MISSOURI STEM WORKFORCE INNOVATIONS NETWORKS

Curriculum and Portal Review Final Report

Abstract

A comprehensive report on the review process of the initiatives and endeavors of the Missouri Community College Association's MoSTEMWINs Consortium, as specified in the U. S. Department of Labor Grant Agreement TC-26470-14-60-A-29

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INTRODUCTION

This report documents the innovations and endeavors of the Missouri STEM Workforce Innovations Networks **(MoSTEMWINs)**, a consortium of 13 Missouri Community Colleges, organized through the Missouri Community College Association **(MCCA)**, for the purpose of providing opportunities "for Missouri's TAA-eligible, long-term unemployed and other dislocated workers", including veterans. "MoSTEMWINs creates, expands and redesigns new and existing STEM programs at member institutions throughout the state to fill gaps identified by STEM employers in multiple industries. MoSTEMWINs also addresses the fundamental, underlying barriers that prevent the target population from entering and completing STEM programs by: (1) accelerating entry into career programs by offering opportunities to improve underdeveloped academic skills; (2) creating clear pathways to STEM careers; and (3) improving employment attainment for the target population".[1] "The 13 colleges have a single statewide focus of improving retention and completion rates for the participants". These opportunities target the state's projected economic/employment data in five high-growth STEM occupational clusters of information technology, health sciences, transportation, manufacturing, and general/life sciences.[2]

In the State of Missouri, Community Colleges and other partner agencies, have formed consortiums under the Missouri Community College Association (MCCA) to apply for and participate in several "Rounds" of the Trade Adjustment Act Community College Training (TAACCT) grants through the U.S. Department of Labor (DOL). These include Missouri Health Workforce Innovation Networks (MoHealthWINs), Missouri Manufacturing Workforce Innovations Networks (MoManufacturingWINs) and currently, the subject of this report, Missouri Science, Technology, Engineering and Math Workforce Innovations Networks (MoSTEMWINs).

One of the stipulations of these grants is that all documents funded by the grants are uploaded to a public repository, such as Skills Commons, so that they are shared with the rest of the education community, for benchmarking and adopting. With the exception of MoSTEMWINS Project Narrative document referenced in this section, Introduction, all other forms, documents and reports can be publicly accessed at
https://www.skillscommons.org/handle/taaccct/1469

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[1] Statement of Need, MoSTEMWINs Project Narrative, page 1
[2] Evidence of Job Opportunities…, MoSTEMWINs Project Narrative, page 5

CHALLENGES

Working collaboratively with industry and community partners, consortium members have identified the skills required in the targeted industries and occupations.[3]

Table 5: Understanding of Skills, Abilities and Credentials Required		
STEM Occupational Cluster	**Knowledge, Skills & Competencies Required**	**Credentials Needed**
Information Technology- Computer/network support techs and administrators, project managers, database administrators, cyber security, health information technology	Technology, problem-solving, writing, math, and communication skills; systems thinking and troubleshooting skills	Hands-on Experience Vocational Training Industry Certifications Certificates Associate Degree Bachelor's Degree
Health Sciences- Nursing; medical or therapy assisting; health info. management, technicians (ultrasound, radiology, respiratory), pharmacy techs, dental hygienists	Writing/reading, math, technology, problem-solving, and communication skills; equipment operation and control; safety and regulations	Hands-on Experience Vocational Training Certificates National or State Exam Associate Degree Bachelor's Degree
Transportation- Drivers and operators	Computer and other technology, reading, problem-solving and communication skills; safety and regulations	Hands-on Experience Industry Certifications Certificates
Manufacturing- Production, robotics, mechatronic, industrial engineering, or electrical techs; repairers of industrial machines, motors and tools; quality control; power plant operators	Mechanical, computer, problem-solving, math, writing, communication skills; safety, assembly and quality assurance abilities; electrical and electronic controls; robotics; blueprint and schematic reading	Hands-on Experience Vocational Training Industry Certifications Certificates Associate Degree Bachelor's Degree
Life Sciences- Biological and chemical techs, forensic science techs, environmental, life or physical science techs	Computer, writing, math, chemistry, problem-solving, communication skills; safety and regulations	Hands-on Experience Industry Certifications Certificates Associate Degree Bachelor's Degree

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[3] Table 5, MoSTEMWINs Project Narrative, page 7

The extensive outreach and collaboration resulted in identified gaps between existing education and training opportunities, versus needs of employers. The consortium colleges formulated specific strategies and methods to remedy the gaps.[4]

Gap	Analysis
Lack of capacity to significantly expand or revise existing programs or add new programs	
Quantity of programs and/or limited content	Colleges need to add new programs and revamp current programs to produce more participants with the competencies employers need.
Insufficient specialized equipment to provide effective training	Colleges need to add equipment to further develop programming or introduce new programs.
Participants face barriers of time and place	Programs of study need to be available online or otherwise overcome long distances and the schedules of working adults with multiple responsibilities.
Lack of academic preparedness among adult learners impedes student progress	
Inflexible schedules create barriers to completion for adults	Most college programs need to adjust their curricula, schedules, or both to offer short, chunked, and modularized content focused on mastering competencies rather than being present in a class for a semester.
Time to completion discourages students	Participants need accelerated learning options and credit for their prior learning, as well as stacked and latticed credentials that offer multiple re-entry points and advancement while working.
Path to employment/reemployment is often unclear to TAA-eligible and other workers	
Degree/certificate requirements can be confusing and inconsistent	Colleges have traditionally chosen not to interfere in students' choices, but now understand that, to be successful, participants need clear paths to earning the needed credentials and advice about career entry and success.
Participants do not understand requirements by their new occupation	Opportunities to visit places of employment, shadow workers, and gain on-the-job experience through internships and clinical placements help students understand what skills they must master to succeed and enable networking.

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[4] Tables 6 & 10, Gap analysis and workplan, MoSTEMWINs Project Narrative, Pages 11, 16

To address the gaps identified above, MoSTEMWINs implemented three major strategies:

Table 10: Project Strategies	
Major Strategy	**Methods**
1) Accelerate Entry Into Career Programs	Refine assessment, transform developmental education and add support services to meet the needs of participants
2) Create Clear Pathways to STEM Careers	Expand access to and/or develop new stacked and latticed credentials in programs that meet employer needs
3) Improve Employment Attainment	Collaborate with industry, WIBs, state, and community-based organizations to engage, guide and employ participants

Education and training initiatives are primarily Strategy 2, although Strategy 1 and 3 are also including in the curriculum review process. Portal initiatives support Strategies 1 and/or 3, therefore different methods of review were employed.

THE REVIEW PROCESS
Subject Matter Experts

Subject Matter Experts (SME) are individuals with educational experience, expertise and certification in the specific educational areas requiring review. SMEs must hold the certification(s) of the career paths they are nominated to review. For the most part nominations come from the consortium colleges' faculty and employees, who are then assigned to review the educational programs of other consortium colleges. In two instances, SMEs from outside the consortium were necessary because 1.) there were no consortium nominations 2.) unique programs without peer, within the consortium. Specifically, a consortium SME for the program at Mineral Area College with International Fluid Power Association (IFPS) certifications, could not be located. An "external" SME was recruited, after considerable effort. An external SME was recruited initially, to complete the 4 Portal reviews, but had to withdraw shortly after the contracting process, for personal reasons. A second external SME was nominated by a consortium member and recruited to conduct the Portal reviews.

Stipends to the SMEs for their efforts, are the responsibility of the institution being reviewed, and are based on the size and complexity of the educational program. See Attachment 1. Training and orientation of the SMEs is the responsibility of the Curriculum Review Project Manager (CRPM). See Attachment 2.

Consortium Colleges submit standardized documents, based on examples provided to them, for each program requiring review. There are 8 categories of documents required:

1. Key Personnel Contact Information
2. Introductory Program Overview
3. Career Ladder and Stackable Characteristics
4. Instructional Materials List
5. Overview Table of Objectives, Modules, Learning Activities, Assessments
6. Syllabus/Syllabi
7. Curriculum Map
8. Statement of Programmatic Innovation/Enhancement

A review matrix/rubric is utilized to assess the programs. See Attachment 3. SMEs are encouraged to communicate with the program point of contact (item 1 above) in order to gain greater understanding of the program or ask for missing or improved documents and information. The completed SME review is forwarded to the CRPM, who discusses the review with the SME and agree on revisions, before forwarding to the institutions. The institutions are afforded approximately 30 calendar days to accept the review as written or submit a written response. The SME and CRPM discuss the written response and make revisions as appropriate.

When this part of the process is completed, the final SME Review and any written response are uploaded to SkillsCommons by the institution.

Program Descriptions

Program	Institution	# of Courses	Credit/Non-Credit	Contact Hours	Credentials	SME	SME College
Transport Training/Trucking	Crowder College (CC)	1	13 CH	200	CDL, +	John Price	MCCKC
COMPTia A+ Certification Course	East Central College (ECC)	8	NC		multiple	David McNair	JC
Electronics Tech. Certificate	Jefferson College (JC)	6	30 CH		College	Landon Vinson	OTC
Portal	Jefferson College (JC)	Portal				Dr. Sara Hill	Independent
Medical Assistant	Metropolitan Community College (MCCKC)		NC	168	College	Dr. Tena Wheeler	OTC
CSIS supplemental course for Medical Assistant	Metropolitan Community College (MCCKC)	1	NC		Cisco	David McNair	OTC
Certified Logistics Technician (with supplemental CIS course)	Mineral Area College (MAC)	4	10 CH		MSSC (4)	Rich Waligurski	SCC
Certified Production Technician	Mineral Area College (MAC)	4	12 CH		MSSC (4)	Bob Sherman	OTC
Fluid Power cert. courses (IFPS)	Mineral Area College (MAC)	5	9 CH		IFPS (4)	Thomas Blansett	Independent
Pharmacy Technician	Mineral Area College (MAC)	6	20 CH		CPhT	Dr. Shayna Burchett	SFCC
Mechatronics/CPT	Moberly Area Community College (MACC)	4	12 CH		MSSC (4)	James Dow	TRC
UP Program (developmental success)	North Central Missouri College (NCMC)	Portal				Dr. Sara Hill	Independent
Certified Production Technician	North Central Missouri College (NCMC)	4	12 CH		MSSC (4)	Bob Sherman	OTC
Chemical Laboratory Technology	Ozarks Technical College (OTC)	23	62 CH		College	Jack Hayes	SFCC
Information Technology Project Management	St. Charles Community College (SCC)		18 CH		PMI	David McNair	OTC
Welding II	St. Charles Community College (SCC)		NC	132	AWS	Allen Strange	SFCC
CPT Green	St. Charles Community College (SCC)		NC	20	MSSC (1)	James Dow	TRC
Certified Logistics Technician	St. Charles Community College (SCC)		NC	80	MSSC (4)	Chris Klusmeyer	MAC

Program	Institution	# of Courses	Credit/Non-Credit	Contact Hours	Credentials	SME	SME College
Information Technology Programming	St. Charles Community College (SCC)		18 CH		OCA	David McNair	OTC
Community Health Worker	St. Louis Community College (SLCC)		NC	168	CHW	Sandy Snook	MCCKC (retired)
Industrial Maintenance Tech	St. Louis Community College (SLCC)		NC	210	College	Tammy Hamilton	SFCC
MoSTEMWINs SLCC Portal	St. Louis Community College (SLCC)	Portal				Dr. Sara Hill	Independent
Navigators	State Fair Community College (SFCC)	Portal				Dr. Sara Hill	Independent
Computer Concepts	State Technical College of Missouri (STCM)		NC	32	College	David McNair	JC
Certified Production Technician/ F.I.R.S.T.	Three Rivers College (TRC)		NC	288	MSSC (1)	Bob Sherman	OTC

Program Ratings

The following tables are compiled from the completed SME Reviews. It should be noted that the terms *Exceptional* and *Excellent* have been used synonymously in this process and are interchangeable.

The first table, *Program Strategy Ratings*, looks at the effectiveness of the programs in supporting the 3 strategic goals of MoSTEMWINS. The choices of the SMEs are *Exceptional (Excellent), Very Good, Good, Ineffective*, and *No/Insufficient Evidence*. These are the review scale definitions:

> Exceptional: Review component is a "best practice" and represents a model for replication.
>
> Very good: <u>*Review component is complete and effective*</u>.
>
> Good: Review component is adequate but presents opportunities for improvement.
>
> Ineffective: Review component is weak and in need of significant improvement.
>
> No or Insufficient Evidence: Review component was not covered or information provided in the documents was insufficient for assessment.

The numeric value assigned to the ratings for the first table are (excellent) XL=4, (very good) VG=3, (good) G=2, (ineffective) I=1, and (no/insufficient evidence) N/A=0. The highest possible score would be 12 (=3*4), and a very good program would score a 9 (=3*3). As noted in the scale definitions, "Very Good" is complete and effective. As illustrated in the second table, *Very Good* is actually the level of 100%, reflecting the scale definition of the review matrix states "Review component is complete and effective". A rating of *Exceptional* exceeds 100% and indicates a model for emulation or benchmarking.

The second table, *Program Composite Ratings,* considers the SME findings associated with the 24 criteria associated with the curriculum. A count of all 24 criteria levels, denoting the level of the review findings, are entered into a formula that yields an overall percentage of effectiveness. As noted above, a rating of *Very Good* indicates a complete and effective program, with no improvements necessary.   Therefore, 24 VG ratings would equal 100%, as illustrated in the examples below. The numeric value

assigned to the ratings for the second table are: Exceptional = 1.01, Very Good = 1, Good = .85, Ineffective = .60, and No/Insufficient Evidence = 0.

EXAMPLES OF COMPOSITE QUANTIFICATION METHOD						
EXAMPLES	Excellent	Very Good	Good	Ineffective	N/A	Composite Score
Program 1	24	0	0	0	0	110%
Program 2	0	24	0	0	0	100%
Program 3	0	0	24	0	0	85%
Program 4	0	0	0	24	0	60%
Program 5	0	22	0	0	2	92%
Program 6	5	10	5	0	4	82%

Discretion was exercised by the CRPM where appropriate in adjusting a rating value for use in these tables. Specifically, the Community Health Worker program at SLCC is non-credit and received a No/Insufficient Evidence in regard to the Program CIP code. Since that would result in a "0" and unfairly skew the composite rating, the CRPM entered a rating of "VG" for this item in the Composite Score Table.

Readers should understand that theses tables are not definitive of any programs value, but an illustration of the review process. As appropriate, SMEs' comments are added to help clarify or understand the ratings. One anomaly stands out in theses tables: The Fluid Power Program with IFPS Certification at Mineral Area College consists of 5 courses. The SME reviewed each of the 5 courses individually, rather than reviewing the combined courses as an overall program. Therefore, the ratings are a "composite" of the 5 reviews and illustrated as such.

Program Strategy Ratings

Program	Institution	Strategies Assessment			Numeric Score (0-12)
		Strategy 1	Strategy 2	Strategy 3	
Transport Training/Trucking	Crowder College (CC)	XL	XL	VG	11
SME Review Comments:	*This program does an excellent job of blending the competing requirements to train their students on basic vehicle knowledge and operations in order to pass the state CDL exam while also professionally developing them so that the able to become productive employees after completing the program. By incorporating professional development topics and life/soft skills into the curriculum, the program better prepares their students for their future careers.*				
COMPTia A+ Certification Course	East Central College (ECC)	XL	XL	XL	12
SME Review Comments:	*The East Central College submission clearly demonstrates an Accelerate Entry into Career Programs, Create Clear Pathways to STEM Careers and Improved Employment Attainment. With a few exceptions, the documentation provided a very good insight to the program and degree plan.*				
Electronics Tech. Certificate	Jefferson College (JC)	VG	VG	XL	10
SME Review Comments:	*Documentation showed ability for students to earn credentials, but this could be enhanced by offering NIMS stackable certification.*				
Medical Assistant	Metropolitan Community College (MCCKC)	VG	G	XL	9
SME Review Comments:	*Evidence was provided that MCC collaborated with different health care agencies to provide clinical placement and job placement. Collaboration was identified with six different health care agencies. With a statement that positions were "guaranteed," for participants from some agencies.*				
CSIS supplemental course for Medical Assistant	Metropolitan Community College (MCCKC)	VG	VG	VG	9
SME Review Comments:	*Structure and design give pathways to STEM careers.*				

Certified Logistics Technician (with supplemental CIS course)	Mineral Area College (MAC)	VG	G	XL	9
SME Review Comments:	*Best Practices – Mineral Area College has created a great environment that fosters collaboration with local industry partners. In doing so offering the chance to do an internship, obtain the OSHA-30 general industry card and offering some of the courses to be taught at offsite, helps bridge the gap between education and the community companies needing these qualified individuals.*				
Certified Production Technician	Mineral Area College (MAC)	G	G	G	6
SME Review Comments:	*Overall, I believe the CPT program is well developed and implemented at Mineral Area College. The documents show the program is well organized with clear cut objectives, goals, materials and assessments. Very Good Job!!!*				
Fluid Power cert. courses (IFPS)	Mineral Area College (MAC)	VG (3) G (2)	VG (3) G (2)	VG (3) G (2)	8
SME Review Comments:					
Pharmacy Technician	Mineral Area College (MAC)	G	G	G	6
SME Review Comments:					
Mechatronics/CPT	Moberly Area Community College (MACC)	VG	VG	VG	9
SME Review Comments:	*The addition of hands-on labs to the MSSC CPT program, along with the use of the mobile lab adds significant value to this national certification program. Program is both embedded in multiple AAS programs as well as non-credit being articulated into those programs. This make the program stackable from Certificate level through the AAS level. Mobility added using a mobile lab, facilitates the ability to present this program in alternative sites.*				

Program	College				
Certified Production Technician	North Central Missouri College (NCMC)	G	G	G	6
SME Review Comments:	*I believe the CPT program at NCMC has been developed to the meet the needs of their local industry. The documents show the program is well organized with clear cut objectives, goals, materials and assessments. I would recommend the use of more hands-on equipment labs especially in the quality and maintenance courses. You might use the advisory committee to gather their input about equipment. Sometimes they will donate used equipment for training purposes.* *Good job overall.*				
Chemical Laboratory Technology	Ozarks Technical College (OTC)	VG	G	XL	9
SME Review Comments:	*The collaboration with local employers and industry experts is excellent and is an asset to the program.*				
Information Technology Project Management	St. Charles Community College (SCC)	XL	XL	XL	12
SME Review Comments:	*The certifications and skill set provide a pathway to student success and employment attainment. SCC worked with the Computer Science Advisory Committee and the Project Management Institute (PMI) on the basic layout of the certificate based on the current course offerings at the time. SCC also created two new courses covering and introduction to project management and topics that are more advanced.*				
Welding II	St. Charles Community College (SCC)	VG	VG	XL	10
SME Review Comments:	*Yes, a participant completing this class should be very well equipped for entry level work in the welding field. Yes, this class allows the participant many pathways upon completion. They are very equipped for many types of welding fields or jobs that require knowledge of different processes. Yes, knowledge of the multi-processes of Welding allow for many different employment opportunities. General comments or recommendations: This program with the use of AWS SENSE program, support from local business, and support from the local AWS chapter should allow for great employment opportunities for the participants.*				

CPT Green	St. Charles Community College (SCC)	XL	XL	XL	12
SME Review Comments:	*In conjunction with the MSSC CPT Certification and the innovative use of multiple locations/ facilities, this national credential is in high demand by companies trying to upgrade to Lean manufacturing standards. The use of the CPT program and delivery at various locations/facilities is excellent. This will assist employers and prepared, qualified job seekers into contact. The program prepares the job seekers for these skilled positions. By partnering with the Missouri Job Service and Employers using the job fair process the matchup with credentialed applicants there can be a quick transition to the workforce.*				
Certified Logistics Technician	St. Charles Community College (SCC)	VG	XL	XL	11
SME Review Comments:	*The institution has streamlined the process in preparing students for entry level positions in logistics and supply chain management. Training appears to be provided in 2- 10 day comprehensive modules (CLA & CLT). There is no indication of additional support services beyond the instructor/student relationship. This would be for example a Program Support Specialist (PSS) to help with student retention, recruitment and or tutoring. It may be beneficial to include a statement as to the use of or lack of additional support faculty such as a PSS. Course times appear to be flexible to accommodate "traditional" workers with day time work schedules and those unemployed that may be able to take daytime classes. Courses are flexible enough to be taught in off campus locations.*				
Information Technology Programming	St. Charles Community College (SCC)	XL	XL	XL	12
SME Review Comments:	*This certificate program, which was developed with the help of Launch Code, helps fulfill these needs to create pathways to STEM professions. It provides students with the base knowledge needed to obtain an entry-level job in programming with the additional knowledge of database design and teamwork.*				

Program	College				Score
Community Health Worker	St. Louis Community College (SLCC)	XL	XL	VG	11
SME Review Comments:	*Community health work has been known to lead to student interest in nursing, medicine, public health, social work, etc. The course content and assignments equip students with the knowledge and skills to examine tough community problems, gather and evaluate evidence, and make sense of that information. Using these skills to evaluate community are STEM skills that can be stacked or latticed to other programs.*				
Industrial Maintenance Tech	St. Louis Community College (SLCC)	XL	VG	XL	11
SME Review Comments:	*Excellent collaboration and partnership with industry. Benchmarking the Indiana Vocational Technical Education System (IVY Tech) and adopting ideas for local implementation is exceptional leadership. This is a new program with exceptional planning and implementation. It meets or exceeds the employers' needs and will only become more exceptional, as minor improvements and changes evolve.*				
Computer Concepts	State Technical College of Missouri (STCM)	XL	XL	XL	12
SME Review Comments:	*Computer Concepts, as stated in the Statement of Programmatic Innovation, accelerates entry into Career pathways by training participants in digital literacy and using contextualized academics to enhance participants' skills focusing on the attainment of the National Career Readiness Certificate.*				
Certified Production Technician/ F.I.R.S.T.	Three Rivers College (TRC)	VG	VG	G	8
SME Review Comments:	*I believe the F.I.R.S.T/CPT program at Three Rivers is a very good program to train students to the meet the needs of their local industry and provide certification credentials. The documents show the program is well organized with clear cut objectives, goals, materials and assessments.* *Very Good job overall.*				
				Group AVG	*10*
LEGEND: XL=4, VG=3, G=2, I=1, N/A=0					

Program Composite Ratings

Program	Institution	Excellent	Very Good	Good	Ineffective	N/A	Composite Score
Transport Training/Trucking	Crowder College (CC)	7	16	1	0	0	102%
SME Comments:	*Crowder College successfully incorporates feedback from their industry partners into their curriculum including allowing their partners to speak directly with the students. This helps ensure they are reflecting the employer requirements, as well as industry standards in their program. The program uses a variety of learning activities to provide options for multiple learning styles including lectures, hand-on practice, demonstrations, videos, and simulators. They incorporate learning through groups as well as individuals to further enhance their student learning experience.*						
COMPTia A+ Certification Course	East Central College (ECC)	12	9	3	0	0	103%
SME Comments:	*Clear and to the point. Exceeds expectations for effective program structure. Very good documentation. In general, the Modules, Student Learning Outcomes, Objectives all provide a solid structure and a logical path to completion.* *Excellent linkage to industry standards*						
Electronics Tech. Certificate	Jefferson College (JC)	4	15	1	2	2	89%
SME Comments:	*Introducing and reinforcing outcomes multiple times throughout the program is a great practice and asset for the students. Module Learning Objectives for every course, have multiple styles of learning activities to accommodate the different learning styles of students.*						
Medical Assistant	Metropolitan Community College (MCCKC)	1	8	14	0	1	88%
SME Comments:	*Evidence was provided that course objectives, instructional materials were aligned with module objectives, program outcomes and industry standards.*						
CSIS supplemental course for Medical Assistant	Metropolitan Community College (MCCKC)	2	12	6	4	0	90%

	SME Comments:	*Learning activities are linked to standard practices and activities. Promotes a practical learning style.*						

Certified Logistics Technician (with supplemental CIS course)	Mineral Area College (MAC)	6	18	0	0	0	103%
SME Comments:	*Overall Mineral Area College (MAC) has a robust and comprehensive CLT program. There are many of their "Best Practices" that should be shared with other institutions for the benefit of the overall economics and workforce of Missouri. The experiential and hands-on approach with many of the lessons offer multiple avenues for students to learn in various ways and has been shown very effective with adult learners. The opportunity to receive the OSHA-30 General Industry card is impressive. The OSHA-30 card shows companies that the person coming into their organization has a very good awareness of safety and supports a safety minded culture which in turn give the student a leg up over all the other applicants. Overall, the curriculum meets or exceeds the guidelines that were set for the MoSTEMWINs Curriculum Review.*						
Certified Production Technician	Mineral Area College (MAC)	1	23	0	0	0	100%
SME Comments:	*Very good rating was given because of the use of Tooling U & Amatrol for instructional material and labs as a good method of a training that is a good representative of practices used in Industry.*						
Fluid Power cert. courses (IFPS)	Mineral Area College (MAC)	0.4	2.5	18.5	2	0.6	83%
SME Comments:							

Program	College						%
Pharmacy Technician	Mineral Area College (MAC)	1	13	9	0	1	91%
SME Comments:	Comments from the Curriculum Review Project Manager: The SME for this review was predisposed to the traditional way in which Pharmacy Techs are employed and trained by the employers to the specifics of their workplace and did not see the value of community college pharmacy technician programs and could not recognize the career path as outlined by this program, as viable. As the CPRM, I did not override or amend the SME's ratings or narrative but I strongly disagree with the review, as does the college. This program is the very epitome of what community colleges should do for their communities. The impetus for this program was the state-wide, real-time, open job positions exceeding 450 during the first 5 months of 2014 and the needs of local businesses and institutions. The employment data strongly suggests an enormous training burden on pharmacies and the need for formalized training, which is best accomplished by community colleges. It is forward thinking, poised for the eventual mandatory state or federal certification requirements, and is an excellent example of business & industry partnerships. The program was designed with input from commercial and institutional pharmacies throughout the college's 16 county service region, who support the program with clinical rotations and internships. The Pharmacy Technician Program at Mineral Area College is a model for the nation and is a BEST PRACTICE.						
Mechatronics/CPT	Moberly Area Community College (MACC)	7	10	7	0	0	99%
SME Comments:	The use of mobile lab allows delivery of the training at job sites, a very good practice. Weekly hands on labs add a great deal to the kinesthetic learning style. Follows MSSC CPT format, curriculum, and LMS. The MSSC CPT Curriculum is a complete package of training materials and assessments, that are highly regarded by industries nationwide. Use of the MSSC curriculum ensures students receive thorough and industry related training. This curriculum has a high-level of online content, which is very convenient for incumbent workers/students.						
Certified Production Technician	North Central Missouri College (NCMC)	0	2	22	0	0	86%
SME Comments:	Recommendation to add Tooling U modules to the instructional materials – it gives the student more knowledge about subjects (safety, maintenance, quality, production) and are a good representative of industry practices.						
Chemical Laboratory Technology	Ozarks Technical College (OTC)	3	18	2	1	0	98%
SME Comments:	Equipment is being used in authentic scenarios of real world problems. Assessments include authentic products that mirror industry expectations. The collaboration with local employers and industry experts is excellent and is an asset to the program.						

Information Technology Project Management	St. Charles Community College (SCC)	12	9	2	1	0	102%
SME Comments:	*The given evidence shows a good respect and approach to adult learners. The major concerns for an approach are to use meaningful and purposeful learning activities, ask stimulating questions, use appropriate and relevant multimedia tools/technology to engage students, programming projects that incorporate real-life and application-based examples, and interaction with students. This has been accomplished.*						
Welding II	St. Charles Community College (SCC)	8	15	1	0	0	103%
SME Comments:	*Feedback from Lab assessments gives students the opportunity to measure their success and to be able to review and adjust.*						
CPT Green	St. Charles Community College (SCC)	4	11	9	0	0	96%
SME Comments:	*The MSSC CPT Green Module Curriculum is a complete package of training materials and assessments, that are highly regarded by industries nationwide. Use of the MSSC curriculum ensures students receive thorough and industry related training.*						
Certified Logistics Technician	St. Charles Community College (SCC)	20	2	2	0	0	107%
SME Comments:	*Learning activities have direct connections to module activities. Learning activities incorporate a variety of teaching methods including lecture, e-learning and case studies. The MSSC, nationally recognized curriculum is being utilized in the CLA and CLT programs. This ensures that course material is in alignment with modern industry standards.*						
Information Technology Programming	St. Charles Community College (SCC)	10	11	2	1	0	101%
SME Comments:	*Learning activities are linked to standard practices and activities. The critical thinking skills, logic and programming activities used in this plan link to these standards and promote a practical learning style. The hands-on approach to this learning is key to the industry practices, standards and certifications.*						
Community Health Worker	St. Louis Community College (SLCC)	18	5	0	0	1	103%
SME Comments:	*The Course Alignment Summary is exceptionally clear and detailed, providing a thorough understanding of how core competencies align with class objectives. The Syllabus provides the student with a clear understanding of expectations and path to completion.*						

Industrial Maintenance Tech	St. Louis Community College (SLCC)	3	19	2	0	0	100%
SME Comments:	*Very appropriate skills and certification, offered in an accelerated format, completed in less than 8 weeks (minus Portal completion). Suggest that some basic National Electric Code knowledge be incorporated into the electrical class. Objectives directly delivered with established training modules and hands on exercises, then verified assessment/certification delivered through NIMS.*						
Computer Concepts	State Technical College of Missouri (STCM)	13	9	2	0	0	104%
SME Comments:	*The four certifications attain basic Microsoft Digital Literacy Certification, NCRC Certification, and Certificate of Completion and attain basic Keyboarding Certification of 25 WPM. The certifications were well aligned with the instruction provided and lead to a direct path for success.*						
Certified Production Technician/ F.I.R.S.T.	Three Rivers College (TRC)	0	24	0	0	0	100%
SME Comments:	*Clearly defined codes, titles and outcomes. Very good description of how the course sequence and stackable credential ladder is structured.*						
						Group AVG	98%

Portal Reviews

As discussed in the Introduction, the Portal reviews were a separate process involving a SWOT analysis. A questionnaire was completed by each college at the start of the review process. See Attachment 4. The SME completing those four reviews, conducted telephone interviews with the colleges' personnel. These reviews followed the same submission and review steps as the academic program reviews.

Jefferson College

Missouri Community College Association Portal Program Evaluation Jefferson College	
Evaluator: Sara Hill, Ed. D	**Date Submitted: 8/25/2017**

Overview of Jefferson Portal Program

Jefferson College's portal includes a variety of supports. This includes intentional student advising support and PREP (the Personal Resource and Education Plan). In addition, the portal helps students in the pre-allied health to accelerate progress into and increase success in allied health courses/programs via the Health Professions Tutoring and Resource Lab (HPTRL). Jefferson is also incorporating the use of learning analytics to help identify those students with low probability of success and to match them with extra services.

All new students go through an orientation, meet with their program area navigator, have the option to tour the campus, complete their placement testing (if they've not already done so). Grant (as well as some pre-health occupations programs) students attend a "Welcome" orientation and set up WorkKeys assessments, as needed. MSW grant students are supported by two navigators (one for healthcare and one for technology). Navigators work with faculty to identify student loss/momentum points and better understand and predict when students may struggle with program content. By using data and learning analytics, navigators are partnering with the faculty to provide a more intentional approach to student advising, including the use of designated intervention strategies at key points in the student's experience.   To further support the navigator and faculty team concept, navigators are embedded into each of the program areas, and have direct access to data to support student success.

About PREP

The PREP system has multiple functions. Students provide intake information on PREP, which is used by navigators to target potential academic as well as non-academic challenges, such as child care needs. PREP is used by navigators to identify areas to develop programming, such as workshops on test anxiety and time management.

Students also develop a semester by semester academic plan on PREP. The students can log in to the portal and see what they need to enroll for each semester. If they don't enroll in a course, the navigator gets a flag (an email every morning that tells them which students are off plan). In addition, the system has an early alert system that integrates with Blackboard, so faculty can submit an early alert that the navigator receives. PREP is linked with the college's student data system to ensure accurate information is loaded.

The PREP system has a resource guide which is a comprehensive guide of services, both off campus and on campus. Students can browse resources based on their challenges. The navigator and instructor can also identify challenges, and this shows up on the action plan, to which students are required to follow up. Another feature is the journal feature. It allows the navigator to keep their notes all in the same place. Staff can also assign disability accommodations, upload individual student documents such as transcripts, letters. Finally, there is a notes system that can pull from distributed systems across campus, for example from the registrar, financial aid, academic advising offices.

Evaluation Methods

Multiple data sources were used for the evaluation. This included telephone Interviews with key staff, review of program documents accessed from the *SkillsCommons* website as well as review of an interim evaluation conducted by Cosgrove and Associates.

Strength, Weaknesses, Opportunities, Threats (SWOT) Analysis	
STRENTHS **-Strong commitment to outreach into the high schools to better align HS with college application and onboarding. Outreach to other community venues in addition to HS.** **-Intentional advising program helps to create strong relationships between navigators and students** **-Ad hoc workshops designed for and resources tailored to the needs of students.** **-Health resources tutoring lab provides a great deal of support for students.**	**WEAKNESSES** **-One interviewee mentioned that the software is too complex. Explained that there are too many screens to go through, and needs to be simplified** **-Grant funded Navigator positions**
OPPORTUNITIES **-The Prep system now being implemented throughout the college as a pilot program through the Academic Services Division.**	**THREATS** **-Funding cuts** **-Student enrollment down**

Discussion/Recommendations

This portal is a seasoned, and effective, approach to working with students, and can clearly help students, particularly low-skills students, stay in college and find work. In addition to the navigators, the PREP computer system is a multi-functional and multi-dimensional tool that, if used effectively, can help students and faculty ensure student success and completion. Based on the interviews, there is an active attempt to sustain the program (particularly the PREP system) and to scale up and implement across campus. The increased outreach to high schools and dual enrollment is a key strategy in addressing the student enrollment issue. In addition, there is fundraising going on to sustain the complete program (e.g., the navigators) via grant applications (for example, they are applying for a SNAP grant for wrap-around services for SNAP participants, and to the NSF for Advanced Technical Education).

The following is a list of recommendations:

-The program can benefit from more academic faculty. There is a need for professional tutors in the tutoring lab. The lab currently is staffed by peer tutors and the coordinator. This would mean recruiting and paying for part time or adjunct faculty to staff the lab, which is a model found in other community colleges.
- While the greatest challenge is sustainability, keeping the navigators should be a high priority, as the one-on-one intensive relationship, and intrusive, pro-active guidance is a key element for student success.

Missouri Community College Association Portal Program Evaluation North Central Missouri College	
Evaluator: Sara Hill, Ed. D	Date Submitted: 8/29/2017

Overview of North Central Missouri Portal Program

North Central Missouri's UP Program is designed to accelerate students identified with low skills in Math (i.e. placed into Developmental courses) into their program of study and completion. The program is comprised of four parts: *Brush-Up, Team-Up, Skill-Up and tutoring.* The overall goal is to make a smoother transition for students from Developmental Education courses to degree-required courses, improve retention, and to increase their overall college success.

The Brush-Up component is a one-week intensive and accelerated workshop designed for students who have placed into the college's lower level math courses but with scores that are close to the next higher course. At the completion of an intensive workshop, the goal is to have students score into a higher-level math course on a post test. Team-Up is a *co-requisite* (dual enrollment) model of delivery where students are enrolled simultaneously in the course they placed into as well as the next level math course.

All students participating in a Team-Up course are required to enroll in a comprehensive college success course called Skill-Up. This course includes training for students to learn appropriate academic strategies, including evaluating information, effective study skills, navigating Blackboard, SAIL, and business/soft skills such as time management, critical thinking, team work, leadership skills, self-motivation, and career assessment. Online tutoring is available for all grant students in developmental and college-level math courses that have participated in the UP Program. This allows students to have access to a tutor whenever they need it, not just during campus working hours.

Students are currently recruited for the UP Program through the efforts of the MoSTEMWINs recruiter and retention specialist. The program recruiter shares information about the program with attendees at the college's orientation/registration days, shares information and accepts referrals from faculty and advisors, and provides outreach to high school counselors. Once enrolled, students receive intensive support through registration, advisement, mentoring, encouragement, and frequent contact.

Evaluation Methods

Multiple data sources were used for the portal evaluation. This included telephone Interviews with key staff, review of program documents accessed from the *SkillsCommons* website as well as review of an interim evaluation conducted by Cosgrove and Associates.

Strength, Weaknesses, Opportunities, Threats (SWOT) Analysis

STRENGTHS

- Strong relationship developed between students and recruiter-retention specialist.
- Helps students overcome barriers and help them become successful and retain them at college
- Have been able to transform structures/systems at campus (complete restructuring of the developmental education department at NCMC).
- In touch with what employers are asking for.

WEAKNESSES

- Lack of follow-up and support for students once they move up to other higher-level math courses beyond their program of study.
- Technology/IT challenges.

OPPORTUNITIES

- Opportunity to pursue developmental reform initiatives campus-wide.
- English Department just picked up the co-requisite model, and other departments are requiring students to take the college prep, career, and soft skills class.
- College has just hired a VP, who will provide a new set of eyes, give them an objective review, and free up the time of the Dean of Instruction.
- Potential to work with current academic advisors to broaden their work with students to include more than just academic advisement.
- Exploring on-line courses

THREATS

- Low enrollment (college-wide)
- Lack of recruiter-retention specialists,
- Mathematics pathways have changed, and there is a need to increase math staff or increase staff workloads.

Discussion/Recommendations

This portal is a seasoned, and effective approach to working with students, and can clearly help students, particularly low-skills students, stay in college. The combination of a pre-academic intensive session combined with a college-ready "soft skills" course is on the front line of quality practices in supporting low-skills students. In addition, the fact that the college used the grant as an opportunity to re-vamp their developmental education shows a vision for more effective approaches to working with low-skills students. Of note is that the college & career ready course has been adapted and scaled to become a requirement in one AA degree and possibly in other degrees. Expanding the co-requisition model as well as the UP program to other departments is also an indication of forward thinking.

The following is a list of recommendations:

- Provide intensive advising throughout students' entire college career. This relationship can prove critical for college retention.

-Once the grant ends, have academic faculty teaching co-requisite classes (grant funded developmental staff do so now). However, it would involve training the faculty in the co-requisite model, or perhaps designing courses so that they are contextualized (e.g., combine developmental education with academic curriculum).

-Find ways to hire more recruiter-retention specialists, who can recruit from a range of high schools and adult programs. This may help with the low enrollment rates.

-Find ways to maintain contact with students once they leave the UP program. This might mean hiring more recruiter-retention specialists or training academic counselors and expanding their roles beyond academics.

<table>
<tr><td colspan="2">Missouri Community College Association
Portal Program Evaluation
State Fair Community College</td></tr>
<tr><td>Evaluator: Sara Hill, Ed. D</td><td>Date Submitted: 8/2017</td></tr>
</table>

Overview of SFCC Portal Program

The State Fair Community College (SFCC) portal uses a combination of approaches to support students. One aspect is the use of five navigators which were hired for the grant. Four specialize in career pathway advising and retention. One specializes in employment strategies. The five navigators are proactive in directing, redirecting, and navigating students through the portal to ensure they are ready for their field of study.

Once a major is declared, all MoSTEM students meet individually with a navigator, take tours, participate in a group MoSTEM Orientation, enroll in Toolbox, and take the Work Keys Test prior to program entry. They are assigned a navigator who oversees each student throughout his/her course of study. Navigators continue to work with their students to help overcome any type of obstacle that can stand in the way of student success and ensure they find employment once they graduate.

In addition, the navigator works with students to ensure that they can use SFCC technology. As part of advisement, students receive a realistic career preview so they understand expectations in their chosen field. The portal operates with fifteen different programs of study, including Practical Nurse Professional Certificate, Certified Nurse Aide, among others.

The Student Services Department manages the portal. In addition, SFCC provides assistance through developmental education, tutoring, and remediation. Portal navigators and faculty have formed program-related Student Success Teams to support instructional and student support processes. Another aspect of the portal system is access and outreach. SFCC invites middle school and high school students to campus for a career exploration day. They learn about careers, academic expectations, and salary ranges for various types of careers.

About Starfish

Another aspect of SFCC portal is the use of Starfish, a software program, purchased through the grant. The purpose of Starfish is to tie communication among all offices across campus and to track students academically through their duration at State Fair CC.   Students are flagged by faculty if they haven't been attending classes, completing assignments or doing well on tests. They can also receive kudos for good work. Faculty and staff use Starfish to keep case notes on students, and its used to identify high risk factors early in the student's college career. Advisors and counselors document appointments with students and include

personal struggles. For example, if the student doesn't have a car, and can't attend courses on campus, the navigator can help them register for online courses. Faculty uses it to note if students are failing classes or a test, and they reach out to counselors who then can help them access services such as tutoring. The Student Success office uses Starfish if a student is on academic probation. Once students get accepted to State Fair, they immediately have access to Starfish, and they have access to a success network tool which is used to request counseling, tutoring support, transfer and career services. They can also communicate with their instructors and their advisors. Starfish will send an email reminder to students' phones if they have an appointment, keeping them on task, and responsible. Text messages can also be sent to students through a different program.

Evaluation Methods
Multiple data sources were used for the portal evaluation. This included telephone Interviews with key staff, review of program documents accessed from the *SkillsCommons* website as well as review of an interim evaluation conducted by Cosgrove and Associates.

Strength, Weaknesses, Opportunities, Threats (SWOT) Analysis

STRENTHS	WEAKNESSES
-Multiple pathways for communication, in person meetings, phone or email. -Starfish has created a much more efficient access to services, students can make appointments, upload documents.	-More courses need to be "contextualized," e.g. integrating academic or vocational coursework with developmental instruction.
OPPORTUNITIES	THREATS
- Heightened and intentional outreach to high schools. -New nursing recruiter has been hired to reach out to community and military to recruit students. -Prospective students get an overview at their first appointment at the college with a navigator.	-SFCC is getting more and more students, which is a good thing, but they need to guarantee the appropriate amount and attention for each student. This is a staffing issue. -Funding cuts

Discussion/Recommendations

The following is a discussion as well as recommendations based on the data from the evaluation regarding SFCC's portal program. The SFCC portal is a seasoned, and effective, approach to working with low-skilled students, and in helping students stay in college and find work. The fact that it is being expanded in the college beyond the grant means that

there is a recognition of its value and commitment to the sustainability of the model. The following are recommendations for improvement:

a) Help students better advance through courses by developing a contextualized course curriculum. This approach integrates academics/vocational content with developmental education.
b) There are many nontraditional students with responsibilities during the day. Provide more afternoon/evening courses as opposed to offering day courses.

Missouri Community College Association Portal Program Evaluation St. Louis Community College	
Evaluator: Sara Hill, Ed. D	Date Submitted: 11.1.17

Overview of St. Louis Portal Program

St. Louis Community College (SLCC) is an innovative program that intertwines high-touch and high-technology practices throughout its portal components thereby implementing a competency-based, intrusive, technology-enabled, and self-paced learning experience that allows students to identify and meet their career and academic goals.

Potential students take a set of fully comprehensive initial assessments. Students are assessed for their academic as well as workplace and vocational skills. For example, they take a health career readiness assessment, which measure fitness for working in the industry. They also are assessed for their digital literacy, basic keyboarding and computer knowledge. If they need it, they take an online course where they practice computer fundamental skills.

After the assessment, they meet with a Career Pathway Coach in an "intrusive counseling" session to review their assessments, talk about their past educational and vocational history, talk about their educational and career goals, both long term and short. The students use a tool called a career blueprint, where they map out how they will reach their goals. They review the career pathways that are aligned with their goals, and the courses they need to take to be college and career ready. If they score low on tests, they are placed in the Adult Learning Academy (ALA). If they score high enough, they will be connected to vocational and/or academic programs.   All students receive access to workshops on interviewing, resume writing, work values, and conflict resolution. Students develop a portfolio in which they highlight their goals, strengths, skills and work experience.

Adult Learning Academy
If students, once they've completed their comprehensive assessments, score too low to be placed in academic coursework, they are placed in the Adult Learning Academy.   In addition to basic academics at the ALA, students work on a computer program called "Play Your A Game" which helps them focus on workplace values, their workstyles, managing time and other types of workplace skills and competencies. Work at the ALA is self-paced, students can work independently using computer-assisted instruction to attain scores that would allow them to enter credit-bearing courses. Students can access small group "mini-workshops" and receive ad hoc one-to-one support from staff at the ALA. The ALA operates on a flexible, rolling admissions calendar, and all courses are self-paced and competency-based. That means if a student must drop out for any reason, it is easier for them to re-enter and regain their footing. The ALA has an "early alert" system via email. If an ALA instructor is concerned

about a student, such as their attendance, they reach out to the counselor, who then meets with the student along with the instructor and devises a plan to make sure that the student can stay and progress in the program.

Technology

The infusion of technology is evident throughout SLCC's Career Guidance Portal. Students are required to have basic computer literacy, and if they're weak in that area they take an online course which can be completed in a day or up to 2 weeks. They have access to resources and tools such as Optimal Resume, Blackboard, and Khan Academy. The curriculum is in Blackboard, which allows students to access materials at home, at school, and on their phone, concurrently gaining technology skills. All the materials in Blackboard have been developed in the vocational fields in which students hope to specialize. All the discrete skill work (e.g. grammar) has been designed to be contextualized – folding in specific language and literacy skills with lessons on professional behaviors, workplace soft skills and ethics.

Evaluation Methods

Multiple data sources were used for the evaluation. This included telephone Interviews with key staff, review of program documents accessed from the *SkillsCommons* website as well as review of an interim evaluation conducted by Cosgrove and Associates.

Strength, Weaknesses, Opportunities, Threats (SWOT) Analysis	
STRENGTHS -The portal has been in operation from MoSTEM Wins and MoHealth Wins, and they've been able to adjust the model and make necessary changes so that it's functioning at a high level. -The comprehensive assessment taps into the whole student, academic as well as vocational needs. In addition, it identifies barriers and hurdles that students will need to overcome in order to be successful. -The Career Coach and Blueprint model provides a framework for developing long-term relationships, planning and advancement. -The Adult Learning Academic provides basic education and preparation for students to	**WEAKNESSES** -There are many steps for students to complete in the portal. For some candidates it gets a little overwhelming. -There are a lot of moving pieces in the portal, and staff have a lot of work to make sure that everyone is communicating effectively.

help them move into academic and vocational coursework.	

OPPORTUNITIES	THREATS
-MoSTEM Wins expires next year, but the college is interested in continuing Patient Care Tech and Medical Assistant and possibly Community Health Worker. -They are exploring how to sustain the model, so that the elements of the portal can be replicated, and the college could use the portal as well as maintain the ALA. -Meetings are planned with the college administration, and there is interest from the chancellor in continuing the work, and the ALA. -Conversations are planned with local health care providers to potentially provide support and resources for the health care career program at the college.	-Management change. They must perpetually educate and convince new management about the importance of the program. There is some pushback in some academic departments where they encounter turbulence at the dean level. -They need full time faculty on board at the ALA – it's hard to convince faculty about the benefits of a program that can't be measured in credit hours. - The college is moving to co-requisite model, for example, they've collapsed two remedial courses into one (Reading 1 & 2), but that leaves out low skilled students unless the ALA is maintained.

Discussion/Recommendations

The SLCC portal is a seasoned, and effective system, and is well-designed to help students, particularly low-skills students, stay in college and find work. The college has recognized that the populations it serves face multiple barriers to reach education and career goals. Subsequently, SLCC has put multiple success and retention strategies in place, especially those pertaining to academic and career exploration and development.

The comprehensive assessment is unique to SLCC, and its goal of assessing a whole spectrum of student needs is commendable. The Career Pathways coach is critical in creating a relationship with each student to help them identify and plan for goals and challenges. In addition, the coach plays an ongoing role in a student's college life through their placement into credit-bearing coursework and vocational programs. The Adult Learning Academy also plays a critical role in working with low skills students, making sure that they have a foothold in college and are provided with the tools and resources to stay and acquire the necessary skills and competencies to achieve their goals. The rolling and flexible admissions policy of the ALA helps to ensure that possibility.

The following is a list of recommendations:

-Continue to hold conversations with administration and local health care providers about the importance of this model. In the case of the administration, make the case that the program helps to both recruit and retain students – which is a cost benefit.

-Keep the ALA in place, as this is where students gain valuable vocational, academic, and college life and social skills that they will carry with them throughout their academic and work careers.
-Find full time faculty to teach at the ALA, which involves become accustomed to a new pedagogical model. Perhaps provide a summer institute for interested faculty.

Missouri Community Colleges

The 13 Missouri Community Colleges developed or improved a total of 25 academic programs and portals, through this grant. The following table breaks down the distribution of those endeavors by career path and institution.

Institution	Manufacturing	Information Technology	Portal	Transportation Logistics	Health Sciences	Life Sciences	Institution Total
St. Charles Community College (SCC)	2	2		1			*5*
Mineral Area College (MAC)	2			1		1	*4*
St. Louis Community College (SLCC)	1		1		1		*3*
Jefferson College (JC)	1		1				*2*
Metropolitan Community College (MCCKC)		1			1		*2*
North Central Missouri College (NCMC)	1		1				*2*
Crowder College (CC)				1			*1*
East Central College (ECC)		1					*1*
Moberly Area Community College (MACC)	1						*1*
Ozarks Technical College (OTC)						1	*1*
State Fair Community College (SFCC)			1				*1*
State Technical College of Missouri (STCM)		1					*1*
Three Rivers College (TRC)	1						*1*
Career Path Total:	*9*	*5*	*4*	*3*	*2*	*2*	*(25)*

The opportunities and challenges of the 13 institutions varies by geographic location. Primarily these involve population and commerce density opposed to physical geographic territory, or what is referred to as "service region". Attachment 5 is an illustration of the 12 Missouri Community College Service Regions. The State Technical College of Missouri has a state-wide mission, so no service region is show. Some of the rural colleges have large geographic areas of responsibility with somewhat sparse commerce and population. For perspective, the service region of Moberly Area Community College in northeast Missouri, spans over 8,700 square miles, larger than the combined areas of Connecticut, Delaware and Rhode Island. The more metropolitan colleges enjoy greater population and commerce density, but also face competition from corporate and private training and education companies such as DeVry, Embry Riddle, ITT, etc.

Conclusion

Missouri Community Colleges continue to challenge themselves and the status quo of educating. They are improving delivery methods, improvising new strategies to ensure student success and incorporating strong partnerships with employers and outside agencies to certify and confirm the relevance of programs to employment opportunities. Decision making is based on factual research and driven by student-centered design and delivery.

The 25 portals and programs subject to this review, are small samples of the significant changes and milestones, accomplished over the past decade. The infusion of technology is prevalent in both the classroom and in managing student success, inclusion of professional development, soft skills and life skills in academic programs, and bridge courses that are foundational and strengthen study skills, math skills, time management and digital literacy, all to ensure student success, are landmarks of these 25 examples. Looking at the totality of these endeavors and the previous successes achieved through TAACCCT grants, it is fully logical these are complete institutional changes, supported and championed by administrators, rather than the work of a few very devoted and talented individuals. Very significant and extraordinary Institutional cultural change has occurred.

The basis for the curriculum review process was developed during 2 previous TAACCCT Grants and updated for the MoSTEMWINs Grant. Over that span of years, more than 50 percent of the Grant Leads have changed. The inherent knowledge of the development of the review process, forms, procedures and personal "buy in", incumbent with being a part of the original development, has diminished. It would be prudent, for future grants, to invest the time and effort to regain that knowledge with a thorough examination and revision of the processes and procedures.

ATTACHMENTS

ATTACHMENT 1 Stipend Guide

MoSTEM Subject Matter Expert Stipend Guide

Program Credit or Contact Hours	SME Stipend
64-66 credits (associate degree program with up to three certificates "stack" programs)	$1,200
19-32 credits or 161-200 hours (credit or non-credit certificate program)	$900
8-18 credit or 76-160 hours (credit or non-credit certificate program)	$700
49-75 hours (non-credit program)	$600
6 credits (UCM credit courses)	$500
26-48 hours (non-credit program)	$500
0-25 hours (non-credit program)	$300

Guidance for Subject Matter Experts and Reviewers

Introduction

This document is intended to provide helpful guidance and insight for Subject Matter Experts (SMEs) reviewing Curriculum, Programs, Certificates, Courses and reviewers of other endeavors funded by Department of Labor *Trade Adjustment Assistance Community College and Career Training* (TAACCT) Grants.

In additional to this introduction and overview of the process, you will receive individual training through meetings or phone conferences, with the Curriculum Review Project Manager. If you have any questions or concerns at any time during your tenure as an SME, please contact the Curriculum Review Project Manager.

The purpose of these grants is to "increase attainment of degrees, certificates and other industry-recognized credentials and better prepare the targeted populations, and other beneficiaries, for high-wage, high-skill employment".

In the State of Missouri, Community Colleges and other partner agencies, have formed a consortium under the Missouri Community College Association (MCCA) to apply for and participate in several "Rounds" of these grants over the last several years, specifically Missouri Health Workforce Innovation Networks (MoHealthWINs), Missouri Manufacturing Workforce Innovations Networks (MoManufacturingWINs) and currently, Missouri Science, Technology, Engineering and Math Workforce Innovations Networks (MoSTEMWINs).

MoSTEMWINs

There are 13 Missouri Community Colleges in the collaborative partnership of MoSTEMWINS, working to provide opportunities to the target population. The target population in Missouri are those that are Trade Act Adjustment (TAA) eligible, long-term unemployed and other dislocated workers, including Veterans.

MoSTEMWINs has three comprehensive strategies: **1) Accelerate Entry into Career Programs; 2) Create Clear Pathways to STEM Careers; 3) Improve Employment Attainment**. The 13 Missouri Community Colleges have engaged these 3 strategies in various degrees and endeavors. As a Subject Matter Expert (SME), your primary focus is on Strategy 2 Initiatives, which involves Programs of Study, Certificates, and Credentials, some for college credit and some are not for credit. The five career paths for MoSTEMWINs are Information Technology, Health Sciences, Manufacturing, Transportation and Life Sciences.

One of the stipulations of the grants, is that our initiatives are uploaded to a system like Skills Commons, so that they are shared with the rest of the education community, for benchmarking and

adopting. Previous reviews have documented many "Best Practices" implemented by MCCA Consortium Colleges. You will download or access you SME assignments at skillscommons.org.

Appreciative Inquiry

Another stipulation of the grants, requires third-party evaluation by SMEs, who are peers and/or colleagues with similar experience and credentials of the endeavors being reviewed. This is "Appreciative Inquiry" into the relevance for the career path and the engagement of adult learners in the target population. Appreciative Inquiry (AI) is a concept that has been around for a couple of decades and can involve many different approaches and philosophies. On the *Appreciative Inquiry Commons* website of Case Western Reserve University are large amounts of case studies and examples of various applications of AI. Under the *Into to AI* tab, I found this very thoughtful definition:

What is Appreciative Inquiry?

from *A Positive Revolution in Change: Appreciative Inquiry* by David L. Cooperrider and Diana Whitney.

> **Ap-pre'ci-ate**, v., 1. valuing; the act of recognizing the best in people or the world around us; affirming past and present strengths, successes, and potentials; to perceive those things that give life (health, vitality, excellence) to living systems 2. to increase in value, e.g. the economy has appreciated in value. Synonyms: VALUING, PRIZING, ESTEEMING, and HONORING.

> **In-quire'** (kwir), v., 1. the act of exploration and discovery. 2. To ask questions; to be open to seeing new potentials and possibilities. Synonyms: DISCOVERY, SEARCH, and SYSTEMATIC EXPLORATION, STUDY.

Reference: (https://appreciativeinquiry.case.edu/intro/whatisai.cfm**)**

The website has much more information and detail, but this definition serves us as a simple, working focus.

The Review Process

You have been provided with (or access to) many documents related to the review process. Along with this document, of key importance to you are the 1.) Program Documents uploaded for review by the institutions to Skills Commons 2) The SME Review Rubric or Matrix. Please make sure you have studied the examples of how these documents are compiled by the colleges and examples of previously successful SME reviews.

Here is a breakdown of Program Documents:

1. **Key personnel information contact sheet**
    Grant Lead and Program Coordinator/s names, email addresses, work phone numbers.

2. **Introductory overview of program**
    To provide your SME with a preliminary orientation to your program, this one- or two-page overview should *briefly* describe:

- the program (CIP code, credit/non-credit, number of credits or contact hours, certificate or degree, occupational family, industry certifications, delivery method/s),
- how its development and/or enhancement evolved,
- any challenges encountered in developing or launching it (change of focus resulting from post-award industry partner discussions, recruitment issues, changes in regional job market demand, difficulty finding qualified instructors, etc.),
- information on status of and plans for the program;
- any other pertinent information that would help orient the SME to your program prior to document review.

3. **Curriculum Map**
   For multi-course programs, provide a crosswalk between program or student learning outcomes and courses indicating where outcomes are introduced, reinforced and mastered. For single-course programs, provide a crosswalk between course objectives and units. *See different templates and examples for a multi-course program and a single-course program.*

4. **Program Career Ladder or Stackable Credential Information**
   Descriptive or graphic depiction of how students in your program can move up a career ladder through the acquisition of skills and certifications. *See MCC Manufacturing Careers and Career Map examples (MoMan Career Map, MCC.pdf)*

5. **Syllabus**
   A syllabus (for each course in the program) that includes course objectives, prerequisites, course length (# of days or weeks), class/course hours and delivery method/s.

6. **Instructional Materials**
   List of all textbooks, manuals, websites, ancillary materials and major laboratory tools and equipment. *See template and example*.

7. **Overview Table of Objectives, Modules, Learning Activities, Assessments**
   Complete a table for *each course developed or enhanced with grant funds*, capturing in sufficient detail sample learning activities and assessments that best showcase your curriculum. See *template and example*.

8. **Statement of Programmatic Innovation and/or Enhancement**
   Provide a one- or two-page document describing specific examples of how the program incorporates one or more of the MoSTEMWINs key strategies: 1) Accelerate Entry into Career Programs - Refine assessment, transform developmental education and add support services to meet the needs of participants   2) Create Clear Pathways to STEM Careers - Expand access to and/or develop new stacked and latticed credentials in programs that meet employer needs 3) Improve Employment Attainment - Collaborate with industry, WIBs, state, and community-based organizations to engage, guide and employ participants

Once the colleges have uploaded their documents to Skills Commons, I will contact you to begin your review. (You should have information on accessing Skills Commons from the meeting or phone conference we have had, but feel free to contact me).

Getting oriented to the programs starts with reviewing all the documents. From my experience, reviewing the documents in this order, has worked well for me:

- Curriculum Map
- Overview Table of Objectives, Modules, Learning Activities, Assessments
- Syllabus (or Syllabi)
- Instructional Materials

These are all curricular and should illustrate linkage throughout the Program of Study, Certificate or Course. You should also see evidence of complete support of the objectives. Item 4, of the above list, Program Career Ladder or Stackable Credential Information could also be considered as curricular and reviewed next.

The last three items are numbered 1, 2 and 8 above. Item 1 is your contact information for that institution and Program. Items 2 & 8, I consider as program "narratives". The narratives provide the SME insight into the innovations and challenges of programs, that are not easily discernable in the curricular documents and tables.

You are highly encouraged to speak with Faculty and Staff about their programs to gain clarity and better insight into the challenges and successes experienced by them. As SME's we can all appreciate this.

Your final draft review will be forwarded to the Curriculum Evaluation Project Manager and reviewed for completeness and totality. The reviews are then forwarded to the Colleges for vetting and will eventually end up in the final narrative report to the Department of Labor.

The Review Rubric/Matrix and Examples

Examples of completed SME reviews related to MoHEALTHWINs are in the PDF document "*Examples of Previously Completed Program Reviews for MoSTEMWINs 2017.*" Please read these examples to gain insight into the review process.

There are two major differences between the matrix of the examples and the matrix you will use for MoSTEMWINs. There is an addition rating column for "no/insufficient evidence" and the strategies in the last section of the current matrix, reflect MoSTEMWINs. The examples reflect the strategies of MoHEALTHWINs.

Before you document an area for "no/ineffective evidence", you are obligated to communicate with the Program Coordinator/Faculty listed on the point of contact information and try to improve the situation. This gives them the opportunity to correct an oversight, lost document, etc. and affords you the opportunity to review the complete program. Additionally, many of these programs are recently developed and there may be good reason may the documentation doesn't exist.

MoSTEMWINs Curriculum Review Rubric

Fall 2016/Spring 2017

Program Reviewed:

College:

Reviewed By:

Date:

Review scale definitions:

Exceptional: Review component is a "best practice" and represents a model for replication.

Very good: Review component is complete and effective.

Good: Review component is adequate but presents opportunities for improvement.

Ineffective: Review component is weak and in need of significant improvement.

No or Insufficient Evidence: Review component was not covered or information provided in the documents was insufficient for assessment.

Curriculum Map, Career Ladder/Stackable Credential Documentation, Syllabi	Excellent	Very Good	Good	Ineffective	No/Insufficient Evidence
1. Program CIP code/s appropriate to program title and outcomes.					
2. Effective program structure (prerequisites, course sequence, stackable credential-structure provide a clear, logical path to completion).					
3. Outcomes aligned to occupational focus (industry skills and standards) and prepare students for appropriate industry certification/s.					
4. Outcomes are clearly stated.					
5. Outcomes are introduced and reinforced effectively.					
6. Course objectives are clearly stated and measurable.					
7. In multi-course programs, course objectives support one or more program or student learning outcome. In single-course programs, modules support one or more course objective.					

Comments or recommendations specific to each section rated:

1.

2.

3.

4.

5.

6.

7.

General comments or recommendations:

Instructional Materials and Lab Resources	Excellent	Very Good	Good	Ineffective	No/Insufficient Evidence
1. Support stated course or unit learning objectives.					
2. Meet/reflect current industry practices and standards.					
3. Provide options for multiple learning styles.					
4. Instructional materials are cited properly.					
5. There is evidence of materials and resources that support on-line or technology-enabled learning.					

Comments or recommendations specific to each section rated:

1.

2.

3.

4.

5.

General comments or recommendations:

Overview Table: Objectives, Modules/Units, Learning Activities and Assessments	Excellent	Very Good	Good	Ineffective	No/Insufficient Evidence
1. Modules/units are linked to course objectives.					
2. Learning activities promote achievement of stated module/unit objectives.					
3. Learning activities provide opportunities for interaction and active learning.					
4. Learning activities provide options for multiple learning styles.					
5. Learning activities are linked to current industry practices, standards and certifications.					
6. Learning activities demonstrate evidence of innovation or enhancements to support adult learner success.					
7. Materials/resources (to include equipment, tools and software) are used in a way that students understand their purpose and use in industry settings.					
8. Assessments measure stated learning objectives and link to industry standards.					
9. Assessments align with course activities and instructional materials and resources.					
10. Assessments are sequenced throughout the instructional period to enable students to build on feedback.					
11. Assessments are varied and appropriate to content.					
12. Assessments provide opportunities for students to measure their own learning progress.					

Comments or recommendations specific to each section rated:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

General comments or recommendations:

Innovative or Enhanced Strategies	Excellent	Very Good	Good	Ineffective	No/Insufficient Evidence
1. Accelerate Entry into Career Programs Refine assessment, transform developmental education and add support services to meet the needs of participants					
2. Create Clear Pathways to STEM Careers Expand access to and/or develop new stacked and latticed credentials in programs that meet employer needs					
3. Improve Employment Attainment Collaborate with industry, WIBs, state, and community-based organizations to engage, guide and employ participants					

Comments or recommendations specific to each section rated:

1.

2.

3.

General comments or recommendations:

ATTACHMENT 4 Portal Questionnaire

MoSTEMWINs Portal Program Questionnaire
Overview 1. Briefly outline or describe the components of your portal programs. 2. Is the portal part of programs of study or is it an independent enrollment step? 3. Which college department manages the portal; i.e., student services, academic services, workforce development, other? 4. How many contact hours do students invest in completing the portal requirements or options?
Access/Enrollment 1. Describe the enrollment steps required for entry into your MoSTEMWINs portal program. 2. Who accesses the portal? 3. Do you lose potential students because of the portal step? 4. Is the portal required or optional for entry into career programs or courses? 5. Describe any additional information you feel is pertinent regarding access and enrollment.
Orientation to Career/Industry 1. What resources or methods are used to orient students to STEM related careers? 2. Do students meet individually with an advisor, group orientation meetings, tours, etc.? 3. Describe any additional information you feel is pertinent regarding orientation to the career and/or industry.
Academic Skill Assessment/Developmental Education 1. Are academic skills assessed? And if so, what resources or methods are used to do so? 2. How do you support students who don't meet minimum academic requirements for their program of interest? 3. Describe any additional information you feel is pertinent regarding refining assessment, transforming developmental education and/or support services.
Outcomes 1. Has the portal accelerated entry, improved/increased student success and completion? 2. Are there data or indications the portal has improved employment attainment? 3. Are there plans to expand the portal model or continue it after MoSTEMWINs grant funding ends? 4. Describe any additional information you feel is pertinent regarding program outcomes.
SWOT Analysis • What are the **strengths** of your portal program/s? • What are its **weaknesses**? • What are the **opportunities** for enhancement or growth? • What are the **threats** to its sustainability or efficacy?
MoSTEMWINs Portal Program Questionnaire
Overview 1. Briefly outline or describe the components of your portal programs. 2. Is the portal part of programs of study or is it an independent enrollment step? 3. Which college department manages the portal; i.e., student services, academic services, workforce development, other? 4. How many contact hours do students invest in completing the portal requirements or options?

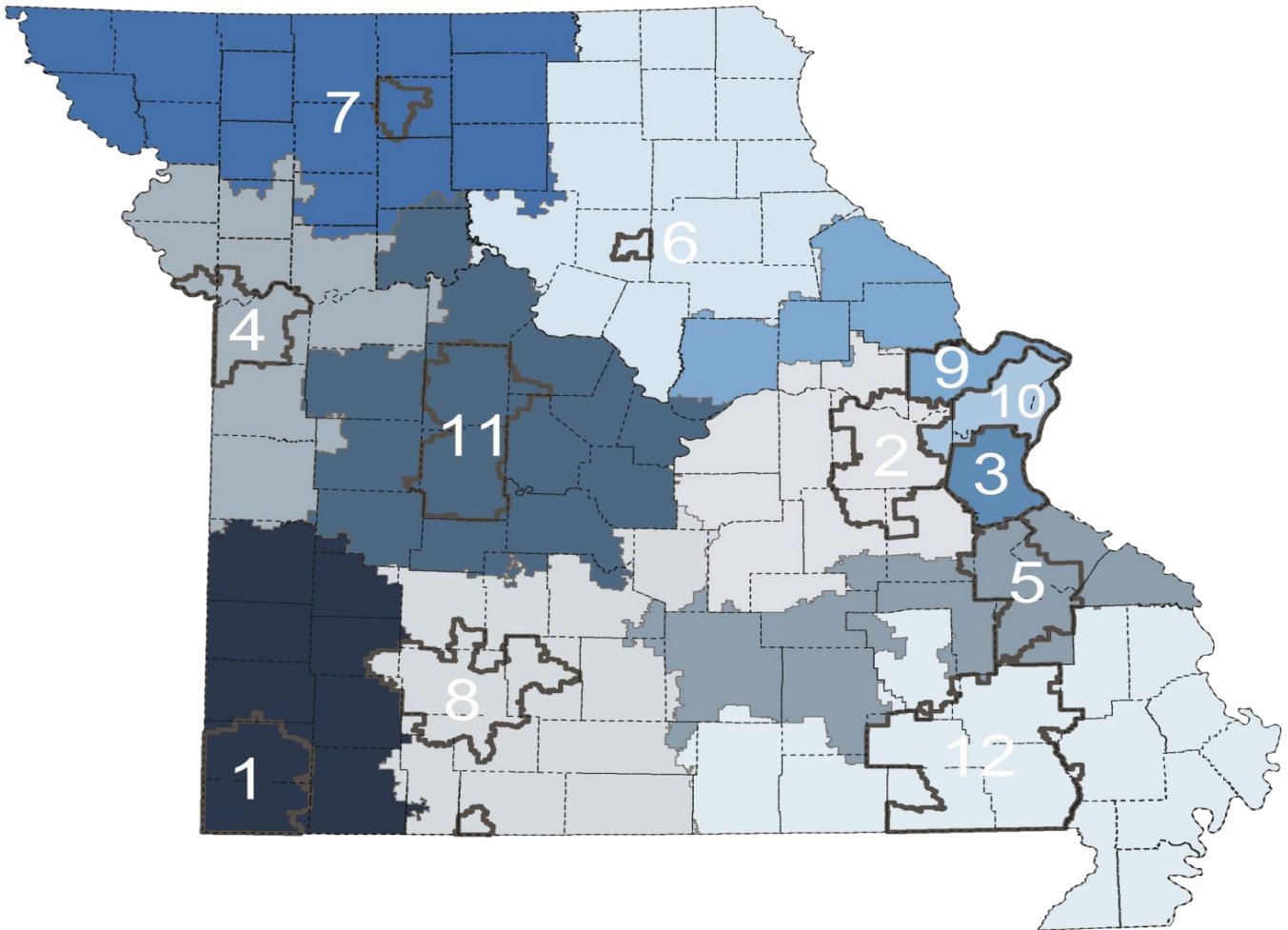| |
|---|
| **Access/Enrollment** |
| 1.   Describe the enrollment steps required for entry into your MoSTEMWINs portal program. |
| 2.   Who accesses the portal? |
| 3.   Do you lose potential students because of the portal step? |
| 4.   Is the portal required or optional for entry into career programs or courses? |
| 5.   Describe any additional information you feel is pertinent regarding access and enrollment. |
| **Orientation to Career/Industry** |
| 1.   What resources or methods are used to orient students to STEM related careers? |
| 2.   Do students meet individually with an advisor, group orientation meetings, tours, etc.? |
| 3.   Describe any additional information you feel is pertinent regarding orientation to the career and/or industry. |
| **Academic Skill Assessment/Developmental Education** |
| 1.   Are academic skills assessed? And if so, what resources or methods are used to do so? |
| 2.   How do you support students who don't meet minimum academic requirements for their program of interest? |
| 3.   Describe any additional information you feel is pertinent regarding refining assessment, transforming developmental education and/or support services. |
| **Outcomes** |
| 1.   Has the portal accelerated entry, improved/increased student success and completion? |
| 2.   Are there data or indications the portal has improved employment attainment? |
| 3.   Are there plans to expand the portal model or continue it after MoSTEMWINs grant funding ends? |
| 4.   Describe any additional information you feel is pertinent regarding program outcomes. |
| **SWOT Analysis** |
| • What are the **strengths** of your portal program/s? |
| • What are its **weaknesses**? |
| • What are the **opportunities** for enhancement or growth? |
| • What are the **threats** to its sustainability or efficacy? |

1	Crowder College	**7**	North Central Missouri College
2	East Central College	8	Ozarks Technical Community College
3	Jefferson College	9	St. Charles Community College
4		10	St. Louis Community College
5	Mineral Area College	**11**	State Fair Community College
6	Moberly Area Community College	12	Three Rivers College
	Counties		Local Taxing District