



Dual Enrollment – What Does the Research Say?

A Summary of a Number of Outcomes-Oriented Studies Dealing with Dual Enrollment

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Dual Credit – What Does the Research Say?

The Postsecondary Achievement of Participants in Dual Enrollment: An Analysis of Student Outcomes in Two States

Florida Findings:

“We found a positive relationship between dual enrollment participation and short- and long-term outcomes for both the full sample and the CTE (Career Technical Education) sub-sample. **Dual enrollment was positively related to students’ likelihood of earning a high school diploma.**

Participation in dual enrollment was positively related to enrollment in college for both the full sample and the CTE students. Dual enrollment participation also increased the likelihood of initially enrolling in a four-year institution (by 7.7 percent for all students and 8.6 percent for CTE students). For students who enrolled in postsecondary education, dual enrollment participation was also positively related to their likelihood of enrolling full-time.

Dual enrollment students, whether in the full sample or the CTE sub-sample, were statistically significantly more likely to persist in college to a second semester. They also had statistically significantly higher postsecondary grade point averages one year after high school graduation.

Of those students ever enrolled in postsecondary education, dual enrollment participation was positively associated with their likelihood of remaining enrolled two years after graduating from high school. Dual enrollment students’ grade point averages after two years of college were also statistically significantly higher than their non-participating peers. Both of these relationships held true for the full sample and the CTE sub-sample.

The relationship between dual enrollment participation and grade point average continued throughout students’ postsecondary careers. **Dual enrollment students’ cumulative college grade point averages three years after high school graduation were statistically significantly higher than those of their non-participating peers.** Finally, **dual enrollment students had earned more postsecondary credits three years after high school graduation (indicating that they had made more progress toward a degree).** For the full sample, dual enrollment students had earned 15.1 more credits than their non-dual enrollment peers. CTE dual enrollment students had earned 15.2 more credits than their non-

dual enrollment CTE peers. Although some of these credits were likely earned through dual enrollment, it is also likely that some were earned after matriculation into postsecondary education.

Findings: New York City

Though not as consistently as in Florida, we also found positive short- and long-term outcomes of dual enrollment participation in New York City.

College Now participants were more likely than their peers to pursue a bachelor's degree. College Now participation was also positively related to students' first-semester grade point averages. College Now participants had first-term grade point averages 0.133 points higher than those of non-participants. Finally, **College Now participation was positively related to students' overall progress toward a degree.**

Three-and-a-half years after their initial enrollment in postsecondary education, College Now participants had earned significantly more college credits than their non-participating peers.

Unlike in Florida, we did find some influence of participation intensity in New York. Specifically, the positive relationship between College Now participation and first-semester GPA seems to be due to the impact of taking two or more courses, rather than on participation more generally.

The implications of the findings presented in this report can be seen as pertaining to two separate arenas: dual enrollment generally, and CTE reform. These are as follows:

Dual Enrollment

1. Because dual enrollment participation can benefit a range of students, expand currently restrictive eligibility requirements for dual enrollment.
2. Consider creating dual enrollment sequences since our findings suggest that students benefit from taking more than one dual enrollment course.
3. Expand outreach to underserved populations and provide dual enrollment courses tuition-free for low-income students (if not for all students) in order to ensure that such students are able to take advantage of dual enrollment opportunities.

CTE Programs

1. Expand dual enrollment options for CTE students, particularly in places where these students are not currently offered dual enrollment opportunities.
2. Continue to integrate dual enrollment into CTE pathways and programs.

In conclusion, we present very encouraging, though not definitive, findings that dual enrollment participation is related to positive postsecondary outcomes. This positive association is particularly strong for groups of students who are struggling in postsecondary education, especially males and low-income students."

Karp, Melinda Mechur; Calcagno, Juan Carlos; Hughes, Katherine L.; Jeong, Dong Wook; and Bailey; Thomas R. *"The Postsecondary Achievement of Participants in Dual Enrollment: An Analysis of Student Outcomes in Two States"* National Research Center for Career and Technical Education. Community College Research Center Teachers College, Columbia University. October 2007.

Pew Charitable Trust

Nationally, four-year college students who participated in a high school dual enrollment program have, on average, a higher college GPA and a higher four-year graduation rate than students who did not participate in such a program.

Martinez, M. and Klopott, S. *"How is School Reform Tied to Increasing College Access and Success for Low-Income and Minority?"* Institute for Educational Leadership, 2004, p. 34, quoting Clark, R.W., *"Dual Credit: A Report of Programs and Policies that Offer High School Students College Credits,"* Philadelphia, PA: Pew Charitable Trusts, 2001.

Texas Longitudinal Study:

A recent examination of Texas longitudinal data concluded that high school students in that state who concurrently enroll in postsecondary courses experience greater success in college. Indeed, they are twice as likely to graduate from college in four years as those who did not enroll in such a program

O'Brien, D.M. and Nelson, T.D. *"Strengthening College Preparation and Access Through Concurrent Enrollment in High School and Community College,"* University of Texas, Dallas, 2004.

Retention and graduation data indicate similar findings. Students who enroll in dual credit courses attend college and earn some type of degree at a higher rate than those who do not participate in dual credit while in high school. Among Hispanics who enrolled in postsecondary institutions in Fall 2000, 77 percent who took dual credit courses were still enrolled in Fall 2001, compared with 62 percent who did not. Further, 32 percent of Hispanics who took dual credit graduated with Baccalaureate degrees versus 11 percent who did not take dual credit in high school.

The data are almost identical for African-Americans. Among those who enrolled in postsecondary institutions in Fall 2000, 78 percent who took dual credit courses were still enrolled in Fall 2001, as opposed to 59 percent who

did not. Further, 34 percent of African-Americans who took dual credit graduated with Baccalaureate degrees compared with 11 percent who did not take dual credit in high school.

Study on Dual Credit Programs in Texas: *A Report to the 80th Legislature from the Texas P-16 Council*. Retrieved February 1, 2007 at http://www.tea.state.tx.us/comm/06dcp_report.pdf

Florida Study

A 2005 case study reported in *Jobs for the Future* showed that Florida students who took one or more dual credit courses enrolled in postsecondary institutions at higher rates than students who did not. The data was particularly striking for minority students. Among African-American students, 70 percent of those who took dual credit courses attended higher education institutions, compared with 45 percent who did not. Among Hispanic students, 69 percent of dual credit students went to college or university as opposed to 54 percent who did not.

Nancy Hoffman, *Add and Subtract: Dual Enrollment as a State Strategy to Increase Postsecondary Success for Underrepresented Students*, *Jobs for the Future*, 2005, p. 9.

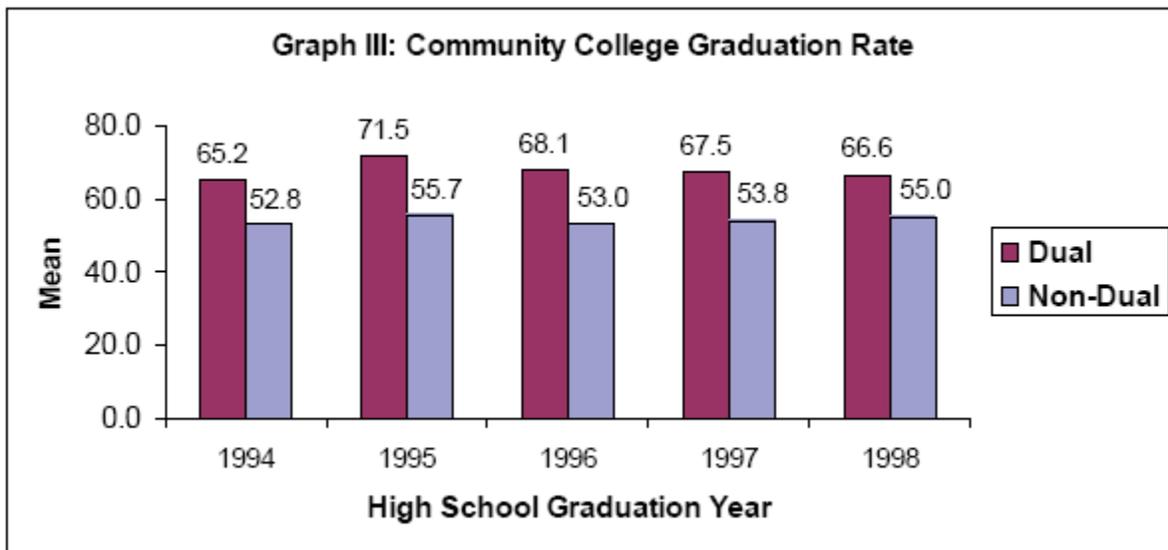
The Florida Department of Education reported the positive findings: "The early results are promising. A recent study by the Florida Department of Education found that "high-school students who enroll in community college dual enrollment programs are enrolling in college and universities at rates significantly higher than students who do not enroll in these accelerated articulation programs. Moreover, Hispanic and African-American students who took dual enrollment courses are enrolling in higher education at higher rates than whites or any other ethnic group".

Florida Department of Education. 2004. *Fast Fact Report*. March.

"High performing Dual Enrollment students graduated from community colleges at higher rates than similar students who did not participate in Dual Enrollment. High performing students, defined as high school students with a 3.0 GPA or above, were tracked for four years following their high school graduation. For each of the 1994 to 1998 cohorts, the college graduation rate for Dual Enrollment students was consistently higher than for non-Dual Enrollment students. The difference in the Dual Enrollment students and non-Dual Enrollment students who completed an Associate in Arts degree was between 12% and 16%. The average number of hours earned as a Dual Enrollment student between 1994 and 1998 ranged from 7.6 to 9.8 hours. The difference in graduation rate between the Dual and non-Dual students

implies that the Dual Enrollment program is serving high achievers who can benefit from exposure to college-level courses while still in high school. "

"The main difference between the groups was in graduation rate. In essence, both groups move through the FCCS toward graduation in an extremely efficient manner. They had almost no excess hours. Graph III, below, shows the rate at which students in each of the high school cohorts completed an AA degree at the community college. The years shown represent the year the cohort graduated from high school. Students were then tracked for four years. This is the graduation rate that is shown. As can be seen in Graph III, both groups had extremely high graduation rates compared to community college students as a whole. The non-Dual rates were in the 53 to 56 percent range, while the Dual rates were in the 65 to 72 percent range.



Florida Department of Education. 2004. *Impact of Dual Enrollment on High Performing Students*. Data Trend # 26. April 2004.

Arizona Studies

Studies of dual enrollment students in Arizona show positive postsecondary outcomes for participants, though it is not clear that the research controlled for students' likely outcomes without dual enrollment experience. Still over 90 percent of students who received their college instruction on a college campus graduated from high school, as compared to the average of 49 percent for the seven high schools from the Maricopa Community College District (Finch, 1997, in Puyear, Thor and Mills, 2001).

A survey of dual enrollment students from another Arizona program found that students' first semester grades were higher than those of a typical community college transfer student (Finch, 1997, in Puyear, Thor and Mills, 2001).

A third study, conducted at University of Arizona (in Puyear, Thor and Mills, 2001), found that dual enrollment participants had lower drops in GPA upon entering the university than did other students, even when prior academic achievement was controlled for.

Puyear D.E., Thor L.M., and Mills, K.L. (2001). "Concurrent Enrollment in Arizona: Encouraging Success in High School." In Robertson, P.F., Chapman, B.G. and Gaskin, F. (2001) *Systems for Offering Concurrent Enrollment at High Schools and Community Colleges.* New Directions for Community Colleges. No. 113. San Francisco: Jossey-Bass.

KnowledgeWorks Foundation Study

Research presented in Washington at a conference sponsored by *Jobs of the Future* suggests that the early college approach may be achieving substantial gains for students who participate. Of the 130 early college high schools around, only 17 are old enough to have had high school graduations. But enough high schools now have several years of data to show that the students start to show educational gains in their first year in the program, that the students can pass college-level courses, and that participation shifts students to more rigorous curricula.

Other data presented at the meeting showed that students in the early college programs:

- Report significantly greater confidence in math and writing skills.
- Earn passing grades, with many A's and B's, in their college courses.
- Report significant increases from year to year in their knowledge about going to college and the number of discussions they have about applying to college.
- Show a slight decrease over their time in high school about paying for college.
- Are, for those graduating from the high school programs, winning college admission and scholarships at rates that far exceed those in their socioeconomic groups.

Marge Mott, a field manager for the *KnowledgeWorks Foundation* said that the bottom line about these programs is that they are serving students for whom *"there are dismal college attainment rates" and helping the students end up in colleges.*

Research reported in <http://www.INSIDEHigherEducation.com/news/10/05/Early>. October 5, 2007.

“College Now” and Wisconsin’s “Youth Options Program”

High School Seniors in New York’s College Now program (who took early college courses) were compared with other University of New York freshman who did not participate in the program. Compared with other University of New York freshman, “College Now” graduates earned more college credit than and were more likely to graduate from college on time (Bailey, Hughes Karp and Mechur, 2002).

Kleiman (2001) studied “College Now” participants at Kingsborough Community College. As a group, College Now participants had high levels of postsecondary success. When compared to CUNY freshman who did not participate, College Now students who enrolled in the CUNY system were twice as likely to graduate from college on time and less likely to need remedial coursework.

Wisconsin’s Youth Options program provided high school students college opportunities to expand their curricular options, particularly in vocational subjects. Youth Options was found to have had a discernible impact in providing a wide array of curricular options to high school students, particularly in rural schools. The authors concluded that both New York’s College Now and Wisconsin’s Youth Options programs have the potential to improve preparation for college.

Bailey, Thomas R., Hughes, Katherine L.; Karp, Melinda Mechur. *What Role Can Dual Enrollment Programs Play in Easing the Transition between High School and Postsecondary Education?* Office of Vocational and Technical Education, Washington, DC. April 4, 2002.

Kleiman, N.S. (2001, June). Building a Highway to Higher Ed: How Collaborative Efforts are Changing Education in America. New York: The Center for an Urban Future.

Institutional Mathematics Study

Also, Fajen and Prentice (2002) quote Hebert (2001) that among 700 students who took dual enrollment math at their high school received better grades in subsequent coursework who took same dual credit course from college faculty on campus.

Fajen, A.L. and Prentice, C.M. *“Dual Credit Policy: The Missouri Experience.”* Kaleidoscope Consulting, Policy Issue Brief, 2002. See also Hans A. Andrews, *“Dual Credit Research Outcomes For Students”*, Community College Journal of Research and Practice, 28: 415-0422 2004 and Welsh, John, Nick Brake, and Namok Choie, *“Student participation and performance in dual credit courses in a reform environment,”* Community College Journal of Research and Practice, 29: 199-213, 2005.

Middle College Results Positive

"Middle colleges" are high schools situated on community college campuses—target low performing youth and offer, among other things, a combination of rigorous course work, extensive supports and personalization, and internships in the community. Interim findings from an evaluation of five middle colleges show that students achieved nearly a 100 percent pass rate in their college courses (Lieberman 2004).

Lieberman, Janet E. 2004. *Early College High Schools: Requisites for Success*. Boston, MA: Jobs for the Future.

Another recent report found that students in two California middle colleges were outperforming peers in their respective districts on statewide assessments and standardized tests (Cavalluzzo, Corallo, and Jordan 2002).

Cavalluzzo, Lina, Christopher Corallo, and Will Jordan. 2002. *Case Studies of High Schools on College Campuses: An Alternative to the Traditional High School Program*. Charleston, WV: AEL.

Salt Lake City Community College Study

Salt Lake City Community College 13 year-old dual enrollment program was assessed for effectiveness against other students not enrolled in early college courses. Dual enrolled English students had a mean GPA of 3.48, compared with 3.29 for other students. Dual enrolled Math students enjoyed a GPA of 2.48 compared with 2.44 for other students.

Krile, D.J. and P. Parmer. "Tech Prep: Pathways to Success? The Performance of Tech Prep and Non-Tech Prep Students at a Midwestern Community College." Sinclair Community College. Dayton, Ohio. Office of Institutional Planning and Research. 2002.

Kansas Study

This study examined the relationship between participation and location of dual credit enrollment and the educational aspirations of high school students. Results indicated that participation in dual credit programs had a positive and significant relationship with educational aspirations. Other independent variables that demonstrated strong positive predictive importance for educational aspirations were parents' educational levels and grades.

Smith, D. "Why Expand Dual-Credit Programs." *Community College Journal of Research and Practice*. Volume 31, Number 5: 371-387, May 2007.

City College of San Francisco Study

CCSF students that participated in early college opportunities outperformed their peers who did not participate in early college opportunities and matriculated to CCSF. Students with prior early college experience passed

58% of their units once matriculated at CCSF while students without prior experience passed 53% of their units.

Spurling, S. and R. Gabriner (2002). *"The Effect of Concurrent Enrollment Programs upon Student Success at City College of San Francisco: Findings."* City College of San Francisco, CA. Office of Institutional Development, Research and Planning: 5.

Acceleration Study

Rogers examined the issue of educational acceleration as a curricular option and suggests that bright students benefit academically from a more challenging learning environment and that, contrary to popular opinion, they are not harmed socially or psychologically. This was a meta analysis of 19 major research syntheses.

Rogers, K.B. and R.D. Kimpston (1992). *"Acceleration: What We Do vs. What We Know."* Educational Leadership 50(2):58.

Students' Perceptions of Dual Enrollment

"There is evidence that students enjoy their participation in dual enrollment programs, find it useful and motivating, and are generally satisfied with their experience. (Orr, 2002; see also Robertson, Chapman and Gaskin, 2001)"

The majority of dual enrollment completers from Salt Lake Community College believed that their participation in dual enrollment encouraged them to attend college (Peterson, Anjewierden, and Corser, 2001)

Peterson M.K., Anjewierden J., and Corser, C. (2001) *"Designing an Effective Concurrent Enrollment Program."* In Robertson, P.F., Chapman, B.G. and Gaskin, F. (2001) *"Systems for Offering Concurrent Enrollment at High Schools and Community Colleges."* New Directions for Community Colleges. No. 113. San Francisco: Jossey-Bass.

Bailey, Thomas R., Hughes, Katherine L.; Karp, Melinda Mechur. *What Role Can Dual Enrollment Programs Play in Easing the Transition between High School and Postsecondary Education?* Office of Vocational and Technical Education, Washington, DC. April 4, 2002.

Orr, M.T. (2002). *"Dual Enrollment: Developments, Trends and Impacts."* Presentation to the Community College Research Center, Teachers College, Columbia University. New York, NY. January 25, 2002.

Robertson, P.F., Chapman, B.G. and Gaskin, F. (2001) *"Systems for Offering Concurrent Enrollment at High Schools and Community Colleges."* New Directions for Community Colleges. No. 113. San Francisco: Jossey-Bass.

NIACC's 16 Assessment Studies of Student Learning Outcomes in Dual Credit Courses Compared with Regular On-Campus Student Outcomes

For a number of years NIACC faculty have conducted assessment studies of student outcomes in dual credit courses. The following represents a synopsis of the studies:

a. Communications Skills I

Site: Clear Lake Community School District

Course: Communications Skills I

Methodology: Final writing papers from a traditional NIACC Communication Skills course (25 students) and the PSEO course (28 students in two sections at Clear Lake) were collected. The names of the students and any other identifying characteristics were removed from the papers. The papers were shuffled and then submitted to Dr. James Zirnhelt, instructor and Division Chair, for assessment. Each paper was graded on a 0 to 4 scale on six separate criteria: purpose, content, organization, sentences, diction, and mechanics.

Findings: The null hypothesis that the means of the two groups were not significantly different at .05 probability was accepted.

Conclusion: Student writing outcomes are equal, as assessed by an evaluation of final writing papers.

b. General Psychology

Site: Garner-Hayfield Community School District

Course: General Psychology

Methodology: As the Garner students had an average 89th ITED percentile score, a matched pair methodology was employed. That is, a NIACC psychology instructor matched Garner students with high ability traditional students in his class. Outcomes were assessed on the basis of a 100-point multiple-choice exam.

Findings: The Garner class mean was 84.35 with a standard deviation of 8.82. Campus mean was 84.82 with a standard deviation of 7.76. The t-test revealed no significant difference between the two groups at .05 probability.

Conclusion: Psychology outcomes as measured by a final exam are equal.

c. Criminal Law I

Site: Mason City Community School District

Course: Criminal Law I

Methodology: The final test was utilized for the evaluation. Nineteen students were enrolled in the Mason City PSEO class while 21 students were enrolled in the NIACC on-campus class.

Findings: The mean of the Mason City High School group was 42.37 with a standard deviation of 4.425. This compared to the NIACC mean score of 45.62 with a standard deviation of 8.43. A t-test was utilized to test the null hypothesis that there was no significant difference between the means. The null hypothesis was accepted at .05 probability.

Conclusion: Outcomes for the telecommunications course, Criminal Law I, as measured by the final exam were not significantly different for the PSEO class as compared to the NIACC on-campus class.

d. General Psychology

Site: North Central Community School District, Manly

Course: General Psychology

Methodology: A final exam was given to both the PSEO and traditional NIACC classes. As group size varied, it was agreed that the NIACC instructor would use the first 14 names in his grade book to compare with the 14 TAG (Talented and Gifted) students in the Manly class.

Findings: The mean of the Manly TAG class was higher, 3.53, than the mean of the traditional NIACC class, 3.03. A t-test was utilized to test the null hypothesis that there was no significant difference between the means. The null hypothesis was accepted at .02 probability.

Conclusion: Outcomes for the General Psychology as measured by the final exam were not significantly different for the PSEO class as compared to the NIACC on-campus class.

e. General Psychology

Site: Garner-Hayfield Community School District

Course: General Psychology

Methodology: As the Garner students represent a very high ability group, a matched pair methodology was employed. That is, a NIACC psychology instructor matched Garner students with high ability traditional students in his class.

Findings: The Garner class mean was 81.2 with a standard deviation of 7.23. The campus mean was 83.1 with a standard deviation of 6.36. The t-test revealed no significant difference between the two groups at .05 probability.

Conclusion: Psychology outcomes as measured by a final exam are equal.

f. Business Statistics

Site: Garner-Hayfield Community School District

Course: Business Statistics

Methodology: As the Garner students represent a very high ability group, a matched pair methodology was employed. ACT scores were used to create the matched pairs.

Findings: The Garner class mean was 68.4 with a standard deviation of 4.49. The campus mean was 54.4 with a standard deviation of 6.12. The Garner class mean was higher than the campus class mean. However, the sample size was only five students, so the t-test revealed no significant difference between the two groups at .01 probability.

Conclusion: Business statistics outcomes as measured by a final exam are equal.

g. Business Statistics

Site: CAL Community School District

Course: Business Statistics

Methodology: As the CAL students represent a very high ability group, a matched pair methodology was employed. ACT scores were used to create the matched pairs.

Findings: The CAL class mean was 47.7 with a standard deviation of 6.02. The campus mean was 50.3 with a standard deviation of 1.89. The t-test revealed no significant difference between the two groups at .01 probability.

Conclusion: Business statistics outcomes as measured by a final exam are equal.

h. Introduction to Statistics

Site: North Central and Northwood-Kensett Community School Districts

Course: Introduction to Statistics

Methodology: A common final exam was given to both the PSEO and traditional NIACC classes.

Findings: For the PSEO group the mean score was 37 with a median score of 37.5. The NIACC class mean was 31.67 with a median score of 32. Based on the data and the p-value for the two sample t-test, the higher mean score of the PSEO group's final exam is statistically significant.

Conclusion: The PSEO group outperformed the traditional NIACC class.

i. Developmental Psychology

Site: Garner-Hayfield Community School District

Course: Developmental Psychology

Methodology: A common final was given to both the PSEO (Garner) and traditional NIACC (on-campus) classes.

Findings: For the PSEO group the mean final exam score was 33.67. There were three sections of Developmental Psychology at NIACC the same semester. The mean final exam scores for these sections were 35.08, 33.00, and 31.56. Based on two-sample t-tests, the Garner mean was not significantly different from any of the NIACC means, at .05 probability.

Conclusion: The performance of the PSEO (Garner) group was not significantly different from the performance of the NIACC groups.

j. Developmental Psychology

Site: Hampton-Dumont Community School District

Course: Developmental Psychology

Methodology: A common final was given to both the PSEO (Hampton) and traditional NIACC (on-campus) classes.

Findings: For the PSEO group the mean final exam score was 33.05. There were three sections of Developmental Psychology at NIACC the same semester. The mean final exam scores for these sections were 35.08, 33.00, and 31.56. Based on two-sample t-tests, the Hampton mean was not significantly different from any of the NIACC means, at .05 probability.

Conclusion: The performance of the PSEO (Hampton) group was not significantly different from the performance of the NIACC groups.

k. Biological Principles

Site: North Iowa High School (NIHS), Buffalo Center

Course: Biological Principles

Methodology: A common final was given to both the PSEO (NIHS) and traditional NIACC (on-campus) classes.

Findings: For the PSEO group the mean final exam score was 22.55. For the section taught on the NIACC campus that semester, the mean final exam score was 15.25. Based on a two-sample t-test, the NIHS mean was significantly higher than the on-campus mean, at .05 probability.

Conclusion: The performance of the PSEO (NIHS) group was significantly higher than the performance of the NIACC groups.

l. Introduction to Computers

Sites: Hampton-Dumont School District and Mason City School District

Course: Introduction to Computers

Methodology: A common final was given to both the PSEO (Hampton-Dumont and Mason City) and traditional NIACC (on-campus) classes.

Findings: For the PSEO groups the mean final exam scores were 68.92 (Hampton-Dumont) and 74.66 (Mason City). The mean final exam score for the section at NIACC was 81.19. Based on two-sample t-tests, the Hampton-Dumont mean score was significantly lower than the NIACC mean score. The Mason City mean was not significantly different from the NIACC mean, at .05 probability.

Conclusion: The performance of the Hampton-Dumont group was significantly lower than the performance of the NIACC group. The performance of the Mason City group was not significantly different from the performance of the NIACC group.

m. Beginning Web Page Development

Sites: North Butler, Hampton-Dumont, Mason City, Rockwell-Swaledale, Osage

Course: Beginning Web Page Development

Methodology: Three judges scored a capstone web site project developed by the students.

Findings: In all five of the categories evaluated 1) Web Design, 2) Completeness 3)Coolness, 4) Mastery and 5) Overall Score no significant differences were observed between high school students and regular NIACC students.

Conclusion: The performance of high school students in five distinct high schools matched the performance of students in the regular college course on the NIACC campus.

n. Composition II

Sites: Belmond, C-A-L, Mason City, Forest City, Garner, West Hancock

Course: Composition II

Methodology: In Spring 05 semester four highly experienced instructors from two community colleges other than NIACC were hired as essay readers to read and score 89 essays, randomly

chosen from a pool of approximately 750 students enrolled in Composition II (45 from on-campus classes and 44 from off-campus classes). All essay readers scored all 89 essays, using a rubric measuring five attributes and scoring from one to four points for each attribute. The essay reader then averaged the five attributes, assigning equal value for each attribute, which resulted in a final score between one and four--a score, not a grade. Because NIACC has been using Writer's Workbench (WWB) for over twenty years, the Communication faculty used WWB to compare the essays by using seven of its most commonly used programs. Use of these programs provided a "consistent measuring stick" by which to objectively assess certain elements of writing.

Findings: The average scores of 2.20 for the 45 students on campus and 2.18 for the 44 students off campus showed a statistically insignificant difference. Of the seven attributes being measured, four met the standards of WWB both on and off campus, and three fell slightly outside the standards both on and off campus. Outcomes were consistent.

Conclusions: The scores from both the essay readers (arguably subjective, albeit highly experienced and using a standard) and from the Writer's Workbench (totally objective in application of standards) showed very high degrees of consistency between the results of essays written in courses taught both on-campus and off-campus. The results provide both assessment of results of current teaching and assessment for improvement of instruction.

o. Educational Media

Sites: Forest City High School and North Butler High School

Course: Educational Media

Methodology: Every student in the high school based sections and every student in the section taught on campus completed a common set of 13 course assignments. Each instructor used the same rubric for scoring the assignments.

Findings: The average total scores for the high school based sections were 93% for Forest City and 97% for North Butler. The average total score for the campus based section was 89%.

Conclusion: Students in the high school based sections performed at least as well as the campus based section.

p. Introductory Biology

Site: North Iowa High School
Course: Introductory Biology

Methodology: A common final was given to both the high school based class (North Iowa High School) and the NIACC (on-campus) class.

Findings: For the high school-based class the mean final exam score was 22.11. The mean final exam score for the section at NIACC was 18.00. Based on a two-sample t-test, the North Iowa High School mean score was not significantly different from the NIACC mean score, at .05 probability.

Conclusion: The performance of the North Iowa High School class was not significantly different from the performance of the NIACC group.