Casper College's Health Science Simulation Center (HSSC) Project: Final Evaluation Report

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Executive Summary

In September 2012, Casper College received a grant award from the U.S. Department of Labor (DOL) as part of the Round 2 Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant program. The college used the grant funds to develop and maintain the Health Science Simulation Center (HSSC) with a principal site in Natrona County. This initiative provided specialized healthcare education to students eligible for trade adjustment assistance (TAA), the long-term unemployed, the underemployed, veterans, and other adults across all of Wyoming's 23 counties.

Using TAACCCT grant funding, the HSSC project served a total of 220 participants in gaining the skills and knowledge needed to be successful in the field of health care, including (1) medical laboratory technician, (2) nursing, (3) occupational therapy assistant, (4) paramedic technology, (5) pharmacy technology, (6) physical education, (7) radiography, and (8) respiratory therapy. The demographics of HSSC participants were primarily Caucasian (90%) and female (82%). About 60% were enrolled full-time; 70% were employed upon enrollment; 7% were veterans or veterans' spouses; 6% reported having a disability; and 51% were eligible for Pell grant funding. On average, participants were about 30 years old ($SD = 7.88$) when they were enrolled.

The ultimate goal of the HSSC project was to provide education, training, and services to ensure participant success in education and employment. This report presents findings of the HSSC project's implementation and outcomes. A brief description of the project's evaluation design is provided, followed by a summary of implementation and outcome evaluation findings. Conclusions and recommendations are also provided for future research and evaluation efforts.

Evaluation Design Summary

This section provides a brief overview of the conceptual framework and evaluation design, including the formative and summative evaluation components.

Conceptual Framework

The HSSC project embodied several core components, including (1) evidence-based design, (2) stackable and latticed career pathways, (3) technology-enabled learning, (4) transferability and articulation, and (5) strategic alignment. It was hypothesized that, with enhanced simulation curricula and health science program curricula, the state-of-the-art high fidelity simulation equipment, and strategic alignment, the HSSC project would be able to provide the training, education, and services needed to support students' educational success (i.e., prevent withdrawals and support program completion) and employment successes (i.e., gain employment, be retained in employment, and receive wage gains).

Evaluation Design

The HSSC project evaluation contained a formative evaluation component examining the extent to which the project was implemented as intended as well as a summative evaluation component assessing the outcomes of the HSSC project on participants.

Formative Evaluation Questions and Design. Three overarching formative evaluation questions guided by the TAACCCT Round 2 Solicitation for Grant Applications (SGA) are described below:

1. How were the key strategies and activities of the HSSC project implemented across the participating eight programs in the School of Health Science?

2. What was the value added by the partners in the HSSC project?

3. To what extent is the HSSC project sustainable?

The focus of the formative evaluation was to document the implementation of the HSSC project components to ensure that all of the key elements were being implemented as planned; partners were involved in the implementation of the HSSC project; and the HSSC project components are sustainable beyond the life of the grant. To answer these questions, the HSSC project team gathered data from various sources to inform the project's progress. All data collected were shared with McREL evaluators for evaluation.

Summative Evaluation Questions and Design. To understand the project's outcomes, one summative question was investigated - *To what extent does the HSSC project have an impact on participant outcomes?* To address this question, evaluators descriptively described participants' outcomes on the following nine indicators and compared the outcomes against the projected targets:

1. Total unique participants served

2. Total Number Who Have Completed a Grant-Funded Program of Study

3. Total Number Still Retained in Their Program of Study or Other Grant-Funded Program(s)

4. Total Number of Students Completing Credit Hours

5. Total Number of Students Earning Credentials, Diplomas, and Degrees

6. Total Number Enrolled in Further Education After Program of Study Completion

7. Total Number Employed After Program of Study Completion

8. Total Number Retained in Employment After Program of Study Completion

9. Total Number of Those Employed at Enrollment Who Received a Wage Increase Post-Enrollment

Additionally, evaluators conducted a descriptive study utilizing student and faculty survey data collected by project staff to describe students' and faculty members' perceptions of the project's impact.

Implementation Findings

Findings of steps taken by the HSSC project staff to create and implement the HSSC project are first summarized (formative question 1), followed by a discussion of the value added by project partners (formative question 2) and evidence of its sustainability (formative question 3).

HSSC Implementation

After triangulating all of the data collected throughout the performance period, findings suggest that all five key strategies were implemented as planned with the exception that some activities were delayed in terms of timeline due to bureaucratic processes and procedures that required more time than anticipated. Regardless, project staff were able to catch up and complete the tasks within three to six months of the expected end date. Highlights of the HSSC project implementation are summarized below.

- All eight programs of study involved in the HSSC project were accredited and their respective curricula were established prior to the grant. TAACCCT grant provided the opportunity to incorporate simulation education in the existing curricula.

- Through the grant, HSSC project staff and program faculty collaborated with employer partners to review health care program curricula to ensure that the curricula adequately emphasize the technical competencies and proficiency skills specified by national certifying agencies and best practices.

- The HSSC project used grant funding to create a technology-enabled learning environment equipped with modern medical equipment and high-fidelity human patient simulators that provides students with hands-on experiences that imitate real-life situations and allows students to learn critical clinical skills without the risk of harm to patients.

- During the grant period, the Simulation Program contributed to the development of a certificate program, Foundations of Interprofessional Health Care, that is designed to support the interprofessional training. The certificate was approved by the Board of Trustees and was waiting for the approval by Community College Commission as of the end of the grant. The certificate will be housed under the Health Science Simulation Program (referred as the Simulation Program hereinafter) once it is approved.

- On-going professional development activities were provided to health science faculty members throughout the grant period. These training efforts have resulted in positive and strong faculty buy-in. By the end of the grant, all eight health science programs have utilized the HSSC facility and integrated simulation scenarios and simulation sessions into their curriculum through either orientation or learning sessions. Four faculty members received their certification as a Certified Healthcare Simulation Educator, and two additional faculty members were in the process of getting the certification as of the end of the grant.

- According to faculty members' and participants' responses on the end-of-semester surveys, both faculty and students gave high ratings (*agree* or *strongly agree*) regarding their level of satisfaction with the simulation experiences and students' self-confidence in simulation learning.

- New articulation agreements were established with four colleges and universities during the grant period.

- While most of the programs of study were delivered in a traditional in-person format, some of health science programs (i.e., medical laboratory technician, occupational therapy assistant, pharmacy technology, and radiography) were being offered as hybrid courses, which allow students to take lectures via distance learning technology and gain clinical experience at clinical sites that are close to home. In terms of the newly created Foundations of Interprofessional Health Care Certificate Program, all courses will be offered online except one course (i.e., The Interprofessional Heath Care Team) which will be offered in a hybrid format with three required on campus classes.

- Participants received academic advising, tutoring, disability support, and other appropriate student support service through Casper College's Student Service Center as needed. Findings from the participant and faculty end-of-semester surveys revealed that

most of the participants were aware of the services and *agreed* or *strongly agreed* that the services are adequate to meet students' learning needs. However, both faculty and participants also *agreed* or *strongly agreed* that students could have utilized the services more effectively.

- Participants received career guidance support services in a variety of ways mostly through the existing mechanisms within Casper College. First, career guidance was available for project participants through the Student Service Center. Secondly, the director of career services made annual presentations to the health science students; provided résumé writing courses; and conducted mock interviews with health science students. Lastly, a Health Professions Career Fair was held on campus annually providing students with opportunities to interact with future potential employers.

- The project developed the participant selection protocol to assist grant staff in identifying eligible participants for the eight programs of study. Utilizing the protocol, the project has successfully selected and enrolled a total of 220 participants (120 in Year 2 and 100 in Year 3) which surpassed the expectation that the HSSC would serve only 40 students over the life of the grant.

Value Added by Project Partners

When the project started in 2012, the Wyoming Medical Center (WMC) was the primary principal employer partner for the project. The partnership between the HSSC and WMC provided opportunities for medical center staff to be directly involved in the HSSC project as faculty members and advisors (e.g., members of the grant management team [GMT]). These individuals were able to translate training needs of healthcare professionals at their facilities directly into simulation sessions for HSSC project participants. This arrangement offered the project invaluable contributions to curriculum development. Additionally, because of this partnership, the HSSC project established an agreement with the WMC to test the utilization of the medical center's Electronic Medical Records (EMR) system at the HSSC facility. Having access to an EMR system was a tremendous advantage to simulation education as it facilitated regular simulation sessions as well as interprofessional education sessions by providing a conduit for information exchange between health science programs.

In addition to maintaining the existing partnership with WMC, the HSSC project staff also actively reached out and established new partnerships to support the operation and implementation of the HSSC project. These partnerships contributed to the project in many different ways. The key contributions made from employers, workforce partners, and education partners are summarized below.

- Casper College had a long-term partnership with the Casper Workforce Center. For the HSSC project, a representative from the workforce center was actively involved in the project via the grant management team (GMT) and is also providing ongoing business services to grant participants, as appropriate (e.g., Workforce Investment Act training funds, job placement, job search training, job retention skills, referral of eligible adults to the project).

- HSSC project staff reached out to and communicated with education partners to support the sustainability of the HSSC, including establishing articulation agreements with other institutions of higher education (IHEs); disseminate HSSC information to K-12 education

community and other higher education community through conferences, career fairs, and presentations; and offered HSSC facility for other IHEs to use.

Taken together, the partners were actively involved in various aspects of project implementation critical to the grant's success, including curriculum development, training placement, leveraging of resources, and planning for program sustainability.

Sustainability

To support and plan for the sustainability of the HSSC and Simulation Program, project staff have focused on four aspects since the inception of the project: (1) facilities, (2) staff, (3) governance, and (4) accreditation. Specifically, the state-of-the-art HSSC facility will continue to be operated and maintained by trained faculty and staff members. The operation of the HSSC and the Simulation Program is overseen by an ad hoc steering committee. The steering committee met regularly to establish policies and procedures for the HSSC; this work has form the basis for sustainable governance of the center after TAACCCT funding ends. Additionally, the HSSC was granted accreditation in the area of Teaching/Education by the Society for Simulation in Healthcare (SSH). The accreditation will enhance the sustainability of the HSSC and enable additional delivery of services and education that can contribute to long-term sustainability.

To evaluate the HSSC's sustainability, project staff invited a group of key stakeholders to take a sustainability survey in the fall of 2015 and summer of 2016. Results show that the HSSC's overall capacity for sustainability was strong although the average rating decreased slightly from the fall of 2015 ($M = 6.10$) to summer of 2016 ($M = 5.50$)[1]. The ratings of the summer of 2016 assessment were particularly low in three areas, including Communications ($M = 4.00$), Partnerships ($M = 4.20$), and Funding Stability ($M = 3.80$). These areas often require dedicated staff to support the efforts. Hence, lower ratings in these area as the project comes to an end, although undesired, are somewhat expected. One the other hand, HSSC's capacity in three areas were at the highest rating possible ($M = 7.00$) by the end of the grant, including (1) organizational capacity, (2) program evaluation, and (3) program adaption. To sustain the operation of the HSSC, Casper College has committed to providing permanent funding for two essential personnel for the HSSC and Simulation Program, including a dedicated full-time administrative faculty and a full-time Simulation Operations Specialist. This groundwork has positioned the HSSC on a solid foundation that is sustainable beyond the life of the grant.

Summative Evaluation Findings

This section summarizes the outcomes of the HSSC project. The overall project outcomes are presented in table below.

	Outcome Measures	HSSC Outcomes	Performance Targets
1	Total unique participants served	220	40
2	Total number of participants who have completed a TAACCCT-funded program	137	34
3	Total number of participants still retained in their program of study or another TAACCCT-funded program	18	17

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[1] All items from the sustainability assessment was rated on a 7-point scale from 1 (to little or no extent) to 7 (to a great extent).

	Outcome Measures	HSSC Outcomes	Performance Targets
4	Total number of participants completing credit hours	204	34
5	Total number of participants earning credentials	198	34
6	Total number of participants enrolled in further education after grant-funded program of study completion	23	8
7	Total number of participants employed after grant-funded program of study completion	28	30
8	Total number of participants retained in employment after program of study completion	20	30
9	Number of participants employed at enrollment who received a wage increase post-enrollment	0	8

Overall, the total number of unique participants served was 220, which surpassed the projected value of 40. When comparing the results against the projected targets, percentages were calculated to allow for these comparisons to occur from a better perspective. In all, the project met the performance target on two outcome indicators as described below:

- **Outcome Indicator #4:** 93% (204 out of 220) of the participants earned credits in comparison to the target of 85% (34 out of 40).

- **Outcome Indicator #5:** 90% (198 out of 220) of the participants earned at least one industry-recognized credential or college-awarded certificate or degree in comparison to the target of 85% (34 out of 40). These 198 unique participants earned a total of 206 certificates and degrees. Of those unique participants, 4% (7 out of 198) earned one or more certificates that can be completed in less than one year; 31% (62 out of 198) earned one or more certificates that can be completed in more than one year), and 65% (129 out of 198) earned one or more degrees.

However, the HSSC project did not meet the performance targets on the remaining seven outcome indicators, including:

- **Outcome Indicator #2:** 62% (137 out of 220) of the participants completed a grant-funded program of study as compared to the target of 85% (34 out of 40) by the end of the grant. One possible explanation for not meeting the target is that the project might have overestimated the performance target when the proposal was written. Specifically, the total number of completers (Indicator #2) and the total number of participants retained (Indicator #3) should not be more than the total number of participants recruited (Indicator #1). Based on the projected number, this rule was obviously violated.

- **Outcome Indicator #3:** 8% (18 out of 220) of the participants were still retained in their program of study or were enrolled in other TAACCCT-funded programs in comparison to the target of 43% (17 out of 40) by the end of the grant. As discussed under Outcome Indicator #2, the project might have overestimated the performance target when the proposal was written given that the total number of completers (Indicator #2) and the total number of participants retained (Indicator #3) should not be more than the total number of participants recruited (Indicator #1).

- **Outcome Indicator #6:** 17% (23 out of 137) of the program completers enrolled in further education (TAACCCT grant funded or not) as compared to the target of 24% (8

out of 34). There is one possible explanation for the low number of program completers enrolling in further education. That is, HSSC project staff relied on the StudentTracker data provided by the National Student Clearinghouse (NSC) to track students' enrollment status in further education after exiting the college. Not all postsecondary education institutions are the members of the NSC; hence, some students who were enrolled in the institutions that did not provide data to the NSC may be missed.

- **Outcome Indicator #7:** 20% (28 out of 137) of the program completers gained employment during the first quarter after exiting their program of study in comparison to the target of 88% (30 out of 34). Yet, it should be noted that, per the DOL, the estimate should be based on the number of non-incumbent workers who completed at least one program of study who gained employment. The DOL's definition would result in 65% (28 out of 43) of the non-incumbent workers who completed at least one program of study gained employment. However, there is no information available about the number of projected non-incumbent workers in the project narrative; therefore, McREL evaluators are unable to compare the performance target with the actual outcomes with the more accurate estimation based on the DOL definition. Additionally, this outcome is underestimated given the time lag between when the employment and wage data became available and when the report is completed. Specifically, the most recent quarter for which employment data were available was the quarter ending September 30, 2015 (the end of grant Year 3). This means that it is unknown how many participants who completed their program of study right before the end of grant Year 3 and during grant Year 4 gained employment.

- **Outcome Indicator #8:** 71% (20 out of 28) of the participants who gained employment were retained as compared to the target of 100% (30 out of 30). As discussed in Indicator #7, this outcome is underestimated given the fact that the majority of data needed for this outcome was not available when this report was prepared. In fact, the most recent quarter for which employment retention data was available was the quarter ending March 31, 2015.

- **Outcome Indicator #9:** 0% (0 out of 220) of the participants received wage increases after becoming enrolled in a TAACCCT-funded program of study in comparison to the target of 20% (8 out of 40).

Additionally, survey data was collected from the HSSC project staff to understand the extent to which the HSSC had an effect on participant outcomes. Results showed that:

- According to the end-of-program surveys, participants expressed having positive attitudes toward their learning experiences with the HSSC. Specifically, when participants were asked to compare their experiences with the training both with and without the HSSC, they overwhelmingly preferred their experiences with the HSSC.

- According to post-graduation survey responses, participants expressed positive perceptions about what they learned from their respective programs. Particularly, the majority of participants who responded to the surveys *agreed* or *strongly agreed* that their program provided the knowledge and skills they need to perform well on their job.

- According to responses on the employer surveys, the majority of the program graduates' employers *agreed* or *strongly agreed* that the program provided their employees with the knowledge and skills they need to perform well on the job.

Conclusions

Overall, the HSSC project was largely implemented as planned; although some delays occurred during the first two years of the grant primarily due to bureaucratic process, the HSSC project staff were able to catch up and implement the elements within three to six months following the original deadline. When looking at project outcomes, although the project did not meet the targets on six outcomes, the shortcomings were primarily due to the limitation of data availability when the report was prepared as well as the overestimation of projected numbers when the proposal was written. Regardless, the efforts put forth by the HSSC project staff were valued by project participants, faculty members, and industry employers. Particularly, participants expressed positive experiences with the HSSC and their simulation experiences; program graduates expressed positive perceptions about what they learned from their respective programs; and employers gave positive feedback about program graduates' job performance.

Several lessons learned from the evaluation of the HSSC project are summarized as below. Recommendations are made accordingly to guide the direction of research and evaluation in the future research and technical education initiatives.

- **Low survey response rates from participants and employers made evaluation findings less generalizable.** Project staff collected survey data from participants and employers and transmitted the data to McREL evaluators for analyses. Low response rates made the interpretation of the findings difficult and potentially biased (i.e., it is possible that participants who had more positive experience with the project were more likely to respond to the survey), and less generalizable to the HSSC program participants. It is recommended for future initiatives to allow evaluators and grantees to use incentives to secure a higher response rate.

- **Projected outcomes that were included in the grant application were frequently unrealistic and made it challenging to meet the performance targets.** This appears to be primarily due to a lack of understanding about the definitions of the indicators when grantees prepared their proposals and those with familiarity or knowledge of realistic targets were not involved in the grant-writing process. The SGA provided some initial descriptions of the outcome indicators, but greater detail provided in future SGAs may result in more realistic projections.

- **Insufficient time to track employment outcomes made it challenging to provide an accurate picture of the employment outcomes (e.g., gained employment and retained in employment).** Per the DOL's definition, it requires at least nine months to track participants' employment outcomes (i.e., whether gained employment or not within the first quarter after the exit quarter; whether retained employment or not within the second and third quarters after the exit quarter). As a result, employment data for participants who completed their program of study near the end of grant Year 3 and grant Year 4 are often unavailable when the report is prepared. This issue was often overlooked when the proposal was prepared. For future effort to understand the effect of career and education training initiatives in postsecondary education, it may be more appropriate to extend the project timeline from four years to five years. This would allow grantees to have sufficient time to not only implement the project but also collect data needed to inform project outcomes. Additionally, it may be more appropriate to measure gain employment as being employed during the exit quarter given that many participants may gained employment right after, or even right before program

completion as a result of experiential learning opportunities that were offered through the grant (e.g., paid- or un-paid internship). This revised measure will also shorten the timeframe required to track the retained employment outcome.

- **No need to track whether participants were employed and retained in employment in the field in which they were trained made the evaluation of project effect on employment outcomes less meaningful.** Per the DOL's definition, participants can be counted as gain employment and retained in employment as long as they were employed regardless of the industry. This definition does not provide a real picture of how the project has helped the participants gain the skills and knowledge needed to secure a job and retained in the industry in which they were trained. It is recommended to revise the definition of employment outcomes to better describe the project effect on participants' employment outcomes.

- **Peer learning is valuable.** As an organization that is evaluating more than one TAACCCT grant, it has been advantageous to build upon economies of scale. Internally, McREL evaluators have learned from each other's projects and used common evaluation methods and scales. It would have been valuable to have all TAACCCT grant evaluators convene for at least one national meeting as proposed in the SGA. These types of meetings would have built a community of learners that would have permitted each of us to share what was learned with the evaluations, discuss instruments and processes, as well as facilitate networking with one another.

Project Overview

"Our mission is to improve health care practice by elevating the understanding, skills, and collaboration of students and professionals through informed, multimodal, and interprofessional simulation education in a state-of-the-art facility."

"Our vision is to be an accredited provider of healthcare simulation education and to be recognized as contributing to the competent, confident, reflective, and ethical practice of healthcare professionals."

In September 2012, Casper College received a grant award from the U.S. Department of Labor (DOL) as part of the Round 2 Trade Adjustment Assistance Community College and Career Training (TAACCC T) grant program. The college used TAACCCT grant funding to develop and enhance health care curricula, operate the Health Science Simulation Program (referred as the Simulation Program hereinafter), and maintain the Health Science Simulation Center (HSSC) with a principal site in Natrona County. The overarching goals of the HSSC project were to create and develop viable career options for Wyoming's trade-impacted adults, unemployed and underemployed workers, veterans, and other adults while fulfilling the state's critical healthcare industry demand for qualified candidates. Specifically, the HSSC project provided students with training that imitates real-life situations with no risk of harm to the patients, guiding program participants down one of eight medical career pathways. These pathways, which all lead to certificates, diplomas, degrees, or other credentials, included: (1) medical laboratory technician, (2) nursing, (3) occupational therapy assistant, (4) paramedic technology, (5) pharmacy technology, (6) physical education, (7) radiography, and (8) respiratory therapy. The HSSC initiative provided specialized healthcare education to participants across all of Wyoming's 23 counties.

Program Framework

Presented in Figure 1 is a logic model (i.e., theory of action) of the HSSC project and used to conceptualize the formative and summative evaluation designs. In particular, the logic model presents a theory of action describing the connections between resources required to carry out the project; the evidence-based strategies; the expected output as a direct result of the strategies; and the main outcomes of interest of the HSSC project.

Resources	Strategies	Outputs	Outcomes
• Grant Management Team (GMT) • Simulation lab facilitator • Faculty	• Evidence based design • Stacked and latticed credential • Technology-enabled learning • Transferability and articulation • Strategic alignment	• Participants enrolled in TAACCCT-funded programs of study • Strategies and activities implemented adhered to project workplan • Strategies and activities were implemented with quality.	• Participants (1) completed TAACCCT-funded programs of study; (2) retained in TAACCCT-funded programs of study; (3) completed credit hours; (4) enrolled in further education; (5) earned credentials; (6) gained employment; (7) retained in employment; and (8) receive wage gains

Figure 1. HSSC Project Logic Model

Resources

The operation and implementation of the HSSC was led by a grant management team (GMT) including nine administrative leaders from Casper College and community business partners: (1) Dean of the School of Health Science; (2) Dean of Continuing Education/Community Partnerships; (3) Vice President for Academic Affairs; (4) Grants Coordinator; (5) Associate Controller; (6) Director of Purchasing; (7) Project Manager; (8) representative from the Wyoming Department of Workforce Services; and (9) representative from the Wyoming Medical Center (WMC). Specifically, the Dean of the School of Health Science oversaw the project implementation and performance; the Project Manager carried out the day-to-day operation of the project and reported to the Dean; and other members of the GMT served as advisors for the project. Within the HSSC, several staff were hired through the grant and contributed to the operation of the HSSC, including a simulation assistant and simulator facilitators.

Strategies

The HSSC project embodied several core components. The first element was to provide an evidence-based program. The second element was to develop and create stackable and latticed career pathways to fill the credentialing gaps in the field of health care. The third component was to provide a technology-enabled learning environment by expanding online offerings as well as creating a simulation lab equipped with high-fidelity simulation equipment that provides health care training that imitates real-life situations with no risk of harm to the patients. The fourth element was to establish articulation agreements with other higher education institutions that allow students to transfer their credits to partner institutions. The last component was to establish strategic partnerships with industry and workforce partners. The principal partner for the HSSC project was the Wyoming Medical Center (WMC). The partnership with WMC provided (1) career information pertinent to professional growth, (2) clinical setting for education, (3) experienced staff for training, (4) doctors for academic support and for on-site clinical preceptorship work, and (5) employment (i.e., interview graduates for employment).

Outputs

Outputs are defined as the direct results of the HSSC project's strategies. It was expected that the project would recruit 40 participants. Additionally, all elements would be in place by the end of the performance period; implementation would adhere to the Project Work Plan; and the quality of implementation would be high as they (i.e., adherence of project implementation and implementation quality) are what matters the most to ensure students success. Therefore, the focus of the implementation evaluation is not only to document the implementation of key strategies, but also evaluate the quality of implementation.

Outcomes

Eight outcome measures specified by the DOL as grant performance indicators, in addition to the recruitment number described under Outcome were evaluated.

Table 1. HSSC Project Outcome Measures and the Performance Targets

	Outcome Measures	Performance Targets
1	Total unique participants served	40
2	Total number of participants who have completed a TAACCCT-funded program	34
3	Total number of participants still retained in their program of study or another TAACCCT-funded program	17[a]
4	Total number of participants completing credit hours	34
5	Total number of participants earning credentials	34
6	Total number of participants enrolled in further education after grant-funded program of study completion	8
7	Total number of participants employed after grant-funded program of study completion	30
8	Total number of participants retained in employment after program of study completion	30
9	Number of participants employed at enrollment who received a wage increase post-enrollment	8

Note. Indicators listed in this table are slightly different from the indicators reported in the Annual Performance Report (APR), instead, they were specified in the program narrative with set performance targets.

[a] In the project narrative, it was estimated that 17 participants would be retained as of the end of grant Year 2 and additional 17 participants would be retained as of the end of grant Year 3. The grant writer set up the performance target by adding the number of participants retained from Year 2 and Year 3; however, to evaluate the extent to which the HSSC project has an effect on retention rate, it is more appropriate to set the performance target based on the number of participants retained as of the end of the performance period, which was 17 and was used for the evaluation.

Definitions of each outcome and their projected targets are described below. It should be noted that when comparing the results against the projected targets, percentages were calculated to allow for these comparisons to occur from a better perspective. For instance, if the HSSC project recruited a higher number of participants than what was projected, the percentage of participants who complete a program of study is calculated and is used to compare against the projected percentage to avoid overestimating the project's performance in reaching the anticipated outcomes. In addition, it should be noted that the denominators used to calculate the percentages differ depending on the definition of each indicator.

- **Number Who Have Completed a Grant-Funded Program of Study:** Total number of unique participants who completed any grant-funded program. Participants were only included once, even if they completed multiple programs of study. HSSC anticipated 85% (34 out of 40) of the grant participants would complete a TAACCCT-funded program.

- **Total Number Still Retained in Their Program of Study or Other Grant-Funded Program(s):** Of the total number of unique participants enrolled who have not completed their programs, the total number of enrollees who are still enrolled either in their original program of study or a different grant-funded program of study at the end of the performance period. The HSSC project anticipated that 85% (34 out of 40)[2] of the grant participants would be retained in a TAACCCT-funded program.

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[2] The total number of participants who have completed a TAACCCT-funded program of study and the number of participants still retained in their program of study or another TAACCCT-funded program should not exceed the total number of participants recruited. However, the projected numbers violated this rule; therefore, the performance targets for the number of completers and the number of participants retained, either one or both, seemed to be overestimated. While these numbers

- **Total Number of Students Completing Credit Hours:** Number of students who have enrolled that completed any number of credit hours. The HSSC project anticipated that 85% (34 out of 40) of the grant participants would complete at least some credit hours.

- **Total Number of Students Earning Credentials, Diplomas, and Degrees:** Total number of students who earned certificates (including industry-recognized credentials), diplomas, or degrees. A student can be counted only once in this field even if multiple certificates, diplomas, or degrees were earned by that student. The HSSC project anticipated that 85% (34 out of 40) of the grant participants would earn credentials, diplomas, or degrees.

- **Total Number Enrolled in Further Education After Program of Study Completion:** Of the total number of participants who completed at least one grant-funded program, the total number of individuals who entered another program of study (grant-funded or not). The HSSC project anticipated that 24% (8 out of 34) of the grant participants who completed a program of study would enroll in further education.

- **Total Number Employed After Program of Study Completion:** Of the total number of participants who were not incumbent workers and who completed at least one grant-funded program, the total number of individuals who entered unsubsidized employment in the first quarter after the quarter in which the student exits the college. Per the DOL, the estimation should have been based on the number of non-incumbent workers who completed at least one grant funded program. However, there is no information available from the project narrative about the projected number of non-incumbent workers; therefore, the percentage of program completers who gained employment was instead calculated. The HSSC project anticipated that 75% (30 out of 40) of the program completers would gain employment.

- **Total Number Retained in Employment After Program of Study Completion:** Of the total number of participants who were employed in the first quarter after the quarter in which they exited the college, the total number of individuals who were employed in the second and third quarters after exiting. The HSSC project anticipated 100% (30 out of 30) of the participants who gained employment would be retained in employment.

- **Total Number of Those Employed at Enrollment Who Received a Wage Increase Post-Enrollment**: Of the number of incumbent workers (those employed at enrollment) who enter a grant-funded program, the total number who received an increase in their wages at any time after becoming enrolled. Per the DOL, the calculation should have been based on the number of incumbent workers. However, there is no information available about the number of projected incumbent workers in the project narrative; hence, the percentage of all participants who receive wage gains was instead calculated. The HSSC project anticipated at least 20% (8 out of 40) would receive a raise.

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were set during the proposal development stage, they have continued to be used for the evaluation; as such, readers should keep this in mind when interpreting the findings.

Evaluation Purpose, Questions, and Methods

The overarching goals of the HSSC project evaluation were to address questions related to project implementation (formative evaluation) and project impact and outcomes (summative evaluation). As shown in Table 2, the formative questions focused on the overall implementation (Question 1), value added by project partners (Question 2), and sustainability and transferability of the HSSC project components (Question 3); while the summative question focused on the impact and outcomes of the HSSC project (Question 4). It should be noted that the formative questions were primarily guided by the DOL Solicitation for Grant Applications (SGA).

Table 2. HSSC Project Evaluation Questions and Data Collection Plan

Evaluation Questions	Project Records	Student Surveys	Faculty Surveys	Employer Surveys	Employment Records	Staff Interview
1. How were the key strategies and activities of the HSSC project implemented across the participating eight programs in the School of Health Science?						
1.1 How was the particular curriculum selected, used, or created? (SGA.1)	X					
1.2 How were the programs and program design improved or expanded using grant funds? (SGA.2)	X	X	X			
1.3 What delivery methods were offered? (SGA.3)	X					
1.4 What was the program's administrative structure? (SGA.4)	X			X		
1.5 What support services and other services were offered? (SGA.5)	X	X				
1.6 Was career guidance provided and, if so, through what methods? (SGA.6)	X	X				
1.7 Did the grantee conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program? What assessment tools and processes were used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? (SGA.7)	X	X				
2. What was the value added by the partners in the HSSC project?						
2.1 What contributions did each of the partners make in terms of (1) program design, (2) curriculum development, (3) recruitment, (4) training placement, (5) program management, (6) leveraging of resources, and (7) commitment to program sustainability? (SGA.8)	X		X			X
2.2 What factors contribute to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact? (SGA.9)	X					X
3. To what extent is the HSSC project sustainable?	X					X

Evaluation Questions	Project Records	Student Surveys	Faculty Surveys	Employer Surveys	Employment Records	Staff Interview
4. To what extent does the HSSC project have an impact on participant outcomes?	X	X		X	X	X

To address formative questions, evaluators reviewed various project records; analyzed student and faculty survey data; and conducted a group interview with project staff to understand the structural and procedural aspects of project implementation. To understand the summative question, evaluators conducted descriptive analyses of extant data (i.e., participant education, employment, and wage data) collected by project staff to understand the extent to which the project has met the performance targets. Additionally, evaluators conducted a descriptive study utilizing student and faculty survey data collected by project staff to describe students' and faculty members' perceptions of the project's impact.

Data Collection Methods

To answer the proposed formative and summative evaluation questions, the HSSC project team gathered data from various sources to inform the project's progress and outcomes. All data collected were shared with McREL evaluators for evaluation. The alignment of the evaluation questions and the data collection methods being utilized is presented in Table 2. This section describes the data collection methods.

Project Records

Data collected as a regular part of the HSSC project's implementation and maintained by project staff were used as part of the evaluation. The records include (1) Casper College's quarterly reports to the DOL, (2) Casper College's Annual Performance Reports (APRs) to the DOL, (3) GMT meeting minutes, (4) grant staff meeting minutes, (5) the 2014 and 2016 HSSC annual report, (6) 2014 HSSC Program Director Report[3], (7) a self-study report for the respiratory therapy program's accrediting body[4], (8) the 2015 Simulation Program self-study report[5], (9) curriculum expert reports, and (10) the sustainability assessment summary report[6]. Project staff shared these data with McREL

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[3] The Program Director Report was prepared in December 2014 to addresses the successes and challenges related to partner involvement and their contributions to the grant program. A curriculum review was also included in the report.

[4] The purpose of the self-study was to demonstrate that the program is delivered to students with what needs to be provided according to the accreditation standards.

[5] The HSSC was accredited by the Society for Simulation in Healthcare (SSH) in the summer of 2016. The self-study was prepared as part of the accreditation process.

[6] In August 2015, project staff invited 12 stakeholders from various groups (i.e., external educational partners, internal GMT team members, and community business partners) to take a sustainability assessment, an open resource developed by the Center for Public Health Systems Science (https://sustaintool.org/). The assessment tool measures eight factors that have been found to be critical for the sustainability of a project or initiative. These eight factors include: (1) environmental support, (2) funding stability, (3) communications, (4) strategic planning, (5) partnerships, (6) program adaption, (7) program evaluation, and (8) organizational capacity. Ten individuals completed the assessment for a response rate of 83%. A summary report was generated automatically based on the responses from the website. The same group was invited to take the survey again in August 2016, with a response rate of 50%. Results from 2015 and 2016 were included in the final evaluation report.

evaluators as they became available. Evaluators then reviewed all of the data and synthesized the findings for the final evaluation report.

Student Surveys

Three types of surveys (i.e., an end-of-program survey, an end-of-semester survey, and a post-graduation survey) were administered with HSSC project participants throughout the first three years of the grant. The end-of-program survey was administered once during the spring of 2014 with the first cohort of participants from the nursing, occupational therapy assistant, and respiratory therapy programs as they were about to complete the program. This group of students were in the program before the grant; hence, they received their training both ways – with and without the HSSC. In particular, the survey asked participants to reflect their experiences with the HSSC and to compare their learning experiences with the center before and after it was operational. Of the 75 participants to whom an invitation was sent, 14 responded to the survey (19% response rate).

With regard to the end-of-semester survey, it was administered to participants in all eight of the health science programs at the end of each semester to gain an understanding of their satisfaction with the simulation learning experiences (satisfaction with simulation; 5 items); to reflect on their level of self-confidence with what they learned (self-confidence; 8 items); and their satisfaction with the experiences they had with the academic and support services (satisfaction with academic and support services; 3 items). Data were collected in the following semesters:

- Fall 2013 (12 out of 105 responded; 11% response rate)
- Spring 2014 (16 out of 95 responded; 17% response rate)
- Fall 2014 (31 out of 81 responded; 38% response rate)
- Spring 2015 (18 out of 59 responded; 31% response rate)
- Fall 2015 (28 out of 78 responded; 36% response rate)

The reliability (i.e., internal consistency) of each construct was high ($n = 98$) [7]: 0.97 for satisfaction with simulation experience; 0.95 for confident with the stimulation learning; and 0.94 for satisfaction with academic and support services.

Lastly, project staff members also administered a post-graduation survey with participants of the health science programs nine to 12 months after their graduation. During the grant period, post-graduation survey data were collected from students who have completed the nursing program ($n = 40$), radiology program ($n = 13$), respiratory therapy program ($n = 12$), paramedic program ($n = 6$), and occupational therapy program ($n = 29$). The content and items included in the post-graduation survey differed by program; yet, the survey's major focus was to gather data to understand how well each program prepared their students with the knowledge and skills necessary for their jobs. Data were aggregated and reported at program level.

Faculty Surveys

Faculty members were also invited to take a survey at the end of each semester (i.e., end-of-semester faculty survey) asking about their satisfaction with students' simulation learning (6 items); their confidence in stimulation learning (10 items); and their perceptions of students' experiences with the college's academic and support services (3 items). Data were collected in the following semesters:

- Fall 2013 (13 out of 24 responded; 54% response rate)

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[7] A total of 140 HSSC participants responded to the survey throughout the grant. Of those, 42 students who responded to the survey more than once. For those, the first survey responses were included in the reliability test.

- Spring 2014 (14 out of 26 responded; 50% response rate)
- Fall 2014 (16 out of 23 responded; 70% response rate)
- Spring 2015 (5 out of 22 responded; 23% response rate)
- Fall 2015 (5 out of 22 responded; 23% response rate)

The reliability (i.e., internal consistency) of each construct was high ($n = 34$) [8]: 0.90 for satisfaction with simulation experience; 0.88 for confident with the stimulation learning; and 0.81 for satisfaction with academic and support services.

Employer Surveys

The employer survey was administered to the employers of Casper College's graduates six to nine months after their graduation. The content and items included in the survey differed by program; yet, the survey's focus was to gather information about employers' perceptions of the graduates' knowledge and skills on the job. During the grant period, employer survey data were collected from students who have completed the nursing program, radiology program, respiratory therapy program, or occupational therapy program. A total of 64 employers responded to the survey: 36 from the nursing program, 14 from the radiology program, 11 from the respiratory therapy program, and 3 from the occupational therapy program. Data were aggregated and reported at program level.

Employment Records

Project staff established a data sharing agreement with the America's Job Link Alliance (AJLA), which provided aggregated employment and wage data for program participants to Casper College on a quarterly basis. These data were utilized by project staff members to inform participants' employment and wage outcomes. Aggregated data were provided to McREL to evaluate the extent to which the performance targets on employment and wage outcomes were met.

Staff Interview

In July 2015, McREL evaluator conducted a group interview with three key project staff members asking about their perceptions of the value added by the HSSC project partners as well as the project's impact on students. This interview was 60 minutes long.

Data Analysis

Before quantitative data analyses were performed, evaluators screened the data for data entry errors and improbable responses. Subgroup descriptive analyses (e.g., by cohort or student demographic characteristics) were conducted, as appropriate. Descriptive statistics (e.g., frequencies, percentages, means, standard deviations, or cross-tabulations) were examined for any quantitative data collected, including the student surveys, faculty surveys, and employer surveys. Regarding the qualitative data received during the staff interview, responses from the HSSC project staff members were aggregated and reported.

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[8] A total of 51 faculty surveys were collected throughout the grant. Of those, 17 teachers who responded to the survey more than once. For those, the first survey responses were included in the reliability test.

Evaluation Findings

Evaluation findings are organized by evaluation questions and presented in this section.

Evaluation Question 1: How were the key strategies and activities of the HSSC project implemented across the participating eight programs in the School of Health Science?

This set of questions addresses the project team's efforts in implementing the HSSC project. Specifically, questions specified in the DOL's SGA are answered.

1.1.   How was the particular curriculum selected, used, or created? (SGA.1)

Health science programs of study. All eight programs of study involved in the HSSC project were accredited and their respective curricula were established prior to the grant. As part of the grant, HSSC project staff worked with industry associations and employers (i.e., advisory committees) to review the programs of study to ensure that the curricula adequately emphasize the technical competencies and proficiency skills specified by national certifying agencies and employment practices. These activities were well documented in the 2014 Annual Department/Program Reports which were prepared for each program of study. Table 3 shows the types of programs offered within the eight programs of study areas.

Table 3. HSSC Project Programs of Study

Program of Study	Type	# of Credits
Medical Laboratory Technician		
Medical Laboratory Technician	A.S.	73
Phlebotomy Technician	Certificate	13
Nursing		
Nursing	A.S.	78
Nursing	A.A.S.	72
Licensed Practical Nurse	A.S.	68
Occupational Therapy		
Occupational Therapy Assistant	A.S.	76
Assistive Technology	Certificate	12
Equine Assisted Therapy	Certificate	12
Gerontology	Certificate	12
Paramedic Technology		
Paramedic Technology	A.S.	81
Emergency Medical Technician	Certificate	9
Pharmacy Technology		
Pharmacy Technology	A.S.	79.33
Pharmacy Technology	Certificate	59.33
Physical Education		
Athletic Training	A.S.	70

Program of Study	Type	# of Credits
Radiography		
Radiography	A.S.	79
Computed Tomography (CT) with A.S. degree*	Certificate	20
Magnetic Resonance Imaging (MRI) with A.S. degree*	Certificate	20
Respiratory Therapy		
Respiratory Therapy	A.S.	81

Note. A.S. = Associate of Science degree; A.A.S. = Associate of Applied Science degree
* Students must have an A.S. degree in order to apply for admission into these certificate programs.

The Simulation Program. Before TAACCCT grant, simulation curricula for most of the health science programs offered at Casper College were not widely standardized or researched. Specifically, the use of simulation education in the college's health science programs varied; some programs had forms of simulated experiences while others had no prior background with the paradigm; and none of the programs had curricula experiences with high-fidelity equipment or in such settings. Hence, the simulation lessons in use prior to the HSSC project were adapted for the new high-fidelity simulation labs. For those health science programs where simulation was new, faculty members were encouraged to construct and schedule orientation sessions that included simple exercises designed to acquaint students with the high-fidelity simulation setting. Faculty from these programs also collaborated with the HSSC project director to design simulation sessions[9] for students. In other programs where simulation curricula were entirely absent, faculty members were engaged in the discussions to explore options and create appropriate student objectives for the incorporation of simulation activities. As of the end of grant Year 3, all of the health science programs utilized resources available from the HSSC in some way. According to the 2014 HSSC Program Director Report, unique simulation sessions occurred across the eight disciplines during the Fall 2013 ($n = 33$), Spring 2014 ($n = 30$), Summer 2015 ($n = 8$), and Fall 2015 ($n = 39$) semesters.

Additionally, with an understanding of the importance of inter-disciplinary training among healthcare professionals, HSSC project staff created opportunities to provide interprofessional education (IPE)[10] experiences for students enrolled in Casper College's health science programs. To support this effort, the HSSC project director, an active member of the Society for Simulation in Healthcare (SSH) with simulation and IPE experts from the field, kept pace with emerging best practices in simulation for IPE. During grant Year 2 (Spring 2014), the HSSC project was able to pilot IPE simulation experiences through on-campus professional development opportunities provided to health science program faculty from a simulation expert from Johns Hopkins University School of Nursing. The faculty who were involved expressed having positive experiences and acknowledged the benefits and the value of training for future IPE student learning experiences. In April 2015, the simulation expert from Johns Hopkins was invited back to provide additional training on the next level of knowledge, understanding and competence in delivering simulation education. During the spring of 2015, the HSSC successfully piloted a micro course on IPE with a group of student volunteers. By fall 2015, faculty members from all eight health science programs had provided at least one IPE session with their students. These efforts further supported the

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[9] A simulation scenario is a unit of learning or assessment characterized by a pre-briefing period or materials, a deliberately contrived/scripted sequence of events in a controlled environment, and debriefing period. A simulation session, distinct from a scenario, is a contiguous period of time spent in simulation learning that may include multiple scenarios or other activities.
[10] Interprofessional education is experiences delivered to learners from more than one healthcare discipline simultaneously.

creation of a certificate program–Foundations of Interprofessional Health Care, that allows students to have the option of adding the foundations of the certificate to their respective program of study. Once Foundations of Interprofessional Health Care is approved, it will be housed under the Simulation Program.

In terms of the development of simulation curricula, policies and procedures for the development of simulation curricula are established as a result of the grant. According to project record (i.e., the 2015 Health Science Simulation Center Self-Study Report),

> *Simulation Program curriculum is designed and developed to meet the needs of served entities. Subject matter experts from individual programs submit proposals for simulation activities that are scrutinized and developed according to a rational process. Sound educational theory drives activity design.*

Specifically, simulation curricula are developed in response to needs identified by served entities with the exception of shared IPE sessions. Though served entities are responsible for determining the suitability of simulation content with respect to their individual curricula, the Simulation Program supports and influences development at all phases of the process. Generally, simulation curricula development includes the following steps: (1) needs identification and activity proposal, (2) initial design meeting, (3) activity and session development, (4) validation[11], and (3) revision. In short, simulation curricula development is based on identified learning or assessment objectives by the served entity with input from the Simulation Program Director. Revisions of developed simulation curricula are based on the results of post-session evaluation meetings held among instructors and HSSC staff.

1.2. How were the programs and program design improved or expanded using grant funds? (SGA.2)

The HSSC project team utilized TAACCCT funding to implement five core strategies to support the project's goals and objectives. As shown in Tables 4 and 5, 24 activities and nine deliverables, respectively, were completed and concluded as of the end of grant Year 4. Although some items were not completed within the specified timeline as depicted in Tables 3 and 4, the majority of the delays were out of the project team's control due to bureaucratic processes and procedures that required more time than anticipated (e.g., waiting for DOL approval). Regardless, project staff were able to catch up and complete the tasks within three to six months of the expected end date; all work were concluded by June 2016.

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[11] The Simulation Program supports validation through literature review, input during design and delivery, pilot-testing opportunities, post-session review, and administration of participant evaluations.

Table 4. Status of Work Plan Implementation in Grant Year 4

Description	Delay Status
1. Evidence-Based Design	
1.1 Advertise and hire the project manager	On time
1.2 Establish the Grant Management Team; coordinate meetings with education, industry, and workforce partners	On time
1.3 Plan for lab modifications	Minor delay
1.4 Conduct the equipment bid process for high-fidelity mannequins	Minor delay
1.5 Write the RFP and hire a third-party evaluator	Minor delay
1.6 Advertise and hire simulation faculty and staff	Minor delay
1.7 Complete the lab modifications	Moderate delay
1.8 Purchase equipment and supplies	Minor delay
1.9 Install equipment	Minor delay
2. Stacked and Latticed Credentials	
2.1 Review pathways and credentials; work with industry partners to review courses and credentialing	On time
2.2 Create pathways; identify gaps in credentialing	On time
2.3 Discuss the option of giving credit for individual work experience or other competencies [a]	On time
3. Online and Technology-Enabled Learning	
3.1 Recruit, select, assess, and place participants	Minor delay
3.2 Provide professional development in curricula design and implementation of high fidelity simulation design	Moderate delay
3.3 Provide training to operate equipment	Moderate delay
3.4 Design curricula for program specific simulation scenarios	Moderate delay
3.5 Orient participants to high-fidelity simulations	On time
3.6 Practice mock simulation scenarios	Minor delay
3.7 Conduct program-specific scenarios	Minor delay
3.8 Evaluate program-specific scenarios	On time
3.9 Design, practice, conduct, and evaluate interdisciplinary simulation scenarios	Minor delay
4. Transferability and Articulation	
4.1 Continue to work on cooperation among in-state and out-of-state colleges	On time
4.2 Review and renew current articulation agreements as appropriate; facilitate new agreements as appropriate	On time
5. Strategic Alignment	
5.1 Develop appropriate partnerships with business leaders	On time

Note. Minor delay is defined as an event that was occurred within three months of the expected end date or start date. Moderate delay was defined as an event that was occurred within six months of the expected end date or start date.
[a.] Wyoming State Statute will not allow credit for work experience or other competencies; hence, the HSSC project will not implement prior learning assessments with the grant participants.

Table 5. Status of Grant Deliverables in Year 4

Strategy	Description	Delay Status
1. Evidence-Based Design		
1.2	Document outlining duties and responsibilities of the Grant Management Team	Moderate delay
1.2	Meeting minutes	Minor delay
1.3	HSSC Architectural Plan	Sever delay
3. Online and Technology-Enabled Learning		
3.1	One faculty survey to assess participant performance	Moderate delay
3.2	One generalized simulation development template	Minor delay
3.4	Eight simulation scenarios	Moderate delay
3.9	Two to six interdisciplinary scenarios	Minor delay
5. Strategic Alignment		
5.1	One participant survey to assess employment	Minor delay
5.2	One employer survey to assess employment	Minor delay

Note. Minor delay is defined as an event that was occurred within three months of the expected end date or start date. Moderate delay was defined as an event that was occurred within six months of the expected end date or start date. Severe delay was defined as an event that was occurred after six months of the expected end date or start date.

Key highlights of the implementation activities were summarized as follows by strategy area.

Evidence-based design. The majority of the activities under this strategy was completed in Year 2, except two on-going items that were concluded in Year 4. In summary, the project used grant funding to hire project staff; contracted third-evaluator for the evaluation; and purchase high-fidelity simulation equipment to enrich students' clinical experiences. A GMT was established to oversee the implementation of the HSSC project. A total of 21 grant meetings were held with the GMT for strategic planning, implementation, and sustainability planning throughout the grant with the last one held in June 2016. Additionally, the HSSC project used grant funding to create a technology-enabled learning environment equipped with modern medical equipment and high-fidelity human patient simulators that provides students with hands-on experiences that imitate real-life situations and allows students to learn critical clinical skills without the risk of harm to patients.

Generally speaking, the 3,250 square foot main HSSC facility space is on a single level and comprised of labs, debriefing rooms, offices, storage, and restrooms. Four hospital room-style labs are laid out in two suites such that each pair of labs share a control room and prep area. Another lab is configured as a home setting and provides debriefing capacity as well. Two other rooms are outfitted for debriefing, and one of those rooms doubles as an office. Two storage areas and two restrooms complete the main area layout. The HSSC classroom is centrally located in the Saunders Health Science building on the second floor. This 670 square foot room is outfitted for debriefing as well as typical classroom use and provides a larger meeting and instructional area to better serve purposes such as broadcast of webinars and larger meetings. In addition to dedicated space, the Simulation Program has the capability, through mobile equipment and AV broadcast, to extend simulation activities to any campus location. Sessions have taken place in multiple classrooms and myriad locations from pavement out-of-doors to bathroom stalls. Photographs of the facility are presented in Figure 2. The HSSC is accredited by the SSH under the area of Teaching/Education in May 2016.

Figure 2. HSSC Facility Photographs

Stacked and latticed credentials. All three activities specified in this strategy were implemented as planned. As discussed earlier, under this strategy, the Simulation Program contributed to the creation and development of the Foundations of Interprofessional Health Care certificate program. The Foundations of Interprofessional Health Care Certificate Program is a two semester program available to admitted or pre-health science students. Specifically, students will be afforded a guided pathway should they be undecided about which health science major they wish to pursue, and admitted health science students will be able to pursue a stackable credential. The program is designed to provide leadership and development for future healthcare professionals who will be expected to work as effective team members in an interprofessional health care team. A total of 24 credit hours would be awarded when completing the program. The certificate was approved by the Board of Trustees and was waiting for the approval by Community College Commission as of the end of the grant. The certificate will be housed under the Simulation Program once it is approved.

Online and Technology-Enabled Learning. Nine activities were specified under this strategy. Specifically, a total of 220 participants were selected to participate in the HSSC project using the HSSC participant selection protocol (see Appendix C). On-going professional development activities were provided to faculty throughout the grant, including small simulation education sessions; two webinars focusing on using simulation for educational interventions; and two on-campus advanced training for faculty members to develop competence in delivering on-campus simulation education to health science students. These efforts have resulted in positive and strong faculty buy-in. By the end of the grant, all eight healthcare programs have utilized the HSSC facility and integrated simulation scenarios and simulation sessions into their curriculum through either orientation or learning sessions. Furthermore, four faculty members received their certification as a

Certified Healthcare Simulation Educator, and two additional faculty members were scheduled to take the exam as of the end of the grant.

Project director, project staff, and faculty also actively participated in and presented at various conferences (e.g., the annual conference of the Society for Simulation in Healthcare; [January 2015], the Curricula for the 21st Century conference [January 2015], and the International Nursing Association for Clinical Simulation and Leering Conference [June 2015]) and trainings (e.g., simulation fellowship; Gaumard simulation training).

To understand the strengths and weaknesses of the HSSC project operation and implementation, HSSC project staff administered an end-of-semester survey to both students and faculty at the end of each semester to gain an understanding of their experiences and satisfaction with the HSSC project as well as their simulation experiences. The HSSC project staff continued to use the data to inform the operation and implementation of simulation sessions, and to verify participants' perceived value of the HSSC and its simulation program. Findings from the end-of semester survey are summarized as follows.

- ***Faculty perception of satisfaction with simulation learning.*** Faculty answered six questions asking about their satisfaction with simulation learning. As shown in Figure 3, faculty overall *strongly agreed* (a mean between 4.50 and 5.00) that students were satisfied with their simulation learning experience with some minor fluctuation over the course of the grant. Example survey items[12] include: (1) *Simulation learning included a variety of materials and activities that promoted student learning of professional curriculum*; (2) *The students enjoyed how simulation learning was presented this semester*; and (3) *The teaching materials used for simulation activities were motivating and helped students learn*. A full list of survey items with descriptive statistics is provided in Appendix A.
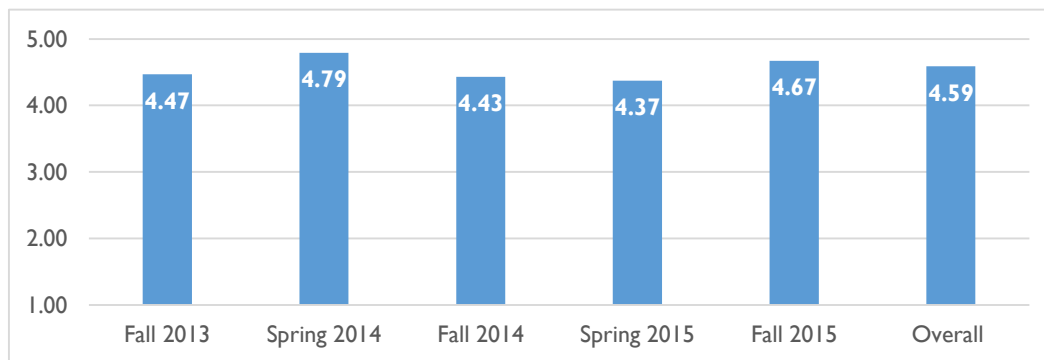
Figure 3. Faculty Perception of Satisfaction with Simulation Learning

- ***Student perception of satisfaction with simulation learning.*** Students answered a similar set of satisfaction questions ($n = 5$) in the end-of-semester student survey. Results show that, overall, students *agreed* (a mean between 3.50 and 4.49) that they were satisfied with their simulation learning experience (see Figure 4), and the ratings were pretty stable with little variation across five semesters. Example items include: (1) *Simulation learning included a variety of materials and activities that promoted student learning of the professional curriculum*; (2) *I enjoyed how simulation learning was presented this semester*; and (3) *The way simulation was used to teach*

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[12] Items were measured on a five-point scale: (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree.

was suitable to the way I learn. A full list of survey items with descriptive statistics is provided in Appendix B.
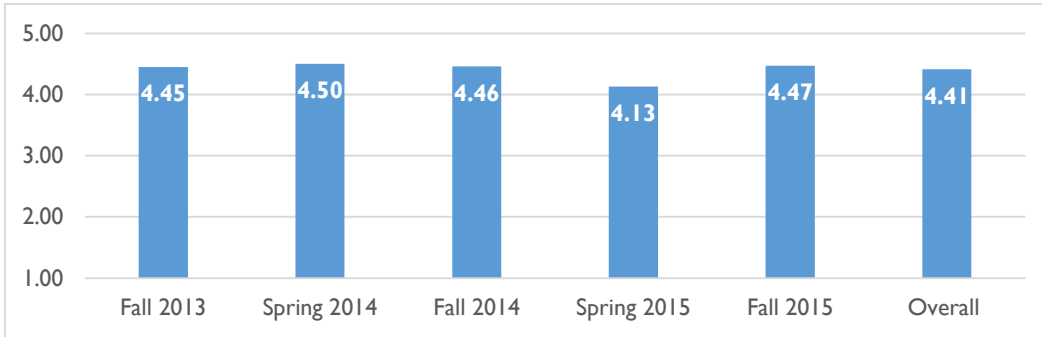
Figure 4. Student Perception of Satisfaction with Simulation Learning

- ***Faculty perception of students' self-confidence on simulation learning.*** Faculty answered 10 questions asking about their confidence on students' simulation learning. As presented in Figure 5, faculty overall *agreed* (a mean between 3.50 and 4.49) that they were confident that simulation learning supported student learning, and the ratings were pretty stable with little variation across five semesters. Example items[13] are: (1) *I am confident that simulation learning covered critical content necessary for the mastery of the professional curriculum*; (2) *I believe that students are confident that they are developing the skills and obtaining the required knowledge from simulation learning to become competent in a professional setting*; and (3) *I know how to use simulation activities to teach critical aspects of the professional curriculum.* Detailed descriptive statistics for each survey item are reported in Appendix A.
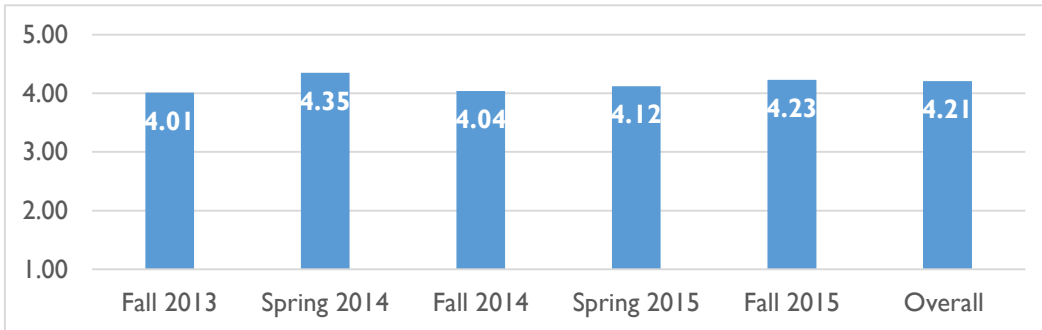
Figure 5. Faculty Perception of Students' Self-confidence

- ***Student perception of self-confidence on simulation learning.*** Students answered eight questions asking about their confidence in simulation learning. As presented in Figure 6, students overall *agreed* (a mean between 3.50 and 4.49) that they were confident that simulation learning supported their learning, and the ratings were pretty stable except a slightly higher rating in the fall of 2014. Example items[14] are: (1) *I am confident that simulation learning covered critical content necessary for the mastery of the professional curriculum;* (2) *I am confident that I am developing the skills and obtaining the required knowledge from simulation learning to become competent in a professional setting*; and (3) *I know how to use simulation activities to learn critical aspects of*

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[13] Items were measured on a five-point scale: (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree.
[14] Items were measured on a five-point scale: (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree.

my professional curriculum. Detailed descriptive statistics for each survey item are reported in Appendix B.
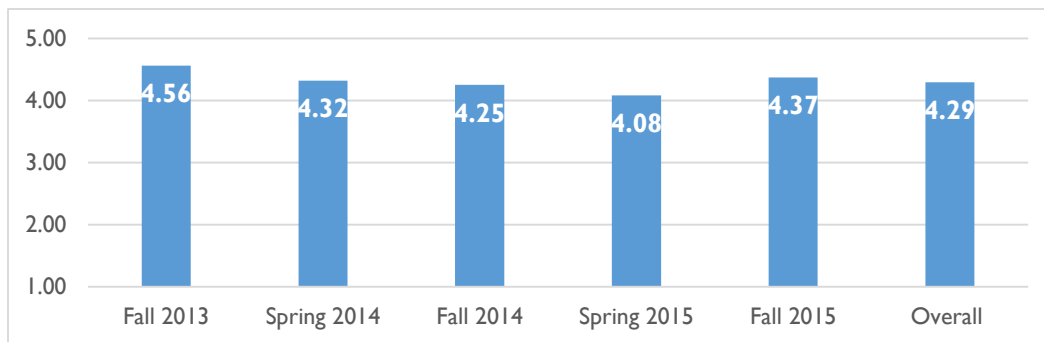
Figure 6. Student Perception of Self-confidence

Transferability and Articulation. Several articulation agreements were established during the grant period. Specifically, an articulation agreement was established with (1) the University of Wyoming for a Bachelor of Science (B.S.) degree in Medical Laboratory Science; (2) Boise State University for a B.S. in Respiratory Therapy; (3) the University of Montana for a B.S. in Athletic Training; and (4) Weber State University for the Health Care Coding Classification Institutional Certificate, Associate of Applied Science (A.A.S.) in Health Information Technology, and B.S. in Health Administrative Services. The HSSC staff continued to have conversations with other institutions of higher education (IHEs), including University of Minnesota, University of Northern Colorado, New Mexico State University, and Mid-Western State University, to establish articulation agreements regarding their athletic training programs.

Strategic alignment. Under this strategy, project staff engaged local business leaders in a variety of ways. For instance, project staff engaged with the WMC both onsite and in the HSSC, focusing on setting up space and equipment as well as consulting with them in the center to offer simulation education experiences. Project staff also had several discussions with another local partner, Mountain View Regional Hospital, regarding the educational needs for their employees. Project staff also gave tours of the HSSC and provided with health care field experiences for local schools.

1.3.   What delivery methods were offered? (SGA.3)

According to project records, students enrolled in Casper College's health science programs can access part of their education online through distance education options, including required general education courses and some industry health science courses. Additionally, some of the healthcare programs (i.e., medical laboratory technician, occupational therapy assistant, pharmacy technology, and radiography) offered hybrid courses that allow students to take lectures via distance learning technology and gain clinical experience at clinical sites that are close to home. Another program, paramedic technology, also has been providing distance learning by providing live lectures using technology and by providing recordings for students who are unable to come to campus. For the newly created Foundations of Interprofessional Health Care Certificate Program, all courses will be offered online with one exception: HLTK 2560 The Interprofessional Heath Care Team which will be offered in a hybrid format with three required on campus classes. Efforts were underway to explore whether the hybrid class may be offered via an interactive distance webinar.

1.4.   What was the program's administrative structure? (SGA.4)

The HSSC was governed by the GMT, which was comprised of nine administrative leaders from Casper College and community business partners. The members of the GMT included:

- Dean of the School of Health Science
- Dean of Continuing Education/Community Partnerships
- Vice President for Academic Affairs
- Grants Coordinator
- Associate Controller
- Director of Purchasing
- Project Manager
- Representative from the Wyoming Department of Workforce Services
- Representative from the WMC

The GMT oversaw the (1) planning, (2) budgeting, (3) implementation, (4) monitoring, and (5) evaluation of the HSSC project (see Appendix D for a detailed description of the GMT's duties and responsibilities). In relation to the GMT's evaluation role, McREL International, the third-party evaluator, worked with the HSSC project staff to determine if the HSSC project was implemented as planned; and provided continuous support in monitoring and validating the project's implementation and evaluation efforts. Figure 7 depicts the organizational structure of Casper College and HSSC governance. Figure 8 presents the personnel structure of the HSSC.
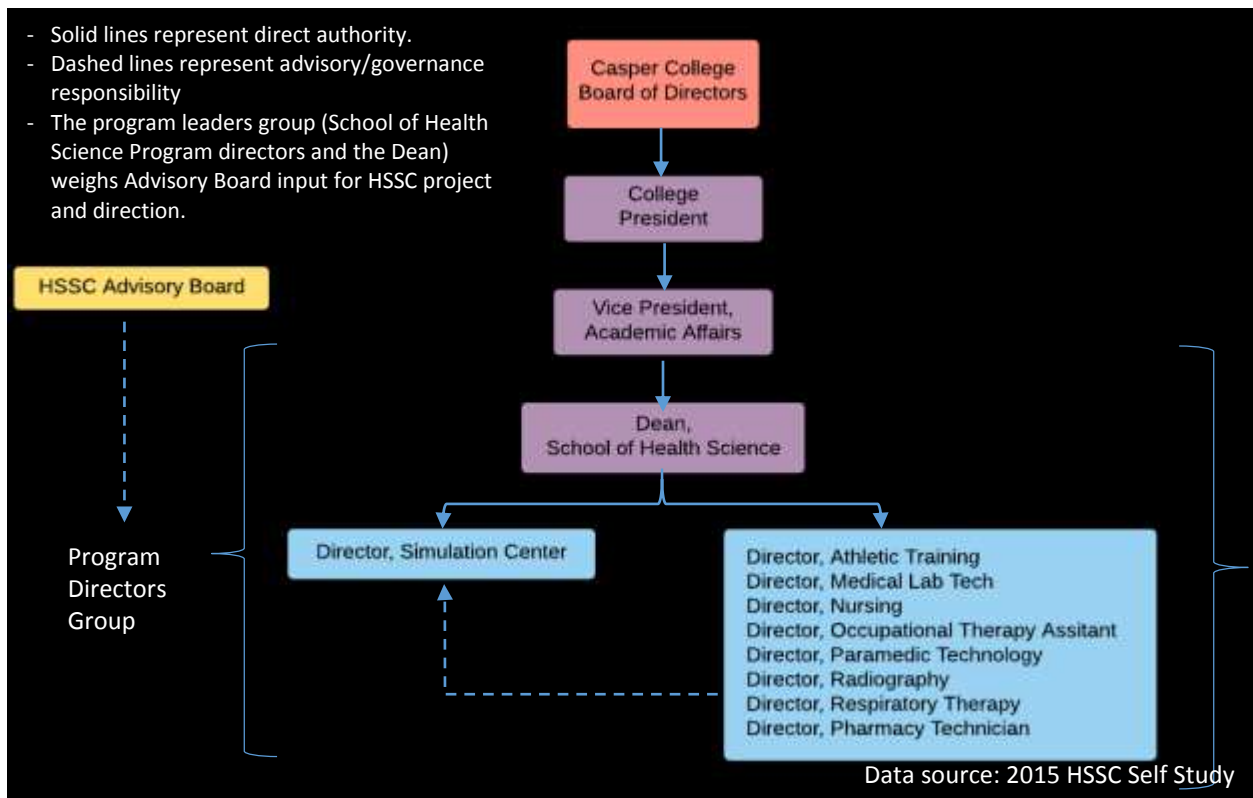
Figure 7. Casper College and HSSC Governance

- Solid lines represent direct authority.
- Dashed lines represent advisory/governance responsibility

Dean, School of Health Science

Director, Simulation Program

Simulation Facilitator(s)

Simulation Assistant

College Work Study

Data source: 2015 HSSC Self Study
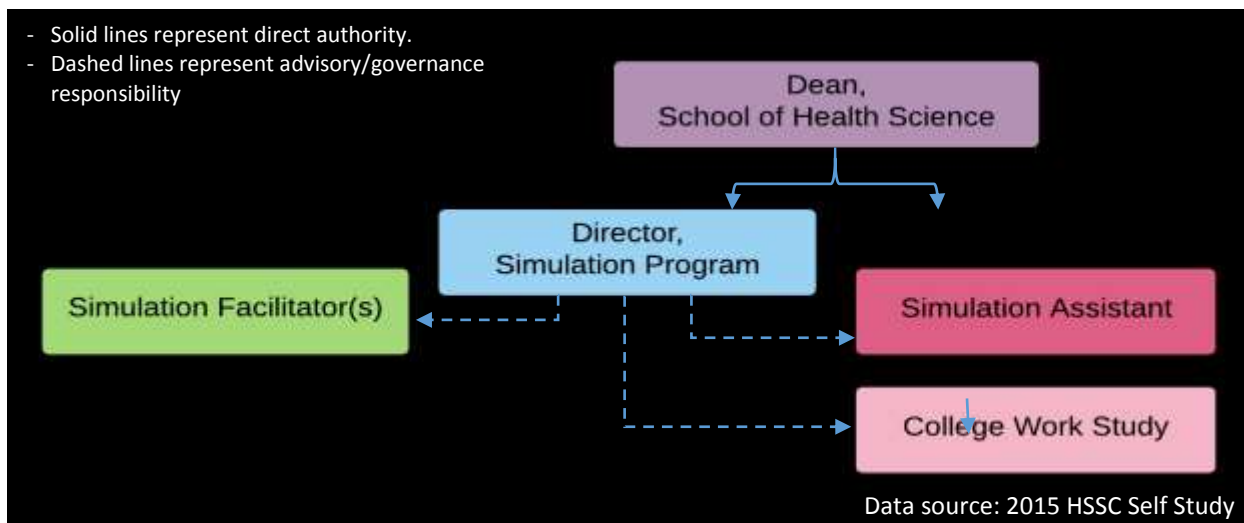
Figure 8. HSSC Personnel Structure

What support services and other services were offered? (SGA.5)

According to project records, it was anticipated that participants would receive support services through Casper College's Student Service Center. The services include: (1) academic advising, career and personal counseling, and educational planning; (2) tutoring services; (3) disability support services for students with documented disabilities; and (4) other appropriate student support services. To understand students' awareness and usage of the available support services, the HSSC project staff gathered data from both students and faculty via the end-of-semester survey. Findings are summarized below.

- **Faculty perception of academic and student support services.** Faculty members answered three questions asking about their perception of students' awareness and usage of academic and student support services. As presented in Figure 9, faculty overall *agreed* (a mean between 3.50 and 4.49) that students were aware of the services and the services were adequate for meeting students' needs. The ratings were pretty stable throughout the project period except a slightly higher rating in the fall of 2015. Example items are: (1) *Students are aware of Academic and Support Services available to help them meet their learning needs*; and (2) *The services available are adequate to help students meet their learning needs.* Detailed descriptive statistics for each survey item are reported in Appendix A.

	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Overall
	4.26	4.17	4.21	4.20	4.56	4.21
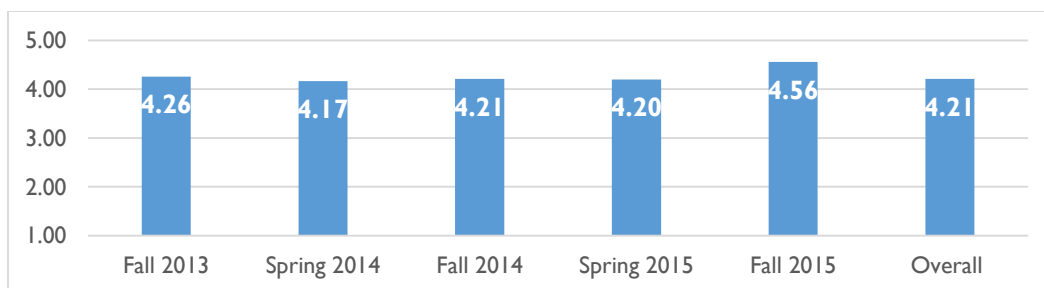
Figure 9. Faculty Perception of Academic and Student Support Services

- ***Student perception of academic and student support services.*** Students answered three questions asking about their awareness and usage of academic and student support services. As presented in Figure 10, students overall *agreed* (a mean between 3.50 and 4.49) that they were aware of the services and the services were adequate for their needs. The ratings were pretty stable throughout the project period except a slightly lower rating in the spring of 2015. Example items are: (1) *I am aware of academic and support services available to help me meet my learning needs*; and (2) *The services available are adequate to help me meet my learning needs*. Detailed descriptive statistics for each survey item are reported in Appendix B.
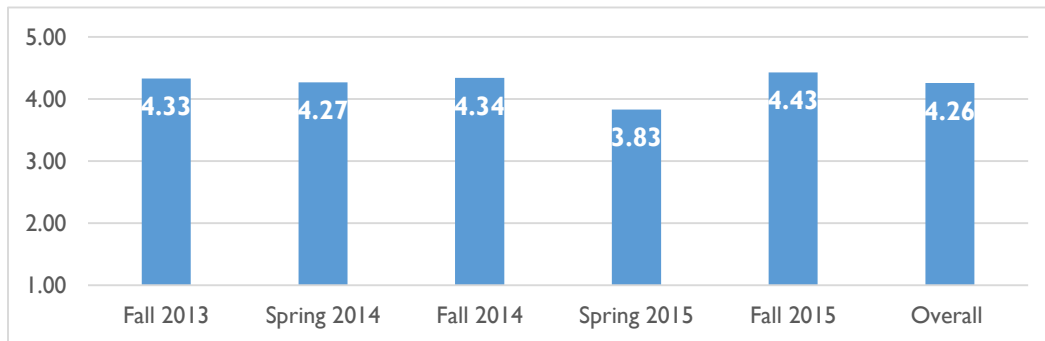
Figure 10. Student Perception of Academic and Student Support Services

1.5. *Was career guidance provided and if so, through what methods? (SGA.6)*

Career guidance for the HSSC project participants was also provided through Casper College's Student Service Center. To receive such services, students were required to fill out a career counseling intake form and made an appointment with a career counselor at the center, which can be completed online. Once registered, students have the ability to

- Search for jobs posted exclusively for Casper College students or for those posted on the Jobs Central® national job board or the Intern Central® national internship board.
- Build a résumé with Resume Builder and have it reviewed and approved by a career counselor before submitting it to employers or for posted jobs. Students can also upload a résumé file to Resume Central® so it can be searched by employers (if they so authorize).
- Review job search history and report offers or hiring decisions.
- Receive e-mails about programs, services, and job-related topics.
- Gain access to announcements, upcoming events, career advice documents, career advice videos, podcasts, and career articles from over 125 authors.
- Build an online portfolio in Career Portfolio Central® to support your résumé and demonstrate your best work to employers.

Additionally, at least once per year, Casper College's director of career services makes presentations to students enrolled in the eight health science programs and conducts résumé writing courses and mock interviews with them. During grant Year 2, according to project staff members, the Director of Career Services made an online video presentation to second year nursing students; provided résumé and interview presentations to students enrolled in five of the college's health science programs; and reviewed 61 participants' résumés. During Year 3, the Director of Career Services

provided similar support and services, including providing workshop in Spring 2015 for graduates; conducting online resume preparation workshop for graduating nursing students; providing job search services (e.g., mock interviews); hosting a field trip for occupational therapy assistant students (15 students participated); and reviewed 28 healthcare students' résumés and cover letters. Additionally, during each spring semester, a Health Professions Career Fair is held with representatives from regional and local facilities in attendance. During grant Years 2, 3, and 4, the career fair had a total of 28, 32, and 26 vendors/employers present, respectively, and 118, 137, and 150 students, respectively, participated in the event.

1.6. *Did the grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program? What assessment tools and processes were used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? (SGA.7)*

By the conclusion of grant Year 1, the HSSC project team developed the participant selection protocol to assist grant staff in identifying eligible participants for the HSSC project (refer to Appendix C for full documentation of the protocol). In particular, eligible participants in the TAACCCT grant were selected from those students who were admitted to one of the eight programs in Casper College's School of Health Science, which means they have met the college's admission requirements as well as the essential eligibility requirements for admission and progression in the School of Health Science programs.[15] Aligned with the TAACCCT grant objectives, the selection of the participants was prioritized by the following criteria: (1) veterans; (2) TAA-eligible workers; (3) Pell Grant recipients; and (4) nontraditional students with the following characteristics: over 25 years of age, have dependents other than a spouse, and do not have a high school diploma (completed with a general education diploma [GED]).

Evaluation Question 2: What was the value added by the partners in the HSSC project?

According to the 2014 HSSC Project Director Report and responses from project staff members during the interview, the primary industry partner for the HSSC project was the WMC. This partnership was developed from an existing relationship between the WMC and the School of Health Science before the TAACCCT grant began. The relationship between the HSSC and WMC provides opportunities for medical center staff to be directly involved in the HSSC project. Specifically, there were staff employed by the medical center who were also faculty members of the School of Health Science. These individuals were able to translate training needs of healthcare professionals at their facilities directly into simulation sessions for HSSC project participants. This arrangement offered the project invaluable contributions to curriculum development. Additionally, because of this partnership, the HSSC project established an agreement with the WMC to test the utilization of the medical center's Electronic Medical Records (EMR) system at the HSSC facility. Having access to an EMR system was a tremendous advantage to simulation education as it facilitated regular simulation sessions as well as IPE sessions by providing a conduit for information exchange between health science programs.

In addition to maintain the existing partnership with WMC, the project also established new partnerships with employers and other medical centers. For instance, during grant Year 2, the HSSC

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[15] Each health science program has different requirements, prerequisites, etc.; however, all participants must meet cognitive, sensory, affective, and psychomotor performance requirements (see the complete guideline and process at http://www.caspercollege.edu/schools/hs/downloads/HS_Core_Performance_Standards.pdf).

project director had several preliminary discussions with a company providing air ambulance service to the region. These discussions have focused on how the HSSC resources can be used for training of professional healthcare workers. A future partnership between the HSSC and this entity is possible and further discussions are slated for the upcoming reporting period. In grant Year 3, project staff collaborated with Mountain View Regional Hospital staff to help them develop a training curriculum. These efforts to reach out and develop new partnerships were critical for the sustainability of the HSSC components after the grant funding ends in 2016.

2.1. *What contributions did each of the partners make in terms of (1) program design, (2) curriculum development, (3) recruitment, (4) training placement, (5) program management, (6) leveraging of resources, and (7) commitment to program sustainability? (SGA. 8)*

As mentioned previously, the principal business partner for the project is the WMC. Over the course of the grant, the project also developed new partnerships that played an essential role in supporting program sustainability. In summary, the HSSC project has three types of partners: (1) industry partners, (2) workforce partners, and (3) education partners. This section discusses the key contributions made from each type of partner.

Industry partners. The key industry partner for the project, WMC, was actively involved in various aspects of the HSSC project activities. For instance, according to project staff members, WMC was actively involved in the proposal development stage before the grant was funded by providing input for the design of the HSSC and the development of the IPE components (i.e., the program design). WMC staff were also involved in the development of program curricula as some of them served concurrently as faculty members for the School of Heath Science, delivering simulation sessions to the program participants. The collaborative partnership between Casper College's School of Health Science and WMC operated as a two-way street. That is, the medical center was also a beneficiary of the curriculum development efforts. One HSSC project staff member have been working with WMC staff to develop simulation curricula, set up equipment, and to provide training for the medical center's staff, and such relationship was likely to continue beyond the life of the grant (i.e., sustainability). Future collaborative efforts between the HSSC and WMC to identify training needs for medical center staff maybe also have a significant impact on the operation of the HSSC in terms of student recruitment after the grant ends.

The WMC also provided support related to participants' training placement, including (1) career information pertinent to students' professional growth; (2) clinical settings for education; (3) experienced staff for training; (4) interview opportunities for graduates; and (5) availability of doctors for academic support, participation in Casper College's didactic lecture series, and on-site clinical preceptorship work. Throughout the project period, the HSSC project continuously received leveraged resources from the WMC through in-kind contributions of staff time to participate in the GMT meetings.

Workforce partners. The college has had a long-term partnership with the Casper Workforce Center on many projects before the HSSC project was funded. For the HSSC project, a representative from the workforce center was actively involved in the project via the GMT and is also providing ongoing business services, as needed, including (1) Workforce Investment Act training funds, where appropriate; (2) job placement assistance; (3) tracking of common outcome measures; (4) job search training, including résumé writing and interview techniques; (5) training on job retention skills; and (6) identification and referral of eligible adults to the HSSC projects. Additionally, the representative assisted with recruitment efforts in terms of disseminating program

information to individuals (i.e., dislocated workers and veterans) who come through the workforce center.

Education partners. HSSC project leaders and staff were committed to communicating with other IHEs to share program and course content to avoid duplication of programs and to strengthen collaboration among Wyoming's IHEs. Additionally, throughout the project period, the HSSC project staff actively reached out and established new partnerships with education entities to support the sustainability of the HSSC, including establishing articulation agreements with other IHEs as described earlier. Other efforts are described below.

- Nursing faculty were actively involved in the Revolutionizing Nursing Education in Wyoming committee to spearhead the development of a common curriculum for all nursing programs in the state of Wyoming.

- The Dean of the School of Health Science serves as a member of the Casper Area Economic Development Association higher education committee. During the grant, the Dean facilitated discussions within the committee on educational opportunities for the community.

- Started in grant Year 2, the University of North Dakota (UND) utilized the HSSC facility every semester, and UND students also consulted with the HSSC project director on individual projects. During grant Year 4, the HSSC and Simulation program served UND's occupational therapy students directly. There was an ongoing discussion between the Simulation Program and the Medical Lab Science program at the University of Wyoming for the similar services.

- The Dean of the School of Health Science organized meetings with health science divisions within other Wyoming community colleges to avoid duplication of programs and to strengthen collaborations statewide.

- HSSC project staff offered tours for K-12 student groups regularly. For instance, several tours were provided for high school students from the Natrona County School District who were interested in the field of health science. The district was developing a health science/human services academy, of which the HSSC project director was an integral part of the committee supporting that effort. There were some preliminary discussions being held with regard to how the HSSC can offer internships for students who are interested in health science. By the end of the grant, project staff have moved beyond basic tours for local K-12 student groups to collaborative creation of learning experiences for a group of Woods Learning Center students.

- In addition to providing tours for K-12 students, HSSC project staff also offered tours for a wide array of groups, including prospective students, local civic organizations, educators from sister institutions, college boards, US Senator Mike Enzi and his entourage, and many other groups who have toured the center.

- HSSC project staff regularly attend the Wyoming Area Health Education Center career fair, demonstrating human patient simulators and manning an informational table alongside other programs of study at the School of Health Science.

- Casper College hosted the 2015 Nursing Education Summit and the HSSC Director presented "Concepts in Simulation Education". The Center served as the site of vendor specific breakout education sessions and an open house for the 2016 Summit.

- The HSSC presented a session as part of a continuing education seminar for practicing radiographers in the state of Wyoming in April of 2016.

- A faculty member presented a course for participants in the Osher Lifelong Learning Institute that discussed the need for and advantages of simulation education. Participants were provided with hands-on experiences with the simulation equipment and learned about the HSSC and its approaches to create realistic learning scenarios.

2.2. *What factors contribute to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact? (SGA.9)*

According to project staff, the partners were actively involved in various aspects of project implementation critical to the grant's success, including curriculum development, training placement, leveraging of resources, and planning for program sustainability. When asked about the aspects that partners' contributions were having less of an impact, project staff indicated that all contributions from their partners were meaningful and important. Yet, from staff members' perspectives, certain aspects of partner involvement were less essential to the HSSC project's operation and implementation, such as program management. For instance, by design, the partners were involved in that aspect via their role with the GMT at monitoring level rather than at the implementation level. When asked what factors have contributed to partners' involvement or lack of thereof, project staff agreed that scheduling was the key factor that contributed to partners' lack of involvement at times. However, when scheduling conflicts occurred, partners often assigned another representative to attend the meetings, ensuring that the information would be brought back to their organization. Staff also reported that getting stakeholders' buy-in was critical to maintain the relationships with the partners, especially with the new partnerships. To do so, project staff often arranged tours for partners to visit the HSSC facility so they can show them how the center works and operates.

Evaluation Question 3: To what extent is the HSSC project sustainable?

Conversations and discussions about the sustainability of the HSSC started in grant Year 2 and continued throughout the remainder of the grant. According to project records (i.e., the 2014 HSSC Program Director Report and quarterly reports to the DOL), project staff focused on four aspects related to the HSSC's operation to support its sustainability: (1) facilities, (2) staff, (3) governance, and (4) accreditation. Each aspect is discussed briefly as follows.

- ***Facilities.*** By design, the HSSC is a state-of-the-art educational space with the equipment necessary to provide high quality, advanced training to students enrolled in the health science programs. During grant Years 2 and 3, project staff deployed multiple systems and established the infrastructure needed to support the delivery of simulation sessions across the various health science programs. Professional development opportunities were provided to staff and faculty to ensure the effective utilization of the simulation equipment and its maintenance. Additionally, during grant Year 3, the Dean of the School of Health Science successfully secured $5,000 from the college to support the center's operation. These efforts were essential to the sustainability of the HSSC.

- ***Staff.*** The logistics, operation, and maintenance of a simulation center like Casper College's HSSC are complex and demand trained faculty and dedicated staff. During grant Year 3, the Dean of the School of Health Science successfully secured institutional funding for staff and faculty positions that will go into effect at the end of the grant period. Additionally, to

ensure the HSSC is operated by trained faculty and staff members, project staff have been actively engaged in professional development activities during grant Years 2 and 3. For instance, throughout the grant four faculty members received their certification as a Certified Healthcare Simulation Educator from the SSH, and two additional faculty members were in the process of earning this certification as of the end of the grant. Simulation education is a growing industry and will soon move toward regulation. Trained faculty and staff are critical in order to meet the accountability and standards.

- **Governance.** The HSSC serves faculty members and students from multiple health science programs, and to plan for sustainability, project staff seek opportunities to offer training to other institutions and entities outside of Casper College. To do so, the HSSC must have a clear operational structure and governance. During grant Year 2, an ad hoc steering committee that was made up of the Program Directors from all of the eight Health Science Programs was formed to establish the mission and vision statements for the HSSC as well as to help form a permanent simulation committee (i.e., the GMT). The steering committee met regularly to establish policies and procedures for the HSSC; these work has form the basis for sustainable governance of the center.

- **Accreditation.** Accreditation by nationally recognized bodies serves as critical evidence of the soundness of a college or university's program offerings. For Casper College, all eight of the health science programs being offered are accredited by their corresponding discipline-specific agency. Accreditation of simulation centers like the HSSC is offered by the SSH after a center has been in operation for two years. Seeking accreditation is essential to support the sustainability of the HSSC as it opens the possibility for the center to generate usage from outside the college and provide services that are fee-based. As such, the HSSC project staff worked toward this goal since the project's inception. In May 2016 (grant Year 4), the HSSC was granted accreditation in the area of Teaching/Education by the SSH. The accreditation is granted for a period of five years from May 1, 2016 through December 31, 2021. The accreditation will enhance the sustainability of the HSSC and enable additional delivery of services and education that can contribute to long-term sustainability. HSSC facility and personnel can be leveraged for delivery of services and education not only to Casper College stakeholders, but also to a myriad of outside entities. During grant Year 3, there were some preliminary conversations between HSSC and local partners to provide fee-based services. Now, the HSSC has received its accreditation, these conversations will continue beyond the life of the grant.

To assess the sustainability of the HSSC and assist with sustainability planning, project staff also conducted a sustainability assessment using a survey developed by the Center for Public Health System Science (https://sustaintool.org). A group of key stakeholders from the college and partners were invited to take the survey in the fall of 2015 and summer of 2016. The survey asked questions related to eight factors that are critical to program sustainability, including

1. environmental support (i.e., the program has leadership support from within the larger organization);
2. funding stability (i.e., the program exists in a supportive economic climate);
3. communications (i.e., the program is marketed in a way that generates interest);
4. strategic planning (i.e., the program plans for future resource needs);

5. partnerships (i.e., diverse community organizations are invested in the success of the program);

6. program adaption (i.e., the program adapts strategies as needed);

7. program evaluation (i.e., evaluation results inform program planning and implementation); and

8. organizational capacity (i.e., the program is well integrated into the operations of the organization).

Each of these factors were measured by five items on a scale of 1 (*to little or no extent*) to 7 (*to a great extent*). Results of the fall 2015 assessment and summer 2016 assessment are presented in Figure 11.
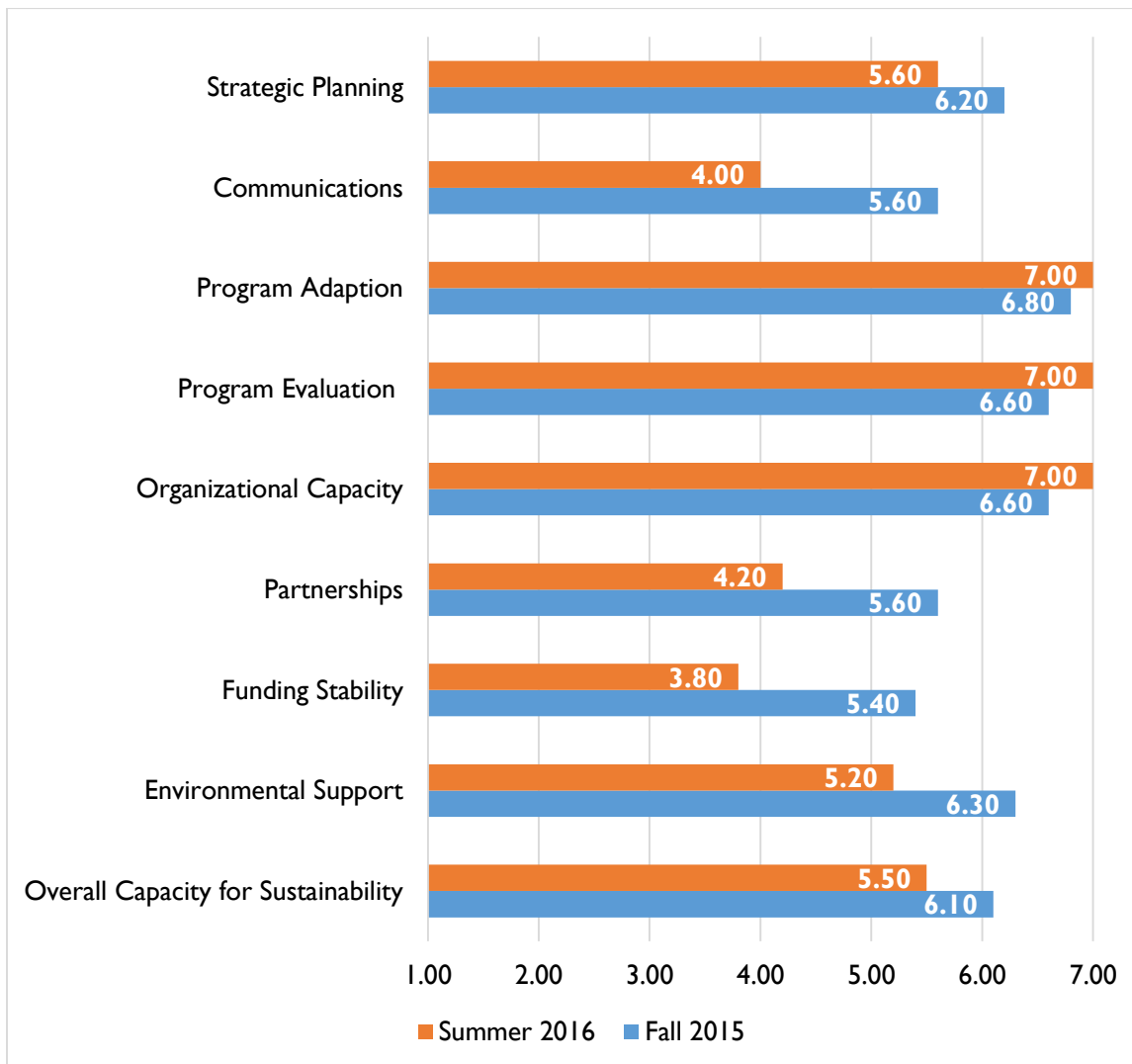
Figure 11. The HSSC's State of Sustainability Across Eight Domains by Year

Findings suggest that the HSSC's overall capacity for sustainability was strong although the average rating decreased slightly from the fall of 2015 to summer of 2016 (0.60 points decrease). Decreases in ratings were observed in some areas, including (1) Communications (1.60 points decrease); (2) Partnerships (1.40 points decrease); (3) Funding Stability (1.60 points decrease); and (4)

Environmental Support (1.10 points decrease). The ratings were particularly low in three areas, including Communications, Partnerships, and Funding Stability (M < 5.00), as of the end of the grant. Regardless, the HSSC project director is committed to the continuous success of the HSSC after the grant by continuing to organizational buy-in to support the operation of the HSSC facility. As shown in the Figure 11, the HSSC's capacity in three areas were at the highest rating possible (*M* = 7.00) by the end of the grant, including (1) organizational capacity, (2) program evaluation, and (3) program adaption.

Taken together, the HSSC has designed a simulation center equipped with state-of-the-art equipment and provides an educational space that mimics actual clinical environments, which is operated and maintained by trained faculty and staff members and is overseen by an ad hoc steering committee. Now, the HSSC is accredited by the SSH, which put the HSSC in a better position to provide a wider array of services to education and community partners. The Dean also successfully secured institutional buy-in with immediate financial and staffing support for the immediate future. Specifically, according to the Health Science Simulation Program 2016 Annual Report, during grant Year 4, Casper College has committed to provide permanent funding for two essential personnel for the HSSC and Simulation Program, including a dedicated full-time administrative faculty (i.e., the Simulation Program Director[16]), and a full-time Simulation Operations Specialist[17]. Based on the results of the sustainability assessment, the HSSC had high ratings (Mean ≥ 5.0) on five out of eight key domains that contribute to sustainability when the project was coming to an end. This groundwork has positioned the HSSC on a solid foundation that is sustainable beyond the life of the grant.

Evaluation Question 4: To what extent does the HSSC project have an impact on participants' outcomes?

A total of 220 participants were selected to participate in the HSSC project. Table 6 shows the demographic characteristics of these participants. Overall, 82% of the participants were female; 90% were Caucasian; 60% were full-time students; 70% were incumbent workers; 7% were eligible veterans or veterans' spouses; 6% reported having a disability; 51% were eligible for Pell grant funding; and 0% were workers eligible for trade adjustment assistance (TAA). On average, participants were about 30 years old (*SD* = 7.88) when they were enrolled.

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[16] The primary responsibilities of the Simulation Program Director are both educational and administrative and include: (1) support and assistance of faculty from all School of Health Science programs to effectively integrate and deliver Simulation Education as part of their curricula; (2) support and assistance of faculty associated through articulation agreements in like manner to in-house faculty; (3) preparation and delivery of Interprofessional Education curriculum; (4) promoting adherence to established standards of best practice relevant to Simulation Education through currency in the field and provision of faculty development and training; (5) oversight and direction of all HSSC operations; (6) establishment and maintenance of working relationships with institutional partners; (7) preparation for initial and ongoing specialized accreditation; and (8) fulfilling federal grant related requirements until closure of the TAACCCT grant.
[17] The primary responsibilities of the Simulation Operations Specialist include providing (1) administrative and operational support of TAACCCT project management to meet federal grant requirements until closure of the grant; (2) technical operations, troubleshooting, maintenance, and programming of all HSSC systems including Learning Management System, AudioVisual broadcast and recording equipment, high-fidelity human patient simulators, and all medical equipment; and (3) support of educational operations including user/learner management, scheduling of sessions and personnel, and creation and maintenance of user documentation and other materials.

Table 6. Participant Demographic Characteristics

Demographic Characteristics	n	%	M (SD)
Gender			
Male	40	18.2%	--
Female	180	81.8%	--
Race/Ethnicity [a]			
Hispanic/Latino	10	4.5%	--
American Indian or Alaskan Native	2	0.9%	--
Asian	2	0.9%	--
Black or African American	2	0.9%	--
Native Hawaiian or Other Pacific Islander	1	0.5%	--
White or Caucasian	198	90.0%	--
More than One Race	3	1.4%	--
Enrollment Status [a]			
Full-time Status	132	60.0	--
Part-time Status	88	40.0	--
Other			
Incumbent Worker	155	70.4	--
Eligible Veterans	15	6.8	--
Age	--	--	30.08 (7.88)
Persons with a Disability	13	5.9	--
Pell-Grant Eligible	113	51.4	--
TAA Eligible	0	0.0	--

a Percentages may not add up to 100% due to missing.

Table 7 shows the HSSC project's outcomes as compared to the performance targets. Methods and definitions to calculate the performance targets are described in detail in the Project Overview section. Overall, the total number of unique participants served ($n = 220$) surpassed the expectation that the HSSC project would serve only 40 students over the life of the grant. When comparing the results against the projected targets, percentages were calculated to allow for these comparisons to occur from a better perspective. In all, the project met the performance target on two outcome indicators as described below:

- **Outcome Indicator #4:** 93% (204 out of 220) of the participants earned credits in comparison to the target of 85% (34 out of 40).

- **Outcome Indicator #5:** 90% (198 out of 220) of the participants earned at least one industry-recognized credential or college-awarded certificate or degree in comparison to the target of 85% (34 out of 40). These 198 unique participants earned a total of 206 certificates and degrees. Of those unique participants, 4% (7 out of 198) earned one or more certificates that can be completed in less than one year; 31% (62 out of 198) earned one or more certificates that can be completed in more than one year), and 65% (129 out of 198) earned one or more degrees.

Table 7. HSSC Project Performance Outcomes

	Outcome Measures	Actual Outcomes		Performance Targets	
		n	% ª	*n*	% ᵇ
1	Total unique participants served	220	--	40	--
2	Total number of participants who have completed a TAACCCT-funded program	137	62.3%	34	85.0%
3	Total number of participants still retained in their program of study or another TAACCCT-funded program	18	8.2%	17	42.5%
4	Total number of participants completing credit hours	204	92.7%	34	85.0%
5	Total number of participants earning credentials	198	62.3%	34	85.0%
6	Total number of participants enrolled in further education after grant-funded program of study completion ᶜ, ᵈ	23	16.8%	8	23.5%
7	Total number of participants employed after grant-funded program of study completion ᵈ	28	20.4%	30	88.2%
8	Total number of participants retained in employment after program of study completion	20	71.4%	30	100.0%
9	Number of participants employed at enrollment who received a wage increase post-enrollment	0	0.0%	8	20.0%

ª The denominator for calculating the percentage was 220; otherwise is noted.
ᵇ The denominator for calculating the percentage was 40; otherwise is noted.
ᶜ The HSSC project staff utilized StudentTracker data from the National Student Clearinghouse (NSC) to track students who have taken courses in other non-TAACCCT programs after program completion.
ᵈ The denominator for calculating the percentage was the number of program completers (Indicator 2).

However, the HSSC project did not meet the performance targets on the remaining seven outcome indicators, including:

- **Outcome Indicator #2:** 62% (137 out of 220) of the participants completed a grant-funded program of study as compared to the target of 85% (34 out of 40) by the end of the grant. One possible explanation for not meeting the target is that the project might have overestimated the performance target when the proposal was written. Specifically, the total number of completers (Indicator #2) and the total number of participants retained (Indicator #3) should not be more than the total number of participants recruited (Indicator #1). Based on the projected number, this rule was obviously violated.

- **Outcome Indicator #3:** 8% (18 out of 220) of the participants were still retained in their program of study or were enrolled in other TAACCCT-funded programs in comparison to the target of 43% (17 out of 40) by the end of the grant. As discussed under Outcome Indicator #2, the project might have overestimated the performance target when the proposal was written given that the total number of completers (Indicator #2) and the total number of participants retained (Indicator #3) should not be more than the total number of participants recruited (Indicator #1).

- **Outcome Indicator #6:** 17% (23 out of 137) of the program completers enrolled in further education (TAACCCT grant funded or not) as compared to the target of 24% (8 out of 34). There is one possible explanation for the low number of program completers enrolling in further education. That is, HSSC project staff relied on the StudentTracker

data provided by the National Student Clearinghouse (NSC) to track students' enrollment status in further education after exiting the college. Not all postsecondary education institutions are the members of the NSC; hence, some students who were enrolled in the institutions that did not provide data to the NSC may be missed.

- **Outcome Indicator #7:** 20% (28 out of 137) of the program completers gained employment during the first quarter after exiting their program of study in comparison to the target of 88% (30 out of 34). Yet, it should be noted that, per the DOL, the estimate should be based on the number of non-incumbent workers who completed at least one program of study who gained employment. The DOL's definition would result in 65% (28 out of 43) of the non-incumbent workers who completed at least one program of study gained employment. However, there is no information available about the number of projected non-incumbent workers in the project narrative; therefore, McREL evaluators are unable to compare the performance target with the actual outcomes with the more accurate estimation based on the DOL definition. Additionally, this outcome is underestimated given the time lag between when the employment and wage data became available and when the report is completed. Specifically, the most recent quarter for which employment data were available was the quarter ending September 30, 2015 (the end of grant Year 3). This means that it is unknown how many participants who completed their program of study right before the end of grant Year 3 and during grant Year 4 gained employment.

- **Outcome Indicator #8:** 71% (20 out of 28) of the participants who gained employment were retained as compared to the target of 100% (30 out of 30). As discussed in Indicator #7, this outcome is underestimated given the fact that the majority of data needed for this outcome was not available when this report was prepared. In fact, the most recent quarter for which employment retention data was available was the quarter ending March 31, 2015.

- **Outcome Indicator #9:** 0% (0 out of 220) of the participants received wage increases after becoming enrolled in a TAACCCT-funded program of study in comparison to the target of 20% (8 out of 40).

To understand the extent to which the HSSC had an effect on participant outcomes, during the spring of 2014, project staff administered an end-of-program survey with students completing their program of study during the semester. This group of students were enrolled in the health science programs before the grant began so they experienced the training both with and without the HSSC. Specifically, the survey asked students how the HSSC impacted their second year of the program. Of those who responded to the survey ($n = 14$), the average age was 32.00 ($SD = 9.50$, Min. = 19, Max. = 47); 93% were full-time students ($n = 13$); 93% were female ($n = 13$); 71% were receiving Pell grants ($n = 10$); one respondent was a veteran (7%); another respondent had his or her GED instead of a high school diploma (7%); and yet another respondent had a disability (7%). Overall, students who responded to the survey expressed positive attitudes toward their learning experiences with the HSSC. Table 8 shows the results of the survey findings.

Table 8. Participant Perceptions of the HSSC's Impact (*n* = 14)

Items	M	SD
Utilizing the HSSC made the second year of my program better than it would have been.	4.00	0.78
Simulation learning was more effective in my second year because of the HSSC.	4.21	0.70
I am more confident in my skills and knowledge than I would have been.	4.07	0.83
I am better prepared for my field than I would have been.	4.14	0.77

Note. Each item was rated on a 5-point scale: 1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Undecided*; 4 = *Agree*; and 5 = *Strongly Agree*. Students who responded to the survey were from the following programs: (1) nursing (*n* = 5), (2) occupational therapy assistant (*n* = 8), and (3) respiratory therapy (*n* = 1).

Project staff also administered post-graduation surveys to participants as well as an employer survey to gather both students' and their employers' perceptions about their behaviors and practices on the job. During the grant, data were available for five programs of study: nursing, radiology, respiratory therapy, paramedic, and occupational therapy. Because each program of study administered their own survey, the items were different across the programs and sometimes between the participant post-graduation surveys and employer surveys. Findings are presented in Tables 9-16.

As shown in Table 9, the majority of nursing program participants considered themselves to be well-prepared in terms of the knowledge and skills they gained from their program; yet, a slightly lower percentages of employers *agreed* or *strongly agreed* that their employees are well-prepared for the job. In particular, employers were less likely to agree with one statement in comparison with students: 56% of the employer respondents *agreed* or *strongly agreed* that "*This nurse is able to supervise others less skilled in the technical aspects of nursing*" while 95% of the program participants agreed or strongly agreed that "*I am able to supervise others less skilled in the technical aspects of nursing.*"

Table 9. Percentages of Nursing Graduates and Employers Agreeing with the Statements

Statement: I am able to . . . (participant post-graduation survey) This nurse is able to . . . (employer survey)		% of Participants *Agree* or *Strongly Agree* (*n* = 40)	% of Employers *Agree* or *Strongly Agree* (*n* = 36)
1	Assist the client to use appropriate adaptive mechanisms to attain homeostasis in the physical, psychological, sociocultural, developmental, and spiritual dimensions.	100.0%	86.1%
2	Integrate knowledge from the biological, physiological, and behavioral sciences to provide humanistic client care.	100.0%	88.9%
3	Use the nursing process in a structured setting to provide client care for individuals and groups across the life span.	97.5%	88.9%
4	Perform therapeutic nursing interventions in a safe manner.	100.0%	88.9%
5	Utilize appropriate interpersonal skills and caring behaviors when providing holistic care to clients.	97.5%	80.6%
6	Individualize safe, comprehensive client care on a day-to-day basis for people experiencing commonly recurring health problems.	100.0%	88.9%

	Statement: I am able to . . . (participant post-graduation survey) This nurse is able to . . . (employer survey)	% of Participants *Agree* or *Strongly Agree* (*n* = 40)	% of Employers *Agree* or *Strongly Agree* (*n* = 36)
7	Supervise others less skilled in the technical aspects of nursing.	95.0%	55.6%
8	Collaborate with other members of the interdisciplinary health care team.	100.0%	88.9%
9	Utilize interdisciplinary resources in the institution or community according to identified need(s).	97.5%	88.9%
10	Demonstrate responsibility for continued personal and professional growth and education.	100.0%	80.6%
11	Demonstrate responsibility and accountability inherent in the associate degree nurse role.	97.5%	88.9%
12	Demonstrate professionalism and nursing practice competencies based on the learning environment in the nursing program.	95.0%	--
13	The nursing practice of this graduate is satisfactory.	--	88.9%

Table 10 presents the results of the radiology graduates' post-graduation survey and employer survey. Results were similar to what were found with nursing graduates and their employers. Overall, the majority of the radiology participants and employers *agreed* or *strongly agreed* that the graduates demonstrated the knowledge and skills necessary to perform their job; however, the ratings were slightly higher based on participants' self-report. Additionally, two additional questions related to participants' experience with simulation lab were added to the post-graduation survey in 2015. Results showed that only 40% (2 out of 5) of the respondents *agreed* or *strongly agreed* that (1) *The patient care simulation lab scenarios assisted me in learning important collaborative skills essential to providing quality patient care while working as a team with other health care professionals*; and (2) *The patient care simulation lab scenarios helped solidify important patient care skills learned in the didactic setting and prepared me for "real world" clinical experiences.*

Table 10. Percentages of Radiology Graduates and Employers Agreeing with the Statements

	Statement: The program enabled me to . . . (participant post-graduation survey) The employee is able to . . . (employer survey)	% of Participants *Agree* or *Strongly Agree* (*n* = 13)	% of Employers *Agree* or *Strongly Agree* (*n* = 14)
1	Synthesize and apply knowledge from the biological, physical, and radiographic sciences to provide humanistic patient care.	100.0%	100.0%
2	Perform radiographic skills in a manner safe to the patient, other health team members, and self within the professional scope of practice.	100.0%	92.9%
3	Adapt radiographic positioning to various bodily habit.	92.3%	92.9%
4	Adapt radiographic technique to various pathological conditions.	100.0%	92.9%
5	Adapt radiographic technique to accommodate different machines and/or equipment.	100.0%	85.7%

Statement: The program enabled me to . . . (participant post-graduation survey) The employee is able to . . . (employer survey)		% of Participants *Agree* or *Strongly Agree* (*n* = 13)	% of Employers *Agree* or *Strongly Agree* (*n* = 14)
6	Collaborate with other members of the health team and supervise others less skilled in the technical aspects of radiography.	92.3%	85.7%
7	Critique radiographs for accuracy of positioning and technique to meet the satisfaction of the radiologist.	92.3%	85.7%
8	Administer diagnostic radiation so as to minimize radiation exposure to the patient, other health professionals, and self.	92.3%	85.7%
9	Demonstrate responsibility for continued personal and professional growth and education.	100.0%	85.7%
10	Effectively utilize communication skills within the health care setting. *(post-graduation survey)* Demonstrate the ability to communicate effectively with patients and coworkers. *(employer survey)*	92.3%	92.9%
11	To successfully incorporate critical thinking and problem solving skills within the health care setting. *(post-graduation survey)* Demonstrate the ability to utilize problem solving and critical thinking skills in the health care setting. *(employer survey)*	92.3%	92.9%
12	Become entry-level competent by providing campus lab equipment that was adequate and contributed to the effective learning used in the clinical setting.	100.0%	--
13	Provide adequate patient care and management skills during radiographic procedures.	100.0%	85.7%
14	Practice within the profession's ethical and legal boundaries to meet the needs of the patient and healthcare community.	100.0%	85.7%
15	The patient care simulation lab scenarios assisted me in learning important collaborative skills essential to providing quality patient care while working as a team with other health care professionals. *	40.0%	--
16	The patient care simulation lab scenarios helped solidify important patient care skills learned in the didactic setting and prepared me for "real world" clinical experiences. *	40.0%	--

* The question was added in the 2015 graduate survey. Five participants who responded to the 2015 survey responded to the question.

With regard to the graduates of the respiratory therapy program, different surveys were distributed to program graduates in 2014 and 2015. Results of 2014 survey findings show that graduates' responses (see Table 11) and employers' responses (see Table 12) were similar. Overall, participants *agreed* or *strongly agreed* that the program gave them the knowledge and skills necessary to perform well on the job. The majority of the graduates (88%) rated the quality of the program as excellent or very good. Similarly, employers *agreed* or *strongly agreed* that the graduates were able to demonstrate their knowledge and skills and perform professionally on the job. Of the employers who responded

to the survey, 100% rated the quality of respiratory therapy program graduates as excellent or very good.

Table 11. Percentages of 2014 Respiratory Therapy Graduates Agreeing with the Statements

	Statement: The program . . .	% of Participants *Agree or Strongly Agree* (*n* = 8)
1	Taught me the professional knowledge base required to function effectively on the job.	87.5%
2	Taught me the general medical knowledge base required to function effectively on the job.	100.0%
3	Taught me to interpret pertinent clinical information from medical records and physical findings.	100.0%
4	Prepared me to recommend appropriate therapeutic interventions based on physiological data and physical findings.	87.5%
5	Trained me to make sound clinical judgments.	87.5%
6	Helped me become proficient in the clinical skills required on the job.	100.0%
7	Taught me to perform patient assessment accurately and efficiently.	100.0%
8	Taught me to perform the therapeutic procedures and modalities required on the job.	100.0%
9	Taught me to perform the diagnostic procedures required on the job.	75.0%
10	Helped me develop effective oral communication skills.	87.5%
11	Helped me develop effective written communication skills.	100.0%
12	Encouraged me to conduct myself in an ethical and professional manner.	100.0%
13	Taught me how to manage my time effectively in the clinical setting.	100.0%
14	Taught me to respect the beliefs and values of all persons, regardless of cultural background, religion, age, or lifestyle.	100.0%
15	Strongly encouraged me to apply for and pass my National Board of Respiratory Care (NBRC) Certified Respiratory Therapy Exam.	100.0%
16	Strongly encouraged me to apply for and pass my NBRC Registry Exams.	100.0%
17	**Overall rating of the program (*Excellent* or *Very Good*)**	**87.5%**

Table 12. Percentages of 2014 Respiratory Therapy Employers Agreeing with the Statements

	Statement: The graduate . . .	% of Employers *Agree or Strongly Agree* (*n* = 7)
1	Has a solid professional knowledge base.	100.0%
2	Has a solid general medical knowledge base.	100.0%
3	Accurately interprets pertinent clinical information from medical records and physical findings.	100.0%
4	Recommends appropriate therapeutic interventions based on physiological data and patient assessment information.	100.0%
5	Makes sound clinical judgments.	100.0%
6	Is proficient in the clinical skills required on the job.	100.0%
7	Can effectively perform an overall patient assessment.	100.0%
8	Completely performs the therapeutic procedures and modalities required on the job.	100.0%
9	Completely performs the diagnostic procedures required on the job.	100.0%
10	Has effective oral communication skills.	100.0%
11	Has effective written communication skills.	100.0%
12	Behaves in an ethical and professional manner.	100.0%
13	Functions effectively as a member of the healthcare team.	100.0%
14	Accepts supervision and works effectively with supervisory personnel.	85.7%
15	Is self-directed and responsible for his/her own actions.	100.0%
16	Arrives to work prepared and on time.	100.0%
17	Contributes to a positive environment in the department.	100.0%
18	Displays respect for beliefs and values of all persons regardless of cultural background, religion, age or lifestyle.	85.7%
19	**Overall rating of the graduate (*Excellent* or *Very Good*)**	**100.0%**

In 2015, respiratory therapy program participant graduates and their employers answered on the same set of questions. As shown in Table 13, all participant graduates and employers *agreed* or *strongly agreed* that the program gave participants the knowledge and skills necessary to perform well on the job.

Table 13. Percentages of 2015 Respiratory Therapy Graduates Agreeing with the Statements

	Statement:	% of Participants Agree or *Strongly Agree* (*n* = 4)	% of Employers Agree or *Strongly Agree* (*n* = 4)
	The program facilitated my knowledge of how to:		
1	Acquire and evaluate data to assess the appropriateness of prescribed respiratory care.	100.0%	100.0%
2	Participate in the development and modification of respiratory care plans in a variety of settings.	100.0%	100.0%
3	Initiate appropriate therapeutic interventions, monitor patient responses, and modify therapy to achieve goals.	100.0%	100.0%
4	Promote cardiopulmonary wellness, disease prevention, and disease management in a variety of settings.	100.0%	100.0%
5	Provide patient, family, and community education.	100.0%	100.0%
6	Encourage evidence-based practice by using established clinical practice guidelines.	100.0%	100.0%
	The program facilitated my ability to:		
7	Acquire the clinical competencies required for entry into practice.	100.0%	100.0%
8	Perform the therapeutic procedures and modalities required on the job in a safe and effective manner.	100.0%	100.0%
9	Perform the diagnostic procedures required on the job in a safe and effective manner.	100.0%	100.0%
10	Apply problem-solving strategies in the patient care setting.	100.0%	100.0%
11	Develop effective oral communication skills.	100.0%	100.0%
12	Develop effective written communication skills.	100.0%	100.0%
13	Communicate effectively in a variety of patient care settings.	100.0%	100.0%
14	Interact effectively with other members of the healthcare team.	100.0%	100.0%
15	Communicate effectively in diverse groups while respecting beliefs and values of all persons, regardless of cultural background, religion, age or lifestyle.	100.0%	100.0%
16	Think critically (i.e., apply knowledge, provide appropriate patient care, and adapt to changes in clinical conditions).	100.0%	100.0%
17	Conduct myself in an ethical and professional manner.	100.0%	100.0%
18	Recognize the importance of earning the professional credential (i.e., CRT or RRT) required for entry into practice.	100.0%	100.0%

	The program was of sufficient quality and duration for me to acquire the knowledge and competencies necessary for my job.	100.0%	100.0%
19			
20	**Overall rating of the program (Excellent or Very Good)**	**100.0%**	**100.0%**

Table 14 shows paramedic graduates' response to the post-graduation survey. Overall, the majority of graduates *agreed* or *strongly agreed* that the program has prepared them for the job. For instance, 100% of the survey respondents *agreed* or *strongly agreed* that "*The program prepared me to conduct myself in an ethnic manner*" and "*The program prepared me to conduct myself in a professional manner*." However, some particular items received lower ratings. For instance, only one third of survey respondents *agreed* or *strongly agreed* that "*The program has prepared me to formulate an appropriate treatment plan*" and "*The program has trained me to use sound judgment while functioning in a healthcare/EMS environment.*"

Table 11. Percentages of Paramedic Graduates Agreeing with the Statements

	Statement: The program . . .	% of Participants *Agree or Strongly Agree* (*n* = 6)
1	Helped me acquire the EMS knowledge necessary to function in a healthcare/EMS environment.	50.0%
2	Helped me acquire the general medical knowledge base necessary to function in a healthcare/EMS.	66.7%
3	Prepared me to collect relevant information from patients.	50.0%
4	Prepared me to evaluate relevant patient information.	66.7%
5	Prepared me to formulate an appropriate treatment plan.	33.3%
6	Trained me to use sound judgment while functioning in a healthcare/EMS environment.	33.3%
7	Prepared me to perform a broad range of clinical skills.	50.0%
8	Prepared me with the skills to perform a thorough patient assessment.	83.3%
9	Prepared me to perform approved procedures.	83.3%
10	Prepared me to interpret diagnostic information.	50.0%
11	Prepared me to communicate in my role as a paramedic.	50.0%
12	Prepared me to conduct myself in an ethnic manner.	100.0%
13	Prepared me to conduct myself in a professional manner.	100.0%
14	Taught me to manage my time efficiently while functioning in a healthcare/EMS environment.	66.7%

With regard to the graduates of the occupational therapy program, results are shown in Table 15 and Table 16 for graduates and employers, respectively. Overall, both participants and employers *agreed* or *strongly agreed* that the program gave them the knowledge and skills necessary to perform well on the job.

Table 12. Percentages of Occupational Therapy Graduates Agreeing with the Statements

	Statement	% of Participants *Agree or Strongly Agree* (*n* = 29)
	Please rate your satisfaction with the following	
1	Quality of instruction in OT.	100.0%
2	Quality of instruction outside OT.	93.1%
3	Approachability of instructors at Casper College.	93.1%
4	Amount of intellectual challenge.	100.0%
	During fieldwork, how satisfied are you with your ability to:	
5	Demonstrate values and attitudes congruent with the professions' standards and ethics?	100.0%
6	Provide occupational therapy services with appropriate supervision in collaboration with occupational therapists to prevent deficits and to maintain or improve function?	100.0%
7	Identify and resolve problems by using trained observations skills, problem solving, critical analysis, and decision making?	96.6%
8	Implement a variety of effective communication skills when interacting with peers, clients, family members and other health care providers?	100.0%
9	Employ meaningful, culturally relevant occupations as the focus of practice?	100.0%
10	Promote awareness and understanding of the occupational therapy profession and the role of the occupational therapy assistant to individuals with varied knowledge of the profession?	100.0%
	Please rate your satisfaction with the following:	
11	Adequacy of financial assistance	72.4%
12	Availability of faculty outside class	93.1%
13	Available lab facilities/equipment	89.7%
14	Adequacy of library	93.1%
15	Access to computer facilities	79.3%
16	Quality of academic advisement	93.1%
17	Value of your education, relative to the cost	96.6%
18	Sense of community at school	89.7%
19	your ability to communicate and explain ideas	96.6%
20	Your ability to work within a group	96.6%
21	Your capacity for critical thinking	100.0%
22	Your ability to be creative	100.0%
23	Your knowledge of global issues	93.1%
24	Your knowledge of OT profession	100.0%
25	Your preparation for fieldwork	96.6%
26	Your satisfaction with the college experience	89.7%

Table 13. Percentages of Employers' Satisfactory with Occupational Therapy Graduates

	Statement	% of Employers indicating Satisfactory, Better than Average, or Excellent ($n = 3$)
1	The graduate demonstrates the competency in the skills of evaluation (after obtaining service competency).	100.0%
2	The graduate demonstrates the competency in the skills of interventions.	100.0%
3	The graduate utilizes interpersonal and communication skills effectively, when interacting with supervisor/managers.	100.0%
4	The graduate utilizes interpersonal and communication skills effectively, when interacting with colleagues	100.0%
	The graduate utilizes interpersonal and communication skills effectively, when interacting with clients.	100.0%
6	Demonstrates the use of occupations effectively in intervention.	100.0%
7	Demonstrate competency in awareness of OT theory by planning theoretically based interventions that address client's needs.	100.0%
8	Demonstrates initiative in improving professional skills by applying results of current research in treatment planning and implementation.	100.0%
9	Demonstrates efficient and effective documentation skills.	100.0%
10	Reports and evaluates effectiveness of interventions.	100.0%
11	Collaborates and seeks/uses supervision from OTR.	100.0%
12	Provides individualized client centered care by prioritizing needs of client.	100.0%
13	Demonstrates problem solving skills through adapting and grading activities.	100.0%
14	Demonstrates expected knowledge of development, muscle function and anatomy, intervention techniques and service provision.	100.0%
15	Demonstrates proper safety precautions.	100.0%
16	Compiles with OT code of ethics and treatment policies.	100.0%
17	Demonstrate a desire to continue to learn about the profession.	100.0%
18	Exhibits leadership skills and takes initiative.	100.0%
19	Demonstrates the ability to self-evaluate accurately and make necessary changes.	100.0%
20	Demonstrates professional work behaviors.	100.0%
21	Demonstrates respect for diversity.	100.0%

In addition to gaining an understanding the HSSC project's impact on participants, McREL evaluators also gathered relevant data during the project staff interviews to understand the overall impact of the project. Specifically, staff were asked what have been the successes of the project in general. Overall, project staff responded positively about the impact of the project, not only on

participants, but on the institution as a whole. For instance, staff shared that before the grant, there were a lot of territory issues and siloes across the health science programs. After implementation of the TAACCCT grant began, the culture of Casper College started to change in a positive way by the HSSC project providing an avenue that encourages and facilitates collaboration among faculty members across the health science programs. One project staff member summarized the experience by stating, "It's a 'we' instead of 'I' kind of culture." Another staff member shared, "It sounds really too good to be true almost, compared to what I came in with." Yet another staff member contributed the success of the project as being able to get stakeholders' buy-in on the value of the HSSC to the field of health science.

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Appendices

Appendix A. End-of-Semester Faculty Survey

Table A-1. Faculty Satisfaction and Perceived Student Confidence with Simulation Learning

Items	Fall 2013 (n = 13)		Spring 2014 (n = 14)		Fall 2014 (n = 16)		Spring 2015 (n = 5)		Fall 2015 (n = 3)		Overall All (n = 34) [a]	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Satisfaction with Simulation Learning	**4.47**	**0.59**	**4.79**	**0.34**	**4.43**	**0.66**	**4.37**	**0.36**	**4.56**	**0.35**	**4.54**	**0.56**
Simulation learning was helpful and effective.	4.62	0.51	4.86	0.36	4.56	1.03	4.40	0.55	4.67	0.58	4.59	0.78
Simulation learning included a variety of materials and activities that promoted student learning of the professional curriculum.	4.69	0.48	4.86	0.36	4.56	0.51	4.60	0.55	4.67	0.58	4.68	0.47
I enjoyed how simulation learning was presented this semester.	4.46	0.78	4.71	0.61	4.63	0.81	4.40	0.55	4.67	0.58	4.59	0.74
The students enjoyed how simulation learning was presented this semester.	4.23	1.01	4.71	0.47	4.13	1.02	4.00	0.00	4.33	0.58	4.29	0.84
The teaching materials used for simulation activities were motivating and helped students learn.	4.54	0.66	4.79	0.43	4.13	0.89	4.40	0.55	4.33	0.58	4.44	0.75
The way simulation was used to teach was suitable to the way students learn.	4.31	0.95	4.79	0.43	4.56	0.51	4.40	0.55	4.67	0.58	4.65	0.49
Self-Confidence on Simulation Learning	**4.01**	**0.51**	**4.35**	**0.49**	**4.04**	**0.49**	**4.12**	**0.34**	**4.23**	**0.23**	**4.21**	**0.48**
I am confident that students are mastering the content presented in simulation learning.	4.15	0.38	4.43	0.51	3.81	0.98	4.20	0.45	4.00	0.00	4.21	0.77
I believe the students are confident that they are mastering the content presented in simulation learning.	3.54	0.78	4.29	0.61	3.88	0.72	4.20	0.45	4.00	0.00	4.15	0.61
I am confident that simulation learning covered critical content necessary for the mastery of the professional curriculum.	4.38	0.51	4.50	0.65	4.50	0.52	4.20	0.45	4.67	0.58	4.47	0.56
I am confident that students are developing the skills and obtaining the required knowledge from simulation learning to become competent in a professional setting.	4.31	0.48	4.57	0.51	4.31	0.87	4.20	0.45	4.33	0.58	4.38	0.65
I believe that students are confident they are developing the skills and obtaining the required knowledge from simulation learning to become competent in a professional setting.	3.85	0.90	4.50	0.65	4.06	0.68	4.20	0.45	4.33	0.58	4.29	0.63

Items	Fall 2013 (n = 13)		Spring 2014 (n = 14)		Fall 2014 (n = 16)		Spring 2015 (n = 5)		Fall 2015 (n = 3)		Overall All (n = 34) [a]	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
I used helpful resources for simulation learning.	4.38	0.87	4.64	0.50	4.06	1.00	4.60	0.55	4.67	0.58	4.47	0.71
Students take responsibility to learn what they need to know from simulation learning.	3.46	0.97	3.93	0.83	3.56	0.89	3.40	0.55	3.33	1.15	3.62	0.89
Students know how to get help when they do not understand the concepts covered in simulation learning.	4.00	0.91	4.14	0.77	4.00	0.63	4.00	0.00	4.33	0.58	4.12	0.69
I know how to use simulation activities to teach critical aspects of the professional curriculum.	3.77	0.73	4.21	0.58	4.00	0.37	4.20	0.45	4.33	0.58	4.12	0.54
It is my responsibility to tell students what they need to learn of the simulation activity content during class time.	4.23	0.93	4.29	0.91	4.19	0.66	4.00	1.22	4.33	0.58	4.26	0.83
Satisfaction with Academic and Student Support Services	**4.26**	**0.73**	**4.17**	**0.65**	**4.21**	**0.80**	**4.20**	**0.45**	**4.56**	**0.19**	**4.21**	**0.64**
Students are aware of Academic and Support Services available to help them meet their learning needs.	4.15	0.99	4.00	0.88	4.06	0.93	4.20	0.45	4.33	0.58	4.09	0.79
The services available are adequate to help students meet their learning needs.	4.46	0.66	4.29	0.61	4.31	0.79	4.20	0.45	4.67	0.58	4.29	0.63
Students could utilize these services more effectively to help meet their learning needs.	4.15	0.90	4.21	0.97	4.25	0.86	4.20	0.45	4.67	0.58	4.24	0.82

Note. Each item was rated on a 5-point scale: 1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Undecided*; 4 = *Agree*; and 5 = *Strongly Agree.*

[a.] A total of 51surveys were collected. Of those, 17 faculty responded to the survey more than once. For these cases, the first response was included in the overall analysis.

Appendix B. End-of-Semester Student Survey

Table B-1. Student Satisfaction and Perceived Confidence with Simulation Learning

Items	Fall 2013 (n = 12)		Spring 2014 (n = 16)		Fall 2014 (n = 31)		Spring 2015 (n = 18)		Fall 2015 (n = 21)		Overall All (n = 98) [a]	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Satisfaction with Simulation Learning	4.45	0.66	4.50	0.62	4.46	0.53	4.13	1.05	4.47	0.93	4.41	0.77
Simulation learning was helpful and effective.	4.50	0.67	4.63	0.50	4.45	0.57	4.22	1.00	4.48	0.93	4.45	0.75
Simulation learning included a variety of materials and activities that promoted student learning of the professional curriculum.	4.67	0.49	4.56	0.51	4.45	0.57	4.28	0.96	4.48	0.93	4.47	0.72
I enjoyed how simulation learning was presented this semester.	4.50	0.67	4.44	0.81	4.48	0.57	4.00	1.24	4.38	0.97	4.37	0.87
The teaching materials used for simulation activities were motivating and helped me learn.	4.33	0.78	4.56	0.51	4.42	0.62	4.00	1.19	4.48	0.93	4.37	0.83
The way simulation was used to teach was suitable to the way I learn.	4.25	0.87	4.31	1.01	4.52	0.51	4.17	1.04	4.52	0.93	4.39	0.85
Self-Confidence on Simulation Learning	4.56	0.52	4.32	0.55	4.25	0.48	4.08	0.93	4.37	0.90	4.29	0.70
I am confident that I am mastering the content presented in simulation learning.	4.50	0.67	4.25	0.68	4.19	0.65	3.94	1.06	4.33	0.97	4.22	0.82
I am confident that simulation learning covered critical content necessary for the mastery of the professional curriculum.	4.67	0.49	4.31	0.60	4.32	0.48	4.06	1.16	4.48	0.93	4.35	0.77
I am confident that I am developing the skills and obtaining the required knowledge from simulation learning to become competent in a professional setting.	4.67	0.65	4.25	0.68	4.29	0.59	4.11	1.13	4.38	0.92	4.32	0.81
My instructors used helpful resources for simulation learning.	4.50	0.67	4.38	0.62	4.39	0.50	4.28	0.96	4.48	0.93	4.40	0.73
It is my responsibility to learn what I need to know from simulation learning.	4.67	0.49	4.31	0.79	4.29	0.59	4.22	0.94	4.48	0.93	4.37	0.77
I know how to get help when I do not understand the concepts covered in simulation learning.	4.67	0.49	4.38	0.72	4.45	0.57	4.22	0.94	4.43	0.93	4.42	0.75
I know how to use simulation activities to learn critical aspects of the professional curriculum.	4.42	0.90	4.31	0.60	4.35	0.49	4.17	0.99	4.43	0.93	4.34	0.76

Items	Fall 2013 (n = 12)		Spring 2014 (n = 16)		Fall 2014 (n = 31)		Spring 2015 (n = 18)		Fall 2015 (n = 21)		Overall All (n = 98) [a]	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
It is the instructors' responsibility to tell me what I need to learn of the simulation activity content during class time.	4.42	0.79	4.38	0.50	3.74	1.12	3.61	1.04	3.95	1.24	3.95	1.05
Satisfaction with Academic and Student Support Services	**4.33**	**0.83**	**4.27**	**0.68**	**4.34**	**0.51**	**3.83**	**0.99**	**4.43**	**0.93**	**4.26**	**0.79**
I am aware of Academic and Support Services available to help me meet my learning needs.	4.33	0.89	4.31	0.70	4.42	0.50	3.89	0.96	4.38	0.97	4.29	0.80
The services available are adequate to help me meet my learning needs.	4.42	0.79	4.25	0.68	4.42	0.50	3.89	0.96	4.52	0.93	4.32	0.78
I could utilize these services more effectively to help meet my learning needs.	4.25	0.87	4.25	0.68	4.19	0.70	3.72	1.23	4.38	1.02	4.16	0.92

Note. Each item was rated on a 5-point scale: 1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Undecided*; 4 = *Agree*; and 5 = *Strongly Agree*.

[a.] A total of 140 surveys completed by HSSC participants were collected. Of those, 42 students responded to the survey more than once. For these cases, students' first response was included in the overall analysis.

Appendix C: HSSC Project Participant Selection Protocol[18]

Casper College (CC) is focusing on the "other adult" qualification of the TAACCCT Grant program as there are currently no eligible TAA workers in the state. Funding is being used to improve and expand our ability to deliver suitable educational and career training in the health sciences for our target population by adding new training technology and curricula – the Health Science Simulation Center (HSSC). This new technology will enable CC to enhance its course delivery and improve its learning outcomes.

Casper College's Institutional Review Board has approved the IRB Exempt Protocol for the HSSC's research. All Health Science students participate in simulation activities and will sign a basic release for audio and video recordings that has been approved by Casper College's attorney. Participants will also complete an informed consent and have the opportunity to ask questions and decline participation in the research. Information is confidential, and the evaluation of curricula and collection of employment data is a standard educational process for health science programs that have specialized accreditation.

Eligible participants in CC's TAACCT grant will be selected from those students admitted to one of the eight programs in the School of Health Science and will be based on Casper College's admission requirements as well as the essential eligibility requirements for admission and progression in the programs of the School of Health Science.

Each Health Science program has different requirements, pre-requisites, etc., however all participants must meet cognitive, sensory, affective and psychomotor performance requirements. In addition, selection of TAACCCT grant participants will be prioritized by the following criteria:

- Veterans – currently there are 180 individuals who have identified as being eligible for VA benefits and have turned in paperwork; 125 have enrolled in various courses of study (as of 10/7/13). Students are flagged as follows:
  - Veteran - Military member who was active duty, national guard or reserves who have deployed on activity duty orders
  - Service Member - still in national guard or reserves or active duty
  - Military Dependent (spouse or child under the age of 24)
- TAA-eligible workers
- Pell Grant eligibility
- Non-traditional students with the following characteristics: over 25 years of age, have dependents other than a spouse, do not have a high school diploma (completed with GED).

To determine if a student meets the above criteria, Casper College's Institutional Researcher has provided the Project Manager with a list of all students who are registered in one of the Health Science Programs: Medical Lab Technician, Nursing, Occupational Therapy Assistant, Paramedic Technology, Pharmacy Technology, Physical Education, Radiography, and

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[18] The protocol was prepared by the HSSC project team as of September 30, 2013.

Respiratory Therapy. This list provides information on their Pell Grant eligibility, GED status, and age. These students are then cross referenced with a list of enrolled students with veteran status.

All admitted students have completed the A/V release and Informed Consent forms as well as completed a brief survey which asks the following questions:

Student Name: _____

Academic Program: _____

Anticipated Completion Date: _____

Are you currently employed?*   Yes   No
If so, are you full-time (35 hours or more/week) or part-time? _____

Do you plan to keep working while completing your course of study?   Yes   No
If so, do you plan to work full-time or part-time? _____

Do you have any dependents (other than a spouse)?   _____

*If a student indicates they are currently employed and they are selected (and agree) to be tracked as a participant in the grant funded program, we will ask them to report their current wage in order to determine who receives an increase in their wages at any time after being enrolled.

The compilation of all this data will be used to identify our first and second year participant cohorts. The final participant list will be reviewed by all eight program directors and the Dean and then students will be notified of their selection as a participant.

Because all qualified students in the eight health science programs will be receiving the grant funded training, a non-experimental methodology will be used to evaluate participant outcomes or impacts and there will not be a true comparison cohort. A pre-post-test design will be used to collect data on second year participants' level of performance during their previous year of course work without the high-fidelity simulation curriculum compared to their second year with high-fidelity simulation activities. In year two, inter-professional simulation scenarios will be introduced and the comparison between single-program and inter-professional simulation activities will be evaluated for effectiveness and participant level of performance. Faculty perception of participants' performance will also be surveyed and self-reflection activities will be built into the simulation and debriefing activities in the curriculum for participants in years 2 and 3 of the project.

Appendix D: Grant Management Team Duties and Responsibilities[19]

**Casper College
Grant Management Team**

Overview:

The Grant Management Team is an ad hoc committee, with representation from Casper College and community business partners, developed to maximize the success, integrity, and credibility of the Simulation Lab Project funded by TAACCCT grant funds received from the Department of Labor.

Membership:

- Dean, School of Health Science – Dr. Tammy Frankland
- Dean, Continuing Education/Community Partnerships – Dr. Laura Driscoll
- Vice President for Academic Affairs – Dr. Tim Wright
- Grants Coordinator – Katie McMillan
- Associate Controller – Kathy Nottingham
- Director of Purchasing – Paul Christman
- Project Manager – Rachel Chadderdon
- Representative from Department of Workforce Services – Ken Johnson, Veterans Representative
- Representative from Wyoming Medical Center – Davina Drazick, Clinical Educator

Duties and Responsibilities:

- Planning
  - Review, analyze and interpret grant award agreement to ensure policies and procedures are in place to effectively manage the grant and all related requirements.
  - Assist with plans and completion of lab modification.
  - Assist with selection of third party evaluator.
- Budget
  - Be familiar with federal funds, indirect costs and leveraged resources that are budgeted and needed to carry out the project
  - Assist with budget modifications and budget control to guard against "overruns," and prevent "under-runs."
- Implementation
  - Work with industry partners to review courses and credentialing.
  - Discuss options of providing credit for participants' work experience or other competencies.
  - Assist with process for recruiting, assessing and placing participants.
  - Continue to work on cooperation among colleges and facilitate new articulation agreements as appropriate.
- Monitoring
  - Review quarterly progress of participant outcomes and program implementation to ensure continuous improvement and address any necessary adjustments
- Evaluation
  - Review deliverables produced through the grant.
  - Assess process for design improvement, delivery methods, program administrative structure, support, and other services.

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[19] The document was developed and finalized by HSSC project staff in April 2013.