HARD TO CONVERT CTE PROGRAM RESEARCH

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PROGRAM IDENTIFICATION

CRITERIA:

1. AACC "CHALLENGED" PROGRAMS

   DIRECT PATIENT CARE, DEMONSTRATION, HEAVY MACHINERY/EQUIPMENT

2. HIGH ENROLLMENT

   2018-2019 FULL TIME EQUIVALENT STUDENTS

3. DEMONSTRATED LABOR MARKET DEMAND

   2018-2019 ANNUAL COMPLETIONS VS. (2019-2024) ANNUAL JOB OPENINGS

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PROGRAM IDENTIFICATION

093400	Electronics and Electric Technology
094800	Automotive Technology
095220	Electrical
095600	Manufacturing and Industrial Technology
095650	Welding Technology
121000	Respiratory Care/Therapy
122500	Radiologic Technology
123010	Registered Nursing
125000	Emergency Medical Services
130630	Culinary Arts
213300	Fire Technology
300700	Cosmetology and Barbering

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INFORMATION COLLECTION

INTERNAL SCAN

- SURVEY TO 28 COMMUNITY COLLEGES AND CONTINUING EDUCATION INSTITUTION
- UNDERSTAND CURRENT RESPONSE TO ONLINE INSTRUCTION AND RECOMMENDATIONS FOR SOFTWARE/PLATFORM ADOPTION MOVING FORWARD
- 55 RESPONDENTS OPENED SURVEY
- 16 COLLEGES RESPONDED

EXTERNAL INFORMATION COLLECTION

- 36 INTERVIEWS WITH SUBJECT MATTER EXPERTS FROM ACROSS THE COUNTRY
- ASKED TO SHARE BEST PRACTICES AND SOFTWARE/PLATFORMS BEING USED FOR SUCCESSFUL ONLINE INSTRUCTION OF CTE PROGRAMS

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IMPORTANT TAKEAWAYS

THERE ARE FEW BEST PRACTICES "OUT THERE" – YOU ARE LEADING THE WAY

THERE IS HOPE

MOST ARE PLANNING LONG TERM FOR THE NEW NORMAL

NO SILVER BULLET - MULTIPLE TOOLS/PLATFORMS

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IMPORTANT TAKEAWAYS

MOST BELIEVE APPROXIMATELY 70% OF HANDS-ON LAB WORK CAN BE ACCOMPLISHED USING SIMULATION, VIDEOS, AND CUSTOMIZED KITS THAT ARE SENT TO STUDENTS TO USE AT HOME.

FOR THE REMAINING 30%, THERE IS NO SUBSTITUTE FOR ACTUAL HANDS-ON LAB WORK DONE ON SITE.

HOWEVER, SITE COULD VARY TO INCLUDE COLLEGE LABORATORIES OR THE WORKPLACE. WE ARE UNDERUTILIZING COOPERATIVE WORK EXPERIENCE COURSES COMPARED TO OTHER STATES.

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IMPORTANT TAKEAWAYS

NATIONALLY, CTE FACULTY APPROACHES ARE EITHER:

BASIC: RELYING ON TOOLS SUCH A ZOOM TO PROVIDE DISTANCE LEARNING IN A REAL-TIME OR AN ASYNCHRONOUS CAPACITY. THEORY TENDS TO BE THE PRIMARY FOCUS, WITH SOME ATTEMPT AT REMOTE SKILLS VERIFICATION.

INTERMEDIATE: USING A BLENDED MODEL, RELYING ON BOTH REMOTE INSTRUCTION AND IN-PERSON OR COMMUNITY-BASED LABS. THIS MAY INCLUDE MORE INDUSTRY ENGAGEMENT TO VERIFY SKILLS AND ASSESS COMPETENCIES.

ADVANCED: ACCESSING THE MOST CUTTING-EDGE TECHNOLOGY AND INTEGRATING VIRTUAL REALITY TO EXPLORE FACETS OF THE PROGRAM HISTORICALLY ONLY AVAILABLE IN A REAL-WORLD, APPLIED SETTING. THESE SIMULATED ENVIRONMENTS CAN PROVIDE UNPRECEDENTED ACCESS FOR BOTH STUDENTS AND FACULTY TO EXPAND THEIR SKILLS.

6 RECOMMENDATIONS

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1. **Consider curriculum portability and widespread course content access for faculty.** We hire well and our faculty are amazing, but they are also human beings; thus, some of their individual lectures and course content are far better than others. Create a content delivery clearinghouse for regional faculty to submit/share their best recorded lectures for faculty in the same disciplines to drop into their Canvas shell.

2. **Redefine the faculty workload and remote working expectations within CE disciplines to achieve synergies and leverage faculty strengths.** Work with local unions to permit a flexible structure (at least as a temporarily measure) where some faculty deliver the preponderance of lectures, and others focus on hands-on skill verification and employer engagement.

3. **Return to the basics and direct the Regional Directors to virtually convene faculty by priority sector regionally on a regular basis.** Create an informal space for them to collaborate and agree on the adoption of software and simulation technologies, plan for curriculum portability, and cull customized kits to meet all or part of the hands-on lab experience for students among all CE programs within the consortium. As Orange County has done, adopt "vertical sector leads" for programs where a Regional Director does not exist.

RECOMMENDATIONS

4. **INCENTIVIZE THE EXPANDED USE OF VIRTUAL REALITY AND AUGMENTED REALITY (VR/AR) TECHNOLOGY.** WHEN FEASIBLE, PARTNER WITH INDUSTRY LEADERS TO SHAPE THE DEVELOPMENT OF THEIR TOOLS AND CONNECT WITH OTHER POSTSECONDARY INSTITUTIONS THROUGHOUT THE NATION THAT HAVE SUCCESSFULLY INTEGRATED THIS EMERGING TECHNOLOGY.

5. **ENSURE FACULTY AND STAFF HAVE ACCESS TO APPROPRIATE WBL PROFESSIONAL DEVELOPMENT.** EXPAND WORK-BASED LEARNING OPPORTUNITIES AS A VIABLE WAY OF OFFERING STUDENTS THE HANDS-ON LAB PRACTICUM THAT CAN OTHERWISE ONLY OCCUR ON A COLLEGE CAMPUS; PROACTIVELY ENGAGE WITH LOCAL CE ADVISORY COMMITTEES TO FACILITATE SKILL VERIFICATION AND TO VALIDATE PROGRAM QUALITY.

6. **DEVELOP A FORMAL FEEDBACK LOOP AMONG FACULTY, STUDENTS AND EMPLOYERS TO FOSTER MORE ROBUST COMMUNICATION AND SKILL DEVELOPMENT.** USING THE PROGRAM SNAPSHOTS PROVIDED IN THIS REPORT, CREATE RELEVANT WORKING GROUPS TO NARROW PROSPECTIVE VENDORS AND FACILITATE THE INTEGRATION OF SUPPORTIVE TECHNOLOGY INTO EXISTING PROGRAMS AND ENSURE ONGOING QUALITY CONTROL. ADOPT LABSTER, ZSPACE, AND PROGRAM-SPECIFIC PLATFORMS.

KEY FINDINGS

Automotive Technology—This program lends itself well to online adaption, and several established resources exist for software and simulation that teach to industry standards. Automotive Service Excellence (ASE) offers an online program, and several LA | OC colleges are using Cengage's MindTap which allows faculty to control all aspects of their virtual instruction. Adopt Electude & zSpace.

Cosmetology and Barbering—LATTC's cosmetology program has developed courses that meet synchronously to fulfill lab time requirements. Colleges in the region are using MindTap for labs and Zoom to document competencies. Adopt Today's Class Cosmetology.

Culinary Arts—Regional colleges should consider adopting Rouxbe for its online training program. LA | OC colleges are reporting challenges in documenting competencies when students lack key ingredients and equipment at home; ship them what they need (Shipt, FreshDirect, Instacart, etc.)

Electrical—Recommended resources include Festo and Interplay Skilled Trades but convening regional faculty to evaluate best practices for skills demonstrations and student assessment is advised.

KEY FINDINGS

ELECTRONICS AND ELECTRIC TECHNOLOGY—MANY ONLINE SOFTWARE PROGRAMS AND COURSES EXIST IN THIS PROGRAM AREA, AND MANY FACULTY MEMBERS IN THE REGION REPORTED EXPERIMENTING WITH VARIOUS SOFTWARE PLATFORMS (LABVIEW, MULTISIM, ALTERA QUARTUS) TO DELIVER INSTRUCTION AND DOCUMENT COMPETENCIES. FACULTY DISCUSSION IS NEEDED TO REACH AGREEMENT ON THE DEGREE TO WHICH THIS PROGRAM CAN BE PROVIDED ONLINE AND TO NARROW THE LIST OF INSTRUCTIONAL RESOURCES.

EMERGENCY MEDICAL SERVICES—IN-PERSON CLINICAL REQUIREMENTS FOR CERTIFICATION POSES AN OBSTACLE FOR OFFERING ONLINE EMS TRAINING. HOWEVER, ALTHOUGH STUDENTS MUST LOG A CERTAIN NUMBER OF HOURS IN AMBULANCE RIDE-ALONGS, WHICH IS NOT CURRENTLY PERMITTED DURING THE PANDEMIC, SEVERAL RESOURCES EXIST FOR STUDENTS TO DEVELOP AND DEMONSTRATE SKILLS VIRTUALLY. ADOPT FISDAP, ZERO HOUR AMERICA'S MEDIC, AND 60 SECONDS TO SURVIVAL DISASTER TRIAGE.

FIRE TECHNOLOGY—IT IS GENERALLY AGREED THAT SOME FORM OF IN-PERSON TRAINING IS REQUIRED FOR THIS PROGRAM. ONLINE TRAINING IS AVAILABLE THROUGH THE NATIONAL FIRE PROTECTION ASSOCIATION.

KEY FINDINGS

MANUFACTURING AND INDUSTRIAL TECHNOLOGY—A WIDE VARIETY OF SOFTWARE AND SIMULATION PLATFORMS EXIST IN THIS PROGRAM AREA. FACULTY SHOULD BE ENGAGED TO DETERMINE THE MOST EFFECTIVE SOFTWARE PLATFORMS AND HOW BEST TO SCHEDULE FACE-TO-FACE LABS. SOFTWARE RECOMMENDATIONS FROM FACULTY IN THE REGION INCLUDE LABSTER, JOVE, LABARCHIVES, IMMERSE2LEARN, NCSIMUL, TOOLINGU, AND ZSPACE.

RADIOLOGIC TECHNOLOGY—NO MODEL ONLINE PROGRAMS COULD BE IDENTIFIED IN THIS AREA. HOWEVER, ONE COLLEGE REPORTED THAT IT IS USING ONLINE SIMULATIONS FOR INSTRUCTION. SEVERAL ONLINE PLATFORMS EXIST THAT COULD BE USED FOR INSTRUCTION, SUCH AS LABSTER AND VISIBLE BODY, ALTHOUGH NO SINGLE PLATFORM HAS BEEN DEVELOPED THAT SOLELY APPLIES TO THIS PROGRAM AREA.

REGISTERED NURSING—AS WITH THE EMS PROGRAM, COMPLETION OF IN-PERSON CLINICAL HOURS REMAINS A CONSTRAINT FOR REGISTERED NURSING STUDENTS. COLLEGE REPRESENTATIVES STRESSED THAT IT IS OF CRITICAL IMPORTANCE THAT CLINICAL SPOTS BE RETAINED DURING THE PANDEMIC. SOME SOFTWARE, SUCH AS LAERDAL'S VSIM, COULD POSSIBLY COUNT TOWARD CLINICAL HOURS. ADOPT ZSPACE, IHUMAN, VISIBLE BODY.

KEY FINDINGS

RESPIRATORY CARE/THERAPY—THE STUDY COULD NOT IDENTIFY ANY MODEL ONLINE PROGRAMS IN THIS AREA, AND NO RESPONSES WERE PROVIDED TO THE ONLINE SURVEY. THE USE OF SIMULATION SOFTWARE COULD BE EXPANDED, AND SEVERAL ONLINE PLATFORMS (ICEV, KETTERING NATIONAL SEMINARS, VISIBLE BODY) ALLOW STUDENT TO APPLY SKILLS KNOWLEDGE AND EVEN MAKE TREATMENT DECISIONS.

WELDING TECHNOLOGY—SURPRISINGLY, MANY RESOURCES EXIST FOR VIRTUAL WELDING INSTRUCTION. FACULTY SHOULD BE ENGAGED TO DETERMINE WHICH SOFTWARE PLATFORMS ARE MOST EFFECTIVE AND WHICH SKILLS CAN AND CANNOT BE DEMONSTRATED VIRTUALLY. LEADING CONTENDERS NATIONALLY ARE LINCOLN ELECTRIC AND ZSPACE.

IMMEDIATE NEXT STEPS

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LEVERAGE ECONOMIES OF SCALE

NEGOATIATE REGIONAL PURCHASE OF LABSTER, ZSPACE, VISIBLE BODY.

REDIRECT CURRENT PERSONNEL

CLEARLY DIRECT THE REGIONAL KEY TALENT (REGIONAL DIRECTORS) TO VIRTUALLY CONVENE CTE FACULTY BY THESE 12 PROGRAM AREAS ON A CONSISTENT BASIS (2X/MONTH) TO:

- SCHEDULE REGIONAL VENDOR DEMONSTRATIONS,
- FACILITATE VENDOR SELECTIONS INVESTED WITH LOCAL/REGIONAL SWP DOLLARS,
- ORGANICALLY ENCOURAGE CURRICULUM PORTABILITY (CONTENT DELIVERY)

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