

The Husky PAWS (Pathways for Academic Wellness and Success) S-STEM Program: Year Two

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Abstract

The Husky PAWS (Pathways for Academic Wellness and Success) program at {Institution} leverages Yosso's Cultural Wealth Model framework to select and mentor NSF' Scholarship in STEM (S-STEM) scholars. The ultimate program goals are increasing engagement, retention, graduation with B.S. degrees, and enrollment/graduation in accelerated M.S. degrees of these Pell-eligible scholars to those of non-Pell students. Centering the Husky PAWS S-STEM scholars as experts in their own lived experience, the Husky PAWS S-STEM program also utilizes a participatory action research (PAR) approach to improving the program year after year. In addition, a team of Peer Mentors actively engages and guides the S-STEM scholars via academic and social events. This paper will highlight progress over the first two years of this six-year project, utilizing the lens of the Husky PAWS program's logic model with a focus on short-term outcomes. The key takeaways include the successful and highly rated dimensions of the Husky PAWS S-STEM program, including adaptation strategies of the Cultural Wealth Model, which has yielded 100% retention thus far.

Introduction

Husky PAWS (Pathways for Academic Wellness and Success) Scholarship in STEM program began in 2023. Our PI team reviewed 150+ cohort scholar applications each year based on a Cultural Wealth essay/audio/video prompt [1,2]. Selected scholars participated in a multi-week Husky PAWS Summer Bridge in 2024 (Cohort 1, 5 weeks) and in 2025 (Cohort 2, 3 weeks). Cohort 1 included 6 students and Cohort 2 included 8 scholars. In addition to Cohort Scholars, 12 students received one-year finishing scholarships in their final year before graduating with a B.S. in engineering, engineering technology, computing, or physics. Academic year curricula built upon the Summer Bridge content, but participation was voluntary. All planned programming with students was categorized within Yosso's Cultural Wealth framework {Yosso, 2005 #6012}, then a PI reflection and PAR process was followed to adapt, optimize, and improve for student success.

Yosso originally developed the Community Cultural Wealth Model (CCWM) in 2005 [1] after deep reflections on the assets students of color bring with them to college [3]. Prior S-STEM sites have focused on providing students financial, academic, social, and cultural capital [4]. The Husky PAWS S-STEM has focused largely on cultivating navigational capital within the higher education environment, aspirational capital to achieve success within their education, and resistance capital to persevere and thrive despite obstacles in order to maintain a sense of self and belonging in STEM. Our team's approach has been to develop curricula with high relevancy to current scholastic events (career fair, exams, etc.) and based upon students' needs, then afterward to classify into one or more of the cultural wealth categories. However, periodic reflection at the program level has led us to be much more deliberate about developing content to address an overlooked dimension of the cultural wealth model. For example, we have annually conducted a webinar for parents prior to students returning home for their first Fall Break.

In 2024 for Cohort 1, we conducted a 5 week Summer Bridge program that included 3 dedicated weeks of metacognition and calculus or pre-calculus instruction based on students' entry-level placement (e.g., ALEKS scores), with students enrolled in the track aligned to their readiness level followed by one week of the College of Engineering's Prep4Tech, and one week of Orientation Week organized by the university's Student Affairs [1]. After conducting a Group Level Assessment (GLA, see Participatory Action Research section below), this was modified into a 3 week Summer Bridge program in 2025 for Cohort 2 students. The Prep4Tech content and involvement was excluded and Orientation Week was reduced to 3.5 days. The 1-credit Summer Bridge course included metacognition and calculus instruction. Classes lasted 2 hours each day and were a mix of content delivery, activities, writing in a reflection journal, and workshoping the concepts.

Participatory Action Research

The Husky PAWS S-STEM program utilizes a participatory action research (PAR) approach to improvement. PAR efforts focused on the co-creation of change within systems alongside individuals most affected by them [5]. One S-STEM scholar from Cohort 1 is funded to serve as a PAR co-researcher alongside our project team, José {last name}. PAR efforts initially focused around the development and refinement of our application materials [2]. Our PAR researcher then performed a group level assessment (GLA) to revise our summer bridge program with all of the students in our first cohort. GLA was selected due to its strong alignment with PAR frameworks, emphasizing shared authority, collective interpretation, and the co-creation of actionable knowledge [6]. Future PAR efforts will further refine the Summer Bridge program based on Cohort 2 feedback. The PAR co-researcher will continue conducting annual interviews with S-STEM Scholars to identify additional support needed for their success, while leveraging their assets within the CCWM.

Logic Model

When envisioning this novel and impactful Husky PAWS program around the six dimensions of cultural wealth, the PI team iterated on short-term, mid-term, and long-term outcomes aligned with each aspect of the S-STEM goals and objectives. Desirable short-term outcomes were identified at three levels: program (a-e), student (i-iii), and community (A-D). At this stage of the Husky PAWS S-STEM program, two first year cohorts have started and two finishing scholar cohorts have participated. Thus, this paper outlines the short-term outcomes covering Cohort 1's first year and Cohort 2's start to the first year.

Surveys and Survey Structure

Pre- and Post-Summer Bridge surveys were conducted with both Cohort 1 and Cohort 2, including questions on metacognition [7]; aspirational, familial, resistant capital [8]; linguistic capital and assistance [9]; and belongingness [10]. Scholars also completed an annual satisfaction survey conducted by our team's external evaluator [11].

Results: Short-Term

The big picture outcomes are that we had 100% retention of students in Cohort 1 and Finishing Scholars 1. In addition, four of the finishing scholars graduated with their B.S. degrees in Biomedical Engineering, Cybersecurity (double major in Sustainability Science & Society), Electrical Engineering, and Mechanical Engineering. Three of the graduates provided details on

their successful employment in STEM. Evidence of success of the program with regards to the student, community, and program level outcome goals follows.

Program-level Short-Term Outcomes:

- a) 6 students will be recruited each year as part of a first-year cohort => SUCCESS, we recruited 6 students in cohort 1 and 8 in cohort 2.
- b)>75% of the first-year cohort will choose to participate in a summer bridge experience => SUCCESS in Yr 1 with 100% participation; => SUCCESS in Yr 2 with 100% participation.
- c)>75% of the first-year cohort will enroll in and complete the UN1020 seminar in good academic standing => SUCCESS in Yr 1 => SUCCESS in Yr 2. 100% of students completed the Summer Bridge with strong participation and performance to earn the 1 credit for the course.
- d)>75% of the first-year cohort will choose to participate in the Husky Connect near-peer mentoring program => MIXED, This was measured at the start of the 3rd semester for the 1st Cohort students. Of the 6 Cohort 1 students, 5 responded and 1 was involved in Husky Connect. This specific program was closely connected with the former co-PI Wayne Gersie. If we update the metric to be broadly inclusive of peer mentoring in general, 3 of 6 students took on formal peer mentoring roles and 4 of 6 were active on the cross-cohort Discord, engaging with and answering questions with Cohort 2 students, so 50-67% participation.
- e) 5-6 students will be recruited each year as part of a Finishing Scholar cohort => SUCCESS in Yr 1 with 6 finishing scholars selected; => SUCCESS in Yr 2 with 6 finishing scholars selected

Student-level Short-Term Outcomes:

- i) 90% of the first-year cohort will complete their first semester in good academic standing => SUCCESS, 100% of students continue to be in good academic standing after one year.
- ii) 80% of the first-year cohort retained for year two => SUCCESS, We retained 100% of cohort 1 students for a second year.
- iii) Students participate in their own growth and development => ONGOING. In any given professional development event, roughly 50% of the cohort students attended. However, student GPAs, involvement on campus, and retention indicate the highest indicator of success from the students growth and development.

Community--level Short-Term Outcomes:

- A)>75% of the first-year cohort students will express they have one or more people with whom they feel a deep connection on campus => SUCCESS: 5 of the 6 Scholars in Cohort 1 responded to the survey about their sense of belonging after one year on campus. As shown in *Figure 3a*, all five indicated they agree or strongly agree to feeling a deep connection with at least one person on campus.
- B)>75% of the first-year cohort students will express a strong or very strong sense of

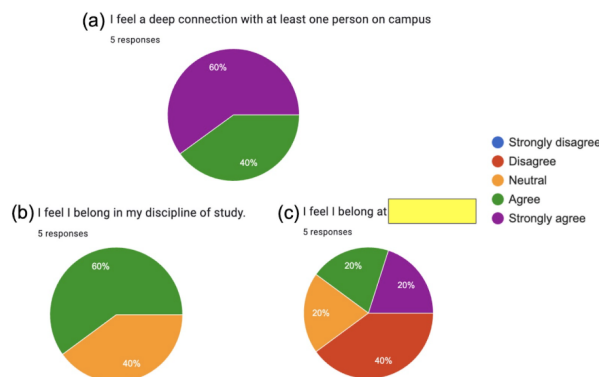


Figure 3: Belonging of Cohort 1 students at the beginning of their second year on campus

belonging (in their discipline, at {Institution} , among their peers), measured at least annually
=> NOT MET: 5 of the 6 Scholars in Cohort 1 responded to the survey about their sense of belonging after one year on campus. As shown in *Figure 3b and c*, 60% of respondents indicated feeling a sense of belonging in their discipline, only 40% indicated a sense of belonging at {Institution} . In addition, only 40% indicated they have developed relationships with other students in their classes.

C)>50% will express a strong or very strong sense of personal connection with faculty/staff => MIXED: 5 of the 6 Scholars in Cohort 1 responded to the survey about their sense of belonging after one year on campus. As shown in *Figure 4a and b*, 80% indicated they feel comfortable talking about a problem with faculty, but only 20% indicated they felt comfortable if the problem were a personal one.

D)Students can envision their future selves contributing in STEM in meaningful ways that resonate with their own sense of self. => SUCCESS: 6 of the 6 Scholars in Cohort 1 responded to the survey about their forms of Cultural Wealth after one year on campus. As shown in *Figure 4c*, 83.3% indicated they could envision their future self contributing to STEM in meaningful ways that resonate with their own sense of self.

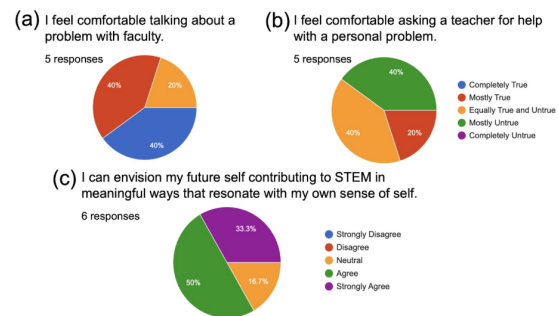


Figure 4: Personal Connections and Vision of Cohort 1 students at the beginning of their second year on campus

As additional cohorts progress, we plan to incorporate formal statistical analysis (e.g Mixed Effect Model) using three-year cohort data to evaluate trends and outcomes.

Conclusions

The Husky PAWS (Pathways for Academic Wellness and Success) program at {Institution} leverages Yosso's Cultural Wealth Model framework to select and mentor NSF' Scholarships in STEM (S-STEM) scholars. The short-term outputs of the program have largely been successful with 100% retention and students making progress towards their STEM bachelor of science degree (Cohort and Finishing scholars) or graduating and earning jobs in STEM fields (Finishing scholars). Programming and activities are aligned with the six types of social capital in Yosso's Cultural Wealth model. Results and student feedback suggest that this approach has yielded strong bonds and affinity within the Summer Bridge cohort, but surveys on belongingness show that this doesn't necessarily extend into broader campus contexts like their affinity to other students/faculty in their discipline or at {institution}.

The PAR approach has provided the students ownership and agency in the program. Improvements to Summer Bridge and to the Peer Mentor model have been implemented in the second year with plans to continue this in future years. The involvement of Peer Mentors and ongoing professional development and community engagement activities has provided wrap-around support for students. S-STEM scholars continue to do well academically and engage with career exploration and development activities.

In summary, the Husky PAWS program is on track to meet or exceed mid-term outcomes in our logic model as we move into selecting and onboarding the third cohort of first year students and selecting the third class of finishing scholars. The academic success, retention, and perseverance of the scholars in years 1 and 2 are following a trajectory to meet the overarching goals of the program to increase engagement, retention, and graduation with B.S. degrees.

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