

**Life After STEM BEST (Businesses Engaging Students and Teachers):
WAYN (Where Are You Now) Evaluation Report**

Submitted to:
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May 10, 2021



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Life After STEM BEST WAYN Evaluation
Annual Evaluation Report

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Executive Summary

Purpose

The mission of the Iowa Governor’s STEM Council is to “increase interest and achievement in STEM (science, technology, engineering and mathematics) studies and careers through partnerships engaging preK-12 students, parents, educators, employers, non-profits, policy leaders and others.”¹ The STEM BEST Program funds innovative work and project-based authentic learning opportunities for students with the aim of increasing student interest and exposure to STEM fields and careers. This outcome directly relates to the Iowa Governor’s STEM Advisory Council’s mission to integrate STEM BEST Programs into more schools across the state. To explore how best to scale up STEM BEST statewide, the STEM Council is working with evaluators from the Center for Evaluation and Assessment (CEA) in the University of Iowa College of Education to conduct annual evaluations to inform program implementation strategies for current and future STEM BEST Program awardees.

Background

CEA evaluators, including Center Director, Dr. Liz Hollingworth, and her assistant, Kayla Jackson, developed, administered, and analyzed findings from the STEM BEST Where Are You Now survey in spring of 2020. In March 2021, Dr. Hollingworth and Jackson met with the Iowa Governor’s STEM Advisory Council to revise the survey for 2021 administration. Retaining the same constructs as the 2020 iteration, the survey is intended to answer three overarching questions: 1) What influence has the STEM BEST program had on graduates’ lives? 2) What program skills are most valuable to students post-graduation? and 3) What lasting impressions has the STEM BEST program had on graduates? Per the administration process, CEA evaluators sent program implementers or points of contact (POCs) the 2021 WAYN survey link with guidelines for administration to program graduates. POCs received three follow-up emails offering assistance and reminders of the survey’s closing date, April 21st.

Findings

Findings from the 2021 WAYN survey indicate that most graduates (52%) pursued STEM paths academically or vocationally. Graduate feedback suggests STEM BEST program experiences have helped most respondents develop an interest in a STEM field, have generated more graduate interest in working in Iowa, have influenced respondents career path, and have encouraged respondents to pursue a post-secondary degree. Furthermore, most respondents indicated having gained skills from STEM BEST that they use daily, with most listed skills including soft skills, professionalism, technology collaboration, and responsibility. STEM BEST also left a positive lasting impression on most respondents, with the most mentioned impressions including career experience, skill development, networking opportunities, overarching support, and a professional atmosphere.

¹ About Iowa STEM. (n.d.). Retrieved from <https://iowastem.org/about>

Life After STEM BEST WAYN Evaluation Report

Overview

The Iowa STEM BEST (Businesses Engaging Students and Teachers) award provides funding to jump start or supplement innovative, replicable STEM work-based learning models. The award offers implementers the freedom to tailor their projects towards their community as well as their district needs and goals. Since 2014, 75 STEM BEST Program awards have been distributed throughout Iowa. To understand the impact of the STEM BEST programs on participating students, the Iowa STEM Advisory Council teamed with the Center for Evaluation and Assessment (CEA) at the University of Iowa. To answer the question *where are graduates now*, CEA evaluators, including Center Director, Dr. Liz Hollingworth, and Graduate Assistant, Kayla Jackson, developed a Qualtrics survey with three domains: 1) STEM BEST influence on graduates' lives, 2) skills graduates gained from the program, and 3) lasting STEM BEST Program impressions on graduates. A first iteration of this survey was distributed in the spring of 2020. Using feedback from the STEM Council, CEA evaluators revised the language in the introductory paragraph of the survey and distributed the updated survey link via email to 47 program implementers or points of contact (POCs) on March 9th, 2021. Appendix A includes the 2021 WAYN survey, and Table 1 in the Appendix includes an exhaustive list of implementers and their corresponding school district. In connecting with implementers or POCs, evaluators provided instructions for administration of the link to graduates, including suggested email verbiage and an option for text administration. Evaluators sent two reminder emails to implementers—one on March 25th and one on March 30th. Through these communications, seven implementers indicated they could not distribute links to their graduates. Of these seven, four did not have program graduates yet, two did not have graduate contact information, one stepped down from her role as implementer, and one, without specification of barriers, said they could not distribute the link. In total, 17 schools elicited graduate survey responses. Those schools with graduate responses are indicated in Table 1 in the Appendix and are displayed in Figure 1 below. Across these 17 schools, the WAYN survey generated 329 complete or partial graduate responses, a 406% increase compared to responses to the 2020 WAYN survey (n=65).

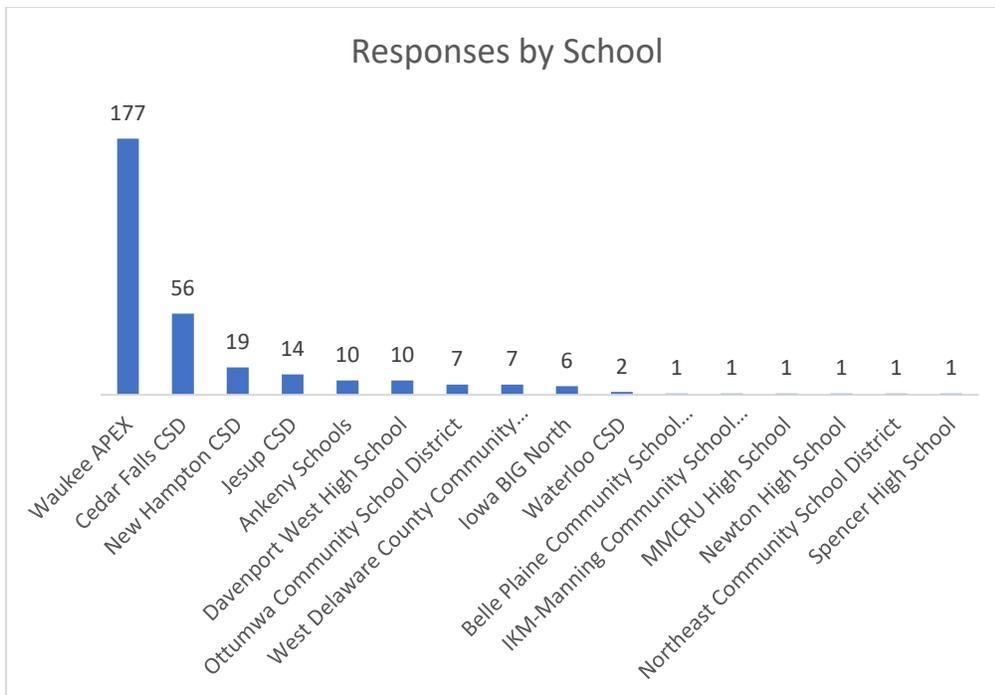


Figure 1

Graduate Education and Employment

Of 329 survey respondents, all indicated their vocational or academic status in STEM fields. In a closed-ended item, forty eight percent of graduates (n=159) said they are neither working nor studying in a STEM field, 41% (n=136) said they are students studying a STEM field, 9% (n=30) said they are employed in a STEM field, and 1% (n=4) said they are looking for a job in a STEM field. Of those who indicated enrollment in school, 109 responded to the closed-ended item inquiring on their school type (n=27 nonresponses to this item). Most post-secondary students (n=89) indicated they attend a 4-year college, followed next by community college (n=13). Seven students specified other programs. Responses included graduate school (n=3), a 5-year program (n=2), community college transfer to a 4-year program (n=1), and an 18-month film program (n=1). Of those respondents currently studying a STEM field, 105 listed their fields in a free response format. Evaluators organized each response by overarching field to generate a succinct list of respondents' areas. For example, many respondents indicated subfields of engineering, such as mechanical engineering, bioengineering, and electrical engineering, to name a few. Such responses are reflected in the count of those studying engineering (n=25). Overall, item responses are captured by 14 overarching fields. Four respondents indicated they are double majors, with three of those four studying areas across two fields. One of these double majors, who was studying biochemistry and molecular biology, was only counted once in the total count for biology. The three remaining double majors are reflected twice in the field counts in this report, although they are only counted once in the number of responses to this item. From most responses to fewest responses, these fields include engineering, biology, health/ medicine,

computer science, business, math, technology, science, architecture, arts, environmental science, chemistry, physics, and education. Figure 2 below shows this distribution.

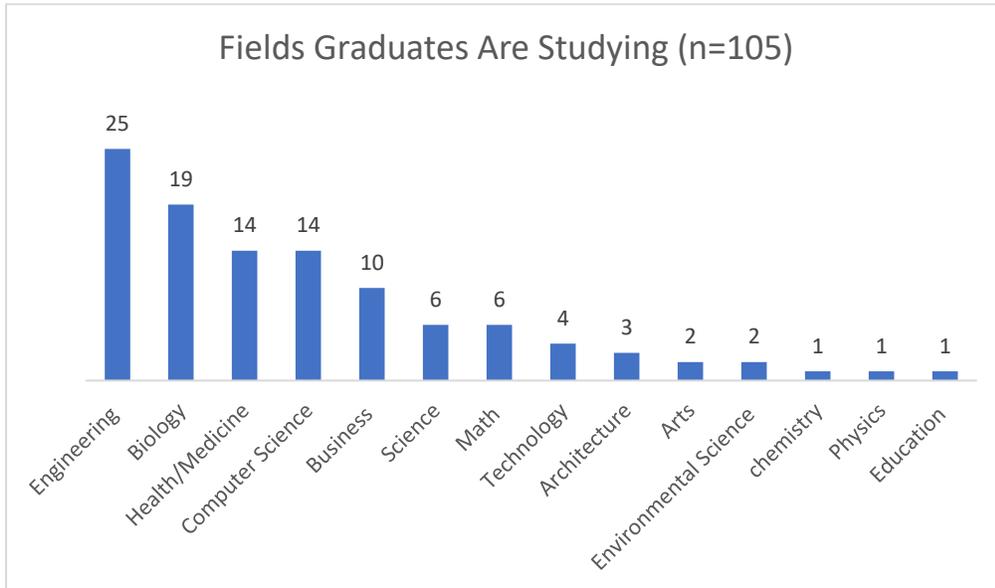


Figure 2

The process outlined above was also used to calculate the distribution of STEM fields respondents are working in. Of the 30 graduates working in a STEM field, 29 indicated their career field, with most specifying careers in engineering (n=11) and technology (n=8). Two respondents are reflected twice in the data because they indicated “math and technology” and “networking/ cyber security” in their response. Here, “cyber security” was categorized as “computer science”, but “networking” was considered separately (categorized as “networking”). While these respondents are counted twice in the breakdown of fields in Figure 3, they are only counted once in total item responses (n=29). Other fields indicated in survey responses, from most common to least common, include computer science, healthcare, math, architecture, automotive mechanics, insurance, plumbing, and networking. The distribution of these responses is shown in Figure 3 below.

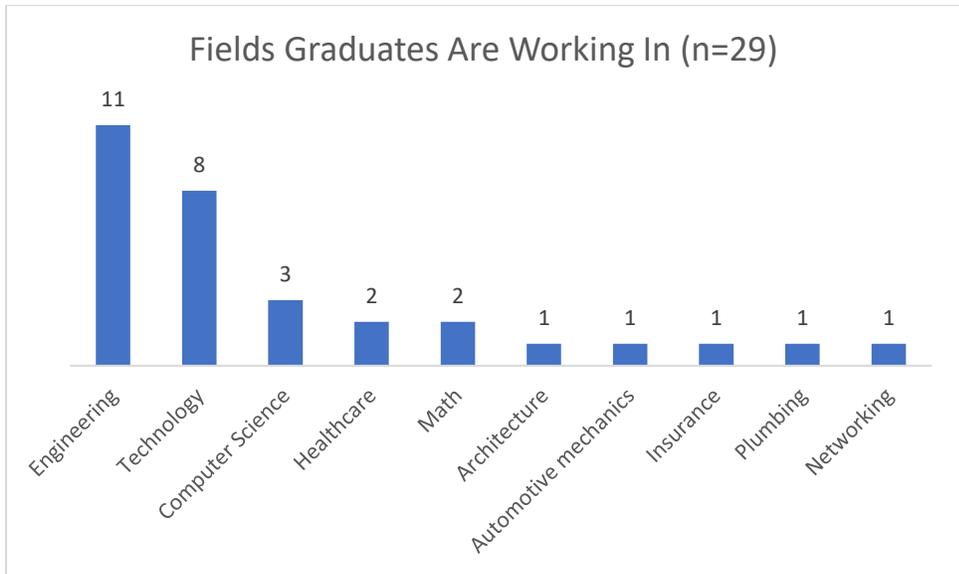


Figure 3

Lastly, of the four graduates looking for a job in a STEM field, three specified the fields they are looking in. Responses included city planning, science, and technology.

STEM BEST Influence

The WAYN survey includes four five-point Likert items ranging from strongly agree to strongly disagree. These items are intended to measure the perceived influence of graduates' participation in a STEM BEST program on their interests and career paths post-high school.

In the first item, graduates rated their agreement with the statement, "STEM BEST helped me develop an interest in a STEM-related field." Fifty one percent of respondents either agreed (n=120) or strongly agreed (n=49) with this statement, 9% either disagreed (n=16) or strongly disagreed (n=13), and 19% were neutral (n=62). Figure 4 shows this distribution.

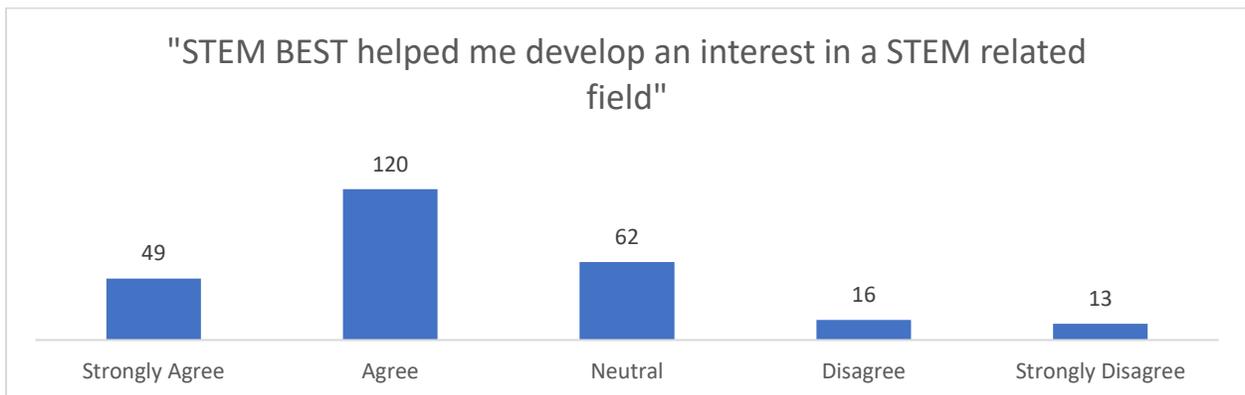


Figure 4

The second item states, “Because of my participation in STEM BEST, I have a greater interest in working in Iowa.” This item generated the least polarizing responses of the influence items, with 33% of respondents agreeing (n=81) or strongly agreeing (n=28) with the statement and 16% either disagreeing (n=39) or strongly disagreeing (n=15). Compared to the other influence statements, more students (29%) were neutral for this item (n=96). Figure 5 includes this distribution.

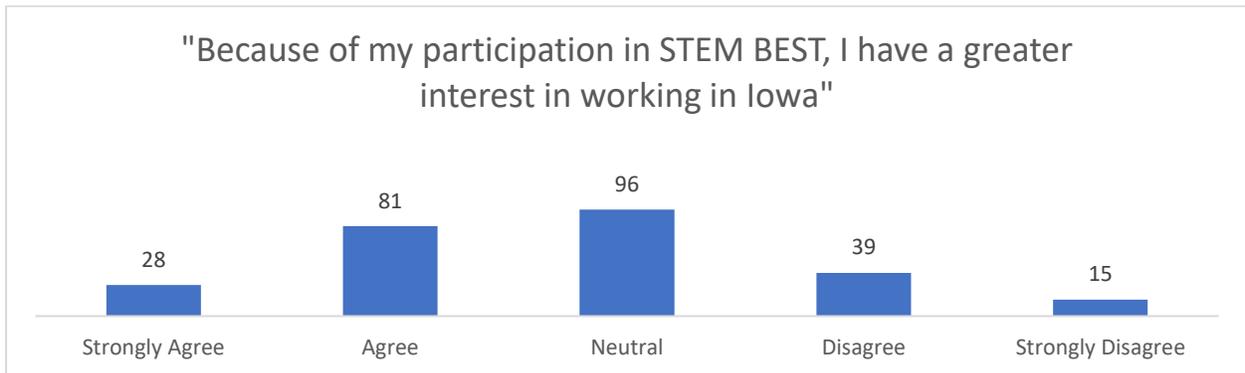


Figure 5

The third statement, “My participation in STEM BEST has influenced my career path,” generated the most agreement from respondents of all influence items, with 56% of respondents indicating agree (n=120) or strongly agree (n=63) and only 9% disagreeing (n=19) or strongly disagreeing (n=9). Fifteen percent (n=49) of respondents were neutral for this item. This distribution is shown in Figure 6.

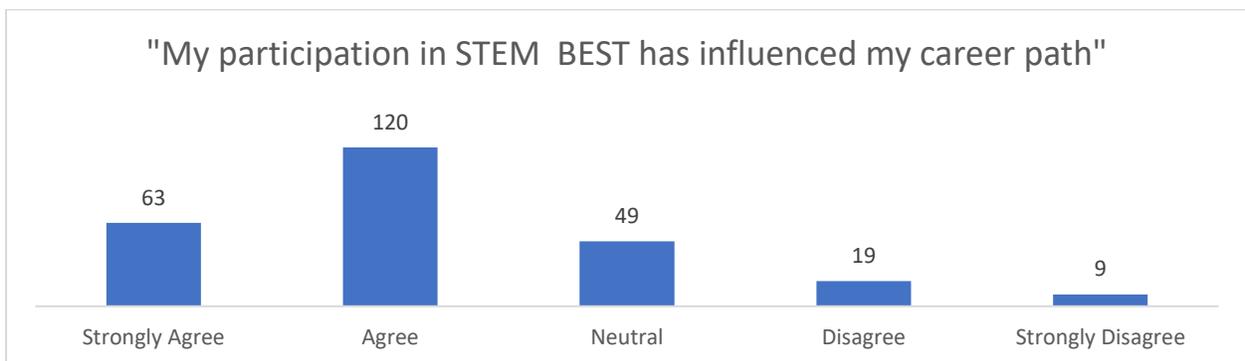


Figure 6

Finally, “STEM BEST encouraged me to pursue a post-secondary degree,” elicited mostly feelings of neutrality or agreement among respondents. Thirty-seven percent of respondents either agreed (n=71) or strongly agreed (n=50), 26% were neutral (n=86), and 16% either disagreed (n=40) or strongly disagreed (n=13). Figure 7 shows this distribution.

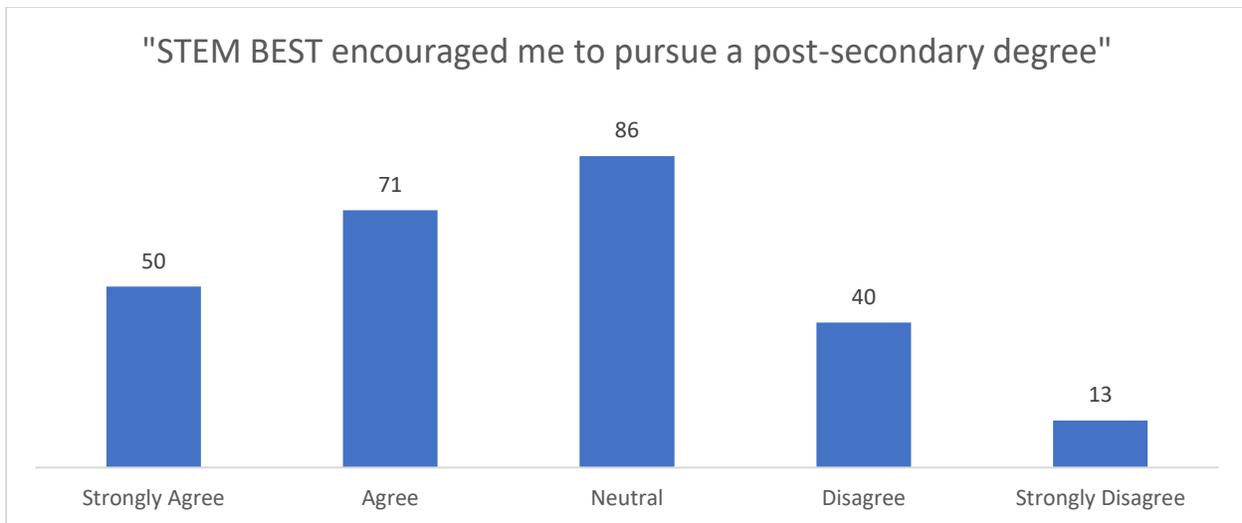


Figure 7

STEM BEST Skills

In total, 155 graduates responded to the open-ended item, “What is an example of a skill you learned in your STEM BEST program that you use in your daily life today?” In analyzing graduate responses, CEA evaluators coded recurring themes throughout each typed response. Since many respondents listed multiple skills gained through their STEM BEST participation, the counts reflected for each skill exceed the total number of item responses. The top five skills captured in the aforementioned themes included soft skills (n=59), professionalism (n=27), technology skills (n=22), collaboration skills (n=19), and responsibility (n=16). In this context, soft skills include any graduate’s reference to improved communication, such as via email, public speaking, or face-to face communication with others. As examples of students who said they acquired soft skills from the program, one student explained broadly how communication skills prepared them for post-secondary education, saying,

“I learned how to communicate with professionals. When I am looking for observation hours for PT school, I can use the communication skills that I learned through the STEM BEST program to contact them. This has also helped me in communicating with professors and Tas.”

Another student said their skills attributable to their participation in STEM BEST included “Communication and people skills (soft skills)”.

As a last example, another graduate defined the communication skills they gained in a medical context, saying, “Patient/Provider Communication- When I was at Waukee APEX, I found myself shadowing in a long term care facility where I learned basic communication skills that allowed me to understand the importance of clear and effective communication to best serve.”

Other graduates referenced improved professionalism skills, including references to improved knowledge about how to dress appropriately for the workplace and how to interact appropriately

in the workplace. “APEX taught me the fundamentals of professionalism and how to act in the workplace. It put me miles ahead once I entered into college and was applying for internships,” one student said.

Other examples of graduates’ responses include one student who defined their improved professionalism, saying,

“I have found in college while you can be more laid back, you still need to be able to maintain professionalism with anyone you are talking to, whether it be an employer on campus or a professor,”

and another student who said,

“Professionalism-- I know this sounds easy, but when in college, talking and emailing with professors is something everyone has to do. With apex teaching us how to be responsible and professional, I was set up with the skills to write and deliver a professional email. I was able to hold myself accountable for deadlines.”

Any reference to acquired knowledge about programs, machinery, mechanical, or design is captured in the total for technology skills. For example, one student said, “No matter which of the STEM classes I was enrolled in, each taught me the whereabouts behind different levels of technology, and I use them every day to progress in my degree.”

Collaboration was a valuable skill graduates cited as recurring in their daily lives. One student said, “I now have a stronger understanding of how to work with others of different ages in a working space.” As exemplified in this response, collaboration includes references to improved teamwork or ability to work effectively with businesses or other professionals.

Lastly, graduates referenced many aspects of responsibility. As used in this report, responsibility encompasses any reference to improved timeliness, increased thoroughness, or improved organization. As exemplified in one graduate’s response, “One big thing I learned was how to meet deadlines when working on multiple projects simultaneously.”

While most respondents listed the program’s contribution towards skill development, one person’s response was an outlier. Contrary to others’ experiences, this person did not feel that their ideas were supported, inhibiting any skill enhancement. They said,

“I didn't learn anything. [My school’s] program was poorly run. Every problem / solution that students came up with was shot down by the teacher or administration. Most students learned early on that the class didn't mean anything and we used it as a glorified study hall. It was honestly a waste of a class period.”

Although this response is not representative of total feedback on the WAYN survey, it should be considered as implementers go forward with STEM BEST programming. For example, implementers might be more cognizant of facilitating class discussions about ways to overcome possible barriers to students’ ideas for project implementation.

Refer to Table 2 for an exhaustive list of graduates’ STEM BEST-acquired skills, as well as descriptions, counts, and exemplary quotes for each.

Table 2

Skill	Description	n	Exemplary Quote(s)
Soft Skills	Soft skills include references to improved communication, resume, or interview skills.	59	“I learned how to communicate with professionals. When I am looking for observation hours for PT school, I can use the communication skills that I learned through the STEM BEST program to contact them. This has also helped me in communicating with professors and TAs.”
			“Communication and people skills (soft skills).”
			“Patient/Provider Communication- When I was at Waukee APEX, I found myself shadowing in a long term care facility where I learned basic communication skills that allowed me to understand the importance of clear and effective communication to best serve.”
Professionalism	Professionalism includes any reference to increased knowledge about professional skills, including etiquette and professional dress.	27	“APEX taught me the fundamentals of professionalism and how to act in the workplace. It put me miles ahead once I entered into college and was applying for internships.”
			“Professionalism-- I have found in college while you can be more laid back, you still need to be able to maintain professionalism with anyone you are talking to. Whether it be an employer on campus or a professor.”
			“Professionalism-- I know this sounds easy, but when in college, talking and emailing with professors is something everyone has to do. With APEX teaching us how to be responsible and professional, I was set up with the skills to write and deliver a professional email. I was able to hold myself accountable for deadlines.”

Technology	Technology includes references to increased understanding of technology, including various programs, machinery, and mechanical or design software.	22	“No matter which of the STEM classes I was enrolled in, each taught me the whereabouts behind different levels of technology and I use them every day to progress in my degree.”
Collaboration	Collaboration includes working with a team, businesses, or professionals on projects or tasks.	19	“Collaboration. I now have a stronger understanding of how to work with others of different ages in a working space.”
Responsibility	Responsibility includes improved timeliness, time management, thoroughness, and improved organization.	16	“One big thing I learned was how to meet deadlines when working on multiple projects simultaneously.”
Self-Improvement	Self-improvement includes improved self-confidence and confidence to step out of one’s comfort zone with the intent of exploration or growth.	11	“I learned to never underestimate myself and what I am capable of, which helps me pursue my dreams and reach my full potential.”
Critical Thinking	Graduates said they use critical thinking or problem-solving skills in their daily lives.	11	“I learned how to problem solve in my STEM BEST program. I use this every day from little things like getting homework done when I don't understand it to bigger things such as setting up team activities and getting things planned.”
Networking	Graduates learned how to network or build connections with other students or professionals in their field of interest.	10	“I learned how to build connections with the people around me and use them to my advantage.”
Field Skills	Graduates gained skills from STEM BEST that are specific to their field. Examples include medical skills, such as taking blood pressure,	8	“While I was at Waukee APEX, I learned many valuable and interesting skills that are related to the healthcare field (taking blood pressure, what BP means, how to suture, etc.). Because of these skills, my interest and intrigue

	knowledge about insurance, and camera placement for videography, to name a few.		in the health care field grew and I wanted to attend Iowa because of the great program they have for people who want to become healthcare workers.”
Project Management	Graduates learned how to manage and plan out projects.	5	“Project Management” “Orbis taught me good leadership skills and project planning.”
Lab Skills	Graduates learned skills necessary for lab work, including writing lab reports and keeping a lab notebook.	3	“I use the lab techniques in my lab courses.”
Leadership	Graduates said their STEM BEST experience helped them develop skills to become better leaders.	3	“Orbis taught me good leadership skills and project planning.”
Nothing	One person said they did not gain any new skills because they already had the knowledge taught in the program. Another person did not feel that their ideas were supported by administration, so they used the class as a study hall.	2	“There isn’t one that I can think of. The class wasn’t really about STEM, even though it claimed to have a focus in medicine. It was mostly about interview techniques and writing formal emails. I already knew how to write an email, and I don’t use the interview techniques often. My undergraduate college actually helped me to refine these skills more than my class did.” “I didn't learn anything. West Delaware's program was poorly run. Every problem / solution that students came up with was shot down by the teacher or administration. Most students learned early on that the class didn't mean anything and we used it as a glorified study hall. It was honestly a waste of a class period.”
Adaptability	Graduates said they learned how to adapt to sudden change.	2	“From recent experience, being adaptable to sudden change and finding a quick solution that is beneficial to not only myself, but also my peers and family.”

Documentation	Graduates got better at documenting accomplishments and project progress.	2	“Something that I learned that was instilled in all of my STEM BEST classes is how important documentation is. Now, even over 8 years later, I make documenting everything I do/accomplish a priority.”
Independent Learning	One graduate got better at learning on their own.	1	“Learning things on my own.”
Budgeting	One person learned budgeting skills that they use to help them with their retirement planning.	1	“I religiously save for retirement, stay out of debt and take my budget seriously.”

STEM BEST Impressions

When asked to describe what about STEM BEST had the greatest impression on them, 145 graduates responded. As described previously, CEA evaluators used qualitative coding to compute totals cross response themes. Most graduates listed positive lasting program impressions (n=142). The top five cited impressions included career experience (n=82), skill development (n=26) networking opportunities (n=17), persisting support (n=15), and individual growth (n=10).

Many graduates referenced their appreciation of the “real-world” feel of STEM BEST projects. These experiences allowed them to interact with field professionals, collaborate on projects, and, in turn, gain career experience. Like many other graduate responses, one person said, “I really appreciated the fact that I got to work with real organizations. It gave me a good insight as to what workplace projects could look like in my future. I also like that I got to experience a variety of roles, from graphic designer to project coordinator, I got to be involved in many projects in different ways.”

Many graduates also appreciated the program’s contribution towards their advancement in different skillsets, including programing skills, problem solving skills, teamwork skills, and communication skills. One person even attributed these skills to their college preparation and overall behaviors, stating, “STEM BEST has provided me the skills and techniques necessary to handle a large variety of problems in my life, as well as improved my social skills. It is what forged me into the person I am today and has prepared me for college.”

Furthermore, many referenced the persisting impact of collaborating with business professionals through networking opportunities with STEM BEST business partners. In describing their experiences collaborating in a professional setting, one respondent said, “[Collaboration in a professional setting is] never touched on in school but it’s very important as an employee.

Technical skills can be learned online or on the job, but collaboration is one of STEM BEST’s best features.”

Some graduates said their teachers had a lasting impact on their interests, passions, or inspirations, while others felt their opinions and efforts were supported by the program overall. One graduate said, “The teachers made a great impression on me. They weren't like regular teachers; they cared about your future and wanted to see you succeed. They constantly were checking in on you and making sure you liked what you were doing and that you were growing as a young professional.”

Lastly, some graduates said the program had a lasting positive impact on their confidence by coaxing them out of their comfort zones, allowing them to experience personal growth. For example, one person attributed their tendency to voice their thoughts and to adopt an active project role to their STEM BEST experiences. They said, “Helping me get out of my comfort shell was the greatest impression it had on me. Since the STEM program I've been more vocal and communicative in my fields of work and have active participation throughout projects I take.”

Despite professionalism being one of the most listed skills acquired from STEM BEST programs and despite most graduates describing positive STEM BEST experiences, one person highlighted a negative lasting impression from a STEM BEST lesson on professional dress. This person said they feel more self-conscious after the STEM BEST program, attributing this to their discomfort when a teacher critiqued their outfit as an example of what would not be considered professional dress.

Other outlying responses included one person who said “NA” and another whose response indicated discouragement by the prevalence of problems they observed through their experiences. They said, “Problems are inevitable and there's too much red tape to fix it so don't even try.”

While these experiences are outliers in graduate responses, they may warrant a call-to-action for the reconsideration of the way sensitive topics are addressed in education. For example, although many graduates said the program succeeded at teaching them professionalism, including dress in the workplace, the first highlighted response suggests the methods in which professional dress are taught may be subject to misinterpretation of teacher intent, in turn subjecting students to unintended consequences like embarrassment or increased self-consciousness. Furthermore, to prevent feelings of discouragement, implementers might be more aware of the balance between the presentation of problems and solutions in STEM fields.

An exhaustive list of lasting STEM BEST impressions is defined in Table 3, including descriptions, counts, and exemplary respondent quotes.

Table 3

Impression	Description	n	Exemplary Quote(s)
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Career Experience	Graduates gained hands-on, real-world experience related to their field. The STEM BEST program helped them explore different STEM paths, strengthen their career path, prepare them for their vocational endeavors, or helped them identify their vocational interest.	82	“I really appreciated the fact that I got to work with real organizations. It gave me a good insight as to what workplace projects could look like in my future. I also like that I got to experience a variety of roles, from graphic designer to project coordinator, I got to be involved in many projects in different ways.”
Skill Development	Graduates appreciated the skills they learned in the program, with some referencing the roles these skills play int their lives today. Common skills included programming, problem solving, teamwork, and communication.	26	“STEM BEST has provided me the skills and techniques necessary to handle a large variety of problems in my life, as well as improved my social skills. It is what forged me into the person I am today and has prepared me for college.”
Networking	Graduates appreciated the opportunity to interact with and make connections with STEM professionals and other students interested in STEM fields.	17	“The collaboration in a professional setting. It’s never touched on in school but it very important as an employee. Technical skills can be learned online or on the job, but collaboration is one of STEM BEST best features.”
Support	Graduates said they received support or encouragement from teachers,	15	“The teachers made a great impression on me. They weren't like regular teachers, they cared about your future and wanted to see you succeed. They

	program leaders, or other students in the program. Some also described a communicative program environment with a sense of community.		constantly were checking in on you and making sure you liked what you were doing and that you were growing as a young professional.”
Individual Growth	Graduates said STEM BEST helped them get out of their comfort zone, helped them develop more confidence, or helped them grow as an individual.	10	“Helping me get out of my comfort shell was the greatest impression it had on me. Since the STEM program I've been more vocal and communicative in my fields of work and have active participation throughout projects I take.”
Mindset	Graduates referenced a shift in their mindset. Examples include wanting to make an impact as a minority in STEM fields, realizing that hard work is rewarding, and realizing their capacity for success. More negatively, one person shifted their mindset to the idea that problems are not worth fixing because they are inevitable.	10	<p>“I am a female and the influence of women to work in an engineering and science field was greatly influenced and made me pursue the studies I am currently enrolled in.”</p> <p>“Even though it may be extremely difficult at the time, it will pay off. Even internships in this field pay very well and the people the in the STEM profession all have one goal.”</p> <p>“Problems are inevitable and there's too much red tape to fix it so don't even try.”</p>
Professional Atmosphere	Graduates appreciated the professional atmosphere of their STEM BEST program, some noting that this was	10	“The environment that I was in probably affected me the most. The professionalism was something that I hadn't really experienced when working with my peers in school, and it really gave me a better sense as to how adults acted in a business/professional

	different from the atmosphere of a typical classroom experience.		setting and how demanding that situation can be.”
Independence	Graduates recalled the freedom to define their projects and tailor their STEM BEST experience towards their interests.	6	“I loved how we were able to be so independent and pick out our own projects most the time. It was a great opportunity that I think many people should take advantage of!”
Dedication	Respondents noticed and appreciated the dedication and drive of other students, teachers, and program leaders.	6	“I liked how dedicated everyone was to the program. It was a new idea that had just been brought into my school, but I saw both teacher and student ready to learn and advance the program.”
Resume Builder	The program helped one graduate build their resume.	1	“Resume builder.”
NA	Not applicable	1	“NA”
Became More Self Conscious	One respondent’s STEM BEST experience made them more self-conscious and less confident about the way they dress. They described their experience having a teacher critique their outfit in front of a class.	1	“My teacher had me stand publicly in front of the class and berated me about my outfit on the first day. She claimed that my skirt was too short, and she said it was unprofessional. She implied that I was a slut, but it fit the school’s dress code, and my parents were fine with me wearing it. They actually bought it for me. I went home crying, and I told my parents that I didn’t want to attend the class anymore. My mother helped me find skirts that were marketed as being for taller girls, which would therefore be longer, but I still didn’t want to wear them because I was embarrassed and I no longer felt confident enough to do so. I wore long pants every day, even when it was hot outside. I still feel vulnerable wearing

			skirts or dresses because I worry that they are too short, even though I wear shorts that are shorter now (shorts that would have still fit my school's dress code). It has stuck with me, even 5+ years later. I am definitely more self-conscious as a result, and it damaged the perception that I have of myself and my self-worth."
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Summary

Based on feedback on the 2021 WAYN survey, STEM BEST program participation did not necessarily steer graduates onto a STEM academic or vocational career path; 48% indicated they are neither working nor studying in a STEM field, compared to 41% who said they are a student studying a STEM field, 9% who are employed in a STEM field, and 1% who are looking for jobs in a STEM field. However, this is not to say the STEM BEST programs did not generate interest in STEM fields. Of those graduates who indicated they are not currently pursuing an educational or vocational STEM path, 47% either agreed (n=50) or strongly agreed (n=3) that the program helped them develop an interest in a STEM related field. Of these same respondents, 42% (n=47) either agreed (n=34) or strongly agreed (n=13) that because of their participation in STEM BEST, they have a greater interest in working in Iowa; 73% agreed (n=120) or strongly agreed (n=63) that their participation in STEM BEST has influenced their career path; and 49% either agreed (n=71) or strongly agreed (n=50) that STEM BEST encouraged them to pursue a post-secondary degree.

Considering all item responses without filtering by respondents who are not studying or employed in a STEM field, the percentage of item respondents who either agreed or strongly agreed that STEM BEST helped them develop an interest in a STEM field increased from 47% to 51% (with strongly agree = 49 responses and agree = 120 responses). All other agreement percentages to closed-response impact items decreased when taking all responses together; 33% either strongly agreed (n=28) or agreed (n=81) that participating in STEM BEST increased their interest in working in Iowa; 56% either agreed (n=63) or strongly agreed (n=120) that participating in STEM BEST influenced their career path; and 37% either strongly agreed (n=50) or agreed (n=71) that STEM BEST encouraged them to pursue a post-secondary degree. Taken together, these responses suggest that STEM BEST helped students discover their interest in STEM, working in Iowa, and furthering their education, however, it also helped some students recognize that working in a STEM field is not for them.

Overall, of those who provided responses, nearly all graduates (n=153 out of 155) said they left STEM BEST having acquired additional skills that they still use daily, with top responses including improved communication, professionalism, technology fluency, collaboration, and responsibility. Nearly all graduates who provided responses (n=142 out of 145) also indicated

having had some positive lasting impression from their experience in a STEM BEST program, with top responses including career experience, skill development, networking opportunities and experiences, a supportive environment, and a professional atmosphere.

Next Steps

The CEA will continue working with the Iowa Governor’s STEM Advisory Council to incorporate feedback about STEM BEST experiences into developing guidelines and identifying resources for upcoming programs across Iowa. As programs continue to grow and evolve, the CEA will conduct new evaluations of ongoing program navigation and experiences from program graduates and key players in STEM BEST implementation. Each evaluation will serve to help the Council understand program impact and to expand STEM BEST programming to become an accessible, impactful resource for all Iowa students, ultimately fueling life-long learners and boosting interest in local STEM careers.

Appendix

Table 1.

School District	POC	Graduate Contact Status provided by POC (If Applicable)	Number of Survey Responses
Albia Community Schools	Kevin Crall		0
Alburnett Schools	Brian Moretz		0
Allamakee Community School District	Caleb Ferring		0
Ankeny Schools	Jill (Dr.) Urich		10
Assumption High School (Davenport)	Andrew Craig		0
Atlantic Community Schools	Heather McKay		0
BCLUW CSD	Roberta Vanderah		0
Belle Plaine Community School District	Frank Jowitt	No program graduates	1
Bettendorf-Pleasant Valley	Tammy Chelf		0
Boone EDGE	Kris Byam		0
CAM Community School District	Shelly Miller		0

Cedar Falls CSD	Ethan Wiechman		56
Cedar Rapids CSD	Joshua Eaton		0
Central Community School District	Ann Gritzner		0
Chariton Community Schools	Tracy Hall		0
Clarinda CSD	Chris Bergman		0
Clear Lake CSD	Emily Hill	No program graduates	0
Clear Creek Amana	Leslie Flynn	No program graduates	0
Davenport West High School	Greg Smith		10
Fort Madison Community High School	Greg Smith		0
Griswold CSD	Sandy Nelson		0
Hoover High School (Des Moines)	Jonathan Temple		0
IKM-Manning Community School District	Luann Langel		1
Iowa BIG (Cedar Rapids/College Community in the SE Region)	Shawn Cornally		0
Iowa BIG North	Mike Kuennen		6
Iowa City Community Schools	Matt Degner	POC could not distribute survey links	0
Jesup CSD	Paul Rea		14
Keokuk Community School District	Adam Magliari		0
MMCRU High School	Matthew Hansen		1
New Hampton CSD	Jim Russ		19
Newton High School	Bill Peters		1
North Iowa Community School District	Joe Erikson		0
Northeast Community School District	Jennifer Huling	POC did not have graduate contact information	1
Oelwein Community Schools	Deb Kaepfel		0

Ottumwa Community School District	Jeff Kirby		7
Rock Valley	Chad Janzen		0
Saint Albert Catholic Schools	Jeremy Hulshizer	POC did not have graduate contact information	0
Sioux City Community School District	Shelly Nash	POC no longer in position	0
Spencer High School	Elli Wiemers, Will Dible, & Nate Wendt		1
Stanton CSD	Jeff Grebin		0
Waterloo CSD	Jeff Frost		2
Waukee APEX	Michelle Hill		177
West Delaware County Community School District	Tim Felderman		7
West Des Moines CSD	Jim Martin	No program graduates	0
West Liberty Community Schools	Jackie Henderson		0

Appendix A.

Life after STEM BEST: Where are you now? 2021

Start of Block: Introduction Message

Dear Graduate,

We thank your school leader for reaching out to you on our behalf. Having taken part in a school-business partnership in high school, we would very much value your feedback about your experiences for the benefit of those who follow you. Please take a few minutes to answer the following questions about where you are now. If you have any questions, e-mail Kayla at kayla-jackson@uiowa.edu.

Responding to this survey is voluntary, and unless you consent at the end of this survey, your responses will be reported in a way that you will not be identifiable.

End of Block: Introduction Message

Start of Block: STEM BEST Influence

Q1 The school-business partnership you took part in at school is called a STEM Businesses Engaging Students and Teachers (BEST) Program, funded in part by the Governor's STEM Council.

This considered, please select your response to the following item from the drop-down menu.

Which of these STEM BEST schools did you attend? (1)

▼ Albia Community Schools (1) ... West Liberty Community Schools (45)

Q2 Are you working/studying in a STEM field currently?

- I am a student studying a STEM field (1)
- I am employed in a STEM field (2)
- I am neither studying nor working in a STEM field (3)
- I am looking for a job in a STEM field (4)

Skip To: Q5 If Are you working/studying in a STEM field currently? = I am a student studying a STEM field

Skip To: Q4 If Are you working/studying in a STEM field currently? = I am employed in a STEM field

Skip To: Q7 If Are you working/studying in a STEM field currently? = I am neither studying nor working in a STEM field

Skip To: Q3 If Are you working/studying in a STEM field currently? = I am looking for a job in a STEM field

Q3 In which STEM field are you looking for work?

Skip To: Q7 If Condition: In which STEM field are you... Is Not Empty. Skip To: Indicate the extent to which you feel....

Q4 In which STEM field are you currently working?

Skip To: Q7 If Condition: In which STEM field are you... Is Not Empty. Skip To: Indicate the extent to which you feel....

Q5 Which STEM field are you currently studying?

Q6 Which type of school are you currently enrolled in?

4- Year (1)

Community College (2)

Other (Please Specify) (3) _____

Q7 Indicate the extent to which you agree with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
STEM BEST helped me develop an interest in a STEM related field. (1)	<input type="radio"/>				
Because of my participation in STEM BEST, I have a greater interest in working in Iowa. (2)	<input type="radio"/>				
My participation in STEM BEST has influenced my career path. (3)	<input type="radio"/>				
STEM BEST encouraged me to pursue a post-secondary degree. (4)	<input type="radio"/>				

End of Block: STEM BEST Influence

Start of Block: Skills

Q8 What is an example of a skill you learned in your STEM BEST program that you use in your daily life today?

End of Block: Skills

Start of Block: Impressions

Q9 In a couple sentences, what about STEM BEST had the greatest impression on you?

End of Block: Impressions

Start of Block: Closing

Q10 May someone from the Iowa Governor's STEM Advisory Council contact you for more information?

- Yes (1)
- No (2)

Skip To: Q11 If May someone from the Iowa Governor's STEM Advisory Council contact you for more information? = Yes

Skip To: End of Survey If May someone from the Iowa Governor's STEM Advisory Council contact you for more information? = No

Q11 What is the best email to reach you?

End of Survey
