"A.S.P.I.R.E." ACT Supplemental Preparation in Rural Education: An Initiative Designed to Bridge Deficits on the ACT College Entrance Examination

Mindy Herman[1], Rachel Huffman[2], Kenneth Anderson[3], Jackie Golden[4]
North Carolina State University
Raleigh, NC

Abstract

High school students from rural agriculturally intensive communities that have been described as socioeconomically distressed frequently have an interest in pursuing higher education within agricultural fields of study to enhance their future careers. However, these students are often unsuccessful in gaining admissions to universities offering B.S. degrees in agricultural and life sciences due to significantly lower scores on college entrance examinations such as the ACT. The A.S.P.I.R.E. (ACT Supplemental Preparation In Rural Education) Program is an initiative that partners the College of Agriculture and Life Sciences at NC State University with the North Carolina Cooperative Extension System to bridge these apparent deficits in rural high school students' performance on the ACT College Entrance Examination in order to increase admissions rates of these students. Through participation in the A.S.P.I.R.E. course, students have been shown to increase their ACT score on average by approximately 3.5 points on the ACT's 36 point scale.

Introduction

Students' college entrance examination scores on the SAT and ACT are used for the standardization and comparison of students for admission which affects students' college admission statuses (Mattern et al., 2011). College admissions committees consider a number of factors when determining whether or not to admit a student, one of which is student performance on college entrance examinations (Lane et al., 2009). The ACT and SAT remain the normal referenced tests that are used by colleges and universities to compare college applicants against one another (Atkinson and Geiser, 2009). The use of standardized test scores as a screening instrument has intensified in recent decades in an effort to ease the evaluation burden associated with the growing number of highly qualified and diverse applicant pool (Alon, 2009). Now that universities rely so heavily on test scores, other admissions decisions, like class rank, have declined in importance (Alon, 2009). "This shifting meritocracy means rising returns to test scores in admission" and therefore "favoring seniors with high test scores" (Alon, 2009, p.736). This indicates that students could be denied admission to a university and subsequent pursuit of a higher education as a result of poor performance on a college entrance examination.

On college entrance examinations, "low scores very often disqualify students from admission." (Buchmann et al., 2012, p.438). With college entrance examination scores posing an enormous hurdle to college admissions, it is imperative that rural youth obtain the highest score possible on the examination in order to bridge the deficit on college entrance examinations. The A.S.P.I.R.E Program was designed as a partnership between North Carolina State University and the NC Cooperative Extension System to help students, in areas that are deemed as rural, ag-intensive, or have been classified by North Carolina as socioeconomically distressed. This program will help bridge deficits on students' scores for the ACT examination. Through this program, NC Cooperative Extension agents are able to follow their mission of offering "youth development opportunities throughout rural America" (Conglose, 2000) and providing educational assistance to "the rural, agrarian American population" (Cooper and Graham, 2001).

Program Overview and Implementation

The A.S.P.I.R.E. Program is a cooperative initiative between the College of Agriculture and Life Science at North Carolina State University and the NC Cooperative

[1] Prestage Department of Poultry Science Graduate Student. Ph: 919-513-1198; Email: mvherman@ncsu.edu
[2] Prestage Department of Poultry Science A.S.P.I.R.E. Program Coordinator. Ph: 919-515-2627; Email:rehuffma@ncsu.edu
[3] Prestage Department of Poultry Science Professor/Extension Specialist. Ph:919-515-5527; Email:Ken_anderson@ncsu.edu
[4] Prestage Department of Poultry Science Adjunct Faculty Member. Email: Jackie_golden@ncsu.edu

Extension system. It was devised as a means of improving rural high school students' ACT college entrance examination scores. By increasing ACT scores, the college admissions rates will improve for rural high school students from agriculturally intensive counties classified as socioeconomically distressed, who are interested in pursuing higher education and future careers within agricultural and life science disciplines. Socioeconomic status was determined by the North Carolina Department of Commerce's annual ranking of the state's counties based on economic well-being. Rural designation was determined by the US Census Bureau's urban-rural classification.

A.S.P.I.R.E. counties were selected based off of their socioeconomic status, rural classification and agricultural intensity. The A.S.P.I.R.E. agents (North Carolina Cooperative Extension Agents) from the aforementioned counties complete a 24 hour, intensive ACT Master Trainer Course offered by the standardized test preparatory company The Princeton Review Inc. A.S.P.I.R.E. agents are trained to teach ACT test preparation and then these agents teach the preparation course to high school students throughout rural, ag-intensive and socioeconomically distressed North Carolina counties. The target demographic for students participating in the A.S.P.I.R.E. program are high school sophomores and juniors with a minimum 3.2 grade point average and a demonstrated interest in agricultural and life science careers, who reside in a county with a trained A.S.P.I.R.E. agent.

As a part of their participation in the A.S.P.I.R.E. program, students receive a Princeton Review ACT Study Manual, Princeton Review 1,296 practice questions manual, on-line access to additional practice questions, four full-length diagnostic ACT practice exams with score analysis and breakdown, Princeton Review Selective College Admissions Booklet, 30 hours of class instruction for ACT test preparation and college application assistance. A.S.P.I.R.E. students learn the latest skills and strategies to help improve their ACT scores, therefore increasing their chances of gaining college admissions to agricultural and life science degree programs. These students are charged $50 for all of the materials they receive. Financial assistance is available for students who qualify for the Free or Reduced Lunch in the National School Lunch Program.

Ultimately the A.S.P.I.R.E. program's goal was to improve ACT scores of rural high school students in North Carolina from socioeconomically distressed counties; thus increasing the likelihood that these students' will gain acceptance to post-secondary agricultural and life science degree programs. This program will effectively provide a greater number of college-educated individuals with an interest in pursuing careers in agriculture or life sciences in years to come in this state, therefore helping to develop the future agricultural leaders within North Carolina.

Methods

Five counties participated in the pilot study for the A.S.P.I.R.E. program during summer and fall of 2012. These counties were selected based on agriculture intensity, socioeconomic level and rural classification. There were a total of eight NC Extension Agents from the pilot counties that completed the Princeton Review Master Trainer 24 hour course to learn how to provide ACT test preparation to high school students through the A.S.P.I.R.E. program. Participation was open to any student residing in a county with an A.S.P.I.R.E. agent. Fifty students (n=50) across these five counties completed the 10 weeks of ACT test preparation taught by the A.S.P.I.R.E. instructors. During the course, students received 30 hours of ACT test preparation in the following subjects: Reading, English, Math and Science. As part of the A.S.P.I.R.E. program, students took four full-length ACT practice exams. Scores were recorded from all students at each testing. The first test (pre-test) was administered prior to any ACT test preparation instruction. The second exam took place after 10 hours of instruction, the third test after 20 hours of ACT test preparation and a fourth (post-test) was given to participants after completion of the entire course. For each test, A.S.P.I.R.E. students are allotted four hours to complete the practice ACT test, which is administered on Saturday mornings to simulate real ACT testing. The A.S.P.I.R.E. participants answer the questions on a Scantron® answer sheet and the A.S.P.I.R.E. agents submit the Scantrons® to The Princeton Review Inc.. The tests are scored and returned to the A.S.P.I.R.E. agents for distribution to the participants. The scores from the four ACT exams were then analyzed using a Proc Mixed analysis (SAS, 2012). Means were separated using the Proc Mixed of the SAS program with a p-value <0.05 indicating significant differences between means.

Results

The ACT is scored on a 36 point scale composed of the average grade of four sections including: Math, Science, English and Reading. The A.S.P.I.R.E. pilot pre-test ACT scores averaged 18.8. The results revealed that reading was the least problematic area with scores of 20.4; and English was the lowest, scoring 17.6. (Table 1)

For each section of the test (Math, English, Reading and Science) scores improved overall. Specifically, for the math section, the average pre-test score was 18.6 and for the post test it was 21.6 indicating the average score improved by three points. A.S.P.I.R.E. participants

Table 1. Estimated means for A.S.P.I.R.E. test scores on Pre-test (test 1), test 2, test 3, and Post-test (test 4) on the 36 point ACT scale. (n=50)

	Pre-test (Test 1)	Test 2	Test 3	Post-test (Test 4)	SEM (Standard Error of the Mean)	P-value
Math	18.6^{c}	18.7^{c}	20.2^{b}	21.6^{a}	0.69	<.001
Science	18.7^{c}	20.3^{b}	17.9^{c}	22^{a}	0.76	<.001
English	17.6^{c}	21.2^{b}	20.4^{b}	23^{a}	0.93	<.001
Reading	20.4^{c}	24.8^{a}	21.7^{bc}	22.6^{b}	1.09	<0.01
ACT Composite	18.8^{c}	21.3^{ab}	20^{bc}	22.3^{a}	0.74	<.001

improved their scores in the Science section by 3.3 points with an average score of 18.7 on the pre-test and a 22 on the post test. English had the lowest average score on the pre-test, with an average score of 17.6, however, the average post-test score improvement for English was the highest with a score of 23 showing students improved an average of 5.4 points. The highest overall scores were associated with reading on the pre- and post- test with scores of 20.4 (pre-test) and 22.6 (post-test). A.S.P.I.R.E. classes improved test scores in all four areas and the composite ACT score was increased by 3.5 points (18% improvement); the average scores being, pre-test 18.8 and post-test 22.3 points. (Table 1)

Summary

Through the A.S.P.I.R.E. Program, the aim is to impact the lives of NC rural high school students from ag-intensive, socioeconomically distressed counties by improving their ACT college entrance examination score which will assist them in gaining acceptance to pursue a higher education in agricultural and life science degree programs. This quote "*Strong demand for more educated workers, coupled with a relative slowdown of their supply, has led to a sharp increase in the wage premium of college degrees in the United States since the 1980s*" by Roksa (2010, p. 389) rings true. For many rural high school students, college degree attainment will enhance their prospect for a successful future. A.S.P.I.R.E. participants improved their ACT composite score by 3.5 points on average (an 18% improvement from the beginning to the completion of the A.S.P.I.R.E. course); therefore, students have a greater probability of realizing those dreams. This data indicates that the A.S.P.I.R.E. program, offered through North Carolina State University and the North Carolina Cooperative Extension, is successful in improving socioeconomically distressed students residing in rural and agriculturally intensive counties average ACT score. With the programs continued use it will improve students' ACT scores and can enhance rural and socioeconomically distressed students' chances of gaining admissions into a four year university/college.

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