CAREER STRANDS AND COLLEGE CONNECTION

Program Evaluation
Blue Valley School District
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INTRODUCTION

At the heart of the issue, high school career strands and college connection concerns two issues. First, they promote more students to continue their education in post-secondary institutions. Second, and more importantly, they help students be fully prepared for future challenges regardless of whether they plan to pursue a college degree or start a career.

With regard to the first issue, very little research could be located in the latest literature. Our knowledge heavily relies on the work done during the seventies and eighties when factors associated with student college choice were broadly explored. Although the evidence is mainly from 20 to 30 years ago, a recent report published by Lumina Foundation For Education concludes that the factors influencing student college choice have not changed much during the past 40 years (Kinzie et al., 2004). The second issue surfaced only recently as a result of the increasing number of college students enrolling in remedial courses, rising college attrition rate, and growing complaints from employers about the incompetence of high school graduates. Researchers have concentrated most of their attention to finding out what might cause high school graduates to struggle in college. Efforts have also been devoted to designing and implementing interventions that intend to improve college readiness and career readiness as well as evaluating their effectiveness. Research findings concerning college choice and college/career readiness are summarized respectively in this report.

Literature Review

Researchers have long been interested in factors that motivate students to attend college after graduating from high school. Four models have been proposed to explain student college choice: economic, consumer, sociological, and combined (Hossler, Braxton, & Coopersmith, 1989). Economic models engage them in cost benefit analysis in which expected costs (direct and indirect) and expected future earnings are the focus of study. Consumer models employ a marketing perspective and concern themselves with costs and risks associated with pursuing higher education. Sociological models emphasize social interaction where most attention is paid to the influence from family, teachers and peers. Combined models are motivated to develop a more comprehensive understanding of the issue by integrating factors from the three models according to certain theoretical orientation. Resulting from research adopting the above models, three groups of factors have been identified to correlate with student college choice, which cluster around family background, school experience, and individual characteristics respectively.

Among the family background factors, educational level of parents has been rather consistently reported to be correlated with predisposition to pursue college degree (Carpenter & Fleishman, 1987; Stage & Hossler, 1989). Students whose parents have a high education level might receive more help with learning, obtain more information regarding college preparation, and have a better understanding of college life. Research further reveals that a father's education exerts a stronger influence than a mother's upon

their child's aspiration levels. A mother's education has more impact on actual college attendance rates (Yang, 1981). In addition to educational level, parents' influence on college choice also comes from their expectation and encouragement (Hossler & Stage, 1988). Though related, these two factors are not necessarily the same thing. While it is unlikely that parents with high education levels have low expectations for their children, it is common for parents with low education levels to have high expectations for their children. What the research finds about these two factors is that expectation and encouragement from parents has a larger effect and the effect of parental education level drops significantly when the former is taken into consideration (Hossler & Stage, 1992). And this pattern is observed in many studies. What has troubled researchers most is SES, about which the literature has reported mixed findings. An earlier study that employed the 1980 High School and Beyond Study (HSB) data found significant but small relationship between socioeconomic status (SES) and predisposition for higher education when other factors were held constant (Tuttle, 1981). The result was confirmed by another study which utilized the data from the National Longitudinal Study of 1972 (NLS) (Jackson, 1986). However, a later study conducted by Perna (1998), which used the data from the third follow-up to National Educational Longitudinal Study of 1988 8^{th} graders (NELS:88), reported that SES had an effect commensurable to parental expectation. Accompanying the inconsistent findings, researchers have not given a satisfactory theory that explains why SES does or does not impact student college choice.

School experience factors have drawn much of researchers' attention because they are something that educators can have a greater control. Three factors have repeatedly

appeared in the literature: encouragement from teachers and counselors, peer support and encouragement, and academic achievement. For high school students, peer relationships are known to play a very important role in their learning and development. But when it comes to student predisposition for higher education research suggests that its impact is not strong (Hossler & Stage, 1992). Similarly, encouragement from teachers and counselors is found to have little influence on plans of students (Ekstrom, 1985; Falsey & Heyns, 1984). In fact, the majority of high students seldom consult with counselors and teachers when making decisions on whether to go to college (Hossler & Stage, 1987). Academic achievement has been consistently found to be correlated with college choice. However, the relationship is not strong when other factors are held constant. According to Carpenter & Fleishman (1987), ability perceived by students might be a better predictor than test scores and they did find a larger regression coefficient for perceived ability. Along the line, research also suggests that tracking could significantly impact students' postsecondary plans since it affects students' perception of themselves and their abilities (Sharp & et al., 1996). On top of this, what perplexes researchers is whether low academic achievement is the cause of discontinuing education or the result of an earlier give-up for those students who decide not to go to college.

With regard to individual characteristics, researchers have investigated how student college choice differs between students of different ethnicities and between male and female students. It has been continuously documented that black students and other minorities are less likely than white students to attend a postsecondary institution (Kinzie et al., 2004). But this seems to be largely due to the high correlation between ethnicity

and SES. This is indicated by the disappearance of the ethnicity effect after controlling for SES (Ekstrom, 1985). Interestingly, several studies find that black students have a higher probability of college attendance after SES was controlled for (Perna, 1998; Tuttle, 1981). The research also suggests that an interaction effect might exist between ethnicity and other factors. For example, it is found that SES has a smaller effect on the probability of enrolling in a four-year-college or university for Blacks and Hispanics than for Whites (Perna, 1998). Research on gender suggests that women have a higher aspiration for postsecondary education (Hossler & Stage, 1987; Stage & Hossler, 1989). This seems to be in accordance with the faster increase in women's college enrollment since 1980s (Kinzie et al., 2004).

In addition to exploring what factors influence student college choice, researchers also studied when students start to make decisions about whether to go to college or enter the labor market. Ekstrom (1985) found that 41 percent of students decided to attend college as early as sixth grade and that, by ninth grade, 61 percent were certain about their decision to go to college. In a retrospective study of Michigan State University students, 80 percent of students were found to have decided to attend college by the end of their junior year in high school (Stewart & et al., 1987). Similar pattern was also observed in Sharp and colleague's study (Sharp & et al., 1996) where most students made the decision at least as early as tenth grade.

It is not clear what reason caused researchers to largely discontinue inquiry in this field. Overall, the research on student college choice is still in its infancy in terms of

methods employed for investigation and their underlying theories. Limited evidence from this body of research seems to suggest that college choice is greatly influenced by expectation and encouragement from parents. Teachers, school counselors, and peers seem to have a marginal impact on students' decision making. While there seems to be no difference between students of different ethnicities when other factors are controlled for, evidence suggests that female students have a greater aspiration for college than male students. In addition, there is a loose connection between college choice and academic achievement. When studied individually, SES is undoubtedly correlated with a student's decision to go to college. However, it is uncertain whether the relationship still holds when other factors are taken into consideration. For most students, the decision of whether to go to college is made somewhere between ninth and tenth grade.

Summary

Despite its limitations and weaknesses, many interventions might have arisen from this body of research to promote more students to pursue higher education. Unfortunately, there is not a good documentation of what those programs were and what strategies they employed. If the research findings summarized here are not outdated as claimed by Lumina Foundation for Education, at least two implications could be drawn from the past efforts. First, schools should encourage all parents to have high expectations for their children and motivate them to work hard toward the goal of entering college. Second, interventions that aim at encouraging students work toward college probably should be no later than the ninth grade. For future research, it is both theoretically interesting and practically important to investigate the possible interaction effect between student

achievement and other factors. Since there is evidence suggesting that the effects of the above discussed factors might differ for different ethnic groups, it is reasonable to speculate the effects might also differ between high performing and low performing students. If there is an interaction effect, different interventions should be designed to capitalize on the most important factors for high and low performing students respectively.

COLLEGE READINESS/PREPAREDNESS

Literature Review

While encouraging students to pursue higher education is important, what is crucial is that they succeed in college and graduate in a timely manner. Nationally, policy makers and educators are concerned about some alarming numbers reflecting performance of college students. One in four freshmen at four-year institutions and one in two freshmen at two-year institutions fail to return for a sophomore year (ACT, 2004). It is estimated that somewhere between 30% and 60% of students require remedial education upon entry to college (Conley, 2006). As a result, it becomes increasingly common for students to spend five years or a longer time to earn a four-year college degree (*Digest of Education Statistics, 2005*, 2006). The most recent report unleashed by National Center for Education Statistics (Knapp, Kelly-Reid, & Whitmore, 2006) shows that the 4-year graduation rate of bachelor-degree-seeking students is only 35 percent. When two more years are given, the graduation rate increases to 56%. Namely, nearly half of college students left college without completing their degrees.

Many believe this dismal picture has its origin in inadequate college preparedness, for which high schools should take the responsibility. This belief is backed by evidence showing a strong connection between high school academic achievement and college performance which is often gauged by first-year college GPA and retention rate at the beginning of the second year. Academic achievement in high school (as evidenced by standardized achievement test scores and high school GPA) has been consistently

reported to be the most powerful predictor of first-year college GPA (ACT, 1997; Noble & Crouse, 1996; Snyder, Hackett, Stewart, & Smith, 2003; Ting & Robinson, 1998). Students with a low high school GPA are more likely to drop out after one year at college (Robbins et al., 2004; Snyder et al., 2003). There is even evidence that high school achievement is predictive of college GPA across a five-year time span (Barron, Harackiewicz, & Tauer, 2001).

It is obvious that students need to be prepared both cognitively and psychologically to succeed in college. But not until recently did studies exploring the impact of non-cognitive factors on college success start to emerge. The results from these studies suggest that first-year college GPA and retention rate at the beginning of the second year might be also influenced by psychological factors such as academic goals, academic self-confidence (Ishitani & DesJardins, 2002; Lotkowksi, Robbins, & Noeth, 2004). The problem with this line of research lies in its weakness in providing a theory of how these psychological traits are developed. It could well be the fact that college performance has a reinforcing effect on academic self-confidence. What is also missing is how the experiences at high school and college might contribute to the development of those psychological traits respectively.

Despite the recent growing interest in non-cognitive factors among educational researchers, academic incompetence is in the spotlight of reform initiatives. Amongst the many solutions prescribed to resolve this “college readiness crisis” (ACT, 2004), increasing rigor in the curriculum has been predominately claimed to be the key to

improving academic performance. Although a common ground is reached, there is no agreement regarding what constitutes a rigorous curriculum. ACT advocates for essential core curriculum, which involves four years of English and three years each of math, science, and social studies, and recommends advanced math courses beyond Algebra II. Upon endorsing this core curriculum, Southern Regional Education Board (SREB) who developed High Schools That Work further proposes to add a fourth year of math into the core curriculum. According to internal evaluation studies, taking core curriculum could positively impact college readiness. Analysis of 2004 ACT data shows that students taking the minimum core curriculum score consistently higher on the ACT assessment than those taking less than core (ACT, 2004). And this result holds true for all racial and ethnic groups. This finding is echoed by a study conducted by SREB (Kaye, Lord, & Bottoms, 2006).

While taking the minimum core curriculum is beneficial, what is also evidenced in these studies is that it is not a guarantee of college readiness. Rigor within the core courses is essential too. In addition to traditional measures such as improving teacher quality and having high expectation on students, enhancing and intensifying assessment is considered to be an important lever. High school graduation exams are already in place in nearly half the states (Achieve Inc, 2004). Some states are considering or experimenting with end-of-course exams. Although results from some preliminary studies are encouraging (Kaye et al., 2006), to what extent and for whom these exams will work is largely unknown.

As many people are engaging them in introducing more rigor into the curriculum, some others admonish that these efforts might not shoot at the right target. To them, the fact that high school graduates are not fully prepared for college is a manifestation of a more serious problem---disconnection between high school and college. From their viewpoint, colleges and high schools under the current framework function as two distinct environments that entail different learning processes. Transition from high school to college is a great leap rather than progress on a continuum like moving from elementary to middle and from middle to high school.

According to a report published by the Stanford Institute for Higher Education Research, the disjuncture is manifested in nearly every aspect of K-12 education (Venezia, Kirst, & Antonio., 2003). Take assessment as an example, postsecondary admissions and placement officials overwhelmingly reported that they were unaware of K-12 standards and assessments, and K-12 educators were usually unaware of specific postsecondary admission and placement policies. As a result, differences exist in focus of content and standards used at the K-12 and college entrance levels. An analysis of six states' graduation exams reveals that the tests measures only a fraction of the knowledge and skills colleges and employers say are essential (Achieve Inc, 2004). The Center for Educational Policy Research conducted an item-by-item analysis of state high school exams in English/Language Arts and mathematics from 20 states. They found that most state standards-based high school tests were not well-aligned with post-secondary learning (Conley, 2003). The study conducted by the Education Trust shows that

placement standards in mathematics often include Algebra II, while admission tests rarely exceed Algebra I (Haycock, Barth, Mitchell, & Wilkins, 1999).

Regardless of whether the disconnect between college and high school is a major cause of inadequate college preparedness, the above data warrant serious attention. At the same time, these numbers suggest that high schools should not take all the blame for the "college readiness crisis." In addition, simply introducing more rigor in schools and more pressure on teachers and students will not yield the effects it promises because it only addresses part of the problem. From this perspective, a comprehensive resolution that involves all stake holders is essential (Pathways to College Network, 2004).

Fortunately, policy makers have realized the problem. State legislatures across the nation have started working on strengthening the connection between K-12 and higher education institutions (Zapf, Spradlin, & Plucker, 2006). For example, legislative actions are underway in several states to enable high school students to enroll in college-level courses for high school and college credit, and to provide at least partial subsidies for tuition and fees associated with the college-level courses. Some states are working on aligning high school curricula and end-of-course assessments with college and university placement tests (Walton, 2005).

In addition to these state level initiatives, programs are developed to integrate strategies that could be implemented at the school level to address both the lack-of-rigor and disconnect problems. Some of these programs have been widely adopted. Usually, a

program is a whole package that integrates an array of strategies. Since all the strategies could affect the expected outcome, it is difficult to sort out the effect of a single strategy. What is available from evaluation studies is often the overall effectiveness of a program. Two large-scale research efforts have been attempted to evaluate the effectiveness of these programs. One effort was from American Youth Policy Forum which reviewed the evaluation studies involving 22 programs (Lerner & Brand, 2006). The other extensive review, in which 18 widely implemented programs were scrutinized, was conducted by the Comprehensive School Reform Quality Center (*CSRQ Center Report on Middle and High School Comprehensive School Reform Models*, 2006). While both reviews found some programs to be effective, they are reluctant to conclude about the overall effectiveness of the intervention programs due to the considerable variance within and between programs and methodological flaws in the evaluation studies. Besides, when effect size was employed to gauge program effectiveness, no program was found to have very evidence of strong positive effects on student achievement (*CSRQ Center Report on Middle and High School Comprehensive School Reform Models*, 2006).

Summary

College readiness emerged to be a serious concern and gained attention from policy makers and researchers recently. At this stage, this field is rampant with myriad ideas, claims, and strategies. Although people have come to a consensus that American high schools should be more rigorous and relevant, there is little agreement regarding how to achieve these two goals. Research has fallen far behind practice. There is encouraging evidence showing some of the existent programs could have a positive impact. However, the flaws in data collection and research method make most studies inconclusive. A

number of important questions, such as whether the sequence of high school courses makes a difference to success; what level of math and English are absolutely necessary to succeed; and what the dosage (amount of time or involvement in the program) should be to help students move to postsecondary education successfully, have barely been studied (Lerner & Brand, 2006). Researchers have not been able to sort out a single or set of strategies that will work across a wide variety of contexts and for a broad range of students.

While the focus of the literature reviewed here is on college readiness, it should be pointed out that the distinction between college readiness and workplace readiness has become blurry. It is increasingly realized that students planning to go to work after high school also need a rigorous and complete curriculum (The American Diploma Project, 2004). This notion has been supported by empirical evidence that, whether planning to enter college or workforce training programs after graduation, high school students need to be educated to a comparable level of readiness in reading and mathematics (ACT, 2006).

WHAT CAN WE DO?

So what can we do based on this body of research and the documented practices? It is important to note that this review should not be interpreted that nothing can be done at the school level except for adopting those programs that have been proved to be effective. Based upon the available evidence, we do have more confidence that the effective programs are more likely to produce the expected results. However, this does not necessarily mean those programs that were not found to be effective do not work. Lack of significance could also be a result of flaws in research design. Even when a program proven to be effective is implemented, it does not mean it will necessarily achieve all the accomplishments it promises. Researchers have repeatedly noted that nearly all interventions vary in their effectiveness from sample to sample. It is common sense that the effectiveness of any program is largely dependent upon how it is implemented, which involves much local decision making beyond research control. In a similar vein, it might be worthwhile to try at this stage some programs or strategies that look appealing and make sense to educators since there is no convincing proof showing that they do not work.

From this perspective, it is not only necessary but also important to make local adjustments no matter what program is implemented. In addition, conducting local program evaluation becomes a necessity. The evaluation results provide formative information that could be used to guide the program implementation as well as summative conclusion about the overall program effectiveness in the local context. In other words, program evaluation should be part of the implementation design and a continuing process.

REFERENCES

Achieve Inc. (2004). *Do Graduation Tests Measure Up? A Closer Look at State High School Exit Exams*. Washington, DC.

ACT. (1997). *ACT assessment technical manual*. Iowa City, IA.

ACT. (2004). *Crisis at the Core: Preparing All Students for College and Work*. Iowa City, IA.

ACT. (2006). *Ready for College and Ready for Work: Same or Different?* Iowa City, IA.

Barron, K. E., Harackiewicz, J. M., & Tauer, J. M. (2001). *The Interplay of Ability and Motivational Variables over Time: A 5 Year Longitudinal Study of Predicting College Student Success. Access ERIC: FullText*. U.S.; Virginia.

Carpenter, P. G., & Fleishman, J. A. (1987). Linking Intentions and Behavior: Australian Students' College Plans and College Attendance. *American Educational Research Journal, 24*(1), 79-105.

Conley, D. (2003). *Mixed Messages: What State High School Tests Communicate about Student Readiness for College*. Eugene, Oregon: Center for Educational Policy Research, University of Oregon.

Conley, D. T. (2006). *What We Must Do to Create a System that Prepares Students for College Success. Policy Perspectives.* San Francisco, CA: WestEd.

CSRQ Center Report on Middle and High School Comprehensive School Reform Models. (2006). Washington, DC: The Comprehensive School Reform Quality Center, American Institutes for Research.

Digest of Education Statistics, 2005. (2006). Washington, DC: National Center For Education Statistics.

Ekstrom, R. B. (1985). *A descriptive study of public high school guidance: Report to the Commission for the Study of Precollegiate Guidance Counseling.* Princeton, NJ: Educational Testing Service.

Falsey, B., & Heyns, B. (1984). The College Channel: Private and Public Schools Reconsidered. *Sociology of Education, 57*(2), 111-122.

Haycock, K. E., Barth, P. E., Mitchell, R. E., & Wilkins, A. E. C. A. E. T. W. D. C. (1999). *Ticket to Nowhere: The Gap between Leaving High School and Entering College and High-Performance Jobs. Access ERIC: FullText*. U.S.; District of Columbia.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding student college choice. In J. Smart (Ed.), *High education: Handbook of theory and research* (Vol. 5, pp. 231-288). New York: Agathon Press.

Hossler, D., & Stage, F. (1987). *An analysis of student and parent data from the pilot year of the Indiana College Placement and Assessment Center*. Bloomington, IN: Indiana College Placement and Assessment Center.

Hossler, D., & Stage, F. (1988). *Family and high school experience factors' influence on the postsecondary plans of ninth-grade students.* Paper presented at the annual meeting of American Education Research Association, New Orleans.

Hossler, D., & Stage, F. K. (1992). Family and High School Experience Influences on the Postsecondary Educational Plans of Ninth-Grade Students. *American Educational Research Journal, 29*(2), 425-451.

Ishitani, T. T., & DesJardins, S. L. (2002). A Longitudinal Investigation of Dropout from College in the United States. *Journal of College Student Retention, 4*(2), 173-201.

Jackson, G. A. (1986). *MISSA, the fall of Saigon, and college choice, 1972 to 1980.* Paper presented at the annual meeting of the Association for the Study of Higher Education, San Diego.

Kaye, R. D., Lord, J., & Bottoms, G. (2006). *Getting Students Ready for College and Careers*. Atlanta, GA: Southern Regional Education Board.

Kinzie, J., Palmer, M., Hayek, J., Hossler, D., Jacob, S. A., & Cummings, H. (2004). *Fifty Years of College Choice:Social, Political and Institutional Influences on the Decisionmaking Process*. Indianapolis, IN: Lumina Foundation For Education.

Knapp, L. G., Kelly-Reid, J. E., & Whitmore, R. W. (2006). *Enrollment in Postsecondary Institutions, Fall 2004; Graduation Rates, 1998 & 2001 Cohorts; and Financial Statistics, Fiscal Year 2004*. Washington, DC: National Center for Education Statistics.

Lerner, J. B., & Brand, B. (2006). *The college ladder: Linking secondary and postsecondary education for success for all students*. Washington DC: American Youth Policy Forum.

Lotkowksi, V. A., Robbins, S. B., & Noeth, R. J. (2004). *The Role of Academic and Non-Academic Factors in Improving College Retention.* Iowa City, IA: ACT Office of Policy Research.

Noble, J., & Crouse, J. (1996, May). *Incremental validity of high school grades and test scores for freshman admissions and course placement.* Paper presented at the annual forum of the Association for Institutional Research, Albuquerque, NM.

Pathways to College Network. (2004). *A shared agenda: A leadership challenge to improve college access and success*. Boston, MA.

Perna, L. W. (1998). *Differences in the Decision To Attend College among Blacks, Hispanics, and Whites. Access ERIC: FullText*. U.S.; Virginia.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do Psychosocial and Study Skill Factors Predict College Outcomes? A Meta-Analysis. *Psychological Bulletin, 130*(2), 261-288.

Sharp, S., & et al. (1996). *Insider Information: Social Influences on College Attendance. Access ERIC: FullText*. U.S.; Michigan.

Snyder, V., Hackett, R. K., Stewart, M., & Smith, D. (2003). Predicting Academic Performance and Retention of Private University Freshmen in Need of Developmental Education. *Research & Teaching in Developmental Education, 19*(2), 17-28.

Stage, F. K., & Hossler, D. (1989). Differences in Family Influences on College Attendance Plans for Male and Female Ninth Graders. *Research in Higher Education, 30*(3), 301-315.

Stewart, N. R., & et al. (1987). *Counselor Impact Upon College Choice*. U.S.; Michigan.

The American Diploma Project. (2004). *Ready or Not: Creating a High School Diploma That Counts*. Washington, D.C: Achieve, Inc.

Ting, S.-M. R., & Robinson, T. L. (1998). First-Year Academic Success: A Prediction Combining Cognitive and Psychosocial Variables for Caucasian and African American Students. *Journal of College Student Development, 39*(6), 599-610.

Tuttle, R. (1981). *A Path Analytic Model of the College Going Decision*. U.S.; North Carolina: Appalachian State University.

Venezia, A., Kirst, M. W., & Antonio., A. L. (2003). *Betraying the College Dream: How Disconnected K-12 and Postsecondary Education Systems Undermine Student Aspirations*. Stanford, CA: Stanford Institute for Higher Education Research.

Walton, C. (2005). *State legislation and high school reform. Redesigning High Schools: A Primer for Policymakers.* Washington, DC: National Conference of State Legislatures.

Yang, S.-O. W. (1981). *Rural Youths' Decisions to Attend College: Aspirations and Realizations*. U.S.; Ohio.

Zapf, J. S., Spradlin, T. E., & Plucker, J. A. (2006). *Redesigning High Schools to Prepare Students for the Future: 2006 Update. Education Policy Brief. Volume 4, Number 6, 2006*. Bloomington, IN: Center for Evaluation and Education Policy.