

PROFESSIONAL LEARNING COMMUNITY #5

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EXECUTIVE SUMMARY

As technological progress accelerates, the US will continue to witness a polarization of the labor market in which the number of high and low skill jobs increase as middle skill jobs dwindle. In this landscape, new professional fields will be created while others are changed or eliminated entirely.

Our PLC's research on the future of work suggests that nearly all jobs will be impacted by technological advancement. As technology improves, jobs that can be automated will be. The jobs that remain, as well as new ones that are created, will be complemented by technology in significant ways. In turn, the job market will require people who know how to create, utilize, and improve new technologies, as well as those who can effectively analyze and make meaning out of vast sets of data. Additionally, jobs that that rely primarily on human interaction and social intelligence are less likely to be replaced by technology, further increasing the importance of interpersonal skills and creativity.

Several resources referenced the desirability of T-shaped professionals, which are employees with both broad soft skills and deep technical knowledge. Soft skills refer to an array of personal and relational abilities that are almost universally desirable and necessary for success in a wide variety of occupations. Technical knowledge, on the other hand, refers to quantifiable expertise that allows employees to execute tasks that are specific to their individual jobs.

Demand for specific hard skills is difficult to predict since they are heavily impacted by technological advances that have not yet happened and that vary greatly by industry. Though we cannot anticipate exactly which skills our graduates will need, we can assume that the workers of the future must possess a general facility with technology. Additionally, they will need the ability to engage in ongoing, lifelong learning to continuously develop relevant skills as their professions evolve.

Soft skills are equally important to employers. Our PLC noted that the soft skills expected to be important in the future are much the same as those that employers desire currently. Examples that were repeatedly mentioned include complex problem solving, critical thinking, creativity and curiosity, data analysis, interdisciplinary collaboration and teamwork, agility and adaptability, written and oral communication, and emotional intelligence.

Our PLC examined a variety of strategies used to teach the critical skills described above. The following list, while neither exhaustive nor prescriptive, includes some examples that have proven effective in this effort:

- Developing purposeful, comprehensive experiential learning programs
- Structuring classes in a way that develops core professional competencies
- Establishing pre-professional programs and boot camps for students and alumni
- Integrating skills badging into the curriculum and co-curriculum
- Universally utilizing technology in classes across the curriculum
- Providing robust career services across all years of a student's SOU experience

Finally, we researched regional, in addition to national, expectations for the labor market. The skills that are - and will continue to be - in demand from employers are much the same in Southern Oregon as they are across the country. Also, regional economic development efforts have focused on three high-wage, high-demand sector strategies: advanced manufacturing, information technology & e-commerce, and healthcare. In addition to these sectors, our PLC expects careers in industries that have historically been important to our region, such as agriculture and hospitality & tourism, to remain vital to Southern Oregon well into the future.

PREPARING STUDENTS FOR JOBS THAT DON'T YET EXIST

How do we prepare graduates for a life of work when many of our graduates will work in jobs that don't yet exist? How will employment change in this region and beyond?

Current Labor Market Dynamics

The American labor market is undergoing a transformative shift largely driven by rapid technological change within the workplace (Frey and Osborne, 2013). While globalization, shrinking labor union participation, and deindustrialization have all made significant impacts on today's economy, technological advancement - namely, the development of automation and data processing - is shaping the labor environment in dramatic ways. Technological advancement presents colleges and universities with unique challenges as they try to produce job-ready graduates armed with skills for the future.

The environment in which many college graduates find themselves today is full of uncertainty. Many graduates are underemployed or working in jobs that do not directly utilize the skills acquired in college (Vedder et. al, 2013). If the role of colleges is to produce job-ready graduates, students must develop the skills and abilities that are compatible with the skill requirements of the labor market today. The responsibility for skill development then falls to the colleges and universities to fulfill, and skill development must be modernized to stay relevant in today's dynamic labor market.

To understand the changes in the labor market, one must look to the impact of technology on today's workforce and employer needs. In recent years, technological advancements have begun to polarize the labor market and change the types of skills required of college graduates. Job-polarization has emerged as a primary concern regarding technological advancement as it directly impacts the types of jobs available to college graduates (Autor, 2014). Job polarization refers to the stagnation and decline of middle-skill

employment and wages relative to the growth rates of jobs requiring limited knowledge (low-skill) and highly-specific knowledge (high-skill).

This polarization relegates most college graduates into either low-skill or high-skill sectors of the workforce, as lower rates enter the middle-skill sector of the economy. Through no fault of their own, colleges and universities are left to react and adapt to these changes unfolding within the job market. Many jobs within both the manufacturing and service sectors are vulnerable to machine replacement as technology improves and costs for technology decline. Jobs requiring repeatable, programmable tasks will likely be replaced by automation as managers look to reduce costs for the foreseeable future. To ensure graduates are competitive for professional opportunities aligned with their career interests, colleges and universities must continue to develop and improve upon strategies for identifying and teaching professionally relevant skillsets.

Skills in Demand

Numerous articles discuss the importance of T-shaped professionals, meaning workers who possess a “breadth of skills in universal disciplines like communication or management, as well as mastery of specific skills, processes, or a body of knowledge (Adams, 2016).” Ensuring that students are prepared for the jobs of tomorrow means not just helping them hone a general set of skills, but helping them develop the right combination of competencies to be both effective collaborators and flexible innovators. That is, SOU must help students develop the skills along both the top and the stem of the T. The models, approaches, and techniques described below were selected with that in mind.

Knowing that middle skill jobs are dwindling as a result of automation and that students generally do not aspire to careers in low skill labor, SOU must determine ways to consistently and effectively produce graduates that are well prepared for high skill careers. Recognizing that SOU is not a trade or vocational school, however, members of the PLC

were intentional in valuing the traditions and goals of a liberal arts education while also addressing the need to prepare our graduates for the demands of the evolving workplace. These two ideals are not mutually exclusive.

Our research repeatedly highlighted the need for a balance between hard (or job-specific) skills and soft (or transferable) skills. Both sets are crucial, and graduates possessing only one or the other will be ill-prepared for professional success. “There are really only two choices for graduates who want a lot of employment options—to be a technically savvy liberal arts graduate or a liberally educated technical graduate (Barnes, 2017).”

The hard skills required by any given student will be almost entirely determined by that student’s career choices, since hard skills are typically specific to individual jobs. Not only will the variety of careers pursued by graduates vary wildly, but most graduates will hold many jobs over the course of their careers, each requiring its own unique combination of hard skills. Making blanket predictions about useful hard skills is even further complicated by the fact that necessary technological competencies will evolve rapidly over time as advances are made in available software and hardware. In general, though, it is reasonable to predict that the jobs of tomorrow will require a basic facility with technology, an ability to use technology to access information quickly and effectively, and the willingness and ability to constantly learn and adapt as graduates change from one job to the next and as technology continues to improve and advance (Pinsker, 2016).

While necessary hard skills are highly variant across industries and over time, employers’ need for workers with well developed personal skills will remain constant. The PLC found abundant research on the soft skills that are in high demand now and, it is reasonable to assume, will remain important well into the future. Such skills, which are often hallmarks of graduates of strong liberal arts programs, include complex problem solving,

critical thinking, creativity and curiosity, data analysis, interdisciplinary collaboration and teamwork, agility and adaptability, written and oral communication, and emotional intelligence (Donohue, 2016; Gray, 2016; Hrabowski, 2015; Moran, 2016; O'Connor, 2015; Pinsker, 2016; Wagner, 2008). While some of these skills - such as critical thinking, creativity, emotional intelligence, decision making, and cognitive flexibility - will likely grow in importance over the next several years (Davies et. al, 2011; Pinsker, 2016; Gray, 2016), in general we can best prepare students for the jobs of the future by continuing to help them develop the soft skills that employers are looking for right now.

Teaching Critical Skills

Identifying the skills required for the jobs of the future is a critical step in the process of determining how SOU can effectively prepare the next generation of students for professional success. Equally important, however, is a focused examination of the strategies required to successfully teach those skills. Our work as an institution is incomplete if these two processes do not occur in concert with one another. After deciding upon the skills coveted by tomorrow's employers, SOU must carefully evaluate its institutional ability to help students develop those skills. Current practices determined to be effective can then be retained and bolstered by new approaches that ensure that SOU remains effectively able to prepare students for lifetimes of success after graduation.

Experiential Learning

Finding ways to meaningfully integrate opportunities for students to continuously apply their conceptual knowledge to real world situations and scenarios is a crucial component of the professional preparation process. Experiential learning is one way to do exactly that. "[W]hen students are given opportunities to learn in authentic situations on campus or in the community like those provided in internships, field placements, clinical experiences, research and service-learning projects, the learning becomes significantly more powerful. By engaging

in formal, guided, authentic, real-world experiences, individuals deepen their knowledge through repeatedly acting and then reflecting on this action, develop skills through practice and reflection, support the construction of new understandings when placed in novel situations, and extend their learning as they bring their learning back to the classroom (“Experiential Learning Defined,” 2017).”

Experiential learning is an umbrella term that covers a variety of student experiences, including internships, service learning, cooperative education, clinical education, student teaching, practica, undergraduate research experiences, community-based research, field work, and study abroad experiences. These experiences must be thoughtfully woven into a curriculum in order to be most effective, which means choosing experiences carefully for their learning potential, actively engaging the learner throughout the experience, reflecting on learning during and after the experience, developing and nurturing relationships, and engaging learners intellectually, emotionally, socially, and/or physically (“Experiential Learning Defined,” 2017). When executed appropriately, these experiences can greatly enhance classroom learning and provide students with an opportunity to build and demonstrate the skills necessary for employment.

Classes Structured Around Core Competencies

The development of key professional skills must be integrated into all aspects of a student’s college experience, including classroom instruction. In addition to ensuring that students are learning the required academic content, it is also important that instructors are intentional about helping students hone the key skills discussed previously. As Dr. Tony Wagner noted after interviewing hundreds of people about teaching practices, “I have yet to talk to a recent graduate, college teacher, community leader, or business leader who said that not knowing enough academic content was a problem. In my interviews, everyone stressed the importance of critical thinking, communication skills, and collaboration (2008).”

Institutions must be purposeful in order to build those critical skills, though, by ensuring that core professional competencies are woven into class content, activities, and assignments. Instructors can further amplify the beneficial effects of this type of careful course design by intentionally highlighting for students the ways in which these chosen competencies are being put into practice in class. By simply highlighting common professional competencies embedded within their existing syllabi, faculty can provide students with the language needed to share their new skills with employers in applications, interviews, and networking situations.

Pre-professional Programs and Bootcamps

In addition to integrating professional training into classroom experiences, some campuses are providing even greater job preparation by offering pre-professional bootcamps to their students. Such programs are targeted, short-term professional development experiences designed to provide students with intensive skill-building opportunities before, and even after, graduation. The College of the Holy Cross, for example, offers an immersive four-day finance bootcamp led by alumni that helps current students better understand the operations of Wall Street, learn about current financial events, formulate a stance on the market, prepare for interviews and pitches, and arrange networking opportunities with potential employers, while the City University of New York (CUNY) has partnered with a technology talent development company to provide industry-aligned coding bootcamps for alumni that provide the opportunity to learn the latest enterprise-level, next-generation, and niche technology skills at no cost.

Models like this allow faculty to focus on teaching the content they want to teach while the bootcamp programs provide the specific technical skills required to be successful in the workplace. Further, these bootcamps can be offered at various points throughout a student's

university experience, from first year students exploring career fields through alumni returning to campus to gain new skills.

Skills Badging

Badges, at their most basic, are a means of providing credit for specific competencies that is recognizable and meaningful across audiences. SOU, of course, currently awards recognition in the form of degrees and certificates, both of which require the successful accumulation of a broad array of skills and knowledge. Badges, on the other hand, acknowledge learning on a much more granular level, since badges are awarded for very specific skills.

“As higher education evolves to accommodate new forms of learning and new workforce needs, skills are being assessed across an ever-widening range of activities across the learning landscape. Campus-based and online degree programs, professional certificates, competency-based education, open online courses, professional development initiatives, cocurricular and extracurricular activities, and programs in service learning, information literacy, and entrepreneurship are just some of the many settings within higher education where competencies worth recognizing are demonstrated or observed. Digital badges unify the learning that happens in these diverse contexts—often at a relatively granular level—with a common and portable representation of achievement (Diaz et. al, 2015).”

Badges can complement a traditional degree, helping students communicate to employers that they possess a set of relevant, tangible abilities along with a broad base of academic knowledge. Further, students have a great deal of flexibility regarding which badges to pursue and in what combination, allowing them to tailor their academic experience to their individual goals and needs. Additionally, it is possible to design a system that allows SOU to grant badges not just to current, traditional students, but to community members and

employees of local community business partners as well. This helps achieve the goal of providing lifelong learning opportunities, as well as serving as an additional revenue generator for the institution.

Technology in the Classroom

Ongoing rapid advances in technology will continue to impact nearly all professions in the future. “Whether you’re an actuary or an activist, a scientist or a soldier, you’ll work in an augmented way, with software relieving you of a lot of cognitive heavy lifting and tedium, and you doubling down on the human strengths that will still be the key to moving your enterprise forward. (Pinsker, 2014).” Classrooms provide an ideal environment in which to acclimate students to the regular utilization of technology in their work and develop their facility with it. Finding ways to implement technology in every course, even those that are not traditionally considered to be technology courses, will help establish basic competencies in students that will professionally benefit them in a technically advanced future. Further, requiring that all students complete coursework in computer science or other technology-centered fields before graduation ensures that all graduates share a common basis of technical proficiency that will prepare them to more easily adopt technological advances in the future.

Career Planning and Development

Comprehensive, intentional career planning can help students best utilize the skills developed in every one of these other strategies and approaches. No matter how much students learn, they will struggle to succeed professionally if they are not trained to effectively recognize and articulate their abilities, match them to appropriate careers, and continuously develop themselves in ways that match the evolving needs of the workplaces of the future. Such services extend from a student’s first weeks on campus through graduation and, ideally, beyond. Career services that are seamlessly woven into the college experience help students

develop a number of skills and habits that will be of critical importance to the successful navigation of their careers.

Regional Forecast

In addition to looking at national trends and conversations related to the future of the job market, it is also important to review Southern Oregon's current economic and workforce data as well as the likelihood of retaining graduates in the region. If we understand where our graduates are going and who is staying, then we can more closely approximate what industries locally need workforce education initiatives to target the appropriate industries in the valley. Citylab reported that from our regional two-year and four-year institutions, approximately 40% to 60% of the graduates stay in our local area (Florida, 2016).

For the last five years, the Rogue Valley has targeted three areas for economic development and expansion, all of which are in high-demand industry sector occupations and employment needs of traded sector industries critical to southern Oregon's economic vitality. Not all industries in the Rogue Valley are in high demand, nor are each of the careers considered high-wage (meaning over \$15.00 an hour) to help support a living wage for the region. Rogue Workforce Partnership (RWP) and Southern Oregon Economic Development, Inc. (SOREDI) focus on the three high-wage, high-demand Sector Strategies: advanced manufacturing, information technology & e-commerce, and healthcare (Rogue Workforce Partnership, 2016). All these sectors have advisory boards to steer the industry needs in the Rogue Valley, and all three sectors indicated the skillsets in demand for their talent market mirror the above outlined skills and prior findings for the future job market.

Tech sector growth is particularly noteworthy. In the Milken Institute's Best Performing Cities Study, Medford rose from 38th in 2014 to 17th in 2016 among more than 179 small cities in the United States for the growth of its high-tech sector business (DeVol et. al, 2015).

Additionally, Grants Pass moved from 56th in 2015 all the way to 8th in 2016 (DeVol et. al, 2016). This kind of growth suggests phenomenal regional opportunity for graduates with strong technical skills.

Beyond the three key industries mentioned above, there are other areas that have been traditionally important to the economic development and health of the region. These areas, including tourism/hospitality and agriculture, will likely remain economically important into the future.

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