

Dual Enrollment: Measuring Factors for Rural High School Student Participation

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The purpose of this study was to explore the reasons 162 rural area high school students participate in the dual enrollment program. Dual enrollment programs allow high school students to enroll in college courses for credit prior to high school graduation with local school districts covering the cost of tuition. Participants in this study were recruited from two rural agricultural counties from Washington State attending a local college. Exploratory factor analysis revealed that dual enrollment participation was related to academics, financial, social, and choice reasons. Results showed no significant differences between 11th and 12th grade participants regarding financial and choice reasons to participate. However, statistically significant differences were found regarding academic and social reasons for participation. Implications for rural educators and recommendations for future research regarding dual enrollment programs are discussed.

Introduction

Dual enrollment provides high school students the opportunity to take postsecondary courses in public and private two- and four-year institutions (Andrews, 2004; Kleiner & Lewis, 2005; Marshall & Andrews, 2002; Robertson, Chapman, & Gasken, 2001). In 2002-2003 (12 month academic year) 5 percent (813,000) of high school students took college-level courses in post-secondary institutions (Kleiner & Lewis, 2005). For many states, these dual enrollment programs are not new; they have actually existed for several decades through agreements between some high schools and colleges. However, due to an increased demand in the 1980s, many states began developing policies regarding dual enrollment (Andrews, 2000; Girardi & Stein, 2001). According to Karp, Bailey, Hughes, and Fermin (2005) 40 states now have dual enrollment policies.

Research indicates that dual enrollment programs are beneficial to students, parents, high schools, and postsecondary institutions (Andrews, 2000; Boswell, 2001; Bailey, Hughes & Karp, 2002; Girardi & Stein, 2001). Essentially, dual enrollment programs provide motivated and interested students an opportunity to earn college credit in high school, provide parents with financial savings, allow high schools to expand their course offerings, and offer colleges access to high schools' brightest students. While there is a large amount of research regarding the policies of dual enrollment programs (Hoffman, 2005), the costs and benefits for states, parents, and students (Boswell, 2001; Karp, Bailey, Hughes, & Fermin, 2004) and the attitudes of parents and students toward such programs (High School Leadership Summit, 2003), very little is known regarding the mediating factors of *why* students participate (High School Leadership Summit, 2003) and even less about the perceptions about *why* students participate in dual enrollment programs (Bontager, Clemetsen, & Watts, 2005).

Grimard and Maddaus (2004) reported that the primary issues for low-income rural students transitioning from high school to college and participating in a dual-enrollment program called Upward Bound are related to financial and social implications, but for those rural students participating in dual enrollment programs, the choice to attend college may be better explained through econometrics (Hossler, Braxton, & Coopersmith, 1989; Manski & Wise, 1983; McDonough, 1997; Pitre, Johnson, & Cown-Pitre, 2006). Econometric models explain that a choice to attend college is made in monetary terms as a rate of return on educational investment (Hossler et al., 1989; Manski & Wise, 1983; McDonough, 1997; Pitre, Johnson, & Cowan-Pitre, 2006). The present study explores factors related to *why* rural high school students participate in dual enrollment programs. Participants in this research study were from two rural agricultural counties in the State of Washington who were actively participating in a dual enrollment program called Running Start.

Dual Enrollment in Washington State

In 1990 the Washington State legislature created a dual enrollment program called Running Start as part of its parent and student "Choice" law (Hanson, 2001). Running Start allows high school juniors and seniors to enroll in either part-time or full-time tuition-free courses at either two- or four- year colleges and simultaneously earn both high school and college credit. Costs for books, supplies, and transportation are the responsibility of the student. To qualify, students typically must demonstrate college readiness through a placement exam at the college level and have parental permission (Hanson, 2001). Initial implementation of the Running Start program was through a two-year pilot program at five community colleges statewide in 1992-1993 (Hanson, 2001). During this time, a total of 3,350 students were enrolled at community and

technical colleges and following the completion of its 12th year in 2003-2004, Running Start had an enrollment of 15,610 high school juniors and seniors (State Board of Community and Technical Colleges (SBCTC), 2004). Overall, the program continues to increase nearly 5 percent each year and continues to serve approximately 10 percent of Washington State's 11th and 12th grade high school students (SBCTC, 2004).

A recent economic analysis of the Running Start dual enrollment program reported that it helped lower the cost of college and reduced the tax burden of taxpayers (SBCTC, 2004). According to the report, during the 2003-2004 academic year Washington State's Running Start program saved parents and students \$23.1 million in tuition and saved taxpayers \$36.4 through simultaneous enrollments (SBCTC, 2004). These savings were similar to those reported in an earlier analysis of the 1999-2000 school year (Andrews, 2004). These savings were achieved by providing credit for concurrent high school and college coursework, thus eliminating the cost for duplicate credits.

Because the Running Start dual enrollment program is free or relatively low cost, it serves as an inexpensive way for students to earn college credit, thus lowering the long-term cost of a college degree and promoting access to postsecondary education for students who may find the prospect of college tuition a daunting one (Bailey, Hughes & Karp, 2002). Therefore, Running Start provides two incentives for students and parents: a) savings on the overall cost of their postsecondary education by completing course work during high school that is paid for by the local high school and b) allowing students to accumulate college credit prior to entering college thus shortening the time required takes to earn their degree by up to a full year (Leigh & Gill, 2003).

Washington State's educational system has created centers and branch campuses offering bachelor degree programs on or near 22 community college campuses allowing students the opportunity to easily move on to universities (SBCTC, 2004). The state's community college system also serves as a "sorting machine" for four-year schools. Nearly 60 percent of entering freshmen attend one of the 34 community colleges before transferring to a university, thus reducing the tuition costs of obtaining a bachelor's degree to half that of a 4-year university (SBCTC, 2004). The SBCTC report (2004) further noted that:

"Students who have earned Running Start credits while in high school complete their bachelor's degree with 33 fewer state supported credits than those who do not participate in Running Start and enter universities as freshmen" (p.7).

Following the 1990-1991 pilot year for Running Start in the State of Washington, and before the 1992-1993 implementation year, surveys were sent to 356 participating students and their parents. Responses revealed that 80% of

Running Start students intended to transfer to a four-year school (Seppanen, 1991).

Research regarding the reasons for students' participation in Washington State's Running Start Program has been done through two policy related studies. Jordan, McKinney, and Trimble (2000) reported that the number of students participating in the Running Start Program increased from 59 to 248 between 1994 and 1998 and that program participants completed bachelor's degrees one quarter sooner than non-participants (Jordan, McKinney, & Trimble, 2000). The second study was undertaken in October 1998 to examine the transition of high school students into a college environment through the Running Start program. Former Running Start students at the University of Washington and current Running Start students from community colleges throughout Washington State were surveyed about their Running Start experiences. Results revealed that minorities were not participating in the program (Halvorsen, Noble, Robinson & Sisko, 2000) and that many students felt that high school was a waste of time, a finding corroborated in numerous other studies (Kirst, 2001). Robinson (2000) reported that some survey respondents experienced great satisfaction with the Running Start experience by sharing, "it will make a major difference in their lives" (p.19). He also reported that Running Start students indicated that the dual enrollment program provided them with the advantages in preparing for college: they felt socially accepted by the students and faculty at the community colleges, they enjoyed being responsible for their own education, and they felt that college was a complete change with regard to being treated as adults (Robinson, 2000). Despite such findings, studies of dual enrollment in Washington State fall prey to the same issues as similar studies of national dual enrollment programs, that is, they are limited to anecdotal descriptions of monitoring and counting level descriptive research (Bontrager, Clemetsen, & Watts, 2005; Kleiner & Lewis, 2005).

Purpose of Study

Research on dual enrollment programs throughout the United States, not just the Running Start Program in Washington State, is limited (Kleiner & Lewis, 2005). While national longitudinal data can show the negative plight of the educational systems on students in rural areas because of academic, financial, and social limitations (Adelman, 1999; Ingels, Curtin, Kaufman, Alt & Chen, 2002), these large data sets and surveys also aggregate student data across different programs and across supporting state infrastructures. This amalgamation of large numbers of students makes it challenging to evaluate and understand the real reasons rural students participate in state initiated programs like dual enrollment.

Following the lead of a recent article by Grimard & Maddaus (2004) regarding the federally supported Upward Bound Program and the reasons students participate in that

program, the current study seeks to identify the reasons students participate in Washington’s dual enrollment program.

Method

Participants

This study surveyed a convenient sample of 162 dually enrolled Running Start students from two rural county high schools attending the local two-year college. Most of the participants were female 63% (n= 102) and 16 (17%; n=28), 17 (45%; n=73), 18 (36%; n=58), and 19 (2%; n=3) years of age. The majority of students were from the 12th grade (62%; n=100), with the remainder being 11th graders (38%; n=62). Ethnic composition was Asian/Pacific Islander (3%; n=5), Latino/Hispanic (4%; n=6), Native American (1%; n=1), White (91%; n=147), and Other (2%; n=3) and their reported family income was fairly moderate with 51% (n=85) coming from a parental income of \$75,000 or less.

Instrument

The instrument was initially developed from interviews with students participating in the Running Start dual enrollment program. Based on these interviews, a survey was designed and piloted at one local high school to assess for production mistakes, question and scale construction, readability, and understanding (Dillman, 2000). Expert feedback was also acquired from two educational leadership and one educational psychology university faculty knowledgeable in the field and in instrument development (Dillman, 2000). Following feedback concerning wording and the elimination of duplicate questions, the final instrument contained 15 statements with a five category Likert response scale of *Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree* as shown in the Appendix.

An exploratory factor analysis using principal components analysis with varimax rotation (Coakes & Steed, 1997) was used to reduce the survey questions into a small number of hypothetical econometric factors of why high school students choose to participate in the dual

enrollment program. Following a visual inspection of the scree plot only four factors were retained.

Data Analysis

Factor interpretation for the econometric model included four factors with the first including items 1-4 interpreted as “Academics”. Items included in this factor were representative of the students’ perception of a more academically challenging curriculum and environment when comparing dual enrollment college courses with high school. The second factor included items 5-7 interpreted as “Financial”. These items all related to dual enrollment program participation based on family, student, and parent financial implications of choosing to participate in the dual enrollment program. The third factor included items 8-11 interpreted as relating to “Social” reasons. These included the opportunity to have time to work, don’t need to be a part of the social part of high school, and that unlike high school results matter. The fourth factor included items 12 & 13 and was interpreted to be “Choice”. This factor included items related to the opportunity to sample college-level coursework and classes on a part-time basis by participating in the dual enrollment program. However, factor 5 regarding item 14 did not meet the criterion to be included in the factors chosen based on the results of the parallel data analysis and was not included. In addition, one question did not load on any of the factors and was related to the encouragement by parents to try college-level work.

Pearson product-moment correlations of the four factors are presented in Table 1. As shown in Table 1, all correlations of the factors were statistically significant at the $p < .05$ level except for one. That was the relationship between academic and financial factors ($r = .123, p = .119$). The strongest relationship was found regarding the social and academic factors ($r = .443, p < .001$). The relationship between choice and academic ($r = .296, p < .001$) and choice and social factors were also found to be quite strong ($r = .230, p = .003$). Significant correlations were also found regarding choice and financial ($r=.186, p = .018$) as well as for social and financial ($r = .162, p = .039$) factors.

Table 1
Intercorrelations for Dual Enrollment Participants Econometric Factors

<i>Factor</i>	Factors			
	1	2	3	4
Academics	--	0.12	0.44**	0.30**
Financial		--	0.16*	0.19*
Social			--	0.23**
Choice				--

** $p < 0.01$ level (2-tailed).

* $p < 0.05$ level (2-tailed).

Table 2 presents descriptive statistics for each of the factors, item means, standard deviations, and reliabilities. The resulting 13-item scale had four clearly defined factors with alpha reliabilities ranging from .59 to .78 and a total scale reliability of .743. The total reliability and Factor 1 ($r = .781$) exceeded the recommended .70 level recommended

by Nunnally (1978). For Factor 2 ($r = .685$) and Factor 3 ($r = .601$), reliabilities were acceptable (Nunnally, 1978). Given that the number of items for Factor 4 ($r = .578$) only included two items, more work on developing additional items relating to this subscale may be warranted.

Table 2
Grade Level Means, Standard Deviations, and Cronback's Alphas for Econometric Model

Factor and Items	α	Grade Level					
		11th (n=62)		12th (n=100)		Total (n=162)	
		M	SD	M	SD	M	SD
<i>Factor 1 - Academics</i>	0.781	4.10	0.71	4.37	0.55	4.26	0.63
1. Unlike HS, I am pushed to perform at a high level more often		3.98	0.93	4.32	0.76	4.19	0.85
2. I like the challenge of college-level coursework		4.16	0.89	4.29	0.74	4.24	0.80
3. I enjoy the satisfaction of demonstrating my ability with college-age students		4.08	0.87	4.33	0.80	4.23	0.84
4. I like being in class with mature, productive people		4.18	0.82	4.54	0.67	4.40	0.75
<i>Factor 2 - Financial</i>	0.685	4.12	0.73	3.87	0.94	3.96	0.87
5. There will be less of a financial burden on my parents		4.50	0.72	4.25	1.08	4.35	0.96
6. More money will be available for the rest of my college education		4.52	0.76	4.34	1.03	4.41	0.94
7. There will be more money available for my brothers and sisters		3.34	1.31	3.01	1.42	3.14	1.39
<i>Factor 3 - Social</i>	0.601	3.61	0.80	3.87	0.73	3.77	0.77
8. Unlike HS, results matter, not who I am		3.77	1.06	3.89	1.04	3.85	1.05
9. I don't need the social part of HS		3.19	1.23	3.70	1.35	3.51	1.32
10. Less time spent in class is appealing to me		3.90	0.92	4.09	1.04	4.02	0.99
11. I will have the time to work		3.58	1.24	3.78	1.12	3.70	1.16
<i>Factor 4 - Choice</i>	0.578	3.95	0.77	3.90	0.89	3.92	0.84
12. I can sample college-level work on a part-time basis		3.84	0.93	3.74	1.04	4.06	1.01
13. I can sample college classes while still in HS		4.06	0.92	4.05	1.07	3.78	1.00

Note. Students were asked to respond to the items using a 5-point Likert scale: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree.

A one-way ANOVA was conducted relating the four factors (academics, financial, social, and choice) for students in the two grade levels (11th and 12 grade). The academic factor was statistically significant according to the Welch asymptotic F test [$F(1, 105.39) = 6.45, p = .013$, Cohen's $d = .43$] used to correct for unequal variances (Meyers, Gamst, & Guarino, 2006). These results suggest that 12th grade students ($M = 4.37, SD = .55$) viewed the academic reasons for participating in the dual enrollment

program higher in comparison to those in the 11th grade ($M = 4.10, SD = .71$). A second statistically significant difference was found regarding the social factor ($F(1, 161) = 4.195, p = .042$, Cohen's $d = .34$). Like that of academics, 12th graders ($M = 3.87, SD = .73$) viewed the dual enrollment program as having greater social benefits as compared to that of the 11th graders ($M = 3.61, SD = .80$). Neither of the financial or choice factors was found to have statistically significant differences between the grade levels.

Discussion

For rural high school students in this study, they seem to agree that the dual enrollment program provides a way to broaden and enhance their academics. This was especially true for the 12th grade students who were most likely to have already completed all the academic coursework offered by the local high school. This is consistent with the findings by The National Commission on the High School Senior Year (2001) who found the brightest students often spend their final year of high school taking easy courses, cutting class, and worrying more about jobs or extracurricular activities than academics. The problem is not the amount of rigor in the overall curriculum of high school students, it is, instead, what some refer to as the “senior slump” (Peterson, 2003, p.1) or wasted senior year (Kirst, 2001). The National Commission on the High School Senior Year (2001) recommended that programs like dual enrollment can enhance the high school curriculum. In Adelman’s 1999 study it was also demonstrated that students who complete a challenging high school curriculum are better prepared for college. However, challenging high school 11th and 12th grade students to maintain their intellectual intensity as graduation creeps closer can be a challenge (Andrews, 2001). For those rural students who want to go on to postsecondary education, dual enrollment programs offer a viable way for them to access college (High School Leadership Summit, 2003) and provide a challenging environment for those who feel constrained by high school’s often rigid structure (Blair, 1999).

The rapid growth and participation in dual enrollment programs is, to some degree, the result of the rising costs of education. As many dual enrollment programs are free to participating students, they serve as an inexpensive way for young people to earn college credit, thus lowering the long-term cost of a college degree (Bailey, Hughes & Karp, 2002). It is for this reason that many of the advocates for dual enrollment programs have argued that confining them to only the most academically able limits access to educational opportunities, contrary to the mission of public education (Bailey, Hughes & Karp, 2002). Results of the present study found that financial factors were a part of the reason rural students participate in the dual enrollment program. However, financial factors were not found to be significantly different for the 11th and 12th grade dual enrollment participants. Some researchers have found that socioeconomic status, which includes family income as a key component, has been correlated with the type of financial planning that parents provide for students (Cabrera & La Nasa, 2000a) and attending college (Manski & Wise, 1983; Hossler et al., 1989). Because socioeconomic status, unlike family or parental income “captures critical dimensions of social capital,” it is considered to be a stronger variable than family income when measuring the affect to attend college (Cabrera & La Nasa, 2000b, p. 125). However, the financial reasons appear to be conflicting as even with broadened

access to college through low or reduced cost programs like dual enrollment, those students from families at the highest income levels are still most likely to participate in them.

Schools have been successful at sorting and classifying students for more than a century through tracking (National Commission on the High School Senior Year; 2001). Some researchers have identified this separation or tracking as a form of social capital development which is often referred to as the “hidden rules” in high, middle, and low socioeconomic groups (Payne, 1995, p. 21). Social capital can also “take the form of information-sharing channels and networks, as well as social norms, values, and expected behaviors” (Perna, 2000, p.3). For rural high school students participating in the dual enrollment program in this study, social factors were important to them. In addition, significant differences were found with 12th grade students recognizing this social aspect to the dual enrollment program at a greater level than that of the 11th grade students. Based on these results, the notion of social capital does provide clues to understanding how students in the 12th grade view their participation in the dual enrollment as the social capital acquisition from high school to that of college level group (Payne, 1995). Because many dual enrollment programs include time on campus and exposure to the non-academic side of college, they serve as an opportunity to develop social capital towards this life transition in addition to providing time to acquire a job for additional financial and social capital (Bailey, Hughes & Karp, 2002).

Research has suggested that dual enrollment can improve the potential for preparation for college by setting up an alert system “to signal whether students are prepared for college; and it can acclimate students to a college environment while they are still in high school (Bailey, Hughes & Karp, 2002, p.3). According to the results of the present study, having the opportunity or choice to sample college classes was a reason rural students participated in the dual enrollment program. However, no significant differences were found between the 11th and 12th grade students. For those students taking full academic loads early in high school, many will meet graduation requirements well before the end of their senior year in high school. Dual enrollment programs provide an opportunity for rural students to try out the early transition into college. However, as college becomes increasingly necessary to gain access to most reasonably well-paid jobs, the separation of high schools and colleges could become more problematic (Bailey, Hughes & Karp, 2002).

Parental influence and the related on a child’s college aspiration is both complex and vary from family to family (Stage & Hossler, 1988). Parents provide varying types of support for their children. Emotional and tangible supports reinforce confidence in their academic performances and a positive interaction between parents and students results in positive relationships that influence how well students perform at school (Valery, O’Connor, & Jennings, 1997). Research also suggests that the contribution of parental encouragement to student’s college choice processes

declines as students' progress from 9th to 12th grades, whereas the contributions of parental education and income increase over this period (Hossler, Schmit, & Vesper, 1999). As found by the present research, Hossler and colleagues (1999) concluded that parental encouragement is critical to the development of a student's preparation toward thinking about attending college, but seems to have little effect regarding the decisions of whether to attend college.

Implications

Throughout the United States, the policy of dual enrollment exists in different forms from students paying all or part of their tuition to the sending high school paying the tuition to the students' college of choice. The fact that Washington State Running Start Program pays students' tuition limits the ability to generalize the findings of this study to dual enrollment in general. Rural students' willingness to participate in dual enrollment may diminish in the face of financial hardships. This limitation has a minimal impact on the overall study because the majority of dual credit or dual enrollment programs in the United States provide tuition for participants (Kleiner & Lewis, 2005) as in Washington State's Running Start Program.

Rural students knowing that they will have more money available for the rest of their education by shortening their financial commitment is of course a highly considered reason for participation, but it is also important for students to be able to handle the academic challenges. This research confirms that dual enrollment participants place value on being in class with mature, productive people and being challenged by college-level coursework. For those rural students considering dual enrollment, they need to think about whether or not they will benefit from this challenge and environment. For educators and researchers, there is a strong need to develop and use formal theoretical models beyond student characteristics to examine issues regarding rural students participating in dual enrollment programs. These models would improve understanding and generalizability of research regarding why students participate in dual enrollment programs.

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