Drive Strength, Time Management, Commitment Ethic, Change Orientation, Self-Esteem, and Stress. Descriptive statistics were utilized to analyze the data collected. Mean, median, mode, and standard deviation were measured for central tendency and analyzed. A multiple regression analysis was used to measure the extent of a predictive value (e.g., emotional intelligence and academic achievement and retention). The criterion variables were GPA scores and re-enrollment for the next semester. Correlational statistics were used to determine the extent to which more than two variables were related (Gall et al., 2003). The research was an attempt to explore and identify emotional intelligence skill variables that might predict academic achievement and retention for students in community college who take developmental courses (Gall et al., 2003).

### **2.1 Selection of the Sample**

The sample was students age 18 and older who were enrolled in developmental education courses from three rural East Texas community colleges. These particular community colleges were chosen because no other research has addressed the issue of emotional intelligence in rural community colleges. The appropriate deans of the selected community colleges were contacted to obtain permission to conduct research at their institution and to obtain reenrollment and GPA information on all participants at the beginning of the new semester from the college database. Developmental education program directors were contacted in order to obtain permission to contact students in developmental education courses and to use a computer lab for the online assessment.

When each college and the developmental department granted permission, students were approached about taking part in this study and the use of their GPA and reenrollment data. According to Gall et al. (2003), a minimum of 15 subjects per predictor variable was necessary for a multiple regression analysis. Because there were 16 predictor variables, it was expected that more than 250 participants would be available for the study.

During the institutional visit, a short verbal explanation of the purpose of the study was presented to the students. Letters of Informed Consent were given to all prospective participants along with a demographic questionnaire when each campus was visited. As each institution was visited, each participant was given paper instructions on how to sign in to the web site in order to access the online Emotional Skills Assessment Process (ESAP). The instructions contained three numbers: an identification number, a password, and a participant number. The first two numbers were changed by each participant the first time he/she accessed the online assessment. Participants were required to change the user identification and password when they signed in for the first time. The online assessment instrument had generated random identifications and passwords for each participant before the visit. Any student who was taking one or more developmental education courses with a signed consent form was considered as an eligible participant. At this point, the participants were able to sign in to the online instrument, create their own password, and begin the testing instrument. Participants were allowed to complete the assessment at home or at a different time.

## 2.2 Selection of the Testing Instrument

Participants took a self-assessment on emotional intelligence skills called the Emotional Skills Assessment Process (ESAP). Upon completion of the test, each participant received a computer-generated profile of his or her current emotional intelligence skills. The ESAP profile consists of 10 emotional intelligence skill areas (Assertion, Aggression, Deference, Comfort, Empathy, Decision Making, Leadership, Drive Strength, Time Management, Commitment Ethic), three potential problem areas (Change Orientation, Self-Esteem, and Stress), and a definition for each. Responses for each area were be graphed for the participant as a visual of their emotional intelligence skill strengths. The ESAP was selected as the testing instrument for this study because of its online availability, its ease of use, its constant online availability for the participants and the researchers, and its ability to produce data in a useable format. The ESAP is the creation of Darwin Nelson, PhD, and Gary Low, PhD, who were educators at Texas A&M University-Kingsville and are the copyright holders. The instrument has been revised many times since its creation in 1983. The instrument began as a 300-item self-assessment and currently has 213 items.

Several doctoral research projects have proven the instrument's validity and reliability for this type of study (Stottlemeyer, 2002; Vela, 2003). Stottlemeyer's research used the Exploring and Developing Emotional Intelligence Skills (EDEIS), the precursor to the ESAP, in which she provided evidence that it was a valid and reliable measure. In 2003, Vela completed his dissertation research using the EDEIS also. His research provided additional evidence of validity and reliability for the EDEIS. The participants of the two studies totaled seven hundred and sixty students from a local college (Stottlemeyer; Vela). Both researchers noted substantial evidence of a significant relationship between emotional intelligence and academic achievement. Hardy, Justice, and Espinoza presented the testing instrument's validity at a 2006 conference. They conducted an exploratory factor analysis in order to provide evidence that the four different parts of the ESAP were measuring different constructs. Gall et al. (2003) stated that an exploratory factor analysis is used to determine if similar constructs are being measured using different variables. According to their research (Hardy, Justice, & Espinoza, 2006), 7 of the 10 factors indicated evidence of a close relationship to the ESAP (Assertion, Deference, Decision Making, Drive Strength, Time Management, Commitment Ethic, and Stress). Two different factors demonstrated a close relationship with the ESAP when combined with one of the other seven factors. Grouping Change Orientation and Self-Esteem substantiated a close relationship to the ESAP.

Each of the 10 factors had between a 6.26% and 1.89% variance. Of the 10 ESAP scales, 9 were found to be valid constructs. Aggression had a significantly negative correlation, which was consistent with the findings reported in the ESAP Interpretation and Intervention Guide (Nelson, Low, & Vela, 2004). Nelson et al. reported that the testing instrument had been validated through research using 2000 students from high school to college age. Validation ranged from a low of -0.51 for Aggression to a high of 0.84 for Commitment Ethic. Reliability has been tested using split-half and stability coefficients reported on 1398 individuals (Nelson et al., 2004). The whole test split-half is reported as 0.72.

Stability coefficients utilized a test/retest format with a two-month interval with 60 subjects. Stability coefficients were reported for all 13 areas of the ESAP, and ranged from a low of 0.45 (Comfort) to a high of 0.77 (Deference). Age, gender, and ethnicity were considered important factors for determining norms for the testing instrument (Nelson et al.).

### **3. Results**

There were 251 participants in this study. Demographic information was retrieved from the participants. A total of 143 or 57% of the participants were female and 108 or 43% were male. The largest ethnic group was Caucasian (approximately 48%), minority ethnic groups represented included African American (approximately 39.04%), Hispanic (approximately 12.75%), American Indian (approximately 0.004%), and Other (approximately 0.02%). There were six participants who identified themselves as either American Indian or Other ethnic group. These six were not included in the ethnic regression analysis because there were too few for a complete statistical picture.

Hypothesis 1 analyzed whether a significant relationship existed between emotional intelligence skills and academic achievement. The independent variables were the emotional intelligence skill scores on the Emotional Skills Assessment Process (ESAP). The dependent variable was academic achievement as measured by the grade point average of the fall semester of 2009. A correlation coefficient was computed to determine relationships. There was a statistically significant negative relationship between the emotional intelligence skill of Empathy and gender ( $p = -0.220$ ) at the 0.01 level of significance. At the 0.05 level of significance, a statistically significant relationship was found between the emotional intelligence skill of Empathy and ethnicity ( $p = 0.132$ ). Based on these findings, Hypothesis 1 was accepted. No significant relationship existed between emotional intelligence skills and academic achievement.

Hypothesis 2 analyzed whether a significant relationship existed between emotional intelligence skills and retention. The independent variables were the emotional intelligence skill scores on the ESAP. The dependent variable was retention as measured by the reenrollment in classes for the spring semester of 2010. A correlation coefficient was computed to determine relationships. There were no statistically significant relationships found between emotional intelligence skills and retention. Hypothesis 2 was accepted based on the findings.

Hypothesis 3 analyzed whether a significant relationship existed between emotional intelligence skills and academic achievement based on gender. The independent variables were the emotional intelligence skill scores on the ESAP and the fall semester GPAs. The dependent variable was gender (female and male). Multiple regression was used to determine the size, if any, of the relationship. There were no statistically significant relationships found between emotional intelligence skills and academic achievement based on gender. Hypothesis 3 was accepted.

Hypothesis 4 analyzed whether a significant relationship existed between emotional intelligence skills and retention based on gender. The independent variables were the emotional intelligence skill scores on the ESAP and student reenrollment the following spring semester. The dependent variable was gender. Multiple regression was used to determine the size, if any, of the relationship. There were no statistically significant relationships found between emotional intelligence skills and retention based on gender. Hypothesis 4 was accepted.

Hypothesis 5 analyzed whether a significant relationship existed between emotional intelligence skills and academic achievement based on ethnicity. The independent variables were the emotional intelligence skill scores on the ESAP and the fall semesters GPAs. The dependent variables were three of five identified ethnicities. The two ethnicities not included were American Indian (1) and those who identified as Other as an ethnic group (5). These two groups were not included as individual ethnic groups, but were included as part of the entire group. There were not enough participants in those groups to make a valid analysis. Multiple regression was used to determine the size, if any, of the relationship. There were no statistically significant relationships found between emotional intelligence skills and academic achievement based on ethnicity. Hypothesis 5 was accepted.

Hypothesis 6 analyzed whether a significant relationship existed between emotional intelligence skills and retention based on ethnicity. The independent variables were the emotional intelligence skill scores on the ESAP and student reenrollment the following spring semester. The dependent variables were three of five identified ethnicities. Multiple regression was used to determine the size, if any, of the relationship. There were no statistically significant relationships found between emotional intelligence skills and retention based on ethnicity. Hypothesis 6 was accepted.

#### **4. Discussion**

Institutions that provide developmental education conduct research specifically to identify what does and does not work to increase academic achievement and retention at their institution. Research findings suggested that emotional intelligence skills are an important aspect of student academic achievement and retention. The negative findings for the existence of a significant relationship among emotional intelligence skill, academic achievement, and retention do not negate existing research on the influence of emotional intelligence skills. Holt (2007), Stottlemeyer (2002), Vela (2003), and Willingham (1974) suggested a positive relationship and did not support the findings of this study.

The Texas Higher Education Coordinating Board (THECB) holds higher education accountable for student success and retention (THECB, 2001). In 2000, Texans learned they were behind many states in educating their citizens. Closing the Gaps by 2015 provides goals for higher education in success, participation, excellence, and research. The goals are not reachable unless more people enter and succeed in higher education. Community colleges are an important part of the process because the number of students is increasing rapidly (THECB Accounting System, 2006). Wright (1996) wrote that the social and economic problems of Texas would not abate until the citizens become more educated and community colleges play a large role in education.

Community colleges have the largest portion of developmental education students (Kolajo, 2004). Open access at community colleges has allowed many students the opportunity for higher education. Students who progress to complete a degree earn more per year than those without a degree (Higbee, Arendale, & Lundell, 2005). Higher earnings equate to more money for the state. When students do not complete their education, business revenues to compete with other states and countries are lost. When higher education can identify student motivations and stress factors, students can better achieve academic success and persist to graduation. Students entering higher education look for schools that provide the education that will help them meet their goals. Retention is one factor that helps students and their parents identify quality schools (Riehl, 1994). The characteristics and behaviors of the student partially determine the quality of their education. Community college students may have family and financial responsibilities that interfere with college persistence, focus, motivation, time management, study time, and self-esteem. Many community college students have been returning to higher education after an extended period. They may return for retraining or even social reasons (Byrd & MacDonald, 2005).

Emotions help students earn better grades. Students are more successful when they are emotionally involved in their education (Elder, 1997). Students who are interested in a subject become more focused on learning everything about it. Their emotions help motivate them to learn as much as possible. That is why teachers try to engage students in the classroom. They want to make a connection that will motivate the student to learn. Without these feelings/emotions, students cannot focus on their ultimate educational goal to completion. Mayer, DiPaolo, and Salovey (1990) indicated that emotional intelligence is an ability that can be taught and measured. Nelson and Low (2003) provided evidence for the validity of emotional intelligence research.

#### **The results of this study have the following implications:**

Emotional intelligence skills have been shown to be helpful and effective in the education of students. By teaching students how to control emotions, academic achievement and persistence will rise. Community college instructors should consider integrating emotional intelligence skills into their curriculum. This practice will require instructors to change how subject concepts are taught, but it will provide a better experience for them and their students.

Emotional intelligence skills offer positive advantages in education and career. Individuals will be more successful, and Texas can continue to compete in the job market in order to bring new opportunities for its citizens. Fewer citizens may not need as much help from the state, and incarceration may decline, which could lead to economic growth through more employment.

#### **The following recommendations would be of value for further research:**

This study should be replicated at other community colleges and their students in developmental education courses. Students should be followed longer than one semester in order to determine if emotional intelligence skills influence students to remain in college. Emotional intelligence skills should be evaluated more than once in a student's educational career. By re-evaluating, students and colleges will have more information to use for individual and institutional growth.

This study focused on students in community colleges. Students in developmental education also attend four-year institutions. There is a need to replicate this study at the four-year institutions. Expanding the research to include students in the last year of high school should identify any changes in emotional intelligence between high school and college. Research should continue to explore the importance of increasing the emotional intelligence of developmental education students.

The developmental education student population continues to grow each year. It behooves educators to enable any student to be successful in life. The literature supported teaching students the importance of their emotional well-being (Nelson & Low, 2003). By increasing student knowledge, educators could increase the chances of societal success. Researchers should attempt to determine the value of emotional intelligence skills for all students regardless of age, gender, or ethnicity. This would allow researchers and society to see the long-term effects of their efforts.

This study was conducted during a period of economic crisis for many people. A large part of the reason for the less than expected role of emotional intelligence in developmental education may have been the economy. The students might have had significant reasons for remaining in school over and above their emotional intelligence skills. Further research into developmental education may need to take into account outside influences.

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