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Abstract

This paper describes the first-year activities of a five-year project funded by the U.S. Department of Education as part of the Indian Education Demonstration Grants for Indian Children program. The project brings students, families, the tribal government, and the tribal community together to improve the lives and education of students, as well as their families and community, through a comprehensive change in school culture. The project utilizes a unique, multifaceted approach to offer academic and student support; a four-year Biomedical Science program; Science, Technology, Engineering, and Math (STEM) enrichment; professional development; and community engagement. The overall goal is to assist American Indian (AI) students in making successful transitions to post-secondary educational and career pathways, particularly in STEM fields. The paper describes the work-in-progress and lessons learned, shedding light on current issues in education and encouraging open dialogue about improving the lives of students, families, and communities.

Introduction

This paper describes the first-year activities of a five-year project funded by the U.S. Department of Education as part of the Indian Education Demonstration Grants for Indian Children program. The project is geared toward motivating and preparing American Indian (AI) students at a rural high school in Washington State for successful transitions to postsecondary educational and career pathways, particularly those leading to high demand, high wage Science, Technology, Engineering, and Mathematics (STEM) fields. The project includes support from the school, families, community, tribal government, and tribal members to send a powerful message of the importance of a college-ready culture. In doing so, the project impacts students' academic and college or career preparation and ensures future success of the region through well-prepared youth.

In the past six years, only two AI students in the project high school graduated from a four-year institution and only six graduated from two-year institutions. Further, persistence rates of AI students are significantly lower than those of Caucasian students at the project high school. Based on these indicators, two major education gaps are being addressed by the present project: *motivation* and *academic preparation* for successful transitions to postsecondary educational and career pathways.

Motivation has been identified as one of the most powerful indicators of student success or failure in school while academic preparation is crucial to successful transition to college. AI students are too often disengaged from their high school education, finding little relevance to their coursework, limited expectations of going to college, and no understanding of future careers in high demand, high wage STEM fields. A major emphasis of the present project is to increase student academic engagement by expanding school relevance to students' own lives and future careers through the national Project Lead the Way (PLTW) Biomedical Science program. PLTW includes four courses: Year One Principles of the Biomedical Sciences; Year Two Human Body Systems; Year Three Medical Intervention; and, Year Four Biomedical Innovation. This highly interactive project-based curriculum aims to: (1) engage students in explorations of their own health giving them a better understanding of the importance of a healthy lifestyle in preventing

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obesity, diabetes and heart disease; (2) give them a clear vision of the multitude of high demand, high wage jobs in healthcare and the biomedical sciences, and (3) help students anticipate future career goals and understand how doing well in school is important to achieving high value goals. For the first time in the United States, engagement will be enhanced through AI students' personal enrichment of the PLTW curriculum with cultural perspectives to human health. These will be posted to the national PLTW website following Tribal approval.

In addition to the PLTW Biomedical Science Program, the project seeks to increase AI student motivation and engagement by: (a) increasing support for rising 9th grade AI students through a summer STEM bridge program; (b) affording greater opportunities for STEM enrichment opportunities including hands-on authentic student research projects leading to regional and national presentations (e.g. at AI Science and Engineering Society (AISES) conferences); (c) increasing academic rigor by increasing the number of college preparatory courses taken by AI students who are also supported by tutoring programs; (d) offering rigorous two-week summer health science experiences on a major college campus; (e) enhancing counselling services, particularly those dedicated to STEM education and career preparation; (f) increasing connections between AI families and school; and (g) sending a powerful message of college-readiness to stakeholders through events, newsletters, website postings, and other venues. In sum, the project engages AI students, their families, tribal government, and the tribal community as a whole to find creative and meaningful methods of personal development to propel students into a successful future in a culturally relevant manner.

By describing the first-year project activities, this paper sheds light on current issues in education and seeks to encourage open dialogue about improving the lives of AI students, their families, and their communities. In addition, we outline and describe the importance of certain activities toward increasing AI student success that readers may find useful, such as creating Individual Education Career Pathway Plans (IECPPs) and instilling college and career awareness for AI students. We conclude with a description of unintended outcomes that have already occurred as part of planning and implementation of the project, and lessons learned through presentation of the paper at the Northwest Association of Teacher

Educators 2013 conference. By sharing the work-in-progress, we seek to address how we can more authentically connect schools and the diverse people and places they serve. In turn, we hope for enlivened discussion and enhanced relationships within education, particularly for AI students.

Method

The present project assists AI high school students in transitioning to postsecondary educational and career pathways through activities designed to attain two overarching goals: (1) to increase AI student motivation to complete a high school education and pursue career or postsecondary education pathways and (2) to increase student academic preparation. The project engages AI students, their families, tribal government and the tribal community through creative and meaningful methods of personal development to propel students into a successful future in a culturally relevant manner. The project is unique in comparison to other available programs, as it encourages AI student development through the use of a multi-faceted approach emphasizing student support, academic support, STEM Enrichment, professional development, and community engagement, as described below.

Student Support: Student support through this project enhances the academic and personal development of AI students through three primary activities: (1) a summer STEM bridge program, (2) individualized education and career plans, and (3) tutoring, counseling, and peer mentoring services. The summer bridge program is equivalent to a freshman orientation that helps AI high school students transition into high school. This program provides hands-on experience for AI students through project-based learning. Individual Education and Career Pathway Plans (IECPPs) provide a venue for students to identify their high school goals, subjects of interest, personal interests, post high school and career goals, careers of interest, and extracurricular activities. Through these IECPPs, the school personnel may develop a personal relationship with students and help them identify ways they may become more involved in STEM courses and activities. As the project progresses, our administrative team will also utilize the individualized student plans to assess each student on a bi-weekly basis for specific needs including tutoring, counseling and peer mentoring. Services will be

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prescribed, tracked for progress, and adjusted as needed. Students will be included in this process as much as possible to ensure buy-in.

Academic Support: Academic Support is designed to provide students with skills necessary to excel educationally. Academic support includes PLTW Biomedical Science courses, Advanced Placement courses, rigorous mathematical and science courses, and Preliminary Scholastic Aptitude Test (PSAT) and Scholastic Aptitude Test (SAT) preparation. PLTW prepares students to be innovative and productive leaders in STEM fields while teaching students to make meaningful, pioneering contributions to our world. PSAT and SAT preparation will include additional foundational courses and fee waivers.

Academic Enrichment: Academic enrichment programs are designed as a means to increase student motivation to pursue postsecondary and career STEM pathways. Academic enrichment programs include the high school chapter of the American Indian Science and Engineering Society (AISES) and a two-week summer program called the Na-ha-shnee Health Science Institute. Through AISES, students complete independent research projects, present at national conferences, participate in AISES high school competitions, and compete and host regional science fairs. Similarly, Na-ha- shnee is a two-week summer program hosted by the Native American Health Science Institute and exposes Native students to careers in nursing, medicine, exercise physiology, pharmacy, speech and hearing, and other science-related fields in hopes of inspiring these students to pursue an education in a health care field.

Professional Development: Professional development occurs through various opportunities including PLTW training and attending a program at an institute for one week for high school teachers to become certified in Advanced Placement courses. PLTW enhances professional development of teachers and school personnel through two-week intensive summer core training programs, giving them the skills and content knowledge to teach each of the four biomedical science courses. The national PLTW program also provides teachers with relevant up-to-date support materials through an online Virtual Academy. PLTW also provides conferences for high school guidance counselors to help identify a clear connection between their program and the student's scholastic/academic career path. Prior to this grant

the project high school had not been able to offer any AP courses to provide students with more advanced coursework and the opportunity to gain college credit.

Community Engagement: The project engages the community by promoting activities that allow collaboration and partnership with both the tribal community and the tribal council. A Community Advisory Council was formed consisting of tribal leaders, local STEM field professionals, a university representative, the project director and a student family member. The Council meets quarterly to evaluate progress towards the project goals and provide feedback to the project administrative team. The project also enhances family engagement through activities such as STEM Family Nights to educate families on college preparedness and celebrate student successes.

Students will engage in research projects that connect them with professionals in the field and real-life data and experiences. This will provide a severely missing connection between high school curriculum and the work world, and may serve to foster meaningful mentorships.

Summary

This project offers AI high school students rigorous and relevant STEM-related opportunities to enhance their motivation and academic preparation to ensure more successful transitions to college and/or career pathways. This project also provides multiple ways to engage the community and tribal members in AI student schoolwork and student STEM enrichment activities. This comprehensive approach will send a powerful message of the importance of a college- and career-ready culture to ensure the future success of the region through well-prepared AI youth.

Unintended Outcomes

In the first year, several unintentional outcomes occurred that are fundamental to the continued growth of the program and to the community at large. First, the program coordinator was given the opportunity to receive his teaching credentials. This unintended outcome is vital because the program coordinator is a former student of the high school

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and tribal member; therefore, as a result of the program he, has increased knowledge about the culture and expectations of the high school students.

Second, current high school instructors with appropriate credentials have been given the opportunity to become certified as an AP teacher, which will allow AI students to be more prepared for rigorous college courses. Since the onset of this project, one of the high school teachers has become a certified teacher in an AP course, which will be offered to students for the first time for this upcoming school year. On this note, the high school teachers have also been encouraged to receive additional training to expand their knowledge and incorporate progressive educational practices to help engage and motivate students within the classroom. Finally, one of the high school teachers has been given the opportunity to gain grant experience to aid with the process of future directions for this program and similar programs within the community.

Lessons Learned

By sharing our work in progress, we hope to leave readers with an open dialogue and question how we may more authentically connect schools and the diverse people and places they serve. We begin this conversation by sharing our own lessons learned through the Northwest Association of Teacher Educators (NWATE) conference.

Lesson One: Consider the cultural impact your work may have

In his keynote speech, Dr. Anton Treuer shared his personal experiences and wisdom related to American Indians and academia. Dr. Treuer encouraged audience members to consider the ways in which our work may be portrayed differently than we intend, particularly when it is viewed from the perspective of others having a cultural background different than our own. After hearing Dr. Treuer's presentation, we thought more about the work we planned to present at the conference and realized certain examples of how we had not made such considerations. The most poignant, and somewhat embarrassing, example was that we used an apple tree as the background for our Prezi presentation. Unbeknownst to us, the term "apple" is a derogatory term used by some American Indians to refer to educated American Indians. "Red on the outside" symbolizes the individual's

identification as an American Indian and "white on the inside" symbolizes conformity to Caucasian beliefs and ways of living. Ironically, the apple tree in our presentation was intended to be a warm, artistic symbol demonstrating growth of the program; the roots symbolized foundational information related to the program and the apples symbolized unintended outcomes and educational accomplishments. We were quickly humbled upon learning of the metaphor and examined the remainder of our presentation for other content that may have been considered offensive to the audience we were trying to support.

Lesson Two: Good intentions are not always as good as they seem

In examining the remainder of our presentation, we found other examples that demonstrated how easy it is to have great intentions that seem supportive, but that could actually be offensive when viewed from the perspective of others. For example, we came across the term Na-ha-shnee, which is used to describe the health sciences institute to which we send students. Prior to the NWATE conference, we had not given consideration to the word and assumed it had a Native American meaning. As we prepared for our presentation, we decided to look up the meaning of the term so we could share it with the audience. We learned that the term is not a Native American word as it may appear, but instead is "…an amalgamation of the words Native American High School Summer Nursing Institute" (Benjamin, 2012, About Na-ha-shnee). Upon reflecting on Dr. Treuer's words and considering our work from the perspective of others, we thought that it might be more meaningful if a local tribe had been consulted to identify a Nez Perce term that equally reflected the meaning of the institute, but that was more sensitive to those whom the institute serves.

Lesson Three: Be Open to Sharing and Talking about Your Mistakes

After hearing Dr. Treuer's presentation, we contemplated changing our presentation before audience members could see the mistakes we had made. We decided, however, that recognizing our unintentional mistakes and sharing them with the audience would be a better way to open dialogue and to begin breaking down some of the barriers Dr. Treuer so vividly described. We hoped that by making ourselves vulnerable, others would feel more

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comfortable doing the same. Post-conference feedback suggested that our presentation made an impact on audience members and that we achieved our goal.

References

Benjamin, A. (2012, June 19). Underserved high schoolers experience college, health sciences: WSU's Na-ha-shnee Health Science Institute creates possibilities. Retrieved from: http://wsunews.wsu.edu/pages/publications.asp?Action=Detail&PublicationID=31981&T ypeID=1

https://pdxscholar.library.pdx.edu/nwjte/vol11/iss2/6
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