

Health Impact Review Building Bridges for Dropout Reductions February 1, 2007

Executive Summary

Background and Introduction: In Washington State, only 74% of the 2005 high school class graduated on time. Moreover, minority and low-income students have higher than average dropout rates and lower than average on-time graduation rates. In an effort to improve graduation rates, the Office of Superintendent of Public Instruction (OSPI) seeks funding for the Building Bridges for Dropout Reductions Program. The Building Bridges Program will provide grants for school districts or partners to build partnerships that will provide dropout prevention services to identified at-risk students. The purpose of this review is to analyze the Building Bridges Program to determine if its implementation would either increase or decrease health disparities in Washington State.

Methods: To conduct this review, Board staff relied on discussions and information provided by staff from OSPI and the Department of Health, conversations with community health advocates interested in the health and education of minority populations, data from the OSPI website, limited analyses of OSPI data, and a limited review of the published literature. In addition, Board staff developed a conceptual model of how the program may ultimately impact health disparities to help guide this review and analysis.

Results and Discussion: Overall, there is little rigorous evaluation of dropout prevention programs in the published literature. Nonetheless, there is some evidence in the literature to support components of the Building Bridges Program, such as partnerships, mentoring, alternative schooling, early intervention, and the use of intervention specialists. There is a growing body of literature substantiating the link between increased length of education and improved health outcomes. If the Building Bridges Program is successful in reducing dropout rates, the program may also have a positive impact on the health of the students served by the program. To reduce health disparities based on race and ethnicity, however, the Building Bridges Program would need to improve student retention and graduation rates for students of color at a disproportionately higher rate than for White students. The current proposal would give grant priority to schools and school districts with above average dropout rates, which would help target the program to minority students because they are disproportionately represented in these schools. If grant priority is given to low-income schools, or low-income schools with above average dropout rates, the program would have more focus on students of color because these students are more disproportionately represented in low-income schools than in schools with above average dropout rates.

Conclusion: Building Bridges has the potential to decrease health disparities in Washington. The program is most likely to reduce health disparities if it is designed to reach a disproportionately high number of minority students and uses evidence-based interventions that are effective with minority students.

I. Introduction

In 2006, the Washington State Legislature passed Second Substitute Senate Bill 6197, authorizing the State Board of Health to conduct health impact reviews. A health impact review is a review of a legislative or budgetary proposal that analyzes the extent to which the proposal is likely to have a positive or negative impact on health disparities. The State Board of Health completed this review in response to a January 5, 2007, request. This is a review of a budget proposal from the Office of Superintendent of Public Instruction (OSPI) for a dropout reduction program called Building Bridges for Dropout Reduction.¹

The term health disparities describes the disproportionate burden of disease, disability, death, and other adverse health conditions that exist among specific populations or groups. Health disparities based on race, income, gender, education, and sexual orientation are well documented.² Many factors interact to produce the health disparities experienced by communities of color; biological/genetic factors do not explain these disparities in health.³ For example, the infant death rate for American Indians, Alaska Natives, and African Americans is double the infant death rate for Whites.⁴ The death rate for all cancers is 30% higher for African Americans than it is for Whites.⁵ Asian/Pacific Islander populations likely make-up a large percentage of persons with chronic hepatitis B infection in the United States.⁶ Further, Hispanics in the United States are almost twice as likely to die from diabetes as are non-Hispanic Whites.⁷

The purpose of this review is to analyze the Building Bridges for Dropout Reductions Proposal to determine if its implementation would either increase or decrease health disparities in Washington State.

II. Background

Description of Building Bridges for Dropout Reductions⁸

Short Summary of Program

This program will provide grants to school districts or partners of school districts to build partnerships between schools, parents, and community groups to provide dropout prevention services to identified at-risk students. The program will include middle school through high school students. The program will also provide funding to education service districts that contain grantee districts to provide support services to the district. As part of the program, OSPI will create a state level work group to identify and reduce fiscal, legal, and regulatory barriers to the coordination of program resources across state agencies.

Program Goals

The program's objectives are to reduce the average yearly dropout rate from 5.1% to 2.9% and increase the aggregated on-time graduation rate from 74% to 86% by the year 2012. These targets were set for the program with the assumption that the program will be implemented statewide. Special focus would be placed on reducing disparities in dropout and on-time graduation rates by income and race.

Agency Justification for the Budget Request

OSPI data show that 74% of the 2005 high school class graduated on time. The data show that Black, Hispanic, and American Indian students have lower graduation rates than White or Asian/Pacific Islander students. In addition, OSPI data indicate that low income, special education, and students with limited English proficiency have lower graduation rates than the aggregated group. OSPI asserts that students that dropout of high school experience higher rates of early pregnancy, substance abuse, and mental health issues; dropouts also tend to have a greater need for publicly funded health and social services. OSPI indicates that schools cannot solve these problems alone; overcoming barriers to successful graduation requires a partnership between schools, parents, and community groups.

Operation of the Program

OSPI must use research-based and emerging best practices that lead to positive outcomes in implementing the program. However, in administering the program, OSPI must be flexible to allow districts to set their own goals and to be creative in implementing the program, but OSPI must identify and disseminate successful practices.

Grants to Districts or Partnerships

The program will provide grants to districts or partnerships. Eligible recipients include a district, an educational service district, a tribal school or federally recognized tribe, an area workforce development council, an institution of higher education, a vocational center, or a community organization. At least one school district must be identified within each partnership. The superintendent of public instruction will prioritize schools or districts with dropout rates above the statewide average. In addition, an attempt must be made to award grants in different geographic regions of the state.

The grants will be used for the following activities: (1) to develop an early warning system to identify youth at risk of dropping out of middle school through high school based on local predictive data, including state assessment data starting in fourth grade; identified youth shall include foster youth and adjudicated youth; (2) to provide identified students with mentors and other support; (3) to provide intervention specialists to coordinate with community partners to provide both academic and non-academic support to identified students; (4) to create teams of school and district staff, parents, and community members to identify and fill gaps in services to vulnerable youth; (5) to identify and enroll students in programs such as alternative schools and skills centers or initiate community discussions about how to create such programs if they do not exist; and (6) to track and report data required by the grant, including dropout reduction targets and other student academic performance data.

Recipients must demonstrate how this grant will support existing programs rather than supplant programs. Grantees must provide a 25% match in funds that can include in-kind resources from within the partnership, and grantees must explain how the programs will be sustainable after the initial funding ends.

Funding to Education Service Districts

Educational Service Districts with grantees in their region will receive funds to support the local districts. The funds will be used to (1) provide training to assist in the design of sustainability plans including the identification of future funding sources; (2) provide training to local partnerships on issues such as cultural competency, identifying diverse learning styles, and collecting and using performance data; and (3) assist school districts and community groups to identify effective dropout intervention strategies.

State Agency Partnership

OSPI will create a state-level work group that will consist of one representative from each of the following agencies and organizations: the Workforce Training and Education Coordinating Board, career and technical education centers, Department of Social Health Services, juvenile courts, the Employment Security Department, institutions of higher education, education service districts, area workforce development councils, parent and educator associations, the Department of Health, community organizations, tribes and urban tribal centers, and the minority commissions. This group will work to identify barriers that prevent coordination of program resources across agencies at the state and local level and develop methods to track performance for each partner agency or community organization. In addition, it will identify and recommend best practices for dropout prevention programs. This group will report to the legislature on an annual basis beginning December 2007.

Budget

This initiative will cost \$8,377,516 over the fiscal years 2008 and 2009. Five million of this amount will be spent on grants to school districts.

III. Methods

The State Board of Health received a request to determine whether the Building Bridges Program will increase or decrease health disparities in Washington. The initial request for this health impact review was based on the Building Bridges decision package developed by OSPI. Subsequently, Senate Bill 5497 and House Bill 1573 were introduced. This analysis relies on descriptions of the Building Bridges Program outlined in the decision package as well as the bills.

To complete this review, Board staff relied on discussions with OSPI staff, data from the OSPI website, and a literature review. Internet search engines and database searches were used to conduct the literature review, including Google Scholar, ERIC, JSTOR, ProQuest, and PubMed.

In addition, two professionals in the health field were consulted. One professional works for a health nonprofit. The other professional is experienced in both the health and education fields and is knowledgeable about health disparities in minority communities. The Board staff also received an evaluation of the program from the Department of Health.

Descriptive analyses of data from OSPI were conducted. To determine whether minority students are disproportionately represented within schools with above average dropout rates, the number and proportion of high school students by race/ethnicity was identified for all schools, for schools with above average dropout rates, and for schools with dropout rates at or below the

average. Dropout rates and demographic data by school for grades 9-12 for 2004-2005, the most recent year available, were obtained from OSPI's website.⁹ Schools with above average dropout rates were defined as those with dropout rates of 5.2% or above. Schools with below average dropout rates were defined as those at or below the average dropout rate of 5.1%. Of the 795 schools identified serving students in grades 9-12, information on dropout rates was not available for 79 schools. Of the remaining, 275 were identified as having above average dropout rates and 441 had dropout rates at or below the average.

Demographic data by school for the 2005-2006 school year was obtained from OSPI's website at <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>. Hard-to-staff schools were defined as schools in which 60% or more of the student population is eligible for free or reduced-priced meals. There were 2,160 schools in this data set. Information on the proportion of students that qualify for free or reduced lunch was not available for 28 of these schools. After the 28 schools were removed from the data, 411 were identified as hard-to-staff and 1,721 were identified as not hard-to-staff.

A logic model was developed to focus the research for this review, see figure 1. The far left side of the logic model shows the policy and the inputs of the enacted program. The next section shows short term outcomes of the program if it accomplishes its intent. The boxes to the right of short term outcomes show the steps that must occur if the program is to reduce health disparities in Washington. Research was conducted on each of these arrows to determine the validity of each assumption. The discussion that follows is based on each of the links in logic outlined in the conceptual model.

IV. Findings and Discussion

A. Achievement Gap in Education in Washington

High school graduation has increased dramatically from 100 years ago when less than 7% of adults 25 years or older had a high school diploma.¹⁰ However, graduation rates have changed very little since 1990.¹¹ The annual dropout rate¹² for all grades in Washington during the 2004-05 school year is 5.1%.¹³ This number represents 15,921 students who left school in the 2004-05 school year.¹⁴

A dropout rate includes only those students who dropped out in one year; it does not represent all students who left school in a four-year period.¹⁵ An estimated 19% of students who started high school in 2001 left during the next four years and an additional 6.6% of students that started in the cohort were still enrolled in high school beyond their fourth year.¹⁶ Accounting for these students explains the discrepancy between the dropout rate and the on-time graduation rate.

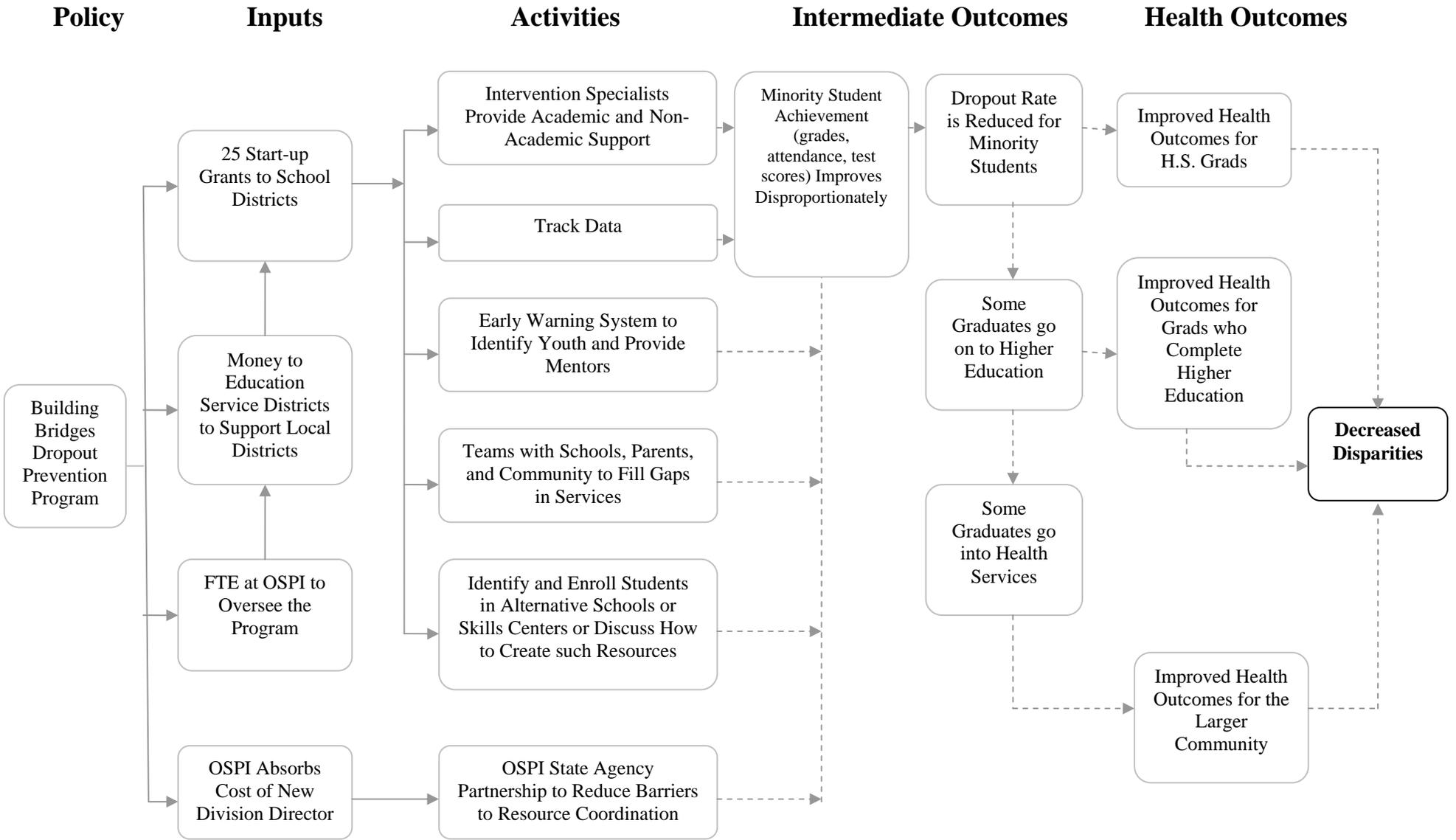
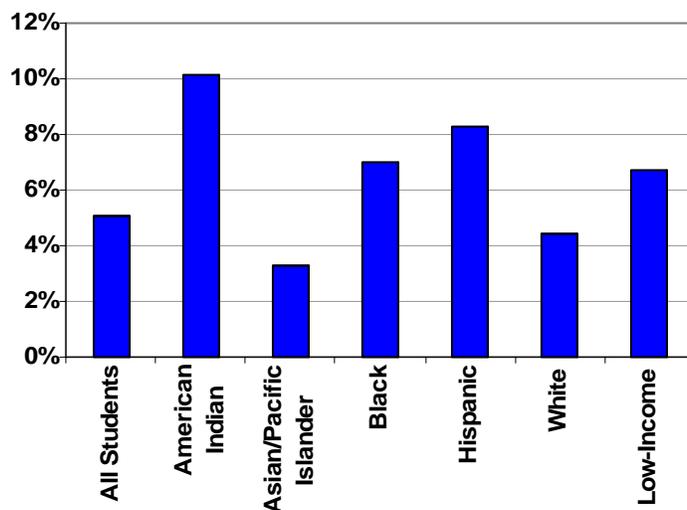


Figure 1: Building Bridges Logic Model

The on-time graduation rate¹⁷ for 2005 represents students who graduated within a four-year period and who were expected to graduate in 2005.¹⁸ The 2005 on-time graduation rate for Washington State is 74%.¹⁹ Another way to calculate graduation rates is to use an extended rate, which includes students who spent more than four years in high school. The 2005 extended graduation rate is 79%.²⁰

Different groups of students experience different dropout rates.²¹ For example, dropout rates vary among different racial groups and income groups. While most of the students who dropout in Washington are White, the dropout rate for Whites is disproportionately low in relation to their rate of enrollment.²² In contrast, Black, Hispanic, and Native American students dropout at disproportionately high rates, see Figure 2.²³ In fact, American Indian students dropout of high school at twice the overall rate.²⁴ In addition, low-income students experience higher than average dropout rates.²⁵

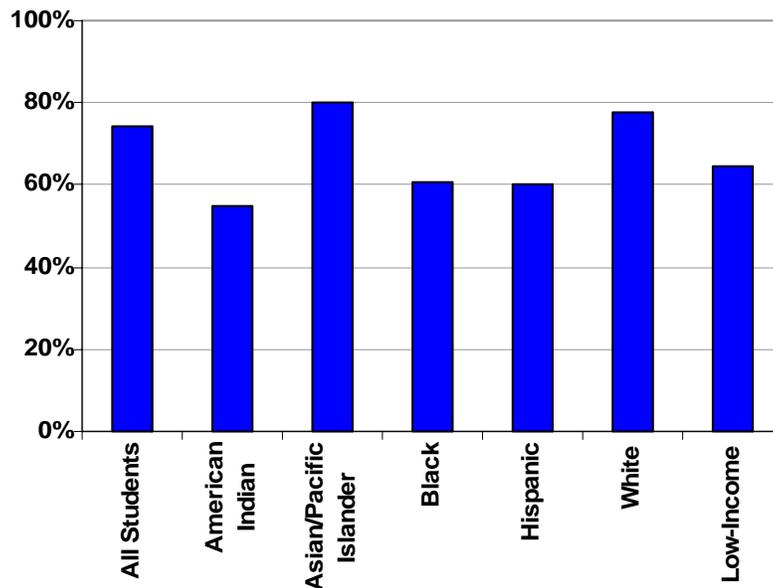
Figure 2: Dropout Rates by Race/Ethnicity and Income in Washington State, 2004-2005



Similarly, on-time graduation rates vary among racial and income groups. Asian/Pacific Islanders and White students have the highest on-time graduation rates, followed by Blacks, Hispanics, and American Indians, see Figure 3.²⁶ On-time graduation rates for low-income students are higher than the rate for minority students, but are less than the average.²⁷

Note: Aggregating students into broad categories such as Asian/Pacific Islanders does not allow for the identification of subpopulations, such as Southeast Asian students, who may perform differently than the larger group.

Figure 3: On-time Graduation Rates by Race/Ethnicity and Income in Washington State, 2004-2005



B. The Effectiveness of Dropout Prevention Programs

1. Effectiveness of Dropout Prevention Programs for all Students

A stated goal of Building Bridges is to reduce the average yearly dropout rate from 5.1% to 2.9% and increase the aggregated on-time graduation rate from 74% to 86% by the year 2012.²⁸ In implementing the Building Bridges Program, OSPI is required to use research-based and emerging best practices, and it must identify and disseminate successful practices.²⁹ Below is a discussion of successful dropout prevention practices that were identified by this limited literature review.

Overall, there is a lack of rigorous evaluation of dropout prevention programs,³⁰ making it difficult to determine which dropout prevention interventions work. Even when programs are identified as successful, it is difficult to tell what particular factors of a program or aspects of a school contribute to the success of the program.³¹ In addition, surveys on why students dropout of school are inconclusive.³² However, there is some information about characteristics of intervention programs that have been successful in certain circumstances. For example, in its 2005 report to the Legislature on promising practices in dropout prevention, OSPI listed several practices that are part of Building Bridges, including early intervention, mentoring, and partnerships between schools and communities.³³

Literature from agencies and organizations other than OSPI lend support to several aspects of the Building Bridges Program as successful intervention strategies. For example, Substance Abuse and Mental Health Services Administration (SAMHSA) reports that mentoring can be a successful intervention strategy. Its study reports that the level of mentor involvement is positively related to improved grades, increased school attendance, decreased suspensions from

school, and improved attitudes toward school.³⁴ In addition, the National Dropout Prevention Center/Network has identified fifteen effective strategies for positively impacting dropout rates. Specific strategies outlined in the Building Bridges Program, such as collaboration among schools and communities, mentoring/tutoring, and alternative schooling, are included in this list of fifteen effective strategies.³⁵

In its report *The High Schools We Need*, OSPI provides specific examples of successful programs implemented in Washington schools that have components similar to Building Bridges. For example, New Market Vocational Skills Center in Tumwater is a high school partnership program that utilizes an intervention specialist.³⁶ As evidence of effectiveness, OSPI states that fifty students have been recruited back into school.³⁷ A second program described is Student Adventures in Learning (SAIL), which is a dropout prevention program in the Edmonds School District. The program identifies 9th grade at-risk students and provides them with case managers to coordinate tutoring and communication with parents.³⁸ The program also has a six-week summer program to allow students to recoup credits.³⁹ As evidence of success, OSPI reports that students who participate have better academic outcomes than similar students who do not participate and students report a strong level of personal attachment to the program.⁴⁰ Like Building Bridges, this program attempts to identify students early; although, Building Bridges will attempt to identify students earlier than SAIL. This program may be comparable to Building Bridges if the intervention specialists act as case managers.

The Center for the Study and Teaching of At-Risk Students administered a four-year (1991-95) study of a demonstration project to reduce dropout rates.⁴¹ The program provided students with case managers, although each participating school chose to target case management services to serve its specific demographic and service needs.⁴² Initial benchmarks, such as attendance, grades, and conduct all improved.⁴³ In addition, the relationship between parents and schools improved.⁴⁴ However, the researchers note that the complexity and flexibility of the demonstration programs made it difficult to identify and characterize independent variables of interest.⁴⁵ Again, if the intervention specialists involved with Building Bridges act as case managers, this study is an indication that the program could be successful.

2. Effectiveness of Dropout Prevention Programs with Minorities

The limited literature review conducted to complete this health impact review did not produce any literature on whether dropout programs not specifically targeted at a minority group are effective for minority students within the larger group. There are examples of effective programs that have targeted minority students, especially bilingual students.⁴⁶ However, these programs differ substantially from Building Bridges.

C. Potential Impact of Building Bridges for Minority Students

Minorities have disproportionately high dropout rates and disproportionately low graduation rates.⁴⁷ However, it is not clear that the program will disproportionately impact minority students. For example, the program may work more effectively for White students than minority students, or the program may be implemented in schools that do not have high rates of minority students.

The program description from OSPI indicates that there would be a special focus on reducing racial and income-based disparities in dropout and on-time graduation rates, but it is not clear how the program would implement such a focus.⁴⁸ Senate Bill 5497 and House Bill 1573 indicate that schools with higher than average dropout rates would be given priority for grant funding. Given that schools with above average dropout rates do have higher proportions of minority students (see Table 1),⁴⁹ this implies that priority would be given to schools that are disproportionately minority.

The information provided in Table 1 demonstrates that minority populations are disproportionately represented within schools with above average dropout rates; minority students are 34% of the students in schools with above average dropout rates, but only 23% of the students in schools with below average dropout rates.⁵⁰

Table 1: Number and Proportion of High School Students by Race/Ethnicity for All Schools, Schools with Above Average Dropout Rates, and Schools At or Below the Average Dropout Rate in Washington State, 2004-2005

School Category	Number (%) Asian Pacific Islander Students	Number (%) American Indian or Alaskan Native Students	Number (%) Black Students	Number (%) Hispanic Students	Number (%) Minority Students Combined	Number (%) White Students
All Schools	25,137 (8.0%)	8,512 (2.7%)	16,382 (5.2%)	31,493 (10.0%)	81,526 (25.9%)	231,313 (73.6%)
Above Average Dropout Schools	5,872 (7.5%)	3,380 (4.3%)	6,540 (8.4%)	10,752 (13.8%)	26,544 (34.0%)	50,924 (65.2%)
At or Below Average Dropout Schools	19,265 (8.2%)	5,134 (2.2%)	9,842 (4.2%)	20,741 (8.8%)	54,982 (23.3%)	180,389 (76.3)

If the program succeeds in reaching a disproportionate number of minority students, and the program is successful with helping those students succeed academically, the program will contribute to decreasing the achievement gap in education.

D. The Relationship Between Education and Health

There is a large body of literature that has documented the connection between health and education.^{51 52} The literature demonstrates that those with more education are in better health, whether health is measured by mortality, self-reported health measures, or morbidity rates.⁵³ The link between education and life expectancy has been documented within many countries and regions of the world, including Western and Eastern Europe, Canada, Israel, China, Bangladesh, and Korea.⁵⁴

High school graduates have higher life expectancies and lower age-specific death rates than those without a high school diploma, with further benefits seen for college graduates.⁵⁵ For example, individuals with a college education have a life expectancy of six more years than individuals with less than a high school education.⁵⁶ However, the health benefits of education

are likely tied to per year of education, not just to the attainment of a diploma.⁵⁷ Further, while life expectancy is improving for everyone in the United States, the disparity in life-expectancy based on education may be widening.⁵⁸

The benefits of education may not diminish as life progresses. For example, for the elderly, a higher level of education is associated with the prevention of functional limitations.⁵⁹ A higher income is associated with both prevention and delayed progression of functional decline.⁶⁰

The relationship between health and education also exists between the education of a mother and the health of her infant. The infant mortality rate is almost double for infants of mothers with less than 12 years of education compared to infants of mothers with 13 or more years of education.⁶¹ In addition, more educated mothers are less likely to have low birth weight babies.⁶²

The Centers for Disease Control and Prevention (CDC) has looked at the relationship between education and health in terms of leading health indicators, rather than mortality rates. For example, the CDC found that individuals with lower incomes and less education are not as physically active as those with higher incomes and more education.⁶³ In addition, the percentage of people 25 years and older with less than 12 years of education who currently smoke is nearly three times the rate for the same age group with 16 years or more of education.⁶⁴ Other research on self-reported health outcomes⁶⁵ also indicates a relationship between health and education. More educated people report lower rates of the most common acute and chronic diseases.⁶⁶ In addition, the more educated report healthier behaviors.⁶⁷

There are many possible explanations for the relationship between health and education. The literature clearly supports the correlation between health and education,⁶⁸ and it recognizes the issue of causation.⁶⁹ For example, it may be that because income and education are so closely correlated,⁷⁰ it is really greater income that leads to better health. However, the correlation between health and education is strong and significant even when other factors such as income and race are controlled.⁷¹ It is also possible that poor health may lead to lower levels of education. However, there are longitudinal studies that indicate that low education often predicts a decline in health.⁷² In considering the results of this brief literature review, the question of why education causes better health is not clearly explained in the literature.⁷³

E. Analysis of the Potential Impact of Building Bridges on Health Disparities

Building Bridges for Dropout Reduction is a middle and high school dropout prevention program.⁷⁴ The program will give grants to school districts or partners of school districts that will allow each grantee to operate its own dropout prevention program.⁷⁵ A goal of the program is to reduce the average yearly dropout rate from 5.1% to 2.9% and increase the aggregated on-time graduation rate from 74% to 86% by the year 2012.⁷⁶ The OSPI decision package states that the program would have a special focus on reducing the disparity in dropout and on-time graduation rates based on race and income.⁷⁷

Research shows that health improves, whether it is defined by mortality, morbidity, or healthy behaviors, with an increase in length of education.⁷⁸ If the program succeeds in lengthening the education of a disproportionate number of minority students, it is likely to have a

disproportionately positive impact on the health of minority students compared to the health of White students. The program would have the largest impact on the health of minorities who graduate, but it would also positively impact the health of minority students who stay in school for greater lengths of time. Logically, such a disproportionate impact is likely to decrease health disparities in Washington.

While the program is not designed to increase college attendance or college graduation rates for minority students, minority students who do attend college as a result of the program would have the greatest health benefits. In addition, minority students who graduate from college as a result of the program would have increased opportunity to enter the health services field and obtain graduate training in a health profession. In this case, the increased health benefits of their education would have secondary benefits for the health of minority communities; literature indicates that an increase in minority health providers has a positive impact on the health of minorities in the given community.⁷⁹ Moreover, society benefits as a whole when the health of any population within it improves.

F. Limitations

The most significant limitation to this review is the short turnaround time to complete the review. The limited amount of time restricted our ability to conduct a comprehensive and systematic review of the literature. Further, time limitations did not allow us to obtain all of the data we needed to compare the proportion of minority groups in the target areas of the program. In addition, we had to rely on some of the assumptions in the decision package, although we attempted to evaluate as many assumptions as time allowed.

The short turn-around time for this review prevented us from conducting additional analyses that may have strengthened our ability to assess potential impacts on health disparities. For example, we were not able to get the projected number of minorities to be served to estimate the increase in the number of minority students that will graduate by using effective rates of evidence-based dropout prevention programs. This analysis would depend on the availability of reliable effective rates, which we did not find in this limited literature review.

G. Policy Considerations

If the scope of the Building Bridges Program is small, it is less likely to benefit enough students to have an impact on health disparities. The decision package indicates that twenty-five start-up grants would be given to districts or partners. However, the bills in the House and Senate indicate that the program will be phased in statewide. A program with a larger scope would have the greatest potential impact on health disparities.

The program states that it would have a focus on reducing the disparity in dropout and on-time graduation rates based on race and income. The bills in the House and Senate state that priority would be given to schools with higher than average dropout rates. As described in Table 1, these schools do have a high proportion of minorities. However, low-income schools, which are defined as schools with more than 60% of their students eligible for free or reduced-priced meals, have a much higher proportion of minority students, see Table 2.⁸⁰

Table 2
Number and proportion of students by race/ethnicity for all schools, low-income schools
and schools not identified as low-income

School Category	Number (%) Asian Pacific Islander Students	Number (%) American Indian or Alaskan Native Students	Number (%) Black Students	Number (%) Hispanic Students	Number (%) Minority Students Combined	Number (%) White Students
All Schools	80,003 (7.8%)	28,136 (2.8%)	57,783 (5.7%)	137,335 (13.5%)	303,257 (29.7%)	689,581 (67.5%)
Low-Income Schools	12,071 (7.3%)	8,479 (5.1%)	16,920 (10.2%)	63,244 (38.3%)	100,714 (61.0%)	62,020 (37.6%)
Low-Income Schools	67,840 (8.0%)	19,410 (2.3%)	40,779 (4.8%)	72,533 (8.5%)	200,562 (23.6%)	624,421 (73.4%)

Grant priority to schools with higher than average dropout rates will provide some targeting of schools with relatively high proportions of minority students. However, giving priority to low-income schools, or to low-income schools with above average dropout rates, would target schools with much higher proportions of minority students. In addition, giving low-income schools priority would help the program fulfill its focus of reducing the disparity in dropout and on-time graduation rates based on income.

Minority students are more likely to benefit from the program if OSPI places emphasis not just on identifying evidence-based dropout prevention practices, but identifies and implements interventions that are shown to be effective with improving graduation rates for minority students in particular. Evidence-based practices that are effective with specific populations could be implemented through Building Bridges because the program design gives local partnerships the flexibility to determine the specific service needs of minority students in their communities.

V. Conclusion

Building Bridges for Dropout Prevention has the potential to decrease health disparities in Washington. For this to occur the program must disproportionately increase graduation rates of minority students or lengthen the amount of time they spend in school. If the length of time minority students spend in school disproportionately increases, the health outcomes of minority students would be disproportionately improved as a result of the relationship between health and education. If all of these conditions occur, the program is likely to decrease health disparities in Washington.

¹ This proposal was presented to The Board of Health as a decision package, available at www.k12.wa.us/LegisGov/2007Documents/BuildingBridgesforDrop-OutReductions2007-09.pdf. Currently, the proposal is Senate Bill 5497 and House Bill 1573 in the Washington State Legislature.

² U.S. Department of Health and Human Services. (2000) *Healthy People 2010: Understanding and Improving Health*. (2nd ed.). Washington, DC: U.S. Government Printing Office. P. 11-16. See also, Recommendations from the Joint Select Committee on Health Disparities (November 2005), Washington State Legislature, Olympia, WA.

³ U.S. Department of Health and Human Services. (2000) *Healthy People 2010: Understanding and Improving Health*. (2nd ed.). Washington, DC: U.S. Government Printing Office. P.12.

⁴ *Id.* at 12.

⁵ *Id.*.

⁶ Centers for Disease Control, MMWR Weekly, May 12, 2006.

⁷ *Id.*.

⁸ All information in the description section comes from the OSPI Decision Package available at www.k12.wa.us/LegisGov/2007Documents/BuildingBridgesforDrop-OutReductions2007-09.pdf and Senate Bill 5497/House Bill 1573.

⁹ OSPI data available at <http://www.k12.wa.us/dataadmin/>

¹⁰ Ireland, L. (2006). *Graduation Dropout Statistics for Washington's Counties, Districts, and Schools 2004-05*, Office of Superintendent of Public Instruction. Olympia, WA. p3.

¹¹ *Id.*

¹² Dropouts includes students who left school for any reason, including students who may have transferred to another school but their status as a transfer cannot be confirmed. Ireland, L. (2006). *Graduation Dropout Statistics for Washington's Counties, Districts, and Schools 2004-05*, Office of Superintendent of Public Instruction. Olympia, WA.

¹³ *Id.* at 2.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Graduation rates reported by schools across the country are considered to be inaccurate by many researchers. As a result, the U.S. Department of Education has published a different method to calculate graduation rates. This method is less reliant on data collected by the schools. When Washington's rate is calculated with this method, the on-time graduation rate for 2005 is 70.5%. *Id.* at 27.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.* at 14.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.* at 19.

²⁶ *Id.* at 24.

²⁷ *Id.* at 25.

²⁸ *Id.*

²⁹ *Id.*

³⁰ Gandara, P. (2000, Spring). Creating Cultures of High Achievement. *Liberal Education*, 86(2), 14. Office of Superintendent of Public Instruction. (2005, December); *Promising Programs and Practices for Dropout Prevention: Report to the Legislature*. Olympia, WA. p. 3. Shannon, S. and Bylsma, P. (2003, Updated 2006). *Helping Students Finish School: Why Students Drop Out and How to Help Them Graduate*. Office of Superintendent of Public Instruction, Olympia, WA. p.59.

³¹ Gandara, P. (2000, Spring). Creating Cultures of High Achievement. *Liberal Education*, 86(2), 14.

³² Shannon, G. Sue and Bylsma, Pete (2003, Updated 2006). *Helping Students Finish School: Why Students Drop Out and How to Help Them Graduate*. Office of Superintendent of Public Instruction, Olympia, WA. p.59.

³³ Office of Superintendent of Public Instruction. (2005, December); *Promising Programs and Practices for Dropout Prevention: Report to the Legislature*. Olympia, WA, 5.

³⁴ SAMHSA, (2002) *SAMHSA model programs: Model Prevention Programs Support Academic Achievement*. U.S. Department of Health and Human Services.

³⁵ Nation Dropout Preventions Center Website: <http://www.dropoutprevention.org/effstrat/default.htm>.

³⁶ Shannon, S. and Bylsma, P. (2006). *The High Schools We Need: Improving an American Institution*. The Office of Superintendent of Public Instruction. Olympia, WA. 222-223.

³⁷ *Id.*.

³⁸ *Id.* at 226-227.

³⁹ *Id.*

⁴⁰ *Id.*

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- ⁴¹ Smith, A. (1997). *Washington State Coordinated Service Initiative for At-Risk Youth and Families*. University of Washington.
- ⁴² *Id.*
- ⁴³ *Id.*
- ⁴⁴ *Id.*
- ⁴⁵ *Id.*
- ⁴⁶ See, Schoorman, D. (2001). *What Differences Do We Make? The Challenges of Evaluating Community-based Efforts in Immigrant Education*. Paper presented at the Annual Conference of the American Educational Research Association. Seattle, WA. This program describes a dropout prevention program aimed at Spanish and Haitian Creole speaking students in Palm Beach Florida. Shannon, S. and Bylsma, P. (2006). *The High Schools We Need: Improving an American Institution*. The Office of Superintendent of Public Instruction. Olympia, WA. 212-213. This article describes a school reform program at Granger High School in Yakima, WA.
- ⁴⁷ Ireland, L. (2006). *Graduation Dropout Statistics for Washington's Counties, Districts, and Schools 2004-05*, Office of Superintendent of Public Instruction. Olympia, WA.
- ⁴⁸ OSPI Decision Package, available at www.k12.wa.us/LegisGov/2007Documents/BuildingBridgesforDrop-OutReductions2007-09.pdf.
- ⁴⁹ OSPI website: <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>.
- ⁵⁰ *Id.*
- ⁵¹ Lynch, S. (2003, May). Cohort and Life-Course Patterns in the Relationship Between Education and Health: A Hierarchical Approach. *Demography*. (40)2. Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. 72 , p. 189.
- ⁵² For an economic analysis about how to consider the monetary returns of improved health when investing in education and a discussion on a market failure rationale for education subsidies to improve health outcomes see Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, 2006-19. Ford School of Public Policy, University of Michigan. (p.20-22).
- ⁵³ Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. 72 , p. 189.
- ⁵⁴ Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers, 2006-19. Ford School of Public Policy, University of Michigan. (p.5).
- ⁵⁵ Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, (2006-19). Ford School of Public Policy, University of Michigan. (p.20); Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. Fiscella, K & Williams, D. (2004). Health Disparities Based on Socioeconomic Inequities: Implication for Urban Health Care. *Academic Medicine*. 79(12). P. 1140. Elo, I & Preston, S. (1996). Education Differentials in Mortality: United States, 1979-85. *Social Science and Medicine* 42(1) p. 48.
- ⁵⁶ Fiscella, K & Williams, D. (2004). Health Disparities Based on Socioeconomic Inequities: Implication for Urban Health Care. *Academic Medicine*. 79(12). P. 1140.
- ⁵⁷ Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, (2006-19). Ford School of Public Policy, University of Michigan. p.20. Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. 72.
- ⁵⁸ Lynch, S. (2003, May). Cohort and Life-Course Patterns in the Relationship Between Education and Health: A Hierarchical Approach. *Demography*. (40)2. p. 326; Cutler, D & Lleras-Muney, A. (date). *Education and Health: Evaluating Theories and Evidence*. Presented at a National Poverty Center Conference, Ford School of Public Policy, University of Michigan. (p.5).
- ⁵⁹ Fiscella, K & Williams, D. (2004). Health Disparities Based on Socioeconomic Inequities: Implication for Urban Health Care. *Academic Medicine*. 79(12). P. 1140.
- ⁶⁰ *Id.*
- ⁶¹ U.S. Department of Health and Human Services. (2000) *Healthy People 2010: Understanding and Improving Health*. (2nd ed.). Washington, DC: U.S. Government Printing Office.
- ⁶² Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, (2006-19). Ford School of Public Policy, University of Michigan. (p.9).
- ⁶³ U.S. Department of Health and Human Services. (2000) *Healthy People 2010: Understanding and Improving Health*. (2nd ed.). Washington, DC: U.S. Government Printing Office. 27.
- ⁶⁴ *Id.* at 31.

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- ⁶⁵ Self-reports of health (SHRs) are a valid measure of health. Studies have been done comparing it to objective measures. Lynch, S. (2003, May). Cohort and Life-Course Patterns in the Relationship Between Education and Health: A Hierarchical Approach. *Demography*. (40)2.
- ⁶⁶ Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, (2006-19). Ford School of Public Policy, University of Michigan (p.3).
- ⁶⁷ *Id.* at 4.
- ⁶⁸ Lynch, S. (2003, May). Cohort and Life-Course Patterns in the Relationship Between Education and Health: A Hierarchical Approach. *Demography*. (40)2. Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. 72 , p. 189.
- ⁶⁹ Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, (2006-19). Ford School of Public Policy, University of Michigan. Fiscella, K & Williams, D. (2004). Health Disparities Based on Socioeconomic Inequities: Implication for Urban Health Care. *Academic Medicine*. 79(12). Arkes, J. (2003) Does Schooling Improve Adult Health? RAND DRU-3051.
- ⁷⁰ U.S. Department of Health and Human Services. (2000) *Healthy People 2010: Understanding and Improving Health*. (2nd ed.). Washington, DC: U.S. Government Printing Office.
- ⁷¹ Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. 72 , p. 189. This article describes a study that shows education has a causal impact on mortality, and that the impact is greater than the impact suggested by previous literature. The study follows synthetic cohorts using successive census data. It uses changes in compulsory education laws in the early 20th century as instruments for education. There are a few cautions about this study. For example, only census data on Whites is used, and the level of compulsory education was low in the early 20th century.
- ⁷² Fiscella, K & Williams, D. (2004). Health Disparities Based on Socioeconomic Inequities: Implication for Urban Health Care. *Academic Medicine*. 79(12). P. 1141.
- ⁷³ See, Cutler, D & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence*. National Poverty Center Working Papers Series, (2006-19). Ford School of Public Policy, University of Michigan. P.12.
- ⁷⁴ Senate Bill 5497 and House Bill 1573, Washington State Legislature.
- ⁷⁵ *Id.*
- ⁷⁶ *Id.*
- ⁷⁷ *Id.*
- ⁷⁸ Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies*. 72 , p. 189.
- ⁷⁹ Finkbonner, J, Pageler, M, Ybarra, V. (2001). *Final Report: State Board of Health Priority: Health Disparities*. Document Submitted by the Committee on Health Disparities of the Washington State Board of Health.
- ⁸⁰ OSPI data available at <http://www.k12.wa.us/dataadmin/>.

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