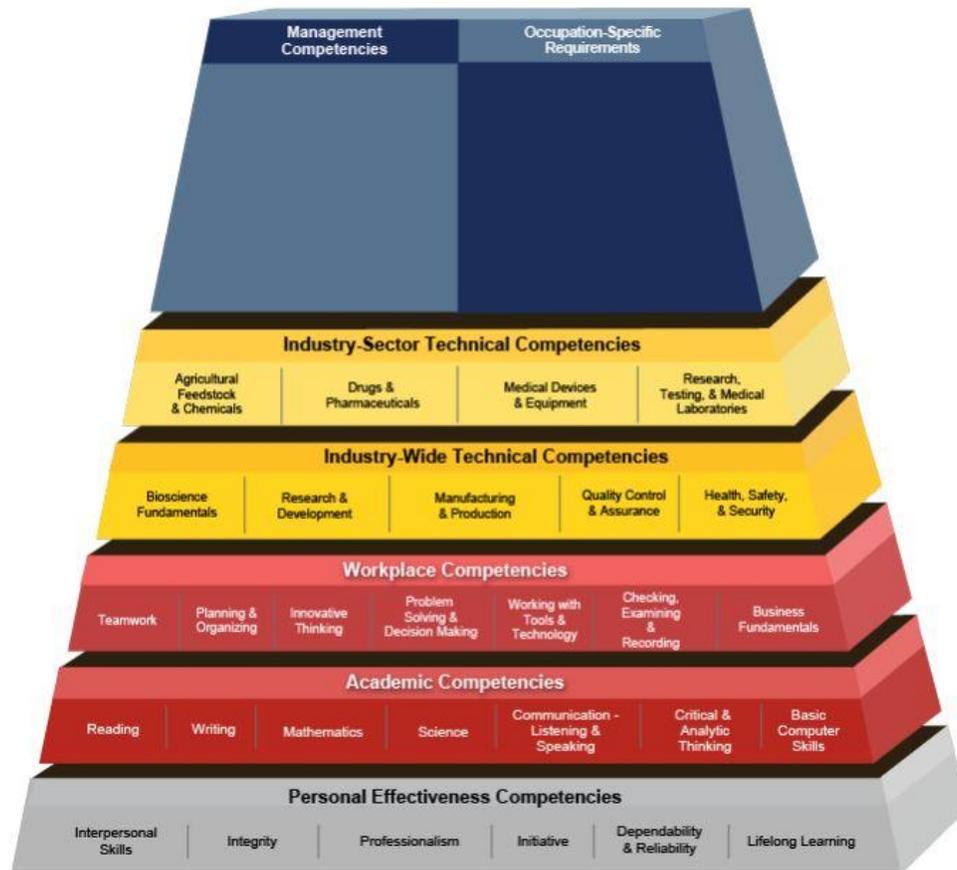


White Paper

Curriculum to Address Workplace Readiness

New World of Work 21st Century Skills and ACT Career Ready 101[®]



Bioscience Competency Model

From the Competency Model Clearing House a Partner of America's Job Centers (Dept. of Labor)

<https://www.careeronestop.org/CompetencyModel/competency-models/pyramid-download.aspx?industry=bioscience>



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INTRODUCTION

California Community Colleges (CCCs) have refocused efforts on Career Technical Education (CTE) as part of the core mission of the system. CTE is defined as a program of study that involves a sequence of courses that integrates core academic knowledge with technical and occupational competency. CTE programs are designed to provide students with pathways to careers as well as postsecondary education. Most CTE programs adequately address technical competencies but do not well integrate the ‘soft skills’ sought by employers. Thus most CTE advisory boards and numerous workforce studies repeatedly remind education providers that applicants often lack necessary soft skills such as good interpersonal skills, integrity, professionalism, initiative, dependability and reliability called out in most core competency models (see cover illustration).

According to Mark Feffer¹ “The soft skills needed to excel in today’s workplace are the hardest to teach and, increasingly, the hardest to find.” Feffer’s article for the Society for Human Resource Management states that “According to a survey by Adecco Staffing USA, 44 percent of executives said a lack of soft skills was the biggest proficiency gap they saw in the U.S. workforce.” Additionally, Feffer reports that 67 percent of human resource managers said they would hire a candidate with strong soft skills even if his or her technical abilities were lacking. By contrast, just 9 percent would hire someone with strong technical credentials but weak soft skills.

In general, soft skills are neither content-based nor technical. They are cross-cutting ‘personal effectiveness competencies’ and ‘workplace competencies’ required for most occupations (see cover and the Competency Model Clearinghouse² used by the Department of Labor’s America’s Job Centers). Usually, educators rely on the fact that soft skills are acquired informally through unstructured life experience at home, school or work. Thus, the failure of CTE programs to address soft skills with curricula likely accounts for the soft skills gap seen in today’s workforce.

The premise postulated here is that soft skills can be taught in classroom or work-based learning venues. While most CTE programs have adequate curriculum to teach technical competencies, there is no commonly used curricula to teach soft skills. This White Paper will explore two readily available curricular systems that can be deployed in CTE classes or work-experience/internship programs. The pilot efforts to embed curricula into CTE programs described here provide examples of solutions to address the soft skills gap of job seekers.

¹ <https://www.shrm.org/hr-today/news/hr-magazine/0416/pages/hrs-hard-challenge-when-employees-lack-soft-skills.aspx>

² <https://www.careeronestop.org/competencymodel/>

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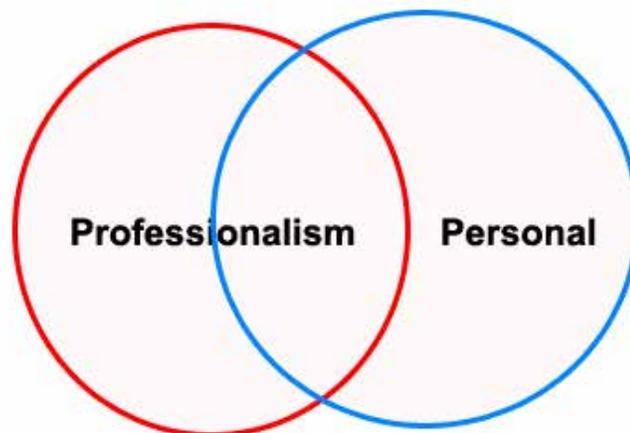
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I. New World of Work 21st Century Soft Skills Curricula (NWoW)

In 2012, the NWoW work project began Feather River College through funding from the California Community College's Economic and Workforce Development program. NWoW began with the premise that the global economy is in the midst of a massive, transformational shift to the 'gig' economy. A gig economy is an environment in which temporary positions are common and organizations contract with independent workers for short-term engagements. The trend toward a gig economy has begun. According to Micha Kaufman, the number of freelancers will increase from 33% today to 50% by 2020³. These freelancers will work as entrepreneurs providing services to bigger companies on a temporary basis. There are several reasons for this shift, including technology that makes it easier to connect with the world, a rapidly changing marketplace that puts new pressure on employers to re-evaluate the benefits of a full-time permanent hire, and individual desires for a work-life balance. In addition to research on the emerging gig economy, the NWoW team took into account economic drivers of change. These include the increase in automation, which calls for the development of the "knowledge economy." In the knowledge economy, the workforce must have the essential soft skills that cannot be replaced by technology.

The NWoW project asked the question "What cultural competencies or soft skills will be required of this changing workforce?" In 2013, a series of Skills Panels were conducted which included successful entrepreneurs, human resources professionals, K-12 and college educators, and students. The panels identified the types of skills and traits students should attain to be ready for the new world of work. The Top Ten 21st Century Skills identified these panels are Self-Awareness, Social/Diversity Awareness, Resilience, Empathy, Communication, Adaptability, Collaboration, Digital Literacy, Entrepreneurial Mindset, and Analysis/Solution Mindset.

In 2014, grant funding from three sources, (Adult Education, CTE, and CCC Economic and Workforce Development grants) was used to create two modules per skill, for a total of twenty lessons. Each module contains a lesson plan for instructors, a Power Point presentation, a "what not to do" video teaser and/or a longer video assessment, and handouts. In 2015, initial lesson testing began with over two hundred students at Feather River College in conjunction with workplace learning. The NWoW website (www.newworldofwork.org) was created to host all modules with free download access.

In late 2015, a two-year Industry Driven Regional Collaborative Grant from the CCC Chancellor's office funded expansion of the project to thirteen colleges. This grant provided funding to train

³ <http://www.forbes.com/sites/michakaufman/2014/02/28/five-reasons-half-of-you-will-be-freelancers-in-2020/#308ae88d7300>.

community college faculty on the curriculum and implementation of the curriculum and assessment/data collection to track students involved in the program.

Unexpectedly in 2016, website tracking showed that middle and high school educators are using the curriculum. Efforts are underway to adapt the curriculum specifically for this population. Also in 2016, NWoW partnered with the Mozilla Foundation and the Foundation for the California Community Colleges to develop a framework for digital badges or micro-credentials for each of the “Top 10” 21st Century Skills (shown below). In fall 2016, a digital badge system was launched to allow students to document attainment of the 21st Century Skills through on-line testing (Launchpath.com platform). Digital badge assessments are graded in part through the platform and in part by the students’ instructors through a consistent rubric. The badges are part of the Mozilla open badging ecosystem, so they can be displayed on Twitter, Linked-In profiles, websites and electronic portfolios. Digital badges are available in all 10 skills.



New World of Work Soft Skills

II. ACT Career Ready 101[®] Suite Curricula

The ACT⁴ is well known for the college entrance exam that is used to gauge readiness for college. It is less well known for its Career Ready 101, WorkKeys system, and National Career Readiness Certification. The driving force for the development of work readiness curricula by ACT was that individuals enter the workforce without the skills that employers need. The skills identified by ACT correspond to the workplace and academic competencies shown on the cover of this white paper and are common to most of the competency models found in the Competency Model Clearinghouse⁵.

ACT established the Career Ready 101 system to help employers select, hire, develop, and retain a quality workforce. To do this, ACT conducted workplace research and profiled over 20,000 different jobs. ACT matched the needs of these jobs to workplace and academic competencies both in 'type' and 'level'. The WorkKeys system was developed to improve overall workforce readiness by students and job seekers. This system is currently in use and lauded by employers. According to John Tulenko (in 2014) over 1000 employers use the WorkKeys system and National Career Readiness Certification (NCRC).⁶ Employers such as Hoffer Electric in Elgin, Illinois reports that for the first time they a correlations between what a job seekers knows and the ability to do the job by using the NCRC.

The Career Ready 101 system supports skills-based hiring. Skills-based hiring refers to the practice used by employers to set specific skill or competency requirements or targets. The intent of skills-based hiring is for the applicant to demonstrate, independently of an academic degree, that he or she has the skills required to be successful on the job. It is also a mechanism by which employers may clearly and publicly advertise the expectations for the job – for example indicating they are looking for a particular set of skills at an appropriately communicated level of proficiency. The result of matching the specific skill requirements of a particular job to the skills of an individual is more efficient for the employer. It also gives applicants the ability to precisely communicate their knowledge, skills, and abilities to employers.

In skills-based hiring, the applicant is tested by a third-party and presents the scores to the employer as part of the application process. In this sense, skills-based hiring is similar to the U.S. practice of individuals taking third party (e.g., SAT or ACT) tests and then using those scores as part of a college application. Skills-based hiring is distinct from pre-employment testing, in that it is not the employer who issues the test or controls who sees the scores. The specific

⁴ ACT was formerly the American College Testing but is now just called ACT)

⁵ <https://www.careeronestop.org/competencymodel/>

⁶ <http://www.pbs.org/newshour/bb/education-jan-june14-skillsgap-01-22/>

skills needed for a job, and their corresponding levels, are established by the employers through job profiling. Skills-based hiring requires suitable tests be available for applicants and that employers have a legally compliant process for defining the levels and suite of skills required for each distinct job title. The ACT Career Ready 101 Curricula system and the National Career Readiness Certification (NCRC) provide both a suitable testing systems and a legally compliant process.

ACT Career Ready 101®: Components of the System:

The curriculum, testing and tutorials are completely on-line but can be used by a facilitator through traditional classroom presentation of tutorials. The on-line system provides immediate feedback to students and job seekers and tutorials allow these individuals to build skills in a customized fashion. National Career Readiness Certification (NCRC) occurs in a proctored and secured test environment.

ACT Career Ready 101 contains:

- All of the KeyTrain Suite (skills shown below)
- All of the Soft Skills Suite (skills shown below)
- Additional course: The Job Search
- Additional course: Financial Awareness
- Plus support for career exploration, resume writing, and more.

KeyTrain® Suite for WorkKeys® Skills

- Applied Mathematics *
 - Applied Technology–Electricity
 - Applied Technology–Mechanics
 - Applied Technology–Thermodynamics
 - Applied Technology–Fluids
 - Business Writing
 - Listening
 - Listening for Understanding
 - Locating Information *
 - Observation
 - Reading for Information *
 - Teamwork
 - Workplace Observation
 - Writing
- * Included in the National Career Readiness Certification



The Soft Skills Suite

- Customer Service (how to build relationships and provide excellent service to a customer)
- Interpersonal & Business Communication (how to have productive conversations, group and individual interactions, and presentations)
- Problem Solving & Critical Thinking (how to address problems, think critically and analytically about them, and produce good answers and decisions as a result)
- Working in Teams (how to be a productive team member)
- Workplace Discipline (how personal behaviors can enable or interfere with success on the job)

Third Party Credentials: The National Career Readiness Certification[®]

Successful completion of this certification provides a nationally recognized 3rd party certificate. According to ACT, the NCRC is accepted by more than 10,000 employers nationwide as a reliable way to verify individuals' work skills. This certification has been earned by over three million individuals. Those who complete Spanish-language versions of the assessments earn the ACT National Career Readiness Certificate *en Español*. Many high schools use the NCRC as an exit exam and Workforce Investment Boards (WIBs) also encourage the use of the system. The NCRC consists of three modules; Applied Mathematics, Locating Information and Reading for Information.



Individuals can earn the ACT NCRC by taking three ACT WorkKeys[®] assessments:

- Applied Mathematics
- Locating Information
- Reading for Information

ACT WorkKeys assessments measure "real world" skills that employers believe are critical to job success. Test questions are based on situations in the everyday work world.

Certificate level	Level score requirements	Comparison to skill levels in the ACT JobPro [®] database*
Platinum	Minimum score of 6 on each of the three assessments	Examinee demonstrates foundational skills associated with approximately 99% of jobs in the ACT JobPro database
Gold	Minimum score of 5 on each of the three assessments	Examinee demonstrates foundational skills associated with at least 93% of jobs in the ACT JobPro database
Silver	Minimum score of 4 on each of the three assessments	Examinee demonstrates foundational skills associated with at least 67% of jobs in the ACT JobPro database
Bronze	Minimum score of 3 on each of the three assessments	Examinee demonstrates foundational skills associated with at least 16% of jobs in the ACT JobPro database

* The ACT JobPro database includes nearly 20,000 job profiles that identify the ACT WorkKeys skill levels required for specific jobs and groups of jobs.

For the NCRC, the specific level of skills needed for a job is established by the employer through job profiling and is part of skills-based hiring. Employers are able to use the information on the over 20,000 jobs already profiled and can then engage in skills-based hiring. NCRC provides a legally compliant process for defining the levels and suite of skills required for each distinct job title. Additionally, since NCRC assessments are designed to measure skills that employers feel are essential to success in the workplace for the jobs profiled, students or job seekers can use the system to learn more about their strengths and weaknesses. They can then use the WorkKeys to improve these skills.

Third-party certifications demonstrate abilities to employers and job seekers in a manner that degrees and certificates are unable to do. Thus, educators and employers can use it to help take the guesswork out of determining student, applicant, and employee qualifications. In addition the tutorials on the system allow students to practice and learn and address the deficiencies identified.

The ACT WorkKeys® System includes twelve workplace skill assessments and tutorial that are of use to instructors in CTE programs. The curricula thoroughly addresses the personal competencies, academic competences and professional competencies shown in the Biosciences Competency Model (see cover) as well as the competencies found for other occupations in the Competency Model Clearinghouse. Competencies well addressed by the ACT include:

- Applied Mathematics – applying mathematical reasoning to work-related problems
- Applied Technology – understanding technical principles as they apply to the workplace
- Business Writing – composing clear, well-developed messages relating to on-the-job situations
- Listening – being able to listen to and understand work-related messages
- Locating Information – using information from sources such as diagrams, floor plans, tables, forms, graphs, and charts
- Workplace Observation – paying attention to details in instructions and demonstrations
- Reading for Information – comprehending work-related reading materials such as memos, bulletins, policy manuals, and governmental regulations
- Teamwork – choosing behavior that furthers workplace relationships and accomplishes work tasks
- Writing - measures the skills individuals use when they write messages that relay workplace information between people
- Performance – related to attitudes toward work and the person’s tendency to engage in unsafe work behaviors
- Talent – includes dependability, assertiveness, and emotional stability
- Fit – how interests and values correspond to a particular career

III. Alignment of the Curricula to Employer-Identified Needs

The Southern California Biotechnology Center @ Miramar College (SCBC), working industry advisories has been addressing the need for soft skills. Hiring managers representing a Life Sciences Industry cross-section were surveyed and a checklist was created to guide curriculum development.

Column A Required for Hire	Column B Willing to Develop
Self-motivation	Technical presentation
Dedication	Business maturity
Initiative	Teamwork
Responsibility	Critical thinking
Interpersonal communication	Decision-making
Intra-company knowledge	Time management
Attitude	Workflow planning
Adaptability/Flexibility	Problem solving

The next step in addressing the soft skills need has been to find the appropriate curriculum to address the column A skills or those ‘required for hire’.

The following chart is an alignment of the two curricular systems to the Column A list of skills required for hiring.

‘Column A’ List and Alignment to NWoW and ACT WorkKeys

SOFT SKILL	NWoW Unit**	Specific ‘Skills’	ACT Unit	Specific ‘Skills’
Self-motivation	Entrepreneurial Mindset	Action plan to practice entrepreneurial thinking	Work Discipline: Job Performance Factors	Setting and Achieving Goals Managing Emotions and Behaviors Coping with Stress and Change Attitude and Job Performance Being Responsible and Dependable
Dedication	Self-Awareness	Develop professionalism by building skill sets; personal assessments	Work Discipline: Job Performance Factors	Balancing Work and Personal Responsibilities Initiative and Perseverance
Initiative	Entrepreneurial Mindset Resilience	Action plan to practice entrepreneurial thinking,	Work Discipline: Job Performance Factors	Learning and Skill Development

SOFT SKILL	NWOW Unit**	Specific 'Skills'	ACT Unit	Specific 'Skills'
		Building networks, planning		
Responsibility	Resilience	Prioritizing and Setting Goals	Work Discipline: Job Performance Factors	Balancing Work and Personal Responsibilities Being Responsible and Dependable
Interpersonal communication	Communication Entrepreneurial Mindset	Communication Etiquette; verbal vs. non-verbal communication, use of technology communication styles, passive-aggressive styles Elevator Pitch	Interpersonal Communication Teamwork Business Communication	The Communication Process Presenting Yourself to Others Active Listening Nonverbal Communication Communication Barriers Handling Conflict Effective Communication 1 Effective Business Communications; Email and Phone Communications; Participating in Meetings; Internet and Social Media; Problem Solving and Negotiation; Communicating Across Cultures
Intra-company knowledge	Self-Awareness	Understanding core traits and how they fit in company culture	Not available	
Attitude	Empathy	Sympathy versus empathy, rapport and mirroring	Not Available	
Adaptability/ Flexibility	Adaptability Resilience	Notices change, open to change, considers viewpoints, handles stress Reflecting and showing evidence of capacity for personal growth	Work Discipline: Job Performance Factors	Flexibility and Adaptability
	** NWOW UNITS OVERLAP AND MAP TO MULTIPLE SOFT SKILLS			

IV. Embedding Curricula into Career Technical Education

The SCBC located at San Diego Miramar Colleges partners with the California Life Sciences/Biotechnology Initiative⁷. Recently, the initiative created a process to align CCC life sciences/biotech programs. Working together with industry and CCC faculty, the initiative identified a common set of program outcomes. This effort was necessary because the programs across the state differ in format but serve a common industry need. The defined outcomes are the so-called ‘The Employability Milestone’. Programs aligned to the milestone provide a minimum of 192 hours of lab hands-on training to address the core competencies listed below. Soft skills and general employability skills, called cultural competencies, are expected to be embedded in the technical curriculum.



The Employability Milestone: Students who complete the Employability Milestone are expected to have demonstrated these core technical competencies:

- Communicate using scientific vocabulary common to the biotechnology industry
- Explain underlying scientific concepts for common laboratory techniques
- Apply scientific knowledge to explain common biotechnological laboratory techniques
- Perform common laboratory mathematical calculations
- Follow standard operating procedures (SOPs) and/or understand and follow written procedures
- Explain the principles of Good Laboratory Practices (GLP) and Good Manufacturing Practices (GMP) including documentation and equipment validation procedures
- Maintain appropriate workplace standard documentation such as laboratory notebooks or batch records
- Demonstrate the ability to perform laboratory protocols with workplace standard safety, efficacy while keeping work environments clean and orderly
- Demonstrate operational understanding of safety regulations such as OSHA and MSDS
- Collect and report data using appropriate software and formats

⁷ www.calbiotechcareers.org The CA Life Sciences Initiative is funded by the CCC Chancellor’s office Economic and Workforce Development program

- Apply appropriate CAPA (Corrective and Preventative Actions) and associated analyses in troubleshooting experiments

In addition, students who complete the Employability Milestone are expected to have demonstrated these **core ‘cultural competencies.’**

- Participation in project teams
- Time management, punctuality and adherence to deadlines
- Effective oral and written communication of laboratory activities and results
- Business communication such as e-mails, resumes and cover letters
- Integrity in the workplace

The Employability Milestone allows effective marketing of the California Community Colleges bio-technician training programs to industry and students. Additionally it provides a set of outcomes that will enable the development of common assessments, badges and/or third party credentials. Most CTE programs have adequate curriculum (textbooks and lab manuals) to teach technical competencies. However, there is no common use of curricular materials to ‘teach’ the soft skills or cultural competencies.

To that end, the California Life Sciences/Biotechnology Initiative has worked with the ACT and NWoW curricula to explore badges and 3rd party credentials. The SCBC at San Diego Miramar College functions as the ‘laboratory’ of the CA Life Sciences Initiative. SCBC has been developing strategies to embed the required soft skills or cultural competences into CTE programs. These pilot efforts are examples of how CTE faculty can use these curricula to ‘teach’ soft skills. These examples are ‘work in progress’ efforts to embed and perfect the ‘teaching’ of soft skills.

Example 1: Certificate of Achievement Program San Diego Miramar College. Embedding Communication Curriculum

The Employability Milestone identifies these cognitive skills for communication:

- Communicate using scientific vocabulary common to the biotechnology industry.
- Maintain appropriate workplace standard documentation such as laboratory notebooks or batch records.
- Collect and report data using appropriate software and formats.

Neither the NWoW nor ACT Career Ready 101 system formally or specifically addresses these cognitive skills. However, the ACT ‘locating information’ and ‘reading for information’ are foundational can be used to prepare students to perform these communication functions.

Students' level of preparation can be identified via pre-testing in the three areas of NCRC, reading for information, locating information and applied mathematics. Students who test less than level 5 can use the ACT tutorials to improve their skills and readiness for the Applied Biotechnology programs offered at the CCCs. This 'solution' is far preferable to sending students who wish to enter life sciences middle skills jobs to 'basic skills' classes as it is both time and cost effective.

The Employability Milestone identifies these cultural competencies for communication:

- Effective oral and written communication of laboratory activities and results
- Business communication such as e-mails, resumes and cover letters

Both NWoW and ACT curricula s address communication skills in a general fashion. The NWoW Communication Lesson 1 covers very important communication basics.

- An ice-breaker showing miscommunication with texting.⁸
- An introduction to etiquette and manners
- A brief 'do's and don'ts' for professional e-mails
- Pointers on phone calls and the use of cell phones
- A few tips on presentations

NWoW Lesson 2 Introduces Communication styles and provides a useful communication self-assessment as well as a video assessment⁹. Lesson 2 briefly introduces passive aggressive communication. And just for fun, this video can be added to the curriculum.¹⁰

The ACT system provides more in-depth tutorials and assessments to practice and refine communication skills in the business communication section of WorkKeys. However, due to time constraints, the system has not yet been embedded into the program. Since these are available on-line, future efforts will focus on making these out of class assignments.

Neither system offers a customized industry specific approach to resumes. Thus the SCBC developed a series of 'soft skills' lessons specifically for the program. The intended outcome of these lessons is an life sciences industry formatted resume and readiness for interviews. The lessons were developed so that they can be completed outside of the class and not take away valuable time from hard skills. The lessons are e-mail assignment with rubrics. Practice of professional e-mail communication is absolutely required. The four lessons are:

⁸ <https://www.youtube.com/watch?v=I67eDU7hTM4>

⁹ <https://www.youtube.com/watch?v=iypSw74bHJw>

¹⁰ <https://www.youtube.com/watch?v=J97knhJQcug>

1. Figure out where you fit. This involves actually looking at job postings and learning to match job postings to students' actual interests and qualifications. In this first lesson students create a Linked-In profile and use the NWoW communication Lesson 1 PowerPoint to begin to think about communication skills. This could be delivered face to face as well
2. In the second activity students use a Resume Builder Guide developed by the Southern California Biotechnology Center @ Miramar College to begin to identify their hard and soft skills. They also are introduced to the unique hybrid, skills based-resume format expected in the Life Sciences Industry.
3. Students create a draft resume. In general there are at least two rounds of this activity with feedback and critiques.
4. Students finalize their resume and learn to put it in PDF format with a proper name (not resume!).

Students who have completed these assignments are invited to a mock interview evening. Industry professionals attend and interview students against a 'real' job posting. Students receive feedback from industry professionals on their resumes and interviews. Mock interviews have taken place for over six years. Industry interviewers have consistently 'complained' that students are unable to verbally explain what is on their resume. They might even say they performed a technical skill but "don't" remember" it because it was a month or two ago. As a result this year students are writing minute papers- short synopses of their technical activities in the program to review prior to the mock interviews.

Example 2: Certificate of Achievement Program San Diego Miramar College. Embedding Teamwork/Collaboration and "Quality" Curriculum

This program is aimed at the Life Sciences Middle Skills Workforce. This workforce has been well described in the California Life Sciences/Biotechnology Initiative's GAP Analysis¹¹. Like most workforce studies, soft skills were described as a 'gap'. Another 'gap' identified was the need to understand the importance of "Quality" as it is applied in the industry.

To address this need a lesson in Quality, where students make microwave popcorn under Good Manufacturing Practice, was developed. Many jobs in the life sciences middle skills workforce are Advanced Manufacturing, where Quality is an important science. In the Quality GMP popcorn lesson, students follow Standard Operating Procedures and create a Batch Record. When the product fails Quality Control, students learn the process for CAPA (Corrective and Preventative Actions). This lesson addresses three technical competencies:

¹¹ http://www.calbiotechcareers.org/wp-content/uploads/2014/11/LS-Biotech-Middle-Skills-Jobs-in-CA_Report_Oct-2014.pdf

- Follow standard operating procedures (SOPs) and/or understand and follow written procedures.
- Explain the principles of Good Laboratory Practices (GLP) and Good Manufacturing Practices (GMP) including documentation and equipment validation procedures
- Apply appropriate CAPA (Corrective and Preventative Actions) and associated analyses in troubleshooting experiments

Since students work as a manufacturing team this lesson provides a ‘teachable moment’ for teamwork. The NWoW lesson 1 on ‘collaboration’ is embedded into this lesson. The ‘what not to do’ video¹² introduces collaboration. Additionally, NWoW provides a video assessment¹³. These videos can be used to launch into more discussion on teams and team dynamics. In the lesson, the instructor needs to be clear to students that they will be assigned a role on these teams and their job as a team member is to perform their role. In most entry level life sciences positions, that will be the reality.

From using this NWoW Collaboration/Teamwork Exercise integrated into the lesson on Good Manufacturing Practice, the following lessons were learned:

- Students don’t understand that teamwork is a formal process and requires everyone to perform their role/responsibility to the max. Many students thought that being nice to each other and helping each other was ‘teamwork’. They didn’t get the notion that on a soccer team, if the forward needs to do the goalies job, the team will fail.
- NWoW provides a good introduction to collaboration/ team work. If time is available it provides an opportunity for students to share ‘good’ and ‘bad’ team experiences. The lessons begin with humor and shows dysfunctional teams are a great icebreaker for such a discussion.
- The ACT teamwork unit has more depth. It expands and defines teams further and a really strong foundation in understanding teams. This can be used for follow up homework.

Example 3: Incorporation of Curricula into a Workforce Program

The Introductory Life Sciences Experience (ILSE) program for WIOA¹⁴ Youth (ages 18-24) addresses the career, education and workforce needs of out-of-school, unemployed or underemployed youth. ILSE is a partnership between the San Diego Workforce Partnership (Workforce Investment Board, WIB), Biocom (the San Diego Life Sciences Industry Association)

¹² (<https://www.youtube.com/watch?v=zOwFkT4BFaw>)

¹³ <https://www.youtube.com/watch?v=65zgwzpoQt8>

¹⁴ WIOA Workforce Investment Opportunity Act funded this program.

and San Diego Miramar College. The goal of the program is to reengage youth with school or work.

Important Components of ILSE are:

- Enrollment in College (3 units) at Miramar College
- 160 hour paid internship
- One year of client management as the youth returns to school and/or work.

Two Cohorts have now completed the program. Several NWoW modules were used including collaboration/teamwork and communication. The curricula increased awareness of soft skills. However, there was not enough opportunity for practice. Consultants were employed to work on resumes, e-mail communication skills, and goal setting with this population.

Since students of this program needed college readiness preparation and the funder set a goal for the NCRC completion, emphasis was placed on Reading for Information, Locating Information and Applied Mathematics modules of the Career Ready 101 WorkKeys system. Students took pre-tests and were allowed time to use the tutorials in the classroom. In general, participants set a goal of improving at least two levels through tutorials. Participants were remarkably compliant and found this review and skills development beneficial. Additionally they reported feeling more ready for college or career. Cohort 1 all increased at least 1 level in pre-testing. Only Cohort 2 had access to the NCRC Certification. 11/12 students received certification, 3 at that Gold level thus verifying work readiness. The one who did not receive certification was an English Language learner and fell short in only one module. Students were invested in the NCRC Certification and did really well!!



VI. Summary and Recommendations

Below is a summary overview of the two curricular systems.

ATTRIBUTE	NWoW	ACT
Cost	Free	Career Ready 101® is complete system: One-Year Site License \$6,900 (main site license) Satellite site license per additional sites \$1,150
On-Line or Distance Capability	Course PPTs & handouts can be used for on-line or in-person, , videos can be delivered on -line	100% but face to face traditional possible by integration into curriculum.
“Hard Skills” (Academic Competencies)	None	Assessments and tutorials for Applied Math., Locating Info., Reading for Info.
“Soft Skills” (Cultural or profession and personal effectiveness competencies)	10 Topics of NWoW	Teamwork, Customer Service , Interpersonal & Business Communication , Problem Solving & Critical Thinking , Workplace Discipline
Driver for Development	The ‘gig’ or freelance economy and the emerging ‘knowledge’ economy	Assist employers in identifying qualified employees. Assist students in job readiness
Assessments-Security	No formal security system to ensure identity of students taking assessments.	High Stakes Testing Security and Training; Testing only in proctored environments by trained/approved proctors
Assessments- Access	Pre/post survey assessments (hardcopy or on-line.) Digital badges on the Mozilla Open Badge Ecosystem	On-line and paper in a secured testing environment
Assessments-Accommodations	Required of faculty	Formal documented process
Assessment Results	Badge assessments graded partially by computer/platform and partial by instructor based on NWoW rubric	Independent 3 rd Party Assessment
Facilitation	Required	Not Required
Recognition	California Endorsed, Available nationally	National
Credentials	Digital Badges as micro-credentials for 10 skills	3 rd Party Certification Nationally Recognized (NCRC)
Deployment Capability	Excellent for Introducing Skills	Excellent for In-Depth Skill development and assessment

Both NWoW 21st Century Skills and the ACT Career Ready 101[®] systems are rich sources of curricula to incorporate or embed into CTE programs. In the author's experience, students enjoy the curricula and understand the value of improving soft skills. However they are unlikely to take initiative to develop these skills on their own. Thus the author recommends the following:

- Recommendation 1: The two curricula systems can be used synergistically; NWoW can be used to introduce skills and the ACT WorkKeys[®] can provide in-depth tutorials and assessments.
- Recommendation 2: Work to overcome the time challenges to using these curricula in CTE programs. Faculty need to develop strategies to embed these skills without taking time from technical competencies. E-mail and homework assignments can be used by time must be made available to practice in a work-like setting.
- Recommendation 3: Encourage faculty to accept the importance of teaching soft skills as necessary for the students' success.
- Recommendation 4: Provide professional development for faculty to learn soft skills from structured curriculum. The learning curve for faculty in using these curricula must come in stages.
 1. Faculty must first be students of the curricula.
 2. Faculty must obtain the certifications
 3. Faculty must find creative means to embed the curricula into their CTE program.
 4. Pilot efforts such as those described must be run and the curriculum fine tuned and enriched

In conclusion, both NWoW and ACT Career Ready 101 systems provide curricular resources that can be embedded effectively in CTE programs. Faculty must be ready, willing and able to deploy these systems to improve workforce readiness of their graduates.

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