Dual Credit: An Initial Study Exploring the Transition from High School to Higher Education

Sam Faught
The University of Tennessee at Martin

Jamye Long
The University of Tennessee at Martin

Cooper Johnson
The University of Tennessee at Martin

Dual credit courses are used to recruit high school students by offering college level credit in classes they take during their high school experience. For this study, the subjects consisted of freshmen students attending a mid-sized regional Tennessee university. This research explores the transition of students' successes in terms of their continued education once they begin their college level classes at an institution of higher learning. More specifically, this research examines the academic level of achievement of dual credit students' first semester out of high school as compared to their academic level of achievement upon entering with dual credit coursework.

Keywords: dual credit, freshmen, dual enrollment

INTRODUCTION

In the competitive world of higher education, a common goal is to find successful and sustainable methods for increasing student enrollment through attracting new students and retaining current students. In the quest to reach this goal, institutions of higher education have deployed many creative arrows from their quiver in which they emphasize their strengths, broadcast their brand, utilize their technological advancements, and employ innovative marketing techniques in lassoing the attention of high school students, community college students, and adults interested in furthering their education.

A technique undertaken by many schools is to entice high school students through offering college level credit in classes they take simultaneously during their high school experience (Gaille, 2018). These classes are often referred to as dual credit, which allow students to begin their college coursework prior to stepping foot on a college or university campus (Gaille). The concept of dual credit derives from these courses allowing students to receive credit for both their high school and college level courses within the context of one course. High school students who participate in dual credit classes enter their post-high school education with an advantage of transferring courses, which equates to a starting GPA and credit hours towards their degree. Colleges and universities use these courses to get their name and brand out to

high schools at a time when students are considering their options and are open to the possibilities available to them through pursing higher education (Gerber, 2017).

Understanding Dual Credit's Role in Higher Education

The first dual credit classes were offered in the 1955-1956 school year in conjunction with the University of Connecticut through a program titled Cooperative Program for Superior High School Students (Grant, 2019). The origins of the dual credit program focused on the top performing high school students who would be desirable to colleges and universities. Over time, the program expanded nationwide and included a wider range of students, not limiting it to only the brightest minds (Troutman et al., 2018).

Eligibility and acceptance into dual credit programs is often designated by the college or university with an understanding and input from the school district. General requirements often include specific high school grade level, a minimum GPA, ACT, and/or SAT score, approval from the student's high school counselor and parents or legal guardian, and completion of an application. Some programs have additional requirements such as monetary deposits or applying for appropriate grants designated for dual credit participation, orientation session for the high school student, parental/guardian paperwork, or specific instructions for home schooled students seeking to participate (University of Georgia, n.d.; Alabama State Department of Education, 2019; Jasper Independent School District, 2021; Louisiana Tech University, n.d.).

The introduction of the dual credit concept provided colleges and universities nationwide with a method of recruitment of high school students into their institutions (Gerber, 2017). Part of that recruitment is to showcase the benefits of participating in such programs. For example, the Texas Education Agency (n.d.) identifies the following benefits,

- Gain first-hand experience with college-level work while attending high school
- Transition more smoothly between high school and college
- Transfer credits earned in high school to Texas public colleges and universities
- Complete a postsecondary degree faster
- Save money on college tuition ("Benefits of taking Dual Credit Courses" section)

Gaille (2018) shared additional advantages of these programs, including a competitive advantage in the college application process and varying delivery methods of courses. Furthermore, Gerber (2017) stated that another selling point of dual credit is the high-quality instruction provided by college faculty. Troutman et al. (2018) found that participants identified some reasons they chose to enroll in dual credit programs was to complete specific courses prior to entering college and to provide themselves with a more challenging course of study during high school.

It is critical for educational institutions to broadcast the benefits and attractions of dual credit programs to recruit participants. Partnering with high schools and local school districts is an attractive method of advertising the courses offered, and this technique allows schools to potentially have ready-made classes for use with dual credit programs (Gerber, 2017; Haxton, 2015). In addition to partnering options, Lapinskaite (2020) shared some awareness tactics used to attract students, including utilizing paid media such as "Google Adwords, Bing, Linkedin, Facebook and Instagram" (1. Paid Media, para. 2) and search engine optimization (SEO), which involves altering the institution's website content to best direct search result traffic to the institution's website. Furthermore, Lapinskaite suggested that websites should meet three criteria: first, be mobile friendly, second, provide useful, quality content that focuses on the reader, and, lastly, make it user friendly with simple navigation.

Lapinskaite (2020) identified three techniques to use in attracting potential students. The first suggestion was for higher education institutions to use social media, such as Instagram and Tik-Tok, to engage a younger audience and share information that is of interest to them. The second idea was to connect with prospective students through videos, blogs, and live feeds to showcase the school's best attributes and opportunities, including dual credit. The third suggestion Lapinskaite shared was to use word of mouth marketing through influencers and college ambassadors, who can promote and encourage the school and

specific programs to their established audiences, as they have established a sense of trust with these individuals.

PURPOSE OF THE STUDY

The Southern Regional Education Board (2020) identified the lack of available, quality data-driven research that can be used in decision making processes by policymakers, educational administrators, and state leaders. More specifically, the published comprehensive review of research states, "To determine return on investment and improve dual credit programs, states will need to clarify their goals, be sure policies support them, and collect data that connects students' K-12 and postsecondary experiences" (Southern Regional Education Board, 2020, para. 2).

The purpose of this research is to explore the transition of freshman students' successes and advantages in terms of their continued education once they begin their college level classes at an institution of higher learning. More specifically, this research examines the academic level of achievement of dual credit students' first semester out of high school as compared to their academic level of achievement upon entering with dual credit coursework.

RESEARCH HYPOTHESIS

Students are likely accustomed to a structured environment during high school. Once they graduate and are in college, they oftentimes experience increased freedoms, which may cause some students to face challenges in their academics. In considering these challenges, this study hypothesizes that students' high school GPA from dual credit classes will be greater than their GPA from the first semester in an institution of higher education.

METHODOLOGY

Subjects

For this study, the subjects consisted of freshmen students attending a mid-sized regional university in Tennessee. These students were considered appropriate for this study. They were relatively consistent in age and educational background. They participated in dual credit courses while they were in high school. Dual credit courses were offered both online and in person with no differentiation given in the sample. Data were collected from the students' GPA from the dual credit they received while in high school and compared with their first semester GPA in college.

Gay and Diebl (1992) refer to the type of sample chosen for this study as a convenience sample. This type of sample collects data from a segmented part of the population being studied who were available (Scherer, 1987). The sample for this study was chosen at random, but only from a mid-sized regional university in Tennessee. Data were not available for other community colleges or universities. Convenience sampling was appropriate for this study given it was exploratory in nature.

Data Collection Procedure

GPA scores of freshmen students who had taken college courses while still in high school were collected. Their GPA scores were collected from their first full time in college. These students were selected at random, but they only included students attending a mid-sized regional university in Tennessee.

Analytic Techniques

T-Test

The t-test is used when we are comparing two populations where the populations are not independent of each other. In the example of dual credit, we are comparing college GPA scores by students while they are still in high school with their first semester GPA scores in college. Since these two GPA scores are from the same student, they are not independent.

There are four assumptions that support the t-test.

- Assumption #1: The dependent variable should be measured at the interval or ratio level. The difference in two independent GPA scores by the same student could be anywhere from minus four to plus four. A zero difference would mean the student had the same GPA in college as they had in high school. A difference of plus/minus four would mean the student had all As in high school and all Fs their first semester in college or vice versa.
- Assumption #2: The dependent variable should consist of the difference between two related groups or matched pairs. GPA scores were recorded for each student before and after entering college. The difference in the two scores became the dependent variable. The difference in scores ranged from -1.50 to +0.56.
- Assumption #3: There should be no significant outliers in the differences between the two related differences. Explore was run using SPSS and there was four outliers discovered. Students' score numbers 10 and 59 were omitted from the analysis. Below is the box matrix plot of the original data. Student numbers 10 and 59 were left out of the analysis. (See Figure 1 and Figure 2)
- Assumption #4: The distribution of the differences in the dependent variable between the two related groups should be approximately normal data. After eliminating the outliers found in assumption 3, Explore was run a second time using SPSS. Both the stem and leaf plot and the box plot indicated that the data was approximately normal.

FINDINGS

Figure 1 shows a box plot of the dependent variable, difference in GPA values. Figure 2 shows a stem and leaf plot of the distribution of the dependent variable. Each of these figures give evidence that these data approximate a normal distribution.

In addition to the results presented in Figure 1, a Stem-and-Leaf Plot is used to provide additional information (see Figure 2). The Stem-and-Leaf is an analytical tool that is used to organize data that shows the frequency of different values. This tool is used to graphically show data in a manner that is easy to read and analyze (Vedantu, n.d.).

FIGURE 1
DISTRIBUTIONS OF THE DIFFERENCES IN THE DEPENDENT VARIABLE
HIGH SCHOOL GPA – FIRST SEMESTER COLLEGE GPA

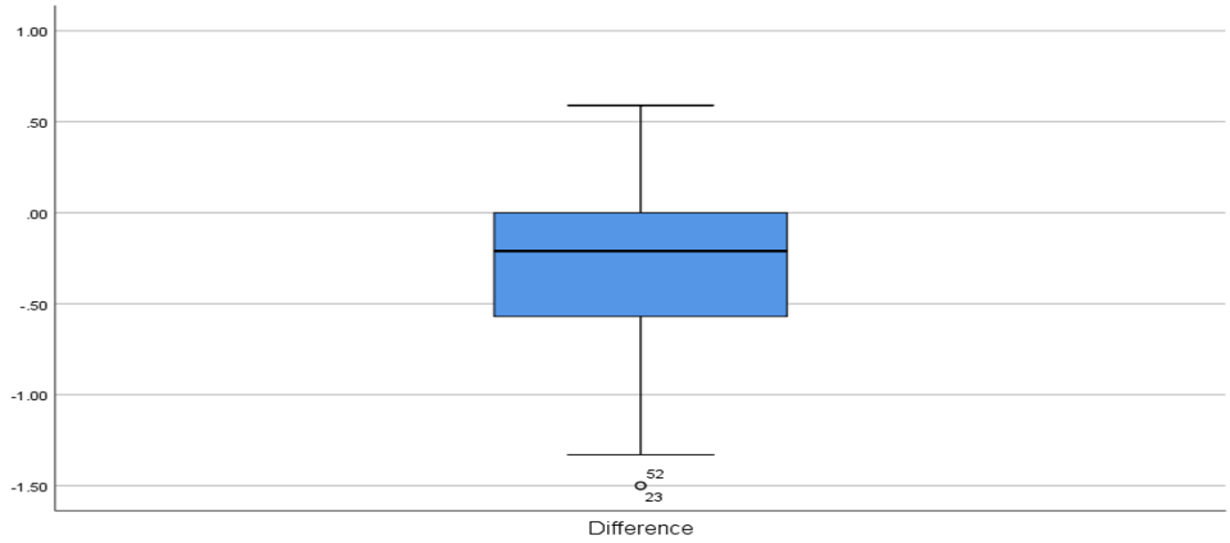

FIGURE 2
STEM AND LEAF DISTRIBUTIONS OF THE DEPENDENT VARIABLE HIGH SCHOOL GPA – FIRST SEMESTER COLLEGE GPA

```
 2.00 Extremes    (=<-1.5)
 7.00      -1 .  0111113
 7.00      -0 .  5666788
28.00      -0 .  0011111112222222223333334444
14.00       0 .  00000000011223
 2.00       0 .  55
Stem width:   1.00
Each leaf:      1 case(s)
```

Table 1 records the descriptive statistics for high school GPAs and first semester college GPAs. As can be seen, high school GPAs appear to be higher than first semester college GPAs. Also, the standard deviation of first semester college GPAs is higher than high school GPAs. The large difference in standard deviation may be because the college data is more dispersed than the high school data.

TABLE 1
PAIRED SAMPLES DESCRIPTIVE STATISTICS

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	HS GPA	3.6685	60	.36113	.04662
	First Sem	3.3295	60	.49995	.06454

Table 2 shows the results of analyzing the data using SPSS. It indicates that freshmen GPA decreases by approximately 0.339 during the first semester in college.

TABLE 2
PAIRED SAMPLES T TEST

	Mean	Std Deviation	Std Error Mean	t	df	Sig (2-tailed)
HS GPA – First Sem	.339	.473	.061	5.555	59	.000

RESULTS

As noted earlier the purpose of this research is to explore the transition of freshman students' successes and advantages in terms of their continued education once they begin their college level classes at an institution of higher learning. More specifically, this research examines the academic level of achievement of dual credit students' first semester out of high school as compared to their academic level of achievement upon entering with dual credit coursework.

The results of the comparison of dual credit scores with first semester college scores provides evidence that students do tend to have lower GPA scores in their first semester of college. The t-test was run in SPSS by subtracting the first semester college GPA from the high school dual credit GPA. Based on the evidence provided in Table 2, there was a significant decrease in GPA scores from high school to first semester college GPA scores.

CONCLUSION

Through researching the data of dual credit participants, it is possible a better understanding can be gained as to the academic value and success of such programs. Conceptually, these programs are a means to encourage high school students to continue their education and to introduce them to advanced educational opportunities. In reality, those introductions may not be providing an accurate foundation for academic achievement. This exploratory study identifies the need for additional research on the subject. The lower GPA of this sample of students after their first foray into higher education as compared to their high school GPA shows there may be a disconnect in which dual credit programs and their partnership institutions could address. The success of dual credit programs is one factor being used as a recruitment and marketing tool of institutions of higher education and as such it needs to be monitored, evaluated, and any identified deficiencies addressed.

Finally, this research serves as an educational tool that may be utilized by institutions of higher learning. Staff should be able to use the results of the research to assist them in making improvements in many areas concerning educational opportunities for freshman students, if not all students. Areas that can benefit from the results of this research include motivation, goal setting, and individual performance. The information obtained from this research should be very useful in allowing institutions of higher learning to make changes toward improvement in the above cited areas. The results of this research could assist educational institutions as they develop approaches to addressing many of the issue faced by freshman students, not just those who have participated in dual enrollment programs.

LIMITATIONS

The sample used in this research yields the first limitation to be identified. The participants for this research were not randomly selected. All participants were freshmen students attending a single mid-sized regional university in Tennessee. Therefore, any conclusions drawn from the results of this research should be cautiously considered. Additionally, the sample of students used in this study were largely of similar ages and education.

A second limitation of the research is that only the first semester of data was evaluated. Data from additional semesters may well provide better insight to performance of those who participated in dual enrollment programs.

The third limitation concerns the ability to generalize the findings of this research. As noted before, the sample was limited to freshmen students attending a single mid-sized regional university in Tennessee. This research did not evaluate student data from those attending additional institutions of higher education. Therefore, it is uncertain if additional research will yield similar results across different institutions of higher education.

FUTURE RESEARCH

While this study indicates that GPA scores tend to be lower in the first semester of college, further research needs to be conducted in several areas. One possibility is that students do recover after their first semester in college. Additional research over several semesters may provide evidence if this recovery is true.

Also, there was no indication the background of the students. Knowing the students' background could provide clarity as to their performance. For example, economic, social, and parental status could impact students' ability to perform during high school and/or college and thus their GPA could be affected.

Furthermore, by expanding this study to other universities, a better understanding of the level of academic achievement of students participating in dual credit programs could be extracted. The addition of data that spans a wider range of participants and institutions could allow for more generalizable results. Additionally, future research could also look for patterns in the data over time, universities, and with students with similar backgrounds.

Another future research possibility is to consider pre- versus post-Covid-19 data to gain an understanding of the students who have been impacted by the alterations made in education to accommodate the pandemic.

REFERENCES

Alabama State Department of Education. (2019, May). *Alabama State Department of Education Guidelines for Dual Enrollment/Dual Credit*. Retrieved March 9, 2022, from https://www.alabamaachieves.org/career-and-technical-education/cte-directors/#Administrator_Manual_8211_Business_And_Industry_Certification

Gaille, L. (2018). *13 Significant Dual Enrollment Pros and Cons*. Retrieved March 15, 2022, from https://vittana.org/13-significant-dual-enrollment-pros-and-cons

Gay, L.R., & Diebl, P.L. (1992). *Research Methods for Business and Management*. New York: Macmillan Publishing Company.

Gerber, B. (2017). *Rethinking Recruitment: Dual Credit Academies and Developing Robust Enrollment Pipelines*. Enrollment Strategies. Retrieved March 16, 2022, from https://evolllution.com/attracting-students/enrollment_strategies/rethinking-recruitment-dual-credit-academies-and-developing-robust-enrollment-pipelines/

Grant, K. (2019). *The development of concurrent enrollment at the University of Connecticut.* Retrieved from https://ece.uconn.edu/about/history/

Haxton, C. (2015, June 12). *Want a Faster, Cheaper Way to Get a College Degree? Start in High School*. Blog Post. Retrieved March 16, 2022, from https://www.air.org/resource/blog-post/want-faster-cheaper-way-get-college-degree-start-high-school

Jasper Independent School District. (2021). *2021-2022 JISD District Wide Student Handbook – English*. Retrieved March 9, 2022, from https://www.jasperisd.net/site/default.aspx?PageType=3&ModuleInstanceID=4223&ViewID=C9E0416E-F0E7-4626-AA7B-C14D59F72F85&RenderLoc=0&FlexDataID=5174&PageID=1&Comments=true

Lapinskaite, M. (2020, October 1). 3 Creative Ways to Attract Students to Your College. *Higher Education Marketing Journal*. Retrieved March 17, 2022, from https://www.archeredu.com/hemj/3-ways-attract-prospective-students-to-college/

Louisiana Tech University. (n.d.). *Dual Enrollment.* Admissions. Retrieved March 9, 2022, from https://www.latech.edu/admissions/dual-enrollment/

Scherer, R.F. (1987). *A Social Learning Explanation for the Development of Entrepreneurial Characteristics and Career Selection* (Unpublished doctoral dissertation). The University of Mississippi, Mississippi.

Southern Regional Education Board. (2020). *Data, Definitions Limit What We Know About Dual Enrollment: SREB publishes comprehensive review of research*. SREB News Release. Retrieved March 16, 2022, from https://www.sreb.org/news/data-definitions-limit-what-we-know-about-dual-enrollment

Texas Education Agency. (n.d.). *Dual Credit.* College, Career, & Military Prep. Retrieved March 16, 2022, from https://tea.texas.gov/academics/college-career-and-military-prep/dual-credit

Troutman, D.R., Hendrix-Soto, A., Creusere, M., & Mayer, E. (2018). *The University of Texas System dual credit study: Dual credit and success in college*. Retrieved March 9, 2022, from https://www.utsystem.edu/documents/docs/ut-system-reports/2018/dual-credit-and-success-college

University of Georgia. (n.d.). *Dual Enrollment*. Undergraduate Admissions. Retrieved March 9, 2022, from https://www.admissions.uga.edu/admissions/other-students/dual-enrollment/

Vedantu. (n.d.) *Stem and Leaf Plots*. Maths. Retrieved March 14, 2022, from https://www.vedantu.com/maths/stem-and-leaf-plots