

# Measuring the Factors Associated with Student Persistence in the Washington State STARS Program

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## Measuring the Factors Associated with Student Persistence in the Washington State STARS Program

## Abstract

As the state of Washington continues to face a shortage of qualified workers needed to fill jobs in STEM-related fields, Washington State University (WSU) and the University of Washington (UW) continue to partner to increase the number of engineering and computer science graduates through the Washington STate Academic RedShirt (STARS) Program. Adopting the "redshirt" term from athletics, where student athletes will defer their playing eligibility for one year to improve their skills in the sport, STARS gives students from academically and economically disadvantaged backgrounds an additional year of support as they begin their pursuit of a degree in engineering or computer science. (Despite use of the term "redshirt," the program is independent of athletics.) Modeled after the University of Colorado's GoldShirt Program, the STARS program provides engineering and computer science students with scholarship support, specialized curriculum, intrusive advising, and a supportive community.

While student performance in math and science courses can be correlated with retention in the college of engineering, this correlation does little to inform about practices and mindsets that help retain those students. Students may receive passing grades in their math and science courses but do not utilize the tutoring offered by STARS. Some students appear to be enticed to the STARS program for scholarship support, but may not be enthusiastic about the social aspect of the program and yet they perform acceptably well academically. Others hit a wall, usually a failed exam or tough professor, and want to give up. However, the students who take advantage of the resources offered by STARS, take part in activities within the college of engineering, and display a "growth" mindset persist to a higher degree than students who do not. In the past, this was observed in largely an anecdotal manner. In this work, we discuss the development of a rubric for measuring the awareness and utilization of resources, level of activity in the college of engineering, and change in a "growth" vs. "fixed" mindset. This rubric will provide insight as to what behaviors and activities are most impactful in terms of student persistence.

#### **Introduction and Background Information**

Stemming from a State need for diverse, qualified laborers in STEM fields, the STARS program plans to graduate engineering students from low-income backgrounds by providing support in the first two years. The goals of this five-year program are to:

- Increase the total number of engineering and computer science degrees by 225.
- Retain 75% of STARS students to the upper division of an engineering or computer science program.
- Increase by 50% the retention of Pell Grant-eligible students who enter directly as freshman to the upper division of an engineering program.

• Increase by 20% the number of underrepresented minorities pursuing engineering degrees.

Students are identified for STARS through their economic and academic disadvantages. A student is considered economically disadvantaged if the student is Pell Grant eligible. A student is considered academically disadvantaged if the student graduates from a Washington State high school where 30% or more of its students are receiving free or reduced-price lunch. Upon admission to the WSU STARS program, students have access to individual mentoring, intrusive advising, a community of engineering students, specialized courses, and mathematics, physics, and chemistry tutoring. Each aspect of the program layers the foundation of success in academic performance and career preparation.

WSU STARS accepts a maximum of 32 students each academic year. During the first three years of the program, recruitment began in May after Pell Grant eligibility information was released and largely took place in the summer months when students visited WSU for orientation. Eligible students in engineering and computer science were identified based on their Pell Grant eligibility and the Washington high school they attended. Students were intercepted at WSU's orientation, informed about the STARS program, and encouraged to apply before the start of the semester. The fourth year of the program took a more active approach to recruiting students where estimated financial need, together with high school attended, were used to identify students who were likely to be eligible. These students were recruited with mailed solicitation, phone calls, and, again, contacted during orientation visits. Applicants filled out an interest form, wrote three essays, and were interviewed by the program administrator.

The number of applicants to STARS roughly matched the number of accepted students during the first three years. Given that a student filled out an application, acceptance into the program was nearly guaranteed provided their math placement score put them in a pre-calculus or Calculus I course. The fourth year saw an increase in the number of applicants due to the earlier and more active recruitment effort. Some demographics for the first four cohorts of the program are provided in Table 1. We note that the increased recruitment efforts actually resulted in a decrease in the percentage of first generation and underrepresented minorities (putting them roughly in alignment with overall WSU demographics) but an increase in the percentage of females (somewhat ahead of the overall percentage of females in the College).

Table 1: WSU STARS demographics for first four cohorts (year in parentheses is the year of the Fall semester in which the students started).

	Cohort I (2013)	Cohort II (2014)	Cohort III (2015)	Cohort IV (2016)
First Generation	58%	79%	70%	42%
Underrepresented	45%	48%	48%	34%
minority				
Females	18%	14%	19%	27%

The STARS program gives support to first year-students. To retain students and inspire degree completion in the engineering programs, STARS implements five strategies:

- Give students essential study skills, teaching students "how to learn."
- Lighten the students' financial burden.
- Develop an intricate understanding of the fields of engineering.
- Engender group community and learning.
- Advise students with mentorship and counsel specific to their needs.

The STARS program at WSU and UW is adapted from the University of Colorado's GoldShirt Program, which has gained high retention rates of students in engineering, in particular of underrepresented minorities (URM) paying special attention to the needs of economically and academically disadvantaged students. Although details concerning the implementation at each of these universities differ, the programs share seven core components:

- First Year Curriculum: The STARS curriculum is designed particularly to instill helpful learning methods, build community, and give students strong preparations for their mathematics and chemistry courses. To ensure students have the necessary algebra and pre-calculus skills for success in calculus, students participate in a course called Introductory Mathematics for Engineering Applications. Here they solve math problems set in different engineering contexts. WSU offers chemistry help included in weekly math review sessions. Because study skills are so vital to success in engineering, STARS students are enrolled in a seminar course to emphasize these important study skills. This course focuses on topics like note-taking, connecting with faculty and building relationships with professors, group study skills, taking full advantage of resources (teachers, tutoring, etc.), effectively reading and understanding textbooks, and time-management skills.
- Academic Advising: The STARS staff individually mentors and advises the STARS students. Students meet with their academic advisor a minimum of six times per year to discuss personal goals, study habits, and academic issues.
- Residential Living-Learning Community: First-year students are required to live on campus. STARS students are placed into the Engineering Living-Learning Community.
- Community-Building: Group activities are essential components of building camaraderie and a sense of belonging among STARS students. (A particular favorite among WSU's students is cosmic bowling.) Students also participate in movie nights, holiday parties, field trips, and informative workshops.
- Career Awareness and Vision: In their first-year STARS seminar, students hear from engineers, research and instructional faculty, and upperclassmen. Course assignments are designed to ignite curiosity about the field of engineering and computer science and provide a structure for pursuing that curiosity. In cooperation with WSU's career center and the College's office of Professional Practice and Experiential Learning, STARS

facilitates access to career advice, engineering exploration workshops, and opportunities to develop professional skills.

- Financial Aid: STARS students receive up to \$2000 in scholarship support to lessen the burden of paying for school. An amount of \$500 is awarded to students for joining STARS, and students can earn \$500 for each math class passed up to three math courses. The university is equally committed to students from low-income backgrounds through "Cougar Commitment" which guarantees tuition and fee scholarships for Pell Grant eligible Washington residents.
- Engagement in the Second Year: A second phase of funding has allowed for STARS to create a second-year engagement plan for students. This plan consists of physics tutoring, professional development, additional scholarship money, and enhanced engagement with the college of engineering.

## Creating a Rubric to Assess the STARS Program

Students face an array of academic, career, and personal issues (Heppner and Neal, 1983). Both WSU and UW offer a number of support services to students ranging from financial guidance to time management workshops. At their first-year orientation session, students are informed about the majority of these services that are available to them. However, whether or not students remember specifics from the densely packed short-term information stream is another story. The hope is that students will remember something and be able to find help when the need arises. But, more often than not, the students who identify that they need help are either unaware that it is there or unable to figure out where to start looking for it (Neal and Heppner, 1986). At WSU, we have seen this with several students. In the Fall semester of 2015, a student took a chemistry exam and performed poorly. This student studied for hours and felt like he knew the material, but when it came to taking the test, he ran out of time. In a conversation with the STARS program administrator, he revealed that he had an Individualized Education Program (IEP) in high school because of a documented learning disability. This student did not realize that he could get an accommodation from WSU's Access Center. He was quickly informed about the services that the Access Center provides and encouraged to fill out an application. Once he did, he was approved for extra time on exams. He received a B in both of his required chemistry courses.

The STARS program offers a direct connection to help. The program staff has been trained to refer students to the appropriate resources they should seek to address various academic and personal issues. In addition, the STARS seminar course includes guest speakers from multiple campus resources. Our hope is that STARS students are more aware of campus resources and will therefore be able to utilize resources as they need them, thus improving the likelihood of the student's academic success. If the student mentioned above had not been in STARS, it is uncertain if he would have received the timely help he needed to be successful in his chemistry courses. From our experience at WSU, an informed, resourceful student is a successful student.

At UW, STARS students are significantly more aware of campus resources than non-STARS students (Margherio and Branstad, 2017). At WSU, we have come to the understanding that a STARS student's level of awareness and utilization of resources may be a strong predictor of future success. We thus feel this must be a component of the STARS rubric.

STARS students are repeatedly encouraged to be involved in student clubs or organizations as a part of their career preparation owing to the fact that participation in student organizations has a positive impact on career preparation (Sagen *et al.*, 2000). In addition, students in the STARS program are encouraged to participate in the Voiland College of Engineering and Architecture's (VCEA's) Internship and Cooperative Education program (otherwise known as the Professional Practice and Experiential Learning program). Internships lead to better academic performance in college and better job preparation (Knouse *et al.*, 1999). For these reasons, involvement in student organizations and internship programs is taken to be another component of the STARS rubric.

The mindset theories developed by Carol Dweck offer another opportunity for assessment of the STARS program. Dweck started her work on mindsets with theories of intelligence and looking at how children deal with failure (2008). She observed that children view their ability to solve problems differently. When faced with a difficult problem, some children give up or display patterns of avoidance believing that they cannot solve the problem. Other children view the problem as a challenge believing that they can solve it with enough time and effort (Dweck and Reppucci, 1973; Dweck, 1986). Later, she studied the effect a child's beliefs about themselves had on a child's goals using the model that a child who viewed their intelligence as a fixed quantity would choose goals that reflected that belief and a child who viewed their intelligence as a changeable quantity would choose goals in accordance with that belief (Dweck and Leggett, 1988). Dweck went on to label these mindsets "fixed" and "growth," respectively (2008). In advocating for mindset interventions, Rattan *et al.* (2015) say:

Growth mindsets foster greater learning and achievement in students from elementary school through college, especially during challenging transitions or in difficult courses. This is because students with growth mindsets seek to learn and develop their abilities, and thus pursue challenges, value effort, and are resilient to setbacks; in contrast, students with fixed mindsets avoid challenges (which could reveal "permanent" deficiencies), dislike effort (which they think signals low ability), and give up more easily when facing setbacks (which they view as evidence of low ability).

Claro and Paunesku's work with Dweck (2016) concluded that students from low-income backgrounds were more likely to hold a fixed mindset than their peers from high-income backgrounds. They determined that a fixed mindset among students from low-income backgrounds is more incapacitating to a student's academic performance than a fixed mindset among students from high-income backgrounds. On the other hand, a growth mindset among students from low-income backgrounds is more empowering to a student's academic

performance than a growth mindset among students from high-income backgrounds (Claro *et al.*, 2016). This finding is highly relevant to the STARS program since students from low-income backgrounds are targeted. Potentially, persistence in engineering could be linked to a student's mindset. Students displaying growth mindset motivated goal orientation in the STARS program could lead to higher academic performance. Clearly, mindset should be part of the STARS rubric.

Previously, the success of students in the STARS program has been measured using math and science course grades, GPA, and retention in engineering (note that the program at WSU has not yet produced any graduates as it is just entering its fourth year). While the STARS program continues to measure success of the program in a quantitative fashion, this paper seeks to provide an assessment alternative to these metrics. In addition, long-term assessment of student progress can be made throughout the different phases of STARS program (Petkova and Petkov, 2008). We indicated in the previous text, we propose the use of a rubric for measuring awareness and utilization of resources, activeness in the college of engineering, and change in mindset of STARS students. A rubric can be thought of as "a set of criteria specifying the characteristics of a learning outcome and the levels of achievement in each characteristic" or "a document that articulates the expectations for an assignment by listing the criteria or what counts, and describing levels of quality from excellent to poor" (Andrade, 2000; Arter and Chappuis, 2007; Stiggins, 2001). According to Petkov and Petkova (2006), rubrics can be used to assess programs across semesters. Of course, a common concern with rubrics is the description of categories of performance (Reddy and Andrade, 2010). Some rubrics leave room for interpretation (and hence are unclear). We seek to avoid this by precisely describing what we are looking for and trying to allow for a broad range of likely possibilities.

To determine a student's awareness of campus resources, a student needs to report their knowledge of a resource and what they know about the resource. Thus, this category can be split into subdivisions: (1) the number of resources the student knows exist, and (2) the amount of knowledge the student has about the resources. Then, evaluators can tally the number of resources the student knows about the resource. These tallies can be assigned to a level of awareness in the rubric. There are several resources at WSU that STARS students must interact with at some point in the semester in order to maintain their academic standing at WSU (Office of the Registrar, WSU Housing and Residence Life, Student Financial Services) and their eligibility in STARS (Study Sessions). Thus, the minimum number of recognize a resource as a recourse is something that is captured with the rubric). However, there are over 20 different services available to WSU STARS students that are not tied to specific courses (or are only loosely affiliated with courses), such as:

• Campus Resources: Access Center, Health and Wellness, WSU Housing and Residence Life, WSU Ombudsman Office, Counseling and Psychological Services, Student Financial Services, The Office of Multicultural Student Services, Gender Identity/Expression and Sexual Orientation Resource Center, Women's Resource Center, TRiO Student Support Services, Academic Success and Career Center

- Academic Tutoring: Academic Success and Career Center, Multicultural Student Services, Chemistry Department, Math Learning Center, Writing Center
- VCEA Resources: VCEA Tutoring Center, Office of Professional Practice and Experiential Learning
- STARS Resources: Mathematics Tutoring, Chemistry Tutoring, Community

Whether or not the students know the kind of help offered by each resource is a different case. For example, a student might know that STARS Study Sessions happen twice a week, but forget that Chemistry help is offered during those sessions. How much a student knows about a resource can be determined by an open-ended question. The answer to the question can be coded with a "yes" or a "no" to signify the student has or does not appear to have adequate knowledge about the type of help the resource offers. Once the "yes" responses are tallied, the number can be assigned to a level of awareness in the rubric.

Again, a STARS student is expected to use a minimum of four resources. Anything less than this would constitute an unacceptably poor use or awareness of campus resources and would indicate the need for timely intervention to ensure the student is not adrift. Improvement from this minimally acceptable position could be realized either through developing a deeper understand of the resources about which a student is already aware and/or gaining awareness of and understanding of previously unfamiliar resources. Each position of improvement can be assigned to a level of utilization in the rubric.

There are multiple ways a STARS student can be active in the Voiland College. The college offers over 42 student organizations, an internship and co-op program, and numerous seminars, workshops, and social events. If a student has not participated in any of these opportunities, the student is poorly involved in the college. However, if the student has attended at least one VCEA sponsored event, is involved in at least one student organization, or is involved in an internship or co-op organized by VCEA, and a student would be considered fairly active in the college. If the student is involved in more than one student organization, attends many VCEA events, and is involved in an internship, the student is highly engaged in the College. (There also needs to be a recognition that excessive engagement in extracurricular activities can have a negative impact on classroom success.)

Mindset is largely (although certainly not exclusively) a bimodal measurement: in many ways a student either has a fixed mindset or has a growth mindset. In order to see if the student's mindset is changing, a student must demonstrate change from fixed to growth or at least from fixed to "unclear." A student's mindset can be determined using Dweck's Implicit Theories of Intelligence Questionnaire (2000). Student demonstrating an entity theory of intelligence (i.e. they believe their intelligence is a fixed quantity and spend their time trying to prove their intelligence) can be categorized as having a fixed mindset. Conversely, students demonstrating

an incremental theory of intelligence (i.e. they believe their intelligence is a malleable quantity and spend their time trying to add to their intelligence) can be categorized as having a growth mindset. Students demonstrating neither an entity nor an incremental theory can be categorized as having an unclear theory of intelligence.

Combining all of these categories, we propose the rubric in Table 2.

Table 2: Proposed Rubric

Category/Score	Poor	Fair	Good	Very Good	Excellent
Knowledge of	The student	The student	The student	The student	The student knows
the existence of	knows that 4	knows that 5-7	knows that 8-	knows that 11-	that 14 or more
resources	resources exist.	resources exist	10 exist	13 resources	resources exist
				exist	
Knowledge of	The student	The student	The student	The student	The student knows
the type of help	knows what type	knows what	knows what	knows what	what type of help is
campus	of help is offered	type of help is	type of help is	type of help is	offered by 14 or
resources offer	by 4 resources	offered by 5-7	offered by 8-10	offered by 11-	more resources
		resources	resources	13 resources	
Utilization of	The student has	The student has	The student has	The student has	The student has
resources	visited 3-4	visited 5-6	visited 7-8	visited 9-10	visited 11 or more
	resources at least	resources at	resources at	resources at	resources at least
	once	least once	least once	least once	once AND/OR the
		AND/OR the	AND/OR the	AND/OR the	student has visited
		student has	student has	student has	9-10 resources more
		visited 3-4	visited 5-6	visited 7-8	than once
		resources more than once	resources more	resources more	
Engagement in	The student has	The student has	than once The student has	than once The student has	The student has
VCEA (VCEA	not attended any	attended 1-2	attended 3-4	attended 5-6	attended 7 or more
Sponsored	VCEA sponsored	VCEA	VCEA	VCEA	VCEA sponsored
Events)	events	sponsored	sponsored	sponsored	events
L'vents)	events	events	events	events	events
Engagement in	The student is not	The student has	The student is	The student is	The student is
VCEA (Student	involved in a	attended a few	involved in 1	involved in 2	involved in 3 or
Organizations)	student	student	student	student	more student
8	organization	organization	organization	organizations	organizations
	8	meetings	5	U	0
Engagement in	The student is not	The student has	The student is	The student is	The student is
VCEA (co-op or	involved in a co-	applied to a co-	involved in a	involved in a	involved in a full-
internship	op or internship	op or	part-time co-op	full-time co-op	time co-op or
organized by		internship	or internship	or internship	internship in their
VCEA)				not in their	major
				major	
Mindset	The student	The student	The student	The student	The student
	demonstrates a	demonstrates a	does not	demonstrates a	demonstrates a
	strong fixed	fixed mindset	demonstrate a	growth mindset	strong growth
	mindset		clear mindset		mindset

#### **Case Study Examples**

STARS Student A started attending WSU in Fall 2015. Using the rubric from Table 2, Student A scores the following in Table 3.

Table 3: Student A

Category/Score	Poor	Fair	Good	Very Good	Excellent
Knowledge of	The student	The student	The student	The student	The student knows
the existence of	knows that 4	knows that 5-7	knows that 8-	knows that 11-	that 14 or more
resources	resources exist.	resources exist	10 exist	13 resources	resources exist
				exist	
Knowledge of	The student	The student	The student	The student	The student knows
the type of help	knows what type	knows what	knows what	knows what	what type of help is
campus	of help is offered	type of help is	type of help is	type of help is	offered by 14 or
resources offer	by 4 resources	offered by 5-7	offered by 8-	offered by 11-	more resources
	-	resources	10 resources	13 resources	
Utilization of	The student has	The student	The student	The student has	The student has
resources	visited 3-4	has visited 5-6	has visited 7-8	visited 9-10	visited 11 or more
	resources at least	resources at	resources at	resources at	resources at least
	once	least once	least once	least once	once AND/OR the
		AND/OR the	AND/OR the	AND/OR the	student has visited
		student has	student has	student has	9-10 resources
		visited 3-4	visited 5-6	visited 7-8	more than once
		resources more	resources more	resources more	
		than once	than once	than once	
Engagement in	The student has	The student	The student	The student	The student has
VCEA (VCEA	not attended any	has attended 1-	has attended 3-	has attended 5-	attended 7 or more
Sponsored	VCEA sponsored	2 VCEA	4 VCEA	6 VCEA	VCEA sponsored
Events)	events	sponsored	sponsored	sponsored	events
		events	events	events	
Engagement in	The student is	The student	The student is	The student is	The student is
VCEA (Student	not involved in a	has attended a	involved in 1	involved in 2	involved in 3 or
Organizations)	student	few student	student	student	more student
	organization	organization	organization	organizations	organizations
		meetings			
Engagement in	The student is	The student	The student is	The student is	The student is
VCEA (co-op	not involved in a	has applied to	involved in a	involved in a	involved in a full-
or internship	co-op or	a co-op or	part-time co-op	full-time co-op	time co-op or
organized by	internship	internship	or internship	or internship	internship in their
VCEA)				not in their	major
Mindaat	The student	The student	The student	major The student	The student
Mindset	The student		The student		
	demonstrates a	demonstrates a	does not	demonstrates a	demonstrates a
	strong fixed	fixed mindset	demonstrate a	growth mindset	strong growth
	mindset		clear mindset		mindset

Student A is aware of and knows the services offered by 10 resources (Health and Wellness, WSU Housing and Residence Life, Office of the Registrar, Counseling and Psychological Services, Student Financial Services, the Academic Success and Career Center, the Writing Center, the Math Learning Center, and the tutoring offered by STARS) and is categorized as having good knowledge of the resources available to STARS students. Student A has visited 5 of these resources at least once (Health and Wellness, WSU Housing and Residence Life, Office

of the Registrar, Student Financial Services, the Academic Success and Career Center, the Math Learning Center), and visited the Math Learning Center over 30 times in one semester and is categorized as having excellent utilization of resources. Student A has attended 4 workshops offered by Voiland's Professional Practice and Experiential Learning office, in addition to the VCEA Technical Career Expo and is categorized as having very good engagement. In conversations with Student A, the student has demonstrated that he holds a "fixed" mindset. The student constantly blamed his circumstances in situations of low academic performance instead of taking ownership of his actions. Holistically, this student demonstrates good awareness and utilization of resources and engagement in the College. Despite the fixed mindset, Student A is progressing towards a degree in construction engineering.

STARS Student B started attending WSU in Fall 2015. Using the rubric from Table 2, Student B scores the following in Table 4.

Category/Score	Poor	Fair	Good	Very Good	Excellent
Knowledge of	The student	The student	The student	The student	The student knows
the existence of	knows that 4	knows that 5-7	knows that 8-	knows that 11-	that 14 or more
resources	resources exist.	resources exist	10 exist	13 resources	resources exist
				exist	
Knowledge of	The student	The student	The student	The student	The student knows
the type of help	knows what type	knows what	knows what	knows what	what type of help is
campus	of help is offered	type of help is	type of help is	type of help is	offered by 14 or
resources offer	by 4 resources	offered by 5-7	offered by 8-	offered by 11-	more resources
		resources	10 resources	13 resources	
Utilization of	The student has	The student	The student	The student has	The student has
resources	visited 3-4	has visited 5-6	has visited 7-8	visited 9-10	visited 11 or more
	resources at least	resources at	resources at	resources at	resources at least
	once	least once	least once	least once	once AND/OR the
		AND/OR the	AND/OR the	AND/OR the	student has visited
		student has	student has	student has	9-10 resources more
		visited 3-4	visited 5-6	visited 7-8	than once
		resources more	resources more	resources more	
		than once	than once	than once	
Engagement in	The student has	The student	The student	The student has	The student has
VCEA (VCEA	not attended any	has attended	has attended 3-	attended 5-6	attended 7 or more
Sponsored	VCEA sponsored	1-2 VCEA	4 VCEA	VCEA	VCEA sponsored
Events)	events	sponsored	sponsored	sponsored	events
		events	events	events	
Engagement in	The student is	The student	The student is	The student is	The student is
VCEA (Student	not involved in a	has attended a	involved in 1	involved in 2	involved in 3 or
Organizations)	student	few student	student	student	more student
	organization	organization	organization	organizations	organizations
		meetings			
Engagement in	The student is	The student	The student is	The student is	The student is
VCEA (co-op	not involved in a	has applied to	involved in a	involved in a	involved in a full-
or internship	co-op or	a co-op or	part-time co-op	full-time co-op	time co-op or
organized by	internship	internship	or internship	or internship	internship in their
VCEA)				not in their	major
				major	

Table 4: Student B

Mindset	The student	The student	The student	The student	The student
	demonstrates a	demonstrates a	does not	demonstrates a	demonstrates a
	strong fixed	fixed mindset	demonstrate a	growth mindset	strong growth
	mindset		clear mindset		mindset

Student B is aware of and knows the services offered by 9 resources (Health and Wellness, WSU Housing and Residence Life, Office of the Registrar, Counseling and Psychological Services, Student Financial Services, the Academic Success and Career Center, and the tutoring offered by STARS) and is categorized as having fair knowledge of the resources available to STARS students. Student B has visited 4 of these resources at least once (WSU Housing and Residence Life, Office of the Registrar, Student Financial Services, STARS tutoring sessions) and is categorized having poor utilization of resources. In conversation, Student B told the program administrator that he had a documented learning disability. The program administrator informed the student about the Access Center and gave directions to the location, but Student B did not utilize the center. Student B was often absent while taking the required STARS courses. Student B has attended the VCEA Technical Career Expo and is categorized as having fair engagement in the College. In conversations with Student B, the student has demonstrated that he holds a "fixed" mindset. The student constantly blamed his circumstances in situations of low academic performance instead of taking ownership of his actions. Holistically, this student demonstrates only fair awareness and utilization of resources and engagement in the College. Student B left the university after one year in the engineering program.

## **Conclusions and Suggestions for Future Research**

The STARS program continues to give support to first-year students from low-income backgrounds. In the past, the results of the program were evaluated using student surveys, student GPA, and performance in mathematics and science courses. We plan to add the use of the proposed rubric to the evaluation of the WSU STARS program to provide a multidimensional view of the effects of the program. The rubric described in this paper can serve as a template for evaluating first-year programs. Future work will validate the rubric and determine its efficiency and consistency at measuring the aspects described.

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