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# SOFT SKILLS: OLD & NEW

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# SOFT SKILLS:
# OLD & NEW

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DISSERTATION

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A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Education
in the College of Education
at the University of Kentucky

By
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ABSTRACT OF DISSERTATION

SOFT SKILLS:
OLD & NEW

The problem of a prepared workforce is perennial. Part of the challenge is one of supply and demand, as education systems attempt to produce graduates with the technical competencies required for the current jobs available. In the new service- and knowledge-based economy, however, soft skills are cited as a greater need by today's employers. Increasingly sought across all industry sectors, these skills allow employees to work independently and interdependently, respond rapidly to customer needs, and adjust to changing market conditions. As a result, institutions of higher education are being called upon to infuse soft skills into their curricula. In this three-manuscript dissertation, first the implications for higher education, with Kentucky serving as a prime example, are assessed. Second, potential higher education predictors of success on a soft skills assessment—college admissions tests, grades, coursework, socioeconomic measures, and work-based learning—are examined through a quantitative study. Third, the importance of soft skills is considered in the context of capitalist societies and the purposes of education as a human endeavor. The case may be made that soft skills, rather than being a subset of workforce preparation or higher education, may be thought of as the fundamental intellectual tools of humanity.

KEYWORDS: Soft skills, skills gap, 21st century skills, higher education, interobjective

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5/12/2019
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SOFT SKILLS:
OLD & NEW

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

# INTRODUCTION

The alignment of employer needs and potential employee preparation is always desired but never perfect. The difference is often referred to as the skills gap—and it is two-fold. Some skills are technical, procedural, and quantifiable. These "hard skills" are more likely to be specific to a particular context or discipline. Other skills do not fit this classification. Alternatively referred to as essential skills, 21st century skills, social emotional skills, or work ready skills, these "soft skills" are interdisciplinary in nature. While most jobs require a combination of hard and soft skills, the demand for the latter is growing in an increasingly service-based economy.

With two out of every three high school graduates attending college (U.S. Bureau of Labor Statistics, 2018), it is not surprising that the public is looking to postsecondary education to ensure that students obtain the requisite soft skills for the economy of tomorrow. In today's competency-based climate, however, the mere possession of a college degree is not proof enough. Institutions of higher education must produce graduates who are demonstrably soft skill ready.

This three-manuscript dissertation is designed to provide a foundation for addressing this problem of practice in postsecondary education.

The first manuscript is an exploration of the skills gap in the new economy. It serves as a primer on soft skills in the context of higher education, including the evolution of the concern, the calls for improvement, and the scale of the issue. A consensus list of the skills involved, specific examples at the state and local levels, and an introduction to potential policy solutions, including a framework for analyzing the

possibilities, are provided. This white paper is designed for any faculty, staff, or administrator seeking to understand and respond to the demand for soft skills.

The second manuscript is an examination of one policy solution—the implementation of a soft skill assessment program in a state two-year community and technical college system. The purpose of this quantitative study is to determine if success on a soft skill assessment can be predicted by 1) common outcome measures in higher education, such as course completion, grade point average, work-based learning opportunities, and general education coursework, 2) other pre-college predictors of postsecondary performance, such as college readiness tests, or 3) sociodemographic characteristics of the participating students. If these predictors prove useful, the continued use of this or any soft skill assessment may not be necessary as current higher education measures will suffice. If performance cannot be predicted based on the factors analyzed, the soft skill assessment may be measuring something not captured by traditional indicators of postsecondary success. The audience for this manuscript is the committee, administrator, or policymaker tasked with determining an institutional or system response to the call for soft skills.

The third manuscript is a thought piece written with faculty members in mind, particularly those involved in general education instruction. A long-time academic may hear the call for soft skills from the business community and political leaders and think of it as nothing more than the latest fad that will eventually pass. Another faculty member with a more cynical view might see these demands as the end result of a service-based, capitalist economy seeking passive, compliant, low-paid employees. While there may be validity in both perspectives, there is another one. Beyond the idea that soft skills may be

thought of as a prerequisite for employment in the high-tech, knowledge-rich, just-in-time economy, these skills may be the same abilities that make us uniquely human. It could be that these capabilities, defined and refined in ways not imagined by the public before, may usher in a new age. Freed from repetitive, demeaning tasks by machine learning and automation, the world of work—deeply driven by soft skills—may become more secure and fulfilling than at any time in human history. This socio-philosophic approach is shared in the form of a dialogue between a faculty member and an administrator tasked with a soft skills initiative. It is designed to inform a multi-dimensional understanding of these skills in the academy.

Taken together, these manuscripts provide an introduction to soft skills, an in-depth examination of one potential soft skill initiative, and a spectrum of possibilities for the future of soft skill development in higher education that range from impoverished to Pollyannaish. It is my hope that this research will inform future educational policy steps that will raise the lived experience of work to a new level in a rapidly changing world.

## STANCE, POSITIONING, AND QUALIFICATIONS

I am a student affairs administrator who directs institutional research and strategic planning at Owensboro Community and Technical College. Now in my twentieth year at the college, I am a both a proud member of the Kentucky Community and Technical College System (KCTCS) and a product of it. The reason I am in the Educational Policy Studies and Evaluation program at the University of Kentucky is because the Department responded to the call for Doctor of Education cohort programs focused on practitioners, like me, at public two-year colleges.

My interest in soft skill development is founded in my K-12 curriculum background and in my co-authorship of two quality enhancement plans at our college that were focused on interdisciplinary skills and student success. In January 2017, I volunteered to serve as the lead at my college in the use of a new soft skills assessment software, *Am I Job Ready?,* that had been purchased by KCTCS. Impressed by the potential for the software, I asked if I might use the data collected—systemwide—as a part of my dissertation. With approval for the plan received at KCTCS and the University of Kentucky, I patiently awaited data to be generated during the pilot implementation period. Approximately seven months after choosing this direction for my dissertation, I was asked by the chancellor of KCTCS to serve as coordinator of the soft skills assessment effort, and shortly after that, the pilot was extended through 2018. As of early 2019, the program is still in use in KCTCS and my role as coordinator continues.

At the same time, this may lead to concerns that work responsibilities may have influenced the research. If anything, these responsibilities have strengthened the research as well as the effort in KCTCS. I have honed my understanding of soft skills by

explaining and sharing the initiative with my colleagues, and my research has informed my promotion of the soft skills need systemwide. Fortunately, I formulated the research process and my dissertation committee approved the plan prior to my appointment to lead the initiative. In addition, the data were deidentified before being released to me by the KCTCS Office of Research and Policy Analysis. I obtained approval from the Human Subjects Research Board of KCTCS before data collection and the University of Kentucky Institutional Research Board after data generation. The plan guided the study and ensured that there was no undue influence on the research.

# MANUSCRIPT ONE

# FASTER, HIGHER, SOFTER:

# RESPONDING TO THE SKILLS GAP IN THE NEW ECONOMY

Many individuals seeking employment in today's economy do not have the skills to compete for positions that provide a middle-class wage. This gap is even more prominent for jobs in greater demand (Accenture, Burning Glass, & Harvard Business School, 2014). Part of this is an alignment issue. Educational programs need to be "closely connected to regional labor market demands" and "sharply" focused on graduating students ready for the jobs available (Symonds, Schwartz, & Ferguson, 2011, p. 28; American Association of Community Colleges (AACC), 2012, p. 27). To make this possible, curricula must be adaptable. Faculty and administrators must establish partnerships with business and industry to facilitate a rapid response. Colleges must understand and estimate the need for credentials so that graduates do not flood the market. A "clearly planned and carefully designed" system is required (National Conference of State Legislatures, 2016, p. 10).

Beyond the alignment of needs and the acceleration of the postsecondary response is the level of the education required. The growing sectors of advanced manufacturing, information technology, and healthcare rely upon deeper knowledge and more extensive skill sets. Employers seek college-educated individuals for positions in these increasingly high-tech fields to ensure that potential employees are ready for the demands of these roles. Higher education institutions have responded—particularly at the two-colleges level—to provide the career and technical education needed for these "new collar" jobs that provide a family sustaining wage.

The greatest need, however, may be a surprise to some. The National Association of Colleges and Employers 2017 survey asked employers about their expectations for college graduates beyond a good GPA (Table 1).

Table 1

*Top Twenty Attributes Desired by Employers*

| Attribute | % of respondents |
|---|---|
| Problem-solving skills | 82.9% |
| Ability to work in a team | 82.9% |
| Communication skills (written) | 80.3% |
| Leadership | 72.6% |
| Strong work ethic | 68.4% |
| Analytical/quantitative skills | 67.5% |
| Communication skills (verbal) | 67.5% |
| Initiative | 67.5% |
| Detail-oriented | 64.1% |
| Flexibility/adaptability | 60.7% |
| Technical skills | 59.8% |
| Interpersonal skills (relates well to others) | 54.7% |
| Computer skills | 48.7% |
| Organizational ability | 48.7% |
| Strategic planning skills | 39.3% |
| Creativity | 29.1% |
| Friendly/outgoing personality | 27.4% |
| Tactfulness | 22.2% |
| Entrepreneurial skills/risk-taker | 19.7% |
| Fluency in a foreign language | 4.3% |

*Note*. National Association of Colleges and Employers, 2017

The top ten attributes—which came in ahead of "technical skills"—are soft. A 2018 survey of 652 employers reinforced these findings. The top five most important skills for job candidates were listening, attention to detail, interpersonal skills, critical thinking, and effective communication (Morning Consult, 2018). Jeff Weiner, CEO of LinkedIn, delivered a similar message. According to him the "biggest skills gap" in the United States is not in "coding" (computer programming) skills. It is in soft skills such as communication, teamwork, and leadership (Stolzoff, 2018).

To respond to this increasing skills gap, postsecondary education must quickly and nimbly align its curriculum with employer needs. It must re-tool and upskill the preparation of students to ensure they have the competency required by the market. Fortunately, there is an advantage for higher education as it addresses these two parts of the skills gap. Institutions can increase the pace and complexity of their efforts because they have the expertise to do so. Solutions may be realized through iteration and refinement.

The third part of the gap—soft skills—presents a greater and different challenge. Employers who want general language and communications skills have often used the bachelor's degree as a proxy for this and other characteristics, such as understanding social norms, accepting authority, and exhibiting discipline (Toner, 2011). The solution for some companies has been to "upskill" a position—using credentials such as advanced degrees as proxies to find candidates with "strong communication skills, leadership potential, and reliability" as well as reasoning ability (Accenture et al., 2014, p. 17; Carnevale & Desrochers, 2002). Employers relying upon a Bachelor's degree as an "employment screen" know they may be eliminating good candidates but they believe the

college experience confers important skills. "There's something that comes with being a college student, a lot of maturity and knowing how to work with different people. They know how to communicate and to express themselves," said one human resources manager (Accenture et al., 2014, p. 18).

This reliance on a four-year degree, however, may be fading. Many "new collar" jobs do not require a baccalaureate degree. This was true for approximately half of the positions filled at Lockheed Martin and Apple in 2018 (Dembicki, 2019). According to the American Workforce Policy Advisory Board, established by White House and U.S. Department of Commerce in 2019, the skills the candidate brings to the workplace, not the degree, are becoming paramount

As a result, testing organizations are shifting their focus. ACT has introduced Tessera, a social emotional learning assessment that includes both education and workplace versions. It is designed to measure the soft skills "required to be a high-performing employee" with the goal of improving a "company's competitive advantage" (ACT, 2019). The Program for International Student Assessment (PISA) has traditionally tracked the reading, mathematics, and science literacy of 15-year old students every third year since 2000. Coordinated by the Organisation for Economic Cooperation and Development (OECD), PISA is moving to add optional soft skill assessments targeting imagination, creativity, curiosity, and collaboration in the coming years. The head of PISA testing, Andreas Schleicher, believes this is essential to prepare students for the future of work. If society is not careful, in his estimation, we will be educating our children to be "second-class robots" rather than "first-class humans" (Anderson, 2019).

Leading employers are conducting their own research and working to address soft skills as well. While many companies have leadership development initiatives, Google did not begin with a program. First it embarked on a study of the characteristics of its best managers. Project Oxygen, now more than a decade old, identified essential leadership behaviors that included communication, coaching and collaboration. Effective managers were results-oriented, interested in team members, and able to share a clear vision and make decisions. Google found that these characteristics were "highly correlated with manager effectiveness" and statistically "predictive of team outcomes like turnover, satisfaction, and performance" (Staley, 2018).

The efforts of ACT, PISA, and Google may be leading indicators of the aforementioned desire for proof of skills rather than the possession of a degree. It is possible that the market value of the baccalaureate credential as a sign of soft skill attainment may be diminishing. If higher education does not step forward to address the soft skill gap, it is at its own peril.

Yet what are these difficult to measure skills that are in such high demand? The above lists provide some insight, but a greater understanding is required. The purpose of this paper is to provide a primer on soft skills in the context of higher education. This includes a potential origin story, the further evolution of the concern, the calls for improvement, and the scale of the issue from the local to the global. In light of this history and background, I propose some tools that may be helpful to college faculty, staff, and administrations in the implementation of a soft skills initiative: a consensus list of soft skills, an introduction to potential policy solutions, and a framework for evaluating the possibilities.

**Soft Skills: A Primer**

Soft skills are old and new. For most workers today, the term is a somewhat familiar one. From a historical perspective, however, the consideration of skills as hard or soft is relatively young.

The term was rarely used until 1980 based on its usage in books scanned by Google. By the 1990s, however, the growth was steady and strong.

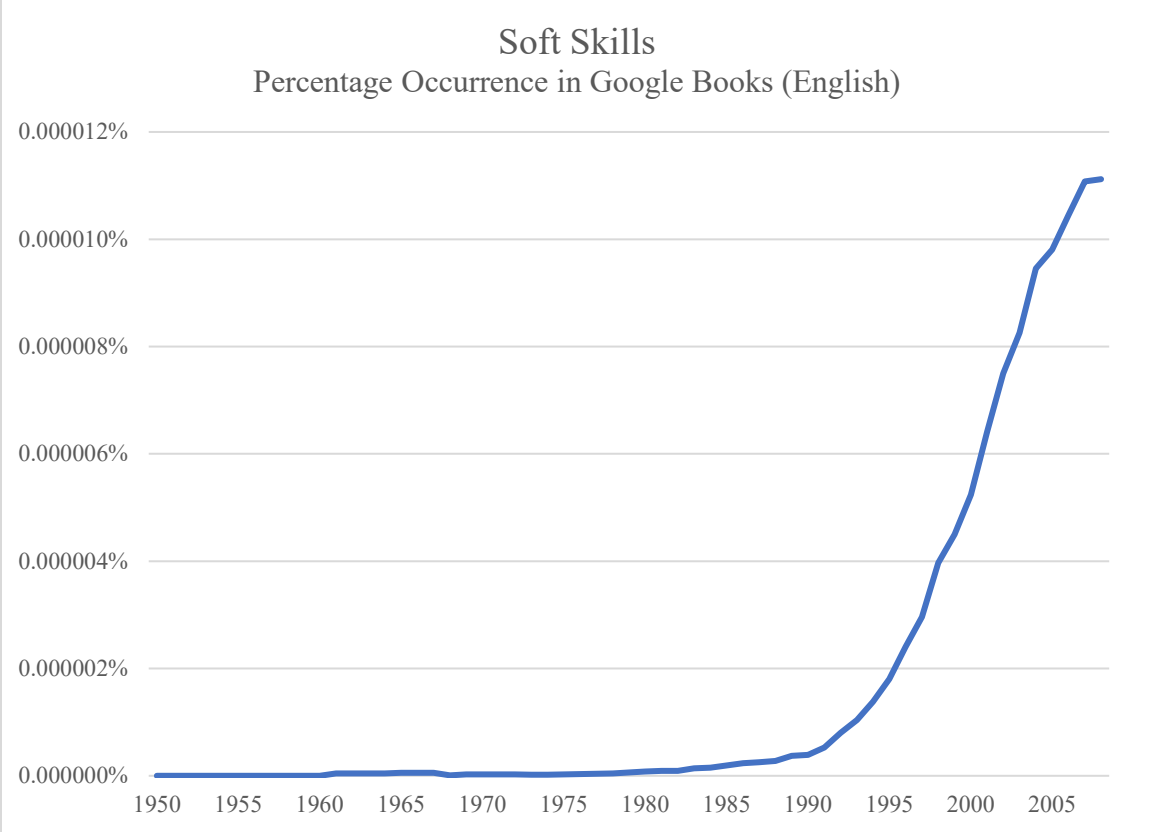



*Figure 1* Retrieved from: https://books.google.com/ngrams/graph?content=soft+skills&year_start=1950&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2Csoft%20skills%3B%2Cc0

While correlation is not causation, an examination of employment in the United States over the same time frame shows a curious coincidence. U.S. manufacturing

employment peaked in 1979. It has declined since, with precipitous drops in manufacturing employment during each recession (Figure 2).

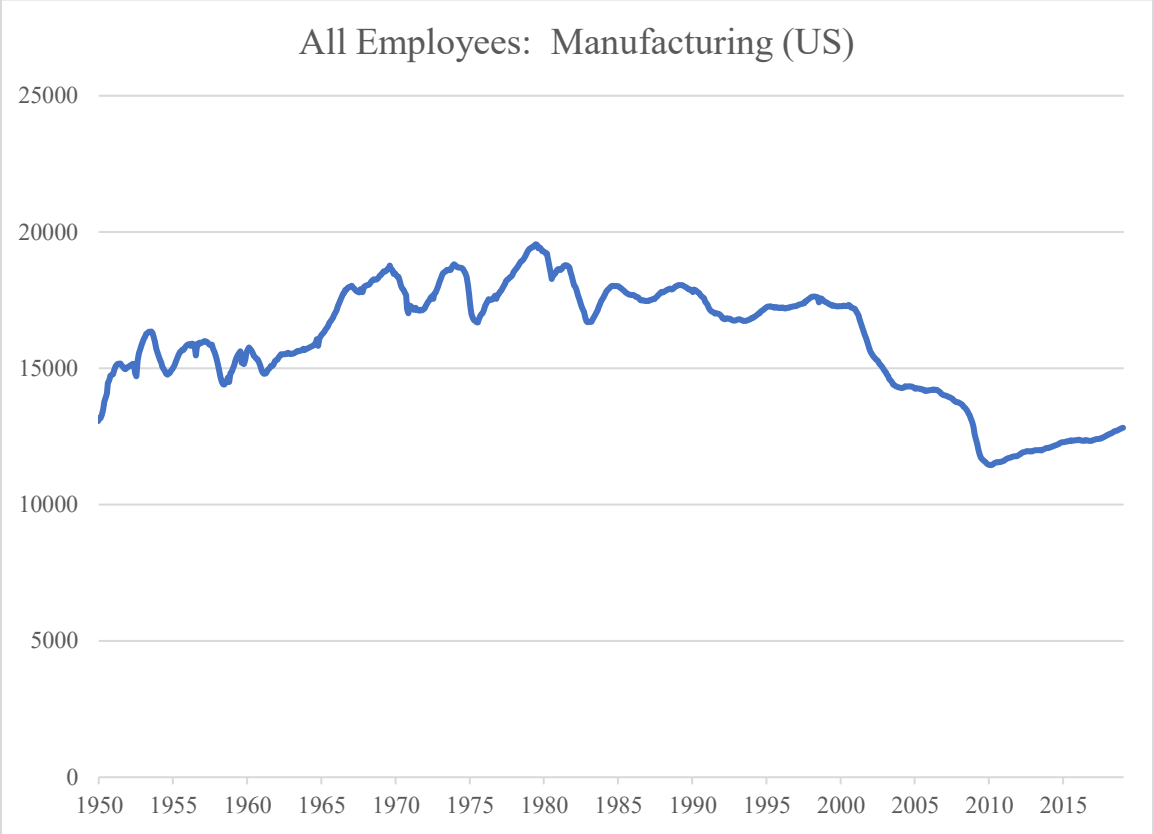



*Figure 2* Retrieved from: https://fred.stlouisfed.org/series/MANEMP

The same manufacturing employment data, when juxtaposed with service employment, are dwarfed by comparison (Figure 3). The sizable drops in manufacturing jobs clearly apparent in Figure 2 are just minor bumps on the downhill path. The American economy and the needs of employers have changed as a result.

One of the first instances of the call for soft skills was found in the account of a three-day training workshop by the United States Continental Army Command (CONARC) in 1971. The meetings on soft skills were about improving management

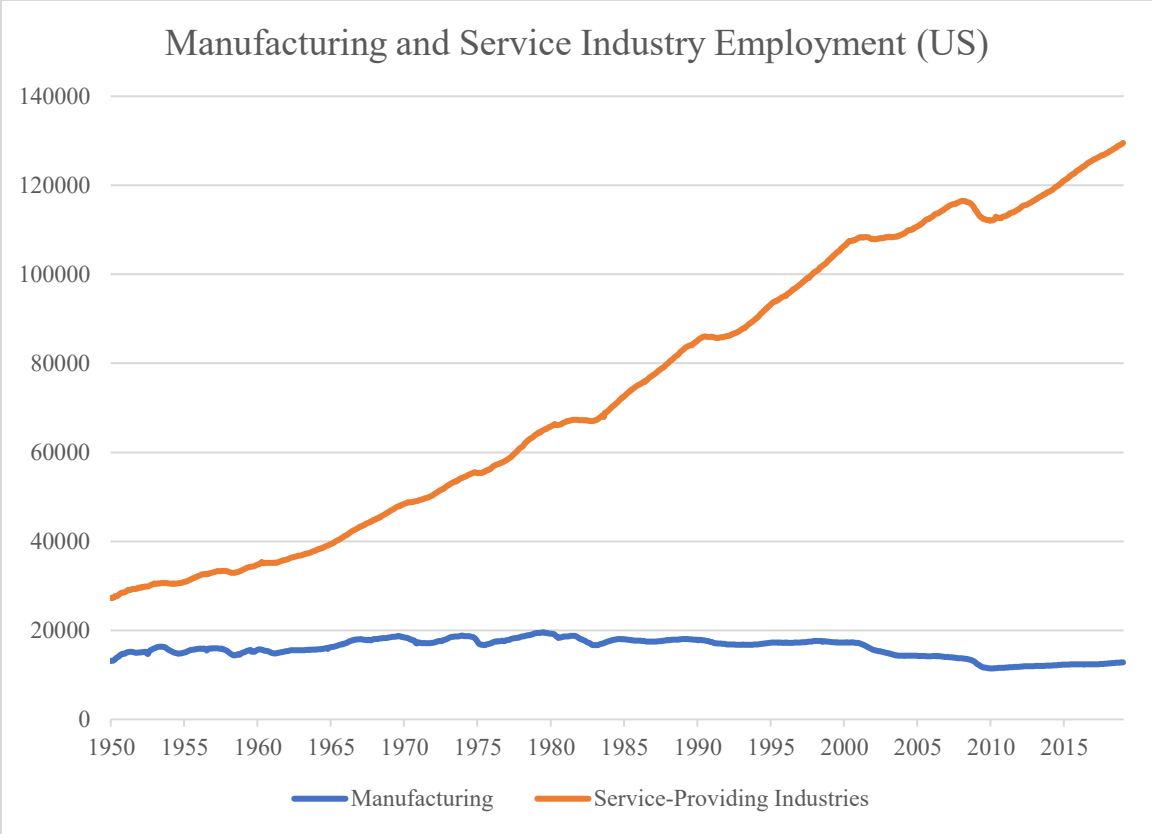



*Figure 3* Retrieved from https://fred.stlouisfed.org (custom chart)

management skills with a system engineering approach. This became a topic of interest in the Army Command. A year later CONARC hosted a two-day "Soft Skills Training Conference." Workshops included "educational engineering" for soft skills development, organizational management processes, and methods for quantifying skills that are challenging to capture in employee evaluations.

Even in this first proceeding on soft skills there was a session where participants voiced their dislike of the term soft skills. In another, they differentiated between hard skills, where a great deal is known, and soft skills, where little is understood (CONARC, 1972). Lack of love for the term continues to the present, as does the recognition that they remain difficult to measure—and teach.

Yet soft skills have been on the rise ever since. After the mid-1970s the term moved into the realm of organizational behavior and management, then into academic and public discourse. The understanding of the need—as the service sector grows and the team approach in advanced manufacturing has become the dominant approach—has matured and the calls for a response by higher education have increased.

**Soft Skills: A State, National, and International Perspective**

An example of this maturation may be found in the state-level approach to addressing the alignment of postsecondary education and workforce needs in Kentucky. The Kentucky Community and Technical College System (KCTCS) is one of the youngest systems of two-year colleges in the nation. While some of its campuses were previously part of the University of Kentucky Community College System and were founded in the heyday of community college growth in the 1960s, others were part of the Kentucky Tech system and focused on workforce training. The Kentucky Postsecondary Education Improvement Act of 1997 combined these two existing institutions with the express purpose of being responsive to the needs of students and employers in the Commonwealth of Kentucky. The act called for improved partnerships between secondary and postsecondary education, enhanced transfer opportunities between two-year and four-year state universities, and flexible responses to assist incumbent workers in an "everchanging and global economy" (Kentucky Postsecondary Education Improvement Act of 1997).

Nearly twenty years later, the new President of KCTCS, Dr. Jay Box, conducted a listening tour around the state to reassess the direction of the system. This included on-

campus meetings with students, faculty, and staff, conversations in the community with political, business, and industry leaders, and an online campaign to gather additional feedback. The input of over five thousand individuals was condensed into these five themes:

- educational attainment at all levels
- economic development and job growth
- a world-class, 21st century workforce
- global competitiveness of business and industry
- prosperity of Kentucky citizens (KCTCS, 2016, p. ii)

The themes became the foundation of a new KCTCS Strategic Plan for 2016-22 and are evident in Dr. Box's vision for KCTCS. He sees it as a place that educates students who are "ready and able to fill the needs of local business and industry" (Box, 2016).

At first glance it appears that stakeholder needs are similar to those of two decades ago. The workforce focus, however, is clearer. The plan accentuates the need for innovation and advanced technologies to support global competitiveness. The use of the adjective "21st century" links the system's efforts to the Partnership for 21st Century Learning that emphasizes soft skills. The link between education and the workplace is reflected in the oft-repeated term "work ready," which later becomes the descriptive term for a soft skills initiative in the system.

Nationally this refinement in workforce preparation and its connection to postsecondary education is apparent as well. While a reauthorization of the Higher Education Act continues to be pushed to future legislative sessions, the bipartisan

Workforce Innovation and Opportunity Act (WIOA) became effective in 2015. Designed to provide job-seekers with "employment, education, training, and support services" and to "match employers with the skilled workers they need to compete in the global economy," it emphasizes obtaining a "recognized postsecondary credential" (U.S. Department of Labor, 2016). This is unsurprising given that percentage of American workers employed in high-skill positions is larger now than any time in the past. The education level of employees has increased "dramatically over the past four decades" according to Carnevale and Rose of the Georgetown Center on Education and the Workforce (2015, p. 2). This "remarkable upgrading" of the skills and wages of those who have completed some college coursework is evidence of the transition to the post-industrial, knowledge-based economy (p. 2). This includes two-year college credentials, as they serve as one of the few reliable pathways to a middle-class life for a large proportion of Americans (AACC, 2014, p. 2).

The trend is expected to continue because producing high-tech, high-quality, customized goods and services means that employees must have greater knowledge and broader skills—including interpersonal and non-cognitive skills that cannot be easily outsourced. Furthermore, these skills, like problem identification, problem solving, and non-verbal communication, rarely can be replaced with automation (Levy and Murnane, 2004; Cobo, 2013). Non-routine skills, whether manual or cognitive, cannot be formulated into programmable rules (Toner, 2011). Excellent customer service requires empathy. Innovation requires creativity and critical thinking. Yet some still fear that technological advances will eliminate jobs. Carnevale and Rose accept this is true, but they advance the position that information technology favors the highly educated and

skilled. They see computers "like an artisan's tools" that require "complex human input" in stark contrast to the single purpose machines on a mass production factory floor (Carnevale and Rose, 2015, p. 10). Even tasks that are automated create new opportunities for exploring the capabilities of the technology to meet customer's demands. They believe the need for postsecondary education will continue to grow—and provide evidence that the current wage premium for college graduates is due to the underproduction of college talent.

National surveys validate this claim. One-third of human resource executives note that a lack of work ethic, communication skills, teamwork, and leadership prevented otherwise skilled workers from filling available jobs (Accenture, Burning Glass, & Harvard Business School, 2014). In another survey, ninety-three percent of over three hundred U.S. employers agree that a candidate's "demonstrated capacity to think critically, communicate clearly, and solve complex problems" is more important than their undergraduate major (Hart Research Associates, 2013, p. 1). More than ninety percent said that they looked for ethical judgment, integrity, intercultural skills, and the ability to learn. These soft skills set candidates apart from other applicants.

This is true in other countries as well. A World Bank meta-analysis of 27 studies found a striking consistency in the skills gap. The greatest need was for socio-emotional and higher-order cognitive skills (Andrews & Higson, 2008; Cunningham & Villaseñor, 2016). Many citizens are not getting the education they need to prosper in an interconnected, global economy. This results in inequalities in income and a decrease in competitiveness (World Economic Forum, 2015; OECD, 2013).

**The Soft Skill Need: A Local Example**

The scope of the soft skills gap suggests that it would be evident at the local level. In western Kentucky, a report from the regional Greater Owensboro Economic Development Corporation identified the same issues. More than four out of every five respondents to a survey said that a "quality workforce" was the highest priority for the area—and the number one concern was finding workers with "good soft skills" (Greater Owensboro Economic Development Corporation, 2016, pp. 4-5). Their list of skills included the following:

- Have a strong work ethic
- Work well with a team
- Show up regularly and on time for work – or let someone know if they aren't going to
- Communicate directly, not just electronically, with co-workers and supervisors
- Think critically and use reason to solve a problem
- Dress appropriately for the position they have
- Hold themselves accountable for their performance on the job, behaving professionally and courteously

These needs, captured from the direct comments of employers responsible for hiring rather than global corporations, reflect more practical and daily concerns, such as punctuality, professional dress, and communicating orally rather than via text message. The match of these desired attributes to those in listed in Table 1, however, is still evident.

The Kentucky Chamber of Commerce echoes these local—and national and international—needs. *Kentucky's Workforce Challenges: The Employer's Perspective* laments that there are "too many people without jobs and too many jobs without people" (2015, p. 3). This is partially an issue of technical skill alignment, but soft skills are a prime concern. The "importance of showing up for work, communicating well with others, taking personal responsibility for their actions, managing their time effectively and similar traits" surfaced as the number one issue in a Chamber survey (Kentucky Chamber, 2015, p. 11). An article in the Lane Report, which covers Kentucky business and economic news, featured soft skills as well. In *Hard Jobs Take Soft Skills*, the "ability to work with others, communicate well, arrive on time, pitch an idea, dress appropriately" are identified as skills that even exceed hard skills in importance according to surveys of business executives. (Isaacs, 2016). In the same article, the manager of public affairs for Kentucky Chamber confirmed that soft skills remained the top workforce challenge of chamber members. Promoting an education that strengthens skills such as "punctuality, work ethic, and communication" continues to be a part of the Chamber's 2019 legislative agenda as well (Kentucky Chamber, 2018, p. 5).

Employers and community leaders in Owensboro asked local K-12 schools and higher education institutions to embed soft skills into classroom instruction. State leaders are expecting KCTCS to do the same. At the September 2016 KCTCS Board of Regents meeting, the Chancellor updated the Board on efforts to "infuse soft skills into the KCTCS curriculum" and noted that a survey of Business and Industry Program Advisory Councils earlier in the year netted 731 responses, identifying the top twelve soft skills in

demand in the Commonwealth (KCTCS Board of Regents Agenda Item I-6, September 16, 2016):

1. Work ethic (dependability and reliability)
2. Communication skills (listening, verbal, written)
3. Problem solving/Reasoning/Creativity
4. Professionalism and integrity
5. Teamwork
6. Flexibility/adaptability/managing multiple priorities
7. Health and safety
8. Planning/Organizing
9. Interpersonal abilities
10. Leadership/Management skills
11. Analytical/Research skills
12. Technology as a tool

While the Owensboro region and KCTCS have identified lists of soft skills based on surveys, maintaining competitiveness in a global economy requires an examination of the best practices across the nation and world. Since many invoke the term "soft skills" without defining it, this is particularly important. Some include what might be considered academic or cognitive skills (e.g., written communication, critical thinking) while others choose to focus on non-cognitive skills alone. As Dede said in the introduction to his research on 21st century skills, "many educational reforms have failed because of a reverse Tower-of-Babel problem, in which people use the same words, but mean quite different things" (2010, p. 51). Another report reinforces the point, stating

that educators and the workforce "seldom share a common language or work in collaboration" when examining data, resulting in a "struggle to articulate and understand what employers need" (Accenture et al., 2014, p. 19). A consensus list of what most people mean when they speak of soft skills is needed to resolve this concern.

**Soft Skills and the Curriculum: A Consensus List for Consideration**

The first tool I hope will be helpful for a higher education professional who is responding to the need for soft skills is a consensus list. This presents several challenges. First, some references to soft skills are limited to a brief set of examples. Second, even when a peer reviewed article included a list of soft skills, the origin of the list was not always provided. Third, several key national and international reports on skills for the workforce did not refer to the skills as "soft." Finally, the labels applied to workplace skills varied considerably.

To address this, my exploration was split into two parts. I identified nine publications from the last decade with clear and detailed references to soft skills to identify labels for general categories of skills (Andrews & Higson, 2008; Toner, 2011; Robels, 2012; Heckman & Kautz, 2012; Adecco, 2014; Cobo, 2013; Burstein, 2014; Wonderlic, 2016; Rider, 2016). Once this was complete, I used these labels to guide the categorization found in Table 2 based on the skills the six publications identified below. The selection was based on primacy (original surveys), comprehensiveness (in-depth list or results of a meta-analysis), timeliness (recently published), authority (supported by multiple professional organizations), and scope (national or international).

These articles included direct references to soft skills:

- Robles (2012). Forty-nine business executives were interviewed. In a follow-up survey, the same executives identified 517 (duplicated) soft skills with the top ten skills determined based on the number of mentions. Selected for primacy, comprehensiveness, and timeliness.
- Wonderlic (2016). Based on a nationwide survey of 759 employers. Selected for primacy, timeliness, and scope.
- Cobo (2013). Dede's 2010 analysis of selected 21st century skills was used as a basis for this compendium of soft skills. Selected for comprehensiveness, timeliness, and scope.

These articles included references to skills for success in the workforce/marketplace:

- SCANS 2000 (1991). While the Secretary's Commission on Achieving Necessary Skills (SCANS) effort is a quarter of a century old, it was remarkably prescient and has aged well. It is the last comprehensive federal effort (led by the U.S Department of Labor) and it remains the basis for the workplace skills embedded in KCTCS certificate and diploma programs. Selected for comprehensiveness, authority, and scope.
- 21st Century Skills (2015). A collaborative of major corporations, foundations, and twenty states (including Kentucky), the Partnership for 21st Century Learning has identified critical "learning and innovation skills" and "life and career skills" for the future. Selected for timeliness, comprehensiveness, authority, and scope.
- World Economic Forum (2015). Based on an international meta-analysis of research on the skills needed for the 21st century marketplace. Selected for timeliness, comprehensiveness, authority, and scope.

Arriving at a consensus list required splitting the skills identified by some while combining others. For example, SCANS includes the following interpersonal skills: working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds. To bring the lists into alignment, I distributed these skills into the consensus categories of collaboration/teamwork, interpersonal skills and cultural understanding, and responsibility and leadership. Creativity and curiosity, on the other hand, were defined separately by the World Education Forum—but curiosity was a part of the description of creativity in Cobo. I combined the two soft skills in my consensus list.

The consensus list of skills below is in priority order, with the soft skills appearing most often at the top and those identified the fewest times at the bottom.

1. Collaboration/teamwork
2. Interpersonal skills and cultural understanding
3. Communication
4. Critical thinking
5. Initiative and self-management
6. Creativity and curiosity
7. Flexibility and adaptability
8. Integrity and professionalism
9. Responsibility and leadership
10. Persistence and work ethic

Table 2

*Soft Skills Categorized*

| Consensus category label | Robels (2012) | Wonderlic (2016) | Skills for Innovation (Cobo, 2013) | SCANS 2000 (1991) | Partnership for 21st Century Skills (2015) | World Economic Forum (2015) |
|---|---|---|---|---|---|---|
| Collaboration | Teamwork | Teamwork | Collaboration Skills: Networking, negotiation, collecting distributed knowledge and contributing to project teams to produce original works or to solve problems. | Interpersonal Skills – Working on teams, teaching others, serving customer, negotiating | Collaboration: Collaborate with others | Collaboration |
| Interpersonal skills and cultural understanding | Interpersonal skills & Positive attitude & Courtesy | Interpersonal skills | Contextual Learning Skills: Adaptability and the development of cultural understanding, and global awareness by engaging with learners of other cultures. | Interpersonal Skills – Working well with people from culturally diverse backgrounds | Social and Cross-Cultural Skills: Interact effectively with others, work effectively in diverse teams | Social and cultural awareness |
| Communication | Communication | Communication & Listening/non-verbal | Communication Skills: Communicating information and ideas effectively to multiple audiences using a variety of media and meaningfully sampling and remixing media content | Basic Skills – Reading, writing, arithmetic and mathematics, listening, and speaking | Communications: Communicate clearly | Communication |
| Critical thinking | | Critical thinking | Critical Thinking: Problem-solving skills, managing complexity, higher-order thinking, sound reasoning, and planning and managing activities to develop a solution/complete a project | Thinking Skills - Making decisions, solving problems, knowing how to learn, and reasoning | Critical Thinking and Problem Solving: Reason effectively, use systems thinking, make judgments and decisions, solve problems | Critical thinking/problem-solving |
| Initiative and self-management | | Initiative & Self-management | Self-direction | Personal Qualities: Self-management | Initiative and Self-Direction: Manage goals and time, work independently, be self-directed learners | Initiative |
| Creativity and curiosity | | | Creativity and Innovation Skills: Curiosity and the use of existing knowledge to generate new ideas, products or processes | Thinking Skills - Thinking creatively | Creativity and Innovation: Think creatively, work creatively with others, implement innovations | Creativity & Curiosity |
| Flexibility and adaptability | Flexibility | | | | Flexibility and Adaptability: Adapt to change, be flexible | Adaptability |
| Integrity and professionalism | Professionalism & Integrity | Professionalism & Customer Service | | Personal Qualities: - Self-esteem, sociability, and integrity/honesty | | |
| Responsibility and leadership | Responsibility | | | Personal Qualities: Individual responsibility | Leadership and Responsibility: Guide and lead others, be responsible to others | Leadership |
| Persistence and work ethic | Work ethic | | | | | Persistence/grit |

*Note*. An ampersand ("&") in the table separates skills that were identified separately in the original work.

Based on this consensus list and a review of definitions provided in the articles, I synthesized the following definition for soft skills, primarily adapted from Rotherham & Willingham (2010), Cobo (2013), and Burstein (2014):

> Skills that aren't about content. They cut across disciplines, sectors, developmental stages, and functions. They are often interpersonal in nature, but encompass skills that are difficult to observe or measure as well. Vital for success in workplace and life, they must be learned through understanding, practice, and feedback.

These articles identified additional "skills" related to technology in general and information, data, and media specifically. Some reports classified these as skills while others considered them as literacies and included them with reading and numerical literacies. While they are cross-cutting skills, information technology and data analysis skills could be thought of as critical thinking and communications skills enhanced through technological means. This may explain their absence from most lists. Given the lack of consensus, my analysis did not include these skills.

With an understanding of the soft skills in question, the next concern is how colleges and universities might respond to this need. They are being asked to incorporate soft skills into the curriculum, but the skills are interdisciplinary in nature. How might that be done? What would a policy designed to address the gap look like?

**Potential Solutions**

The second tool for responding to the call for soft skills is a categorization of potential solutions. Based on the definition of soft skills above—specifically that

developing these skills requires understanding, practice, and feedback—and that they must become internalized to be consistently used (Heckman and Kautz, 2012; Fletcher, 2013), I identified three foundational needs that any solution must address: the need for context (so the skills are practiced in real situations), integration (so that they are practiced in different disciplines and situations), and repetition (so they are practiced repeatedly and become automatic). These foundational needs are considered in each of the four potential solutions below.

Stand-alone coursework or program

There are programs and curricula specifically designed to teach soft skills. Examples include the *Soft Skills Starter Kit…& Guide* from the Washington State Human Resources Council, *Skills to Pay the Bills: Mastering Soft Skills for Workplace Success* from the U.S. Department of Labor, and WIN (Worldwide Interactive Network), a software program purchased by the Kentucky Adult Education. While programs such as these may provide context and could facilitate integration, the fact that they are single source solutions is limiting. The soft skills in these programs could be practiced repeatedly throughout a student's college coursework, but the language used in the single source (e.g., the descriptors of the soft skills) would need to be used across the curriculum to provide multiple opportunities for students to develop and master the skills.

Coursework in a program of study (major)

Soft skills are needed for career success, but the degree of skills required in one career may be different from another. For example, interpersonal skills are required of surgeons and salespeople. Salespeople cannot be successful without them. Surgeons

often can. By infusing soft skills into the program of study, the right balance can be achieved in the proper context. It would be possible to practice the skills repeatedly in different disciplines if an agreement on soft skills was reached institution-wide. One limitation is that this solution places a significant reliance upon the soft skills of instructors. While the soft skills of candidates for faculty positions are evaluated during interviews and teaching demonstrations, content knowledge is a primary qualification. Infusing soft skills in the program of study would require disciplinary commitment and only be realized through a long-term effort.

### Experiential learning

Apprenticeships, internships, co-operative programs, practicums, and preceptorships provide real-world context and situations that reinforce the essential nature of soft skills. As a result, experiential learning is identified as a means for teaching these skills by a multitude of sources (Wilhelm, Logan, Smith, & Szul, 2002; Toner, 2011; Pellegrino & Hilton, 2012; Ramaley, 2013; OECD, 2013; van de Werfhorst, 2014; Adecco, 2014; Cunningham & Villaseñor, 2016). Some hypothesize that students of traditional college age "learn best in structured programs that combine work and learning, and where learning is contextual and applied" (Symonds, Schwartz, & Ferguson, 2011, p. 38). Employers see internships as the top attributes they seek from potential hires, ranking "has completed an internship with your organization" first and "has internship experience in your industry" second in a recent survey (National Association of Colleges and Employers, 2017). Experiential learning holds much promise, but it is not enough. Soft skills must be understood and practiced. Rotherham & Willingham (2010) make this distinction:

> Experience means only that you use a skill; practice means that you try to improve by noticing what you are doing wrong and formulating strategies to do better. Practice also requires feedback, usually from someone more skilled than you are. (p. 19)

If repeated guided practice and feedback is included, experiential learning holds promise for enhancing student soft skill development.

General education programs

This may appear to be the obvious solution for a number of reasons. General education programs are interdisciplinary by design—and they identify similar skills. In an examination of general education programs at ten leading American colleges and universities, five out of the top six skills on the prioritized consensus list of soft skills were specifically identified in the general education goals of eight out of ten of the institutions (Beardmore, 2015). Communication and critical thinking were included in all ten, with variations of collaboration, interpersonal skills, and curiosity/creativity covered by eight of the others. The same is true in KCTCS. The catalog states that diploma programs contain (and certificate programs may contain) "general education courses emphasizing the skills identified" in the SCANS report (KCTCS, 2018, p. 74).

General education has the benefit of a deep research base and the advocacy of national organizations such as the American Association of Colleges and Universities (AACU). A 2013 national survey commissioned by the AACU indicate that 74% of employers would recommend a liberal education to a "young person they know" as the best preparation for the new economy. It is an education that helps students gain a

"demonstrated ability to apply knowledge and skills in real-world settings" (Hart Research Associates, 2013, p. 2). A similar 2015 survey found the same, reporting that employers recognize critical thinking skills, written and oral communication skills, teamwork skills, and ethical decision-making as important and essential. Employers added that college students do not appreciate how much these "cross-cutting skills" are valued in the job market (Hart Research Associates, 2015, p. 8). Furthermore, the New American Colleges and Universities, a national consortium of higher education institutions committed to the integration of a liberal education, professional studies, and civic responsibility, serves as a model for infusing soft skills into the curriculum (Sullivan, 2016). This organization's philosophy and approach reinforces the importance of a liberal arts education to the workplace.

Utilizing general education to address the soft skills gap may have the greatest potential for success—it provides context in the disciplines, integration, and repetition—but it contains pitfalls as well. State government regulations influence these programs (e.g., those related to transfer) as do the requirements of regional accreditors. Finally, whether the program is based in a distribution of coursework, a set of common required courses, or both, it is controlled by the faculty. They must believe in the need for change if it is to become a reality.

Proposed solutions – Other considerations

These solutions may be supplemented by other elements such as academic advising (see Most & Wellmon (2015) and Darling (2015) for examples of the use of academic advising for supporting general education outcomes), institutional policies (e.g., common student expectations for conduct), assessments, and certifications. All

these elements would be useful and complementary to the solutions proposed. None of these alone, however, are sufficient to provide the context, integration, or repetition necessary to meet needs of an educated and prepared workforce for the 21st century.

It should be noted what these four solutions are not. They are not policies. They are categories into which policy proposals might be placed to better understand them. In addition, they do not provide a method of analysis. Below I offer a possible means to that end.

**A Framework for Analysis**

The third tool for guiding a soft skills program implementation is a framework for analysis. Translating ideas into practical policies and actions presents a significant challenge because resources are limited. This will result in trade-offs or opportunity costs because everything cannot be valued equally. Wolf (1980) notes that the importance of any value is relative to other values. In a knowledge-based economy, it may seem that freely shared knowledge will result in human capital increases at a fraction of the price that it once cost. Still, there is a limit to what can be learned. Providing instruction has a cost. A decision must be made about who pays—and if many pay, how much each pays.

To guide the analysis of potential solutions, I propose a framework based on Labaree's (1997) tripartite construct of democratic equality, social efficiency, and social mobility. This framework provides several theoretical perspectives for evaluating proposed policy solutions. From the democratic equality perspective, the objective is to help make society what we hope it can be. Social efficiency is concerned with adapting

students to society's current needs, such as creating the workforce required by the market. Social mobility is focused on the individual, with each trying to gain an advantage for herself or himself. These three visions for education have been in competition throughout American history, according to Labaree. Therefore, they may provide a useful means for understanding the policies that may be proposed.

For example, a college general education program supports democratic equality. It is designed to be common to all students. It is a public good, creating an informed citizenry. Public officials of all parties invoke it as they promote American values, but it has been most closely identified with progressives looking to improve our society. A free public education arose from this tradition, and the call for a free college education springs from it.

Education is a public good from a social efficiency perspective as well. In this view, however, its value is in the preparation of students for available positions in the economy. If a greater amount of education is required by the market, it is due to an increased need for skilled labor (Walters, 2004). It is a human capital, functionalist view, and inherently conservative because it reproduces the social structure. Students move horizontally from a level in the "education hierarchy to a corresponding level in the occupational hierarchy" (Labaree, 1997, p. 49). This is expected because if one has advanced further in their education, they have obtained more of the requisite skills and human capital. Proponents of social efficiency include government officials trying to make education a more efficient enterprise, business and industry leaders seeking to shape the workforce to their needs (and so they will not have to provide the training), and members of the working class who want an education that results in a job. Labaree sees

the educational standards of the 1980s and 1990s as a reflection of the call for economic competitiveness. One might suspect he would view the call for soft skills infusion in the same way.

From a social mobility perspective, education is a commodity. It is part of the competition for social distinction. As a high school degree became the expected credential for all, the competition shifted to the next higher level. As a result, parents attempt to transfer social advantage to their offspring via a college education. Bourdieu (1986) sees this as a means to turn social capital into cultural capital. The meritocratic ideal of American education imparts "a considerable amount of cultural power" and Labaree sees it as contributing to the concept of knowledge as a private good, for one's personal benefit (1997, pp. 57-58).

As the higher education market has evolved, educational credentials have taken upon a new power. As the exchange value of the credential separates from the knowledge and skills that the learner obtained, credentialism results. The credential (rather than the education gained in pursuit of the credential) is valued for the position it provides. Some theorists see credentials as signals of skills possessed by candidates—and requiring certain credentials can be used as a screen by employers as well—but these positions have a "residual human capital element," according to Brown (2001, p. 22). Credentialism runs counter to human capital theory. Brown sees credentialism as competition between "status-groups" driving the market for credentials (2001, p. 24). This allows privileged groups to accumulate cultural capital and exclude other social groups under the guise of meritocracy. The ideals of a capitalist economy are served: the desire to get ahead, the desire to succeed where others fail. From this perspective

education is a private good measured by the value of what it can get for you in the market.

Bowles and Gintis share the concerns of credentialism in a capitalist economy. They see the U.S. economy as failing to provide "a more equitable sharing of its benefits and burdens" (2002, p. 1). Their economic research demonstrated that the cognitive skills obtained through schooling only explain part of labor market success and the "intergenerational persistence of status within families" (2002, p. 2). While they critiqued schools for reproducing inequalities and preparing students to be docile workers in a capitalist system in their early work, they are hopeful that education can create a better society. They recognize that attitude is important, socialization makes a difference, and that schools can contribute to productive employment (Bowles & Gintis, 2002). They, like Labaree, see schools as a prime location for conflict and compromise as America tries to forge a better society. It is likely they would agree with him that social mobility is the primary threat to realizing that goal as well.

**Conclusion**

American education is episodic and evolutionary. Analyzing any of the above potential policy solutions or practices through the lens provided by Labaree's three goals provides a perspective that takes the shifting priorities of higher education into consideration. For example, our country's growing desire to develop evidence-based policies has been limited by a focus on test scores that only provide part of the picture (Levin, 2012). A framework that takes a long-term view via competing goals, independent of the latest reforms or economic times, will aid in a more complete analysis of soft skill policy solutions.

This analysis at first glance may seem reasonably straightforward. Only general education programs can make a real contribution to democratic equality. Stand-alone programs would be the most socially efficient. Social mobility would be served through assessments and certifications. Yet it is more complex. Can a software package, however well designed, help students master soft skills? Would an employer recognize it as doing so? If so, is it strictly a matter of human capital? Will faculty agree that soft skills can serve the market and create active citizens? If a bachelor's degree is what the market demands for soft skills, and general education can be provided through an associate's degree designed for transfer, is making a public two-year college education free a response to the soft skills need that serves multiple goals? Would a combination of proposed solutions work best—or create an uncoordinated response?

It is unlikely that a college, let alone a state or nation, will propose one solution for an issue of this level of complexity. The tools described above—a consensus list, potential higher education solutions, and a framework for analysis—are designed to guide further discussion and facilitate an informed soft skills policy direction. At the same time, it is recognized that many concerned faculty, staff, and administrators are more likely to respond by jumping in and trying something. In a higher education accreditation environment focused on outcomes, the implementation of an assessment, followed by a quantitative analysis of the results, is likely to be the first and next step for many colleges. Such an assessment of soft skills of students could be utilized to provide insight into the potential of the higher education responses (stand-alone program, coursework in major, experiential learning, general education) previously described. The purpose of this paper, however, is to inform a thoughtful and multi-faceted response. Taken together,

these qualitative and quantitative approaches could provide an initial roadmap for a comprehensive plan to address the soft skills need.

MANUSCRIPT TWO

# PREDICTORS OF SUCCESS ON A SOFT SKILL ASSESSMENT


## Abstract

Can an assessment tool be used to guide institutional practice to solve the "skills gap"? This quantitative study investigates whether the performance of postsecondary students on a soft skill assessment can be predicted by overall GPA, general education course success, test scores, course completion rate, age, socio-economic status, participation in work-based learning opportunities, or some combination of these factors and therefore either replace the need for such a strategy or support its use. By exploring if there is an effect, as measured by the *Am I Job Ready?* assessment, of these factors on soft skill attainment, this study hopes to contribute to an understanding how such assessments might be used (or not) by higher education institutions to best prepare graduates for workplace success.


## Introduction

As the information age economy has evolved into a knowledge- and service-based one, the need for soft skills has grown in the Unites States (Pellegrino & Hilton, 2012; Hart Research Associates, 2013; Accenture, Burning Glass, & Harvard Business School, 2014; Partnership for 21st Century Learning, 2015; Cunningham & Villaseñor, 2016; National Association of Colleges and Employers, 2017; Morning Consult, 2018). The same has been true for the developed countries worldwide (Andrews & Higson, 2008; Toner, 2011; Cobo, 2013; OECD, 2013; World Economic Forum, 2015; McKinsey &

Company, 2018). In response, institutions of higher education are being called upon to ensure that their graduates—the future workforce—possess these requisite soft skills.

For many decades a college degree has served as a proxy indicator for the attainment of soft skills by many employers (Toner, 2011; Accenture et al., 2014), but there has been an increased interest in the use of tests to provide proof (Porchea, Allen, Robbins, & Phelps, 2010; Kyllonen, 2013; ACT, 2016; Grieff & Kyllonen, 2016). As a result, instruments are being examined by college faculty members, higher education administrators, and business leaders for use.

This study explores three questions related to the implementation of a soft skills assessment at the college and university level as a strategy for addressing the "skills gap". The first is one of need. If traditional measures of success at the college level, such as the successful completion of coursework and grade point average, predict student performance on a soft skill assessment, this would mitigate the need for an such an assessment. The second is whether other measures that are designed to predict postsecondary success, such as college entrance exams and socioeconomic factors, foreshadow student performance on soft skills assessments completed at the college level, thus rendering additional assessments unnecessary. In addition, if such measures do predict success, this may suggest that existing pre-college factors have a greater impact on soft skill development than postsecondary education, leading to more difficult questions of the purpose or efficacy of such an education. Finally, if any of these measures are useful predictors, they may serve as the beginning of a model for soft skill

development and indicate the usefulness of supplementary assessments for designing interventions.

This leads to three research questions:

1. Do traditional measures of success at the college level, such as the earning of credit and course grades, predict the attainment of soft skills as measured by soft skills assessment tools like *Am I Ready?*
2. Do pre-college measures used in predictive models of postsecondary success predict the attainment of soft skills assessment tools like *Am I Ready?*
3. Can a combination of pre-college and college measures inform a predictive model for soft skill attainment?

**Instrument**

The assessment tool that is the focus of this study is *Am I Job Ready?*, a cloud-based software from Performance Assessment Network (since acquired by PSI Services). The program provides an introduction to essential soft skills and workplace readiness in three steps: 1) learn your strengths, 2) develop your skills, and 3) get job ready. The tool is intended to not only measure essential soft skills and workplace readiness, but also allow the student to recognize his or her own strengths and skills to identify areas for improvement. As the student works his or her way through the program, the data generated reflects their performance on specific soft skills and, when taken together and averaged across all sixteen skill areas, serves as a summative measure their overall "soft skill" readiness.

In the first step, the "learn your strengths" exercise, students take an assessment of their personality and culture "fit" in the workplace. This includes a career inventory that provides a percentage match of their interests with ninety-eight careers available across all sectors of the economy.

The second step, "develop your skills," introduces the student to the sixteen soft skills included in *Am I Job Ready?* (Table 3). These are designed to prepare the user for the summative assessments in the third step. Each soft skill includes an animated video of approximately ten minutes in length, an interview question, and an example workplace scenario where the user is asked to select the best response to the situation.

For example, after watching the video about "planning and organizing," the user is asked an interview question related to the topic as a warm-up before examples of a mediocre and a good answer are provided for consideration and review. Then the user is presented with the following situation:

> You have just received a large project from your boss. The project will take quite a bit of time, will involve multiple stages, and require you to organize resources and other people's time. You have six months to complete the project. Which of the following actions would be the most effective?

The user selects from five potential actions and receives specific feedback on their response to the scenario, whether right or wrong. If wrong, they can choose again and explore all the possible answers as well as review the instructional videos as many times as needed.

After completing the practice scenario, the student may proceed to the third step, "get job ready." In this final part of the program students can prove their mastery of the sixteen *Am I Job Ready?* soft skills through contextual assessments referred to as "testlets." These testlets are comprised of workplace scenarios that are similar in nature to the example provided above. Students are asked to rate each of seven possible responses to the scenario as ineffective, moderately effective, or effective. Each testlet comprised of four or five scenarios, resulting in 28 to 35 questions in each testlet. The student who completes all sixteen soft skill testlets will encounter 71 different scenarios with nearly 500 questions in total.

While students only learn whether they pass or do not pass a particular testlet, a percentage score for each test attempt is calculated based on the accuracy of the student's response ratings. The score on every attempted testlet is accessible to the administrator of the system. Students may re-take each of the sixteen testlets as many times as they wish to raise their score to the passing score of 70%. It is these final average scores that serve as the measure of soft skill attainment used in this study.

**Setting and Participants**

The Kentucky Community and Technical College System (KCTCS) selected *Am I Job Ready?* to support their soft skills initiative in 2016. The sixteen areas of *Am I Job Ready?* measured by the instrument are aligned with the Work Ready Skills identified by KCTCS and other published lists of soft skills (SCANS 2000, 1991; Robels, 2012; Cobo, 2013; Partnership for 21st Century Skills, 2015; World Economic Forum, 2015; Wonderlic, 2016). Table 3 compares the KCTCS Work Ready Skills and the *Am I Job*

*Ready?* skills in the context of a consensus list of soft skills derived from the literature on soft skills (Beardmore, 2019).

Table 3

*Am I Job Ready? Skills, KCTCS Work Ready Skills, and Consensus List of Soft Skills*

| Consensus Category | KCTCS Work Ready Skills (2016) | *Am I Job Ready?* (2016) |
|---|---|---|
| Collaboration | Teamwork | Cooperative Teamwork |
| Interpersonal skills and cultural understanding | Interpersonal Abilities | Customer Focus |
| Communication | Communication Skills | Influential Communication |
| Critical thinking | Analytical/Research Skills & Problem-Solving/ Reasoning & Technology as a Tool | Analytical Problem-Solving & Decision Making |
| Initiative and self-management | Planning/Organizing | Initiative & Coping with Pressure & Planning and Organizing |
| Responsibility and leadership | Leadership/Management Skills | Management of Others & Strategic Vision |
| Creativity and curiosity | | Innovation & Continuous Learning |
| Flexibility and adaptability | Flexibility/ Adaptability | Flexibility |
| Integrity and professionalism | Professionalism and Integrity | Integrity and Respect |
| Persistence and work ethic | Work Ethic | Reliability & Drive for Excellent Results |

*Note.* An ampersand ("&") in the table separates skills that were identified separately and listed individually in the reference.

A breakdown of the subskills for each of the sixteen *Am I Job Ready?* skills is included in Appendix I.

Adult (age 18 and over) students in KCTCS, a statewide, public, two-year, open admissions system of sixteen colleges, served as the population of the study. The KCTCS chancellor initiated the pilot use of *Am I Job Ready?* systemwide in late 2016, with the rollout commencing in January 2017. Students were invited to explore and use the program through an exclusive web registration and login site designed for their college. Some colleges provided handouts to students, but most transmitted the link to the registration website via KCTCS student e-mail or posted it on class sites inside the Blackboard course management system. All adult students enrolled from January 2017 through May 2018 (i.e., the KCTCS academic terms of Spring 2017, Summer 2017, Fall 2017, and Spring 2018) were invited by KCTCS to register for *Am I Job Ready?* The sample is comprised of 842 KCTCS adult students enrolled in these same terms who completed at least one soft skill assessment in *Am I Job Ready?* either for personal feedback or as assigned by a KCTCS instructor as coursework.

The sample, as reported by KCTCS after the conclusion of the Spring 2018 semester, compares demographically to all credential-seeking students in KCTCS as follows:

Table 4

*Sample Demographics*

| | Population (KCTCS) | Sample [a] |
|---|---|---|
| Age | | |
| 18-24 | 60% | 55% |
| 25 and over | 40% | 45% |
| Gender | | |
| Female | 60% | 76% |
| Male | 40% | 23% |
| Ethnicity | | |
| African American | 10% | 10% |
| Hispanic | 5% | 3% |
| Two or more | 3% | 3% |
| White | 80% | 81% |
| All other | 2% | 3% |

[a] n = 842

The difference in the male/female ratio between the population and sample is due to the academic programs represented. Advanced Manufacturing and Trades students, who make up nearly 11% of KCTCS credential-seeking students, comprise only 4.2% of the students who completed *Am I Job Ready?* assessments. In KCTCS males outnumber females in these programs 15 to 1, resulting in the lack of similarity in this demographic. No other selection bias was evident based on the other demographics.

## Variables

This study used existing data generated by the 11,515 *Am I Job Ready?* soft skill assessments completed by the 842 KCTCS students in the sample. The score used as the dependent variable was the average score for all testlets completed by each student during the period of the study. The selection of variables, as a result, was limited to *Am I Job Ready?* test results and existing data in the KCTCS student information system.

The two categories of predictors of soft skill attainment in this study are 1) traditional measures of success at the college level, such as the completion of coursework and grade point average, and 2) other pre-college measures that have been used by a number of previous studies to predict postsecondary success. Both were purposely included. The first reason for the inclusion of pre-college and college measures is that the length of study at a two-year college is brief. *Am I Job Ready?* was not an end of program assessment. It was used by students in their first semester in KCTCS as well as by those with several semesters of coursework. This provided an opportunity to study the impact of credit completion, but existing variables before college, such as test scores and socioeconomic status, needed to be evaluated as well. The second reason is that pre-college measures have been extensively studied as predictors of postsecondary success. This helped guide the selection of factors that should be included as potential independent variables. The final reason is that the inclusion of both sets of potential predictors, pre-college and college, provides a more complete understanding of the influences on soft skills. It may be that one set of measures is more effective than the other, or it may be that the inclusion of both will result in the best predictive model. The

creation of a correlation matrix and the use of multiple regression will allow the evaluation of all the factors relative to one another.

In regard to college level success, the variables selected from those available in the KCTCS student information system focused on course completion and grade point average, two measures with established reliability (Beatty, Walmsley, Sackett, Kuncel, & Koch, 2015). Success in general education coursework is included to consider this factor separately from overall academic performance to ensure that "important differences between courses with respect to grades" are not missed (Masui, Broeckmans, Doumen, Groenen, & Molenberghs, 2014, p. 623; Svanum & Bigatti, 2006). Completion of work-based learning opportunities, a factor that might predict soft skill success, is included as well (Hayward & Horvath, 2000; Weible, 2009). Completion of a credential, the summative indicator of postsecondary success, was purposely excluded from the study. The 17-month time frame of the study would severely limit the usefulness this data element since any student seeking a diploma or degree would not have had two years to complete the credential.

The other independent variables selected as pre-college predictors were included based on their use in multiple models for understanding postsecondary success. The study of student success in two-year colleges by Hirschy, Bremer, and Castellano (2011) reviewed seven models of student persistence. These are included as the column headers in Table 5. While not all of the input variables identified by Hirschy, Bremer, and Castellano were available in the KCTCS student information system, those listed in the rows of Table 5 were. They aligned with the models as follows:

Table 5

*Selected Predictors of Postsecondary Success*

| | Tinto | Bean & Metzner | Bean & Eaton | Swail, Redd, & Perna | Nora, Barlow, & Crisp | Braxton & Hirschy | Reason |
|---|---|---|---|---|---|---|---|
| *Sociodemographics* | | | | | | | |
| Ethnicity | X | X | | | X | | X |
| Gender | X | X | | | X | X | X |
| Age | X | X | | | | X | X |
| Parental education | X | | | X | X | X | X |
| Income | X | X | | X | X | X | X |
| *Academics* | | | | | | | |
| Admission exams | X | X | X | X | X | X | X |

*Note:* Adapted from Hirschy, Bremer, and Castellano, 2011, p. 302

Additional studies validate the selection of these variables. These include student characteristics that may influence academic performance in postsecondary institutions, such as entering student test scores, previous academic success, and socioeconomic status (Arum & Roksa, 2011; Masui et al., 2014). The potential effect of maturation is addressed by the inclusion of age, and demographic variables of gender and ethnicity may have an influence and need to be evaluated for use as control variables in future studies (Barrow, Reilly, and Woodfield, 2009; Roksa, Trolian, Pascarella, Kilgo, Blaich, & Wise, 2017). Ethnicity may be of particular interest given the importance of addressing the success of underrepresented minorities in higher education—a performance indicator for institutions in Kentucky—and the potential influence of the dominant culture on what are considered to be necessary soft skills.

The availability of data in the KCTCS student information system provided some additional opportunities and limitations as well. In the case of admissions exams, ACT test data was readily available for nearly half of the students in the study due to the census testing of all Kentucky high school juniors. This allowed for the breakdown of scores by ACT component test (English, Mathematics, Reading) in addition to the use of the ACT Composite score. Since placement testing is required for all degree-seeking students and standardized across the state, scores from other placement exams, including the SAT, COMPASS, and KYOTE (a Kentucky placement test), allowed for the creation of a composite percentage based on how many of a student's placement test scores met college-level readiness benchmarks. High school GPA, however, was a limitation. High school grades are regularly included in models of postsecondary success and may provide as much as one-third of the predictive power (Robbins, Allen, Casillas, Peterson, & Le, 2006; Porchea, Allen, Robbins, & Phelps, 2010; ACT, 2016). Unfortunately, high school GPA is not regularly collected for KCTCS students because students with previous college coursework and those over age 25 are not necessarily required to provide a high school transcript for admission. While high school GPA was not included, it is likely that it may have significantly overlapped with college GPA. Given this, the implications of not using high school GPA may be negligible.

The data set was pulled by KCTCS after the completion of grade reporting for the Spring 2018 semester and de-identified before being made available to the researcher. The following data elements served as the independent variables in the study:

1. ACT English

2. ACT Math
3. ACT Reading
4. ACT Composite
5. College readiness as defined by the state of Kentucky in English, Mathematics, and Reading based placement tests such as ACT, COMPASS, and KYOTE submitted to or taken at a KCTCS college
6. Socio-economic status, as determined by the Estimated Family Contribution on the Free Application for Federal Student Aid (FAFSA) for 2016-17
7. Parental educational attainment as indicated on FAFSA
8. Age
9. Gender
10. Ethnicity/race
11. KCTCS overall grade point average
12. Cumulative credits completed (credits earned in KCTCS and any credits accepted from transfer institutions)
13. KCTCS credit completion rate (credits completed/credits attempted)
14. General education course credits completed in KCTCS in the past five years
15. General education course grade point average in KCTCS in the past five years
16. KCTCS work-based learning opportunity (e.g., internship, co-op, practicum) credit received (yes or no)

The first ten data elements are pre-college, while the last six are college-level measures. These sixteen elements serve as independent variables in the quantitative portion of this study. The average assessment score for a student who completed at least one assessment in *Am I Job Ready* subject serves as the dependent variable.

**Methods**

The de-identified data set was analyzed through seven steps.

First, a descriptive analysis of all independent variables and the dependent variable, including means, standard deviations, and ranges for the continuous (interval/ratio) measures was conducted. Variables were plotted individually to determine the distribution of data. If the data were not normally distributed, inclusion in the regression analysis was reconsidered, or, as in the case of categorical data such as gender, data was considered for inclusion as a dummy variable in the regression.

Second, scatterplots were created for each continuous (interval/ratio) independent x-axis variable versus the y-axis dependent variable (i.e., the *Am I Job Ready?* average assessment score). This provided a check for two assumptions—a linear relationship and homoscedasticity—that are required for variables used in multiple linear regression analysis. If the points on the scatterplot can be contained by a "tight" ellipse, then a linear relationship (i.e., not a curvilinear relationship or random distribution) may exist and linear regression analysis is warranted (Brightman, 1986; Astin, 1993, p. 274; Brightman, 1999, p. 266).

An elliptical distribution also means that the homoscedasticity assumption—that the "error variance appears more or less constant across the values of *x*" (Lewis-Beck &

Lewis-Beck, 2016, p. 25)—is met as well. When the error variance is not essentially constant, the scatterplot becomes funnel-shaped because the error is changing as the independent variable changes. Such a shape means the assumption is not met and that the potential predictor variable should be excluded from the regression analysis.

If it appears that the data points may be encircled by two or more separate ellipses, it is possible that the influence of a categorical variable may be resulting in clustering of the data elements. For example, an effect such as this may appear in wage data where there is an interaction effect due to gender.

Third, a correlation matrix of the twelve continuous (interval/ratio) variables—general education course credits, general education course success, college readiness, ACT Composite, ACT English, ACT Math, ACT Reading, GPA, age, credits completed, credit completion rate, and Expected Family Contribution (EFC)—was produced to check for multicollinearity. Independent variables must be independent of each other to be used as predictor variables for a dependent variable. If two independent variables are more related to each other than either variable is related to the dependent variable, then multicollinearity is present and the predictor variables need to be examined further to determine whether one or both should be discarded from the analysis. These interaction effects are a distinct possibility due to the use of variables that may closely related (e.g., test scores and GPA, GPA and general education course success) and one that is a composite of others (i.e., the ACT composite) (Astin, 1993). A "t stat screening" procedure, where a predictor variable with an absolute value of the t stat is less than one is removed from the estimated regression model, was utilized (Brightman, 1999, p. 403).

For example, ACT and SAT scores are designed to predict academic success at the college level. As a result, one would expect a scatterplot of the 75th percentile of ACT and SAT scores for admitted students at 208 universities in the United States to show a relationship—a tight ellipse should be evident. While an ACT score does not depend upon an SAT score, or vice versa, one would expect that the two measures are highly correlated. Figure 4, which is in the same format as the scatterplots to come, is evidence that they are.

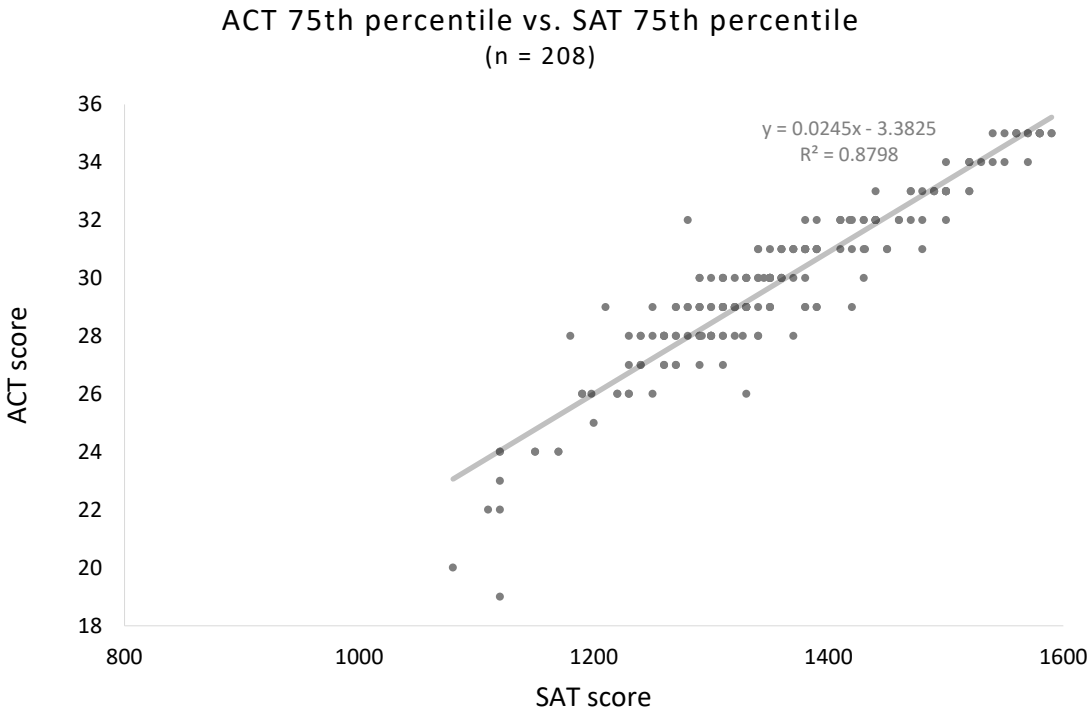



*Figure 4.* Relationship between SAT and ACT scores

The line bisects a tight ellipse and r squared ($R^2$), the proportion of the variance in the dependent variable that is predictable from the independent variable, is 88%. The relationship between the two variables is visibly clear on the scatterplot. A higher ACT

composite is a predictor of a higher SAT total score—and an SAT score is predictive of an ACT score.

This is evidence of another issue mentioned above—multicollinearity. In the case of SAT and ACT, both predict the same thing. The use of both in a multiple regression would not be necessary or justifiable. It is extremely likely that these two independent variables are more related to one another than either is related to a dependent variable

Fourth, the influence of the discrete, categorical independent variables of gender, ethnicity/race, work-based learning, and parental education was considered. Gender was treated as binary for the purposes of the study since 99% of the sample was identified as male or female in the dataset. Work-based learning was binary as well (yes or no), so the means of these two variables were compared by *t*-test of each. The potential influence of ethnicity/race and parental education on the average testlet score was examined through an analysis of variance (ANOVA). Work-based learning and parental education had the potential to enter into the multiple regression analysis as a dummy variable if a significant difference at $p < 0.05$ was indicated by either test. Gender and race/ethnicity were examined as any significant difference might serve as potential evidence of bias in the assessment.

Fifth, stepwise multiple linear regression was conducted on the continuous variables that remained after the t stat screening procedure. The stepwise order was based on the correlation between each independent variable and the dependent variable. These are the variables that "enter the prediction equation" first (Jaeger, 1983, p. 305). This resulted in an estimated regression model with prediction equation in the format of the linear function

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots + \beta_k x_k + \varepsilon$$

where the independent variables are identified by the subscripts 1 through *k* and ε is the error term.

Sixth, an Analysis of Variance (ANOVA) was completed. The null hypothesis ($H_0$) is that none of the predictor variables are statistically related to the dependent variable in the population. The alternative hypothesis ($H_1$) is that the predictor variables are related at $p < 0.05$.

Seventh, the null hypothesis was considered for acceptance or rejection so that an estimated regression model that includes accepted and the confidence interval (to predict mean values of the dependent variable) and the prediction interval (to predict a single instance) could be determined, if appropriate.

Two software programs, SPSS and Microsoft Excel, were used to confirm that the results obtained were identical.

**Limitations**

The students in the study were included in the study in a non-random fashion. Participants were invited for many reasons that varied across KCTCS colleges. The selection process may have predisposed students for better performance on the assessment. For example, instructors who emphasize soft skills may have been more likely to participate in the pilot of *Am I Job Ready?* In addition, mortality may have had an effect since students who did not like the program may not have followed through with the assessment. The non-probabilistic sample selected limits the generalization of study results.

Work experience, which may be a significant influence on soft skill development, is not easily captured through quantitative measures. The sector of employment (e.g., service vs. manufacturing), the level of customer engagement, the amount of employee autonomy, and the leadership opportunities available are a few of the contextual factors that may contribute to soft skill development in the workplace. In addition, KCTCS has no influence over student work experience other than through its oversight of work-based learning opportunities that result in KCTCS credit. As a result, the exclusion of work experience as a factor from the quantitative study is defensible, but it is recognized as a limitation.

Concerns about the fidelity of the data elements were minimal. Student financial data in the KCTCS student information system originates from the FAFSA. Many elements of FAFSA data are transferred to the FAFSA by the Internal Revenue Service (IRS) or confirmed by IRS tax transcripts during the process of FAFSA data verification. Coursework and grades are reported to students and provided on transcripts. Age is based on the birthdate recorded in the student information system and it critical that this element is correct since it is used in setting a student's KCTCS password. Demographic data elements are subject to self-review by students utilizing the self-service functions of the student information system and are additionally reviewed by the college, KCTCS, and the Kentucky Council on Postsecondary Education.

The use of an existing commercial instrument (Performance Assessment Network's *Am I Job Ready?*) for the assessment of soft skills and existing data in a student information system—data that students can examine and self-check at any time in

their academic career—minimizes many other potential threats to validity in the quantitative study.

## Ethical Considerations

This research study used existing data. The data resulted from student assessments completed in a third-party, cloud-based software. Students self-registered for the program based on an invitation from KCTCS. While KCTCS faculty and staff promoted the program's use, they were not involved in proctoring or grading. The assessment is entirely self-contained within the software program. This arrangement mitigated the possibility of undue influence by KCTCS personnel on the data collected.

In regard to my involvement in the process, I was bound by my professional responsibilities given my oversight of institutional research at my college. I am well-versed in the expectations for research protocols due to my position. The misuse of data would result in the termination of my employment as well as the end of my doctoral studies. That same experience allowed me to avoid such pitfalls—and the guidance from my chair, committee members, and colleagues provided further insurance.

## Results

### Step One: Descriptive Analysis

The results of the descriptive analysis of all independent variables and the dependent variable are provided in Table 6:

Table 6

*Descriptive Statistics*

| Variables | n | Range | Minimum | Maximum | Mean | Std. Dev. |
|---|---|---|---|---|---|---|
| Average ACT English | 512 | 27 | 7 | 34 | 19.2 | 4.94 |
| Average ACT Math | 512 | 24.5 | 9 | 33.5 | 18.6 | 3.74 |
| Average ACT Reading | 510 | 27 | 9 | 36 | 20.3 | 4.75 |
| Average ACT Composite | 474 | 20.5 | 12 | 32.5 | 19.6 | 3.66 |
| College ready % | 809 | 100% | 0% | 100% | 43.5% | 34.3% |
| EFC from FAFSA | 760 | $141,868 | $0 | $141,868 | $4354 | $11,471 |
| Age | 842 | 45 | 18 | 63 | 26.9 | 9.4 |
| Cumulative GPA | 842 | 4 | 0 | 4 | 2.95 | 0.83 |
| Cumulative credit hours | 842 | 325.1 | 0 | 325.1 | 50.65 | 36.87 |
| Credit completion rate | 842 | 100% | 0% | 100% | 84.25% | 19.76% |
| Gen ed credits earned | 768 | 74 | 0 | 74 | 21.2 | 15.6 |
| Gen ed GPA | 768 | 4 | 0 | 4 | 2.81 | 0.96 |
| Average testlet score | 842 | 87.1% | 5.7% | 92.9% | 72.8% | 8.5% |

For the regression analysis, the number of students included in the analysis was smaller because not every data element was available for every student in the sample, as noted in the second column (*N*) above. Out of the 842 students in the sample, 406 had data for all 13 continuous variables. Table 7 provides the mean and standard deviation for each of the students entered in the regression analysis.

Table 7

*Regression Analysis: Mean and Standard Deviation*

| Regression variables | Mean | Std. Deviation | n |
|---|---|---|---|
| Average ACT English | 19.34 | 4.85 | 406 |
| Average ACT Math | 18.52 | 3.64 | 406 |
| Average ACT Reading | 20.44 | 4.64 | 406 |
| Average ACT Composite | 19.61 | 3.54 | 406 |
| College ready % | 54.6% | 33.2% | 406 |
| EFC from FAFSA | 5936 | 12766 | 406 |
| Age | 22.7 | 6.14 | 406 |
| Cumulative GPA | 2.91 | 0.82 | 406 |
| Cumulative credit hours | 50.90 | 33.05 | 406 |
| Credit completion rate | 85.3% | 18.5% | 406 |
| Gen ed credits earned | 23.17 | 15.74 | 406 |
| Gen ed GPA | 2.74 | 0.997 | 406 |
| Average testlet score | 73.5% | 8.81% | 406 |

Step Two: Scatterplots

Scatterplots were created to provide a check for two assumptions—a linear relationship and homoscedasticity—in the dependent and independent variable (testlet average) being analyzed. In addition, these scatterplots provide a first look at the relationship between the variables and if there might be a meaningful one in the context of this study. The reader will note that a clear relationship, as seen in the scatterplot of ACT and SAT scores (Figure 4), is not evident in the scatterplots of the twelve independent continuous variables versus the dependent variable (Figures 5 through 16). Each will be considered in turn.

High school juniors in Kentucky public schools take the ACT. As a result, it is the test that was available for the greatest number of KCTCS students taking the *Am I Job Ready?* assessment. Scores were not available for all study participants because statewide ACT testing started with the 2011 high school graduating class and test score reporting is not mandatory for KCTCS applicants.

Figures 5 through 8 are scatterplots of the ACT scores and component scores. Of the ACT component scores, English may be the most closely related to a top soft skill identified by employers: communication. The variance in testlet score that is predictable from the ACT English score is the highest of the ACT components, but only by a slight amount (Figure 5). There is only a limited relationship between the ACT Math score and the average testlet score on *Am I Job Ready?* (Figure 6). While the distribution of data points is not random, a tight ellipse is not evident and the proportion of the variance in testlet score that is predictable from the ACT Math score is less than five percent. An examination of the ACT Reading scatterplot finds a slightly more elliptical distribution of the data points, but the proportion of the variance in the testlet score that is predictable from the ACT Reading score is less than eight percent (Figure 7).

One might think that the ACT Composite, although not designed to measure soft skills, might capture the broadest spectrum of them: problem solving in mathematics, critical thinking in reading, and communication in English. Figure 8 shows this to be true. The variance in testlet score that is predictable from the ACT Composite is 10.5%.

No other quantitative measure considered in this study, as Figures 9 through 16 demonstrate, provides as much predictive power as the ACT Composite.

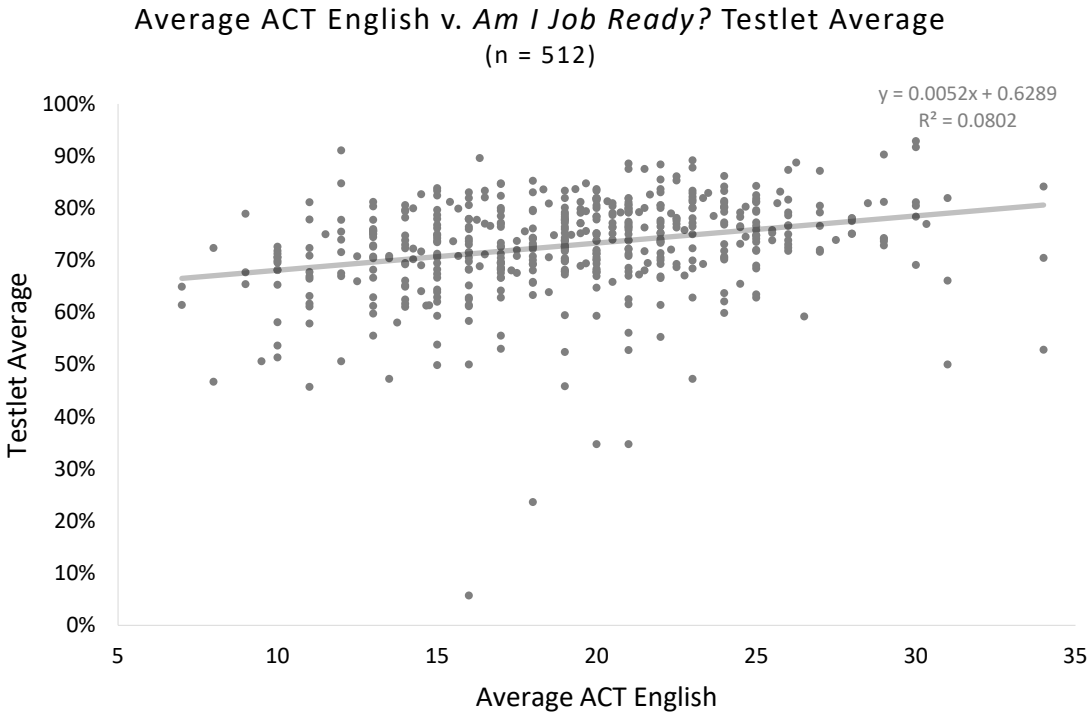



*Figure 5.* Relationship between ACT English and *Am I Job Ready?* Testlet Average

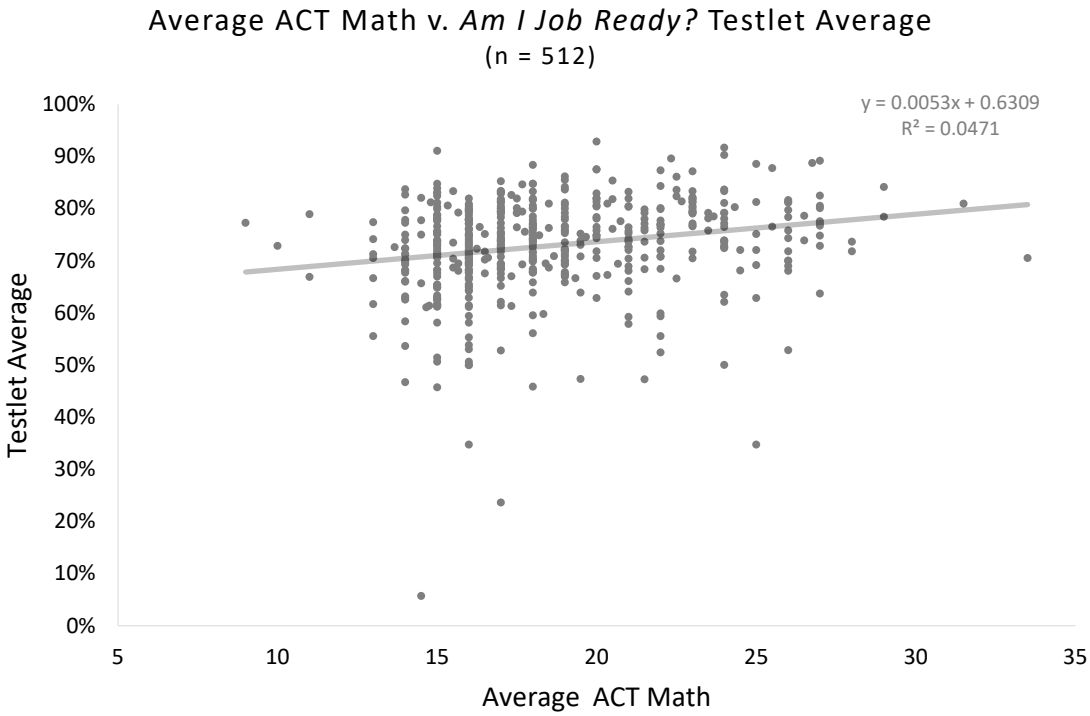



*Figure 6.* Relationship between ACT Math and *Am I Job Ready?* Testlet Average

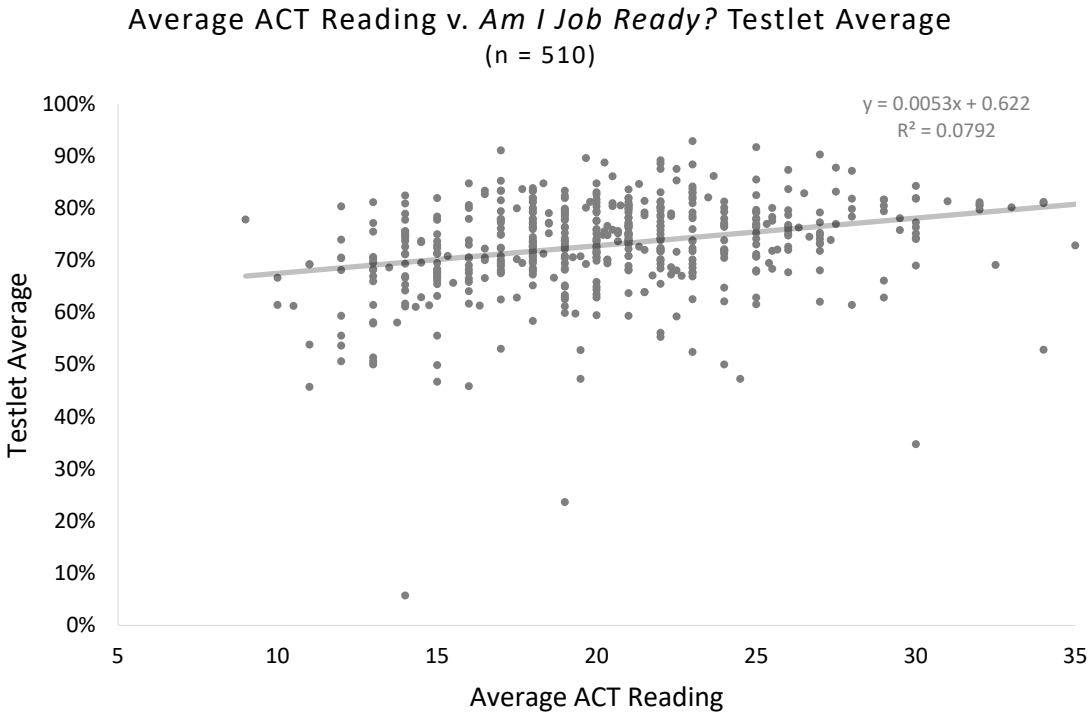



*Figure 7.* Relationship between ACT Reading and *Am I Job Ready?* Testlet Average

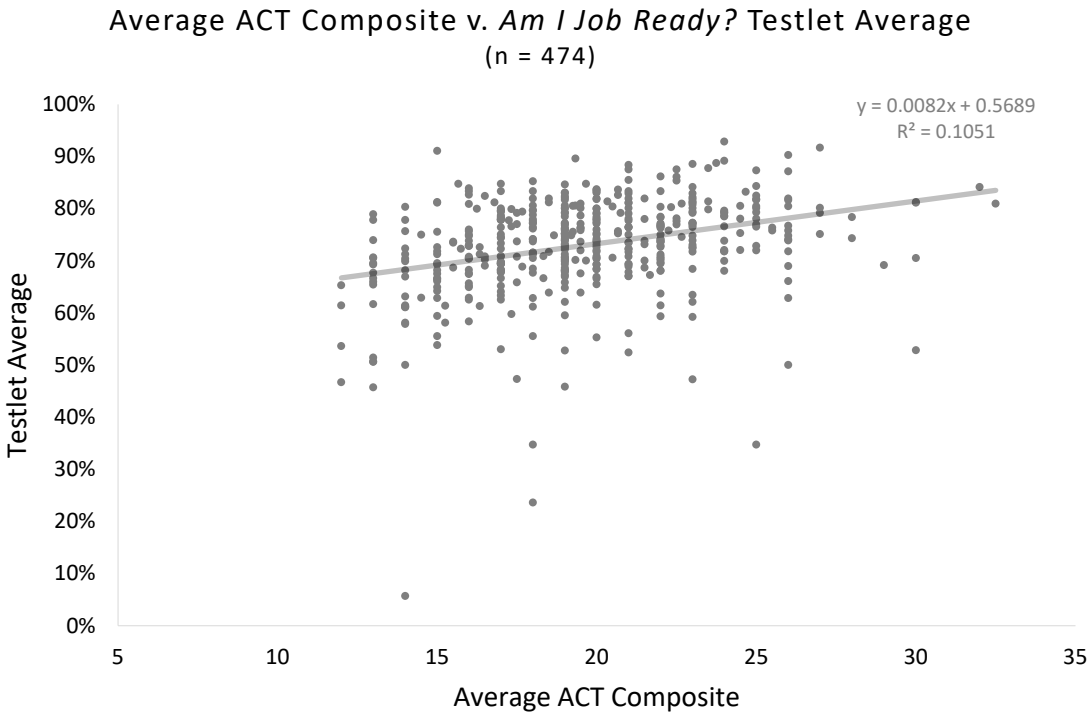



*Figure 8.* Relationship between ACT Composite and *Am I Job Ready?* Testlet Average

Figure 9 considers the college readiness of students as determined by all placement tests used in KCTCS, not just the ACT. This allowed for a far greater number of participants—nearly 300 more—to be included in the comparison. The result, however, was little different. Only 7.5% of the variance in the average *Am I Job Ready?* testlet score is predictable from college readiness.

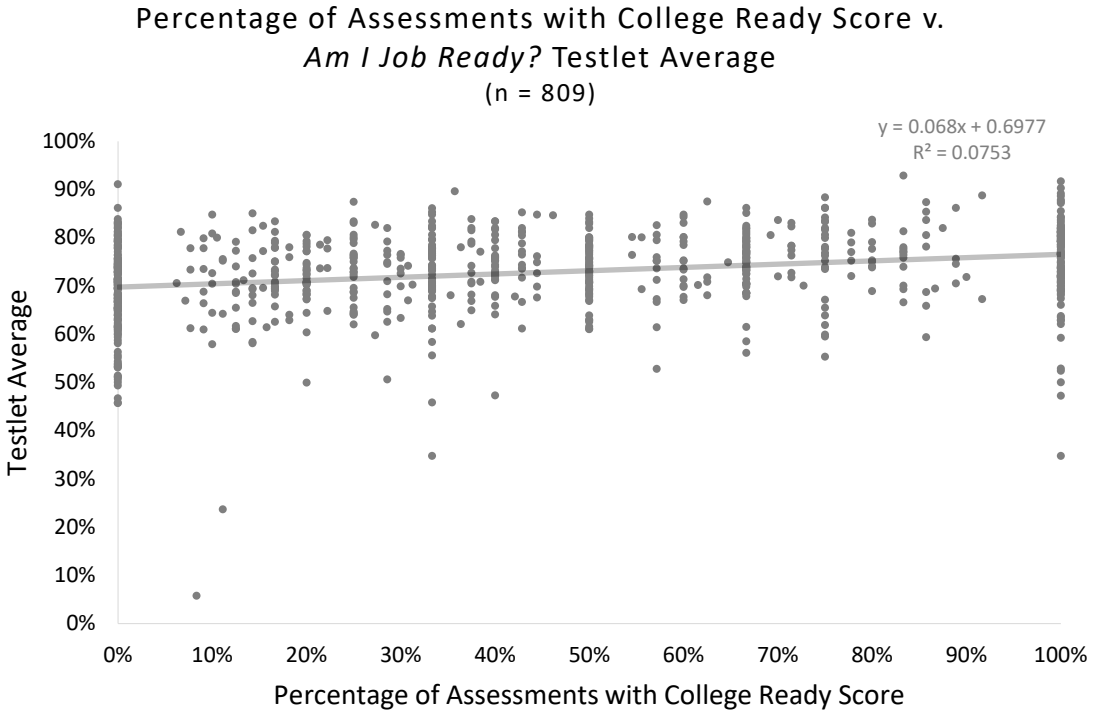



*Figure 9.* Relationship between College Readiness and *Am I Job Ready?* Testlet Average

The other two pre-college factors, socioeconomic status and age, provide no evidence of predictive power. The proxy measure for socioeconomic status, the Estimated Family Contribution (EFC) on the FAFSA, results in a skewed distribution of data in Figure 10 because approximately half of KCTCS students have an EFC of zero. This sample is no different, as 59% of students are not expected to contribute funds toward their college education. The percentage of the variance in *Am I Job Ready?*

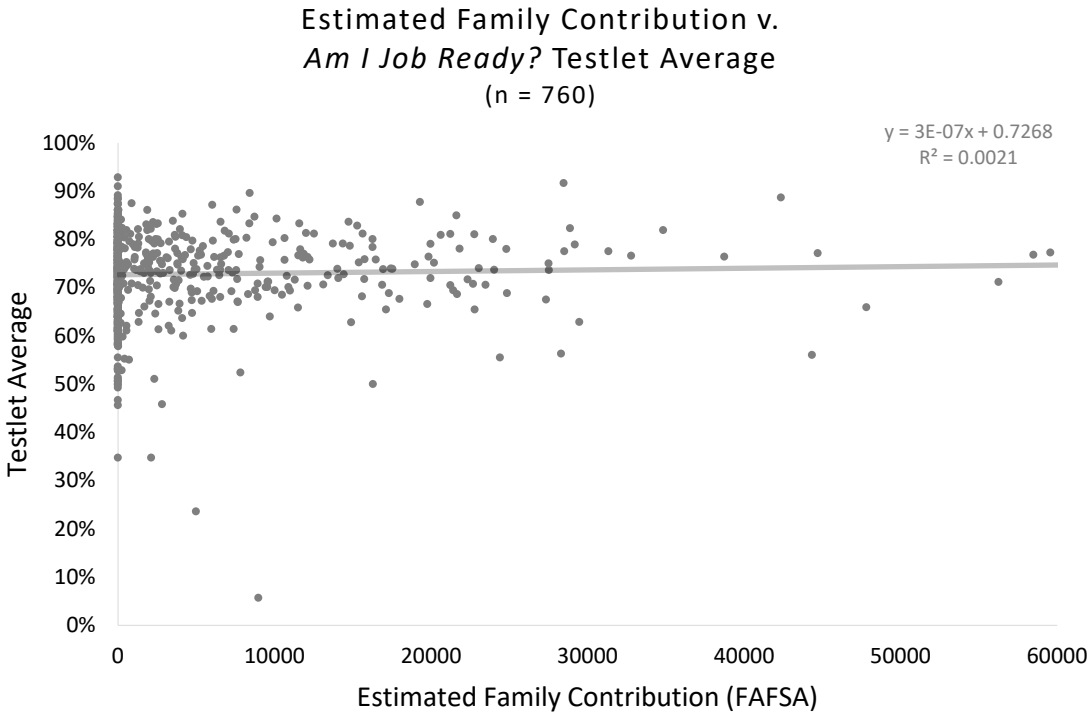



*Figure 10.* Relationship between FAFSA EFC and *Am I Job Ready?* Testlet Average


*Figure 11.* Relationship between Age and *Am I Job Ready?* Testlet Average

testlet scores predicted by the EFC is less than 1%. Age is similarly skewed. The average age of a student in the sample was 26—the same as the historical average for KCTCS—but the majority of the sample (and KCTCS students) are of traditional college age. Still, there is no relationship evident on Figure 11. The percentage of variance predicted by age is less than 1%.

Success in college, outside of degree attainment, is generally thought of in terms of course completion and grade point average (GPA). A visual inspection of the scatterplots in Figures 12 and 13, however, shows very little relationship between the dependent variable of testlet score and the independent student success variables of credits completed and GPA. The variance of testlet score predictable by these two measures was 1.2% and 3.3% respectively. Figure 14, the plot of credit completion percentage, yields little more. The faint appearance of a funnel-shape in these plots suggests that homoscedasticity assumption may not have been met, but there is no need to confirm this. There is next to no predictive power evident for these variables.

The case could be made that a student's general education coursework might have more of an influence on the development of soft skills than a student's program of study. Figures 15 and 16, however, provide no support for this contention. The proportion of variance contributed by general education GPA and cumulative GPA was virtually identical, with both rounding to 3.3%. For general education credits completed, it was slightly less than for all credits completed, at 1.1% versus 1.2%.

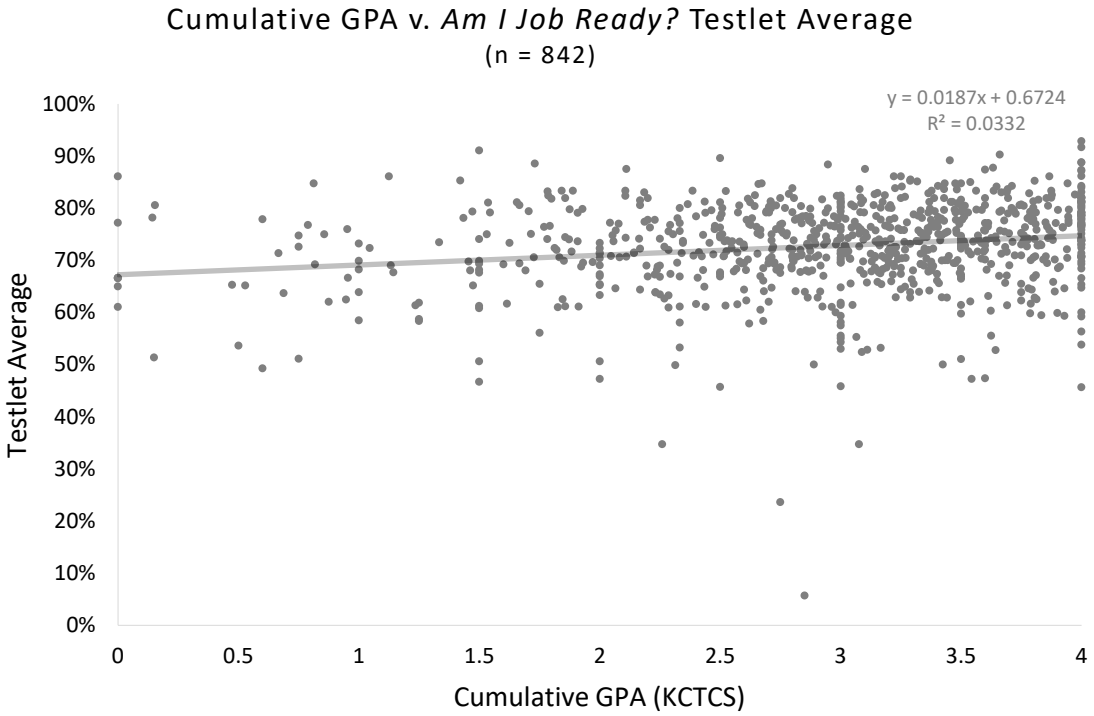



*Figure 12.* Relationship between Cumulative GPA and *Am I Job Ready?* Testlet Average

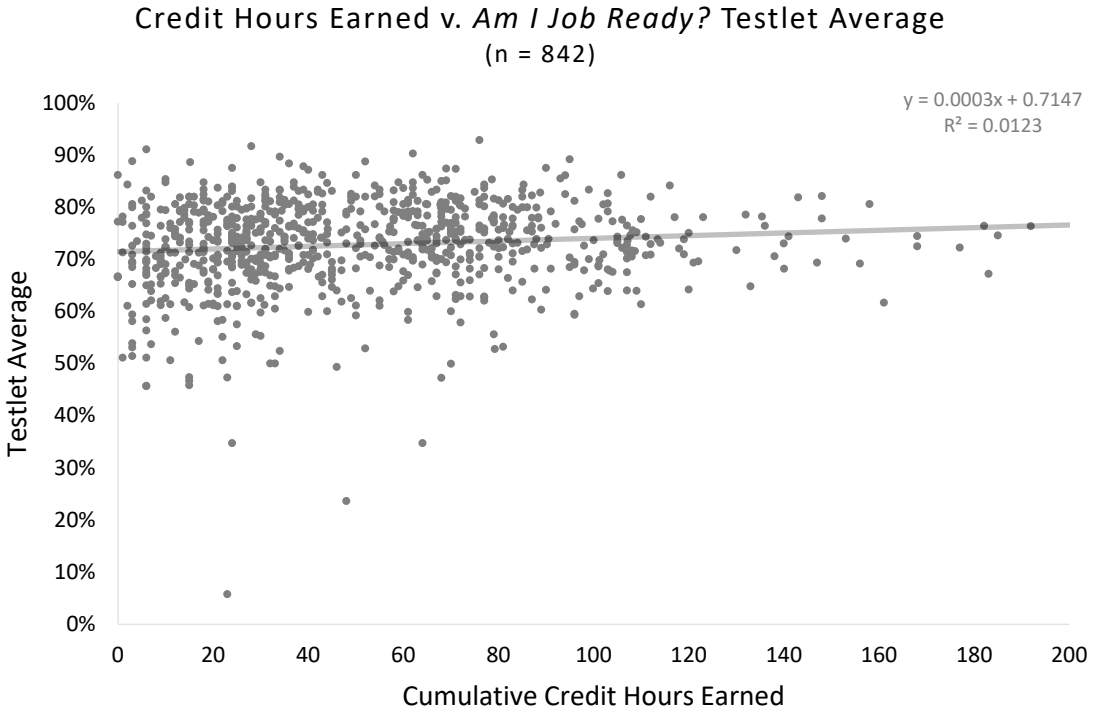



*Figure 13.* Relationship between Cumulative Credit Hours Earned and *Am I Job Ready?* Testlet Average

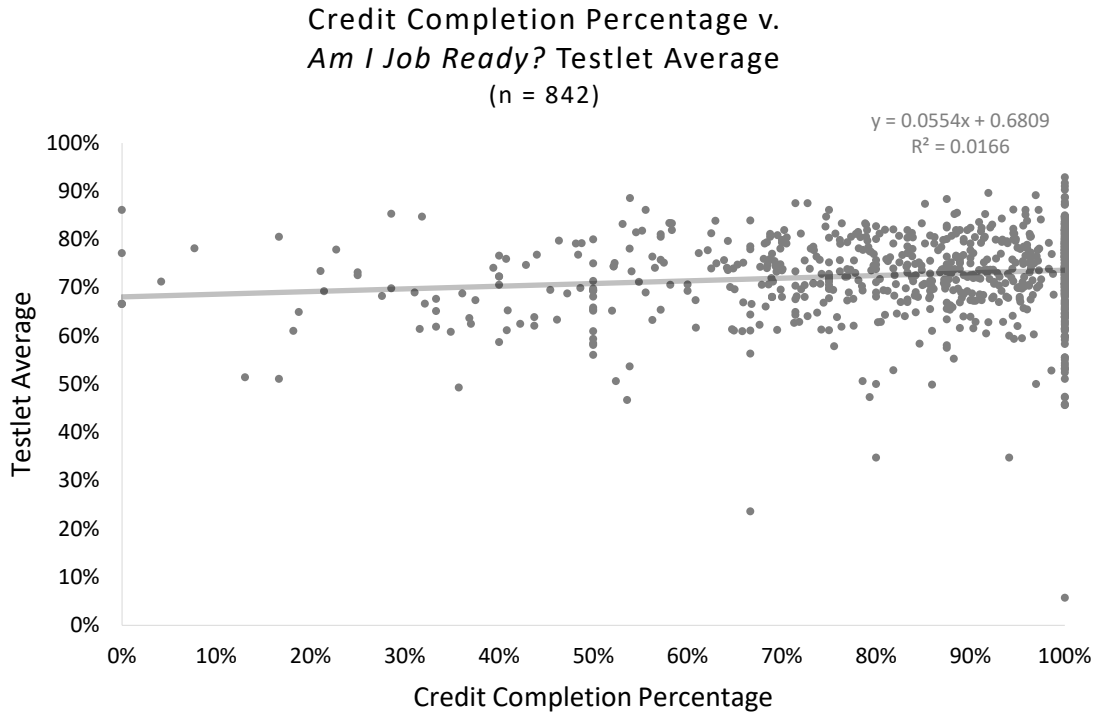



*Figure 14.* Relationship between Credit Completion Percentage and *Am I Job Ready?* Testlet Average

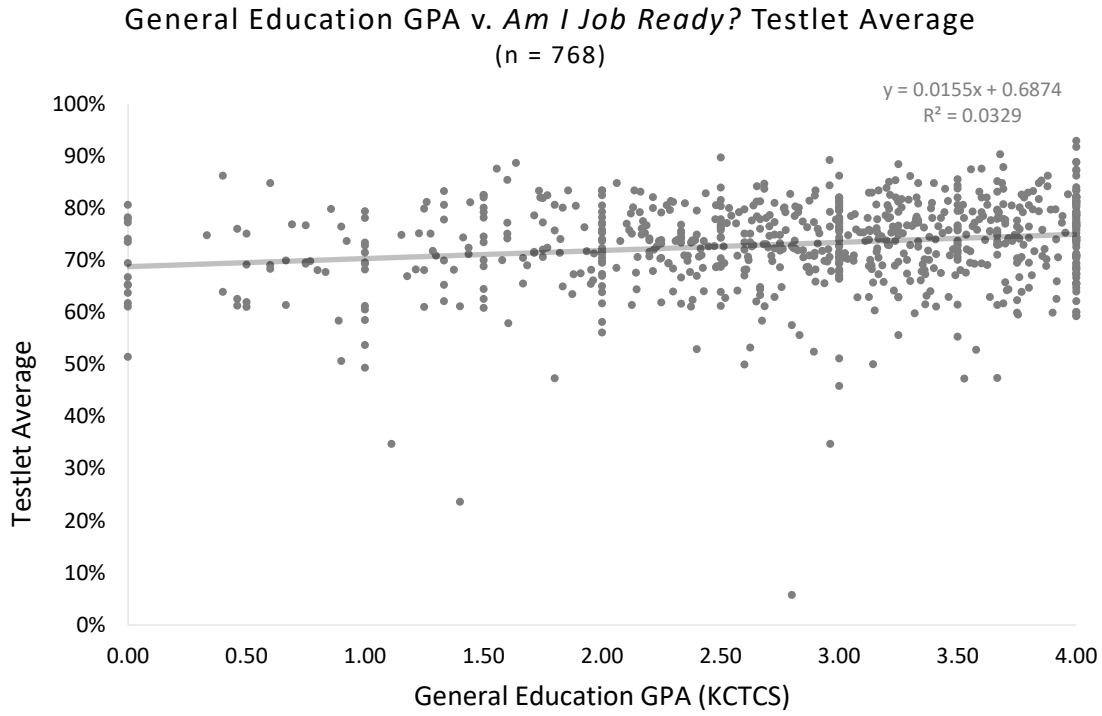



*Figure 15.* Relationship between General Ed GPA and *Am I Job Ready?* Testlet Average

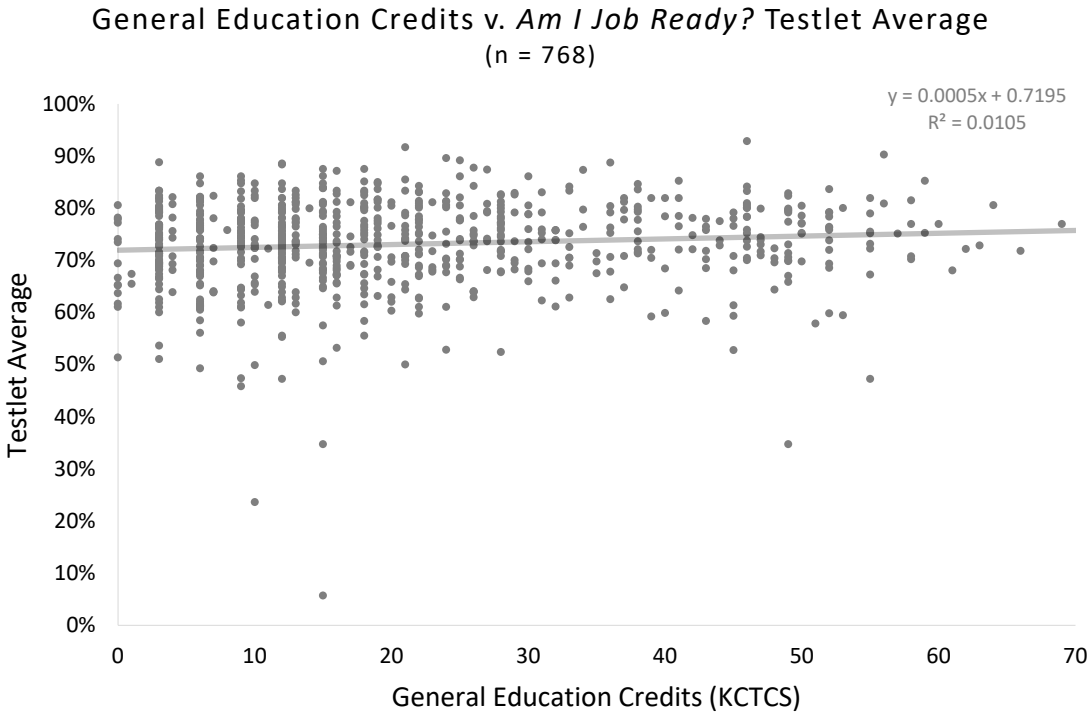



*Figure 16.* Relationship between General Education Credits Completed and *Am I Job Ready?* Testlet Average

Step Three: Correlation matrix and t stat screening

The correlation matrix of the twelve continuous variables is found in Table 8. The check for multicollinearity resulted in the removal of all variables except for ACT Composite since all the other variables were more related to one another than to the dependent variable. General Education GPA, which would have qualified for inclusion based on the t stat screening procedure and was the next most independent of ACT Composite, had a correlation with the ACT Composite that was almost twice that of the *Am I Job Ready?* testlet average (0.326 v. 0.176). As a result, it was removed. The ACT Composite was the only continuous variable entered into the regression analysis.

Table 8

*Correlation Matrix*

| | Average Testlet Score | ACT Math | ACT Reading | ACT English | ACT Comp | College Ready % | GPA | Credits Earned | Credit Comp Rate | Gen Ed Credits Earned | Gen Ed GPA | EFC | Age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Testlet Score | 1 | | | | | | | | | | | | |
| ACT Math | 0.212 | 1 | | | | | | | | | | | |
| ACT Reading | 0.248 | 0.483 | 1 | | | | | | | | | | |
| ACT English | 0.283 | 0.607 | 0.714 | 1 | | | | | | | | | |
| ACT Composite | 0.313 | 0.77 | 0.847 | 0.891 | 1 | | | | | | | | |
| College Ready % | 0.281 | 0.733 | 0.686 | 0.777 | 0.832 | 1 | | | | | | | |
| GPA | 0.149 | 0.201 | 0.262 | 0.321 | 0.322 | 0.27 | 1 | | | | | | |
| Credits Earned | 0.086 | 0.056 | 0.087 | 0.166 | 0.121 | 0.098 | 0.402 | 1 | | | | | |
| Credit Completion Rate | 0.119 | 0.169 | 0.214 | 0.259 | 0.272 | 0.208 | 0.77 | 0.372 | 1 | | | | |
| Gen Ed Credits Earned | 0.134 | 0.14 | 0.16 | 0.198 | 0.184 | 0.197 | 0.402 | 0.519 | 0.417 | 1 | | | |
| Gen Ed GPA | 0.176 | 0.21 | 0.266 | 0.321 | 0.326 | 0.291 | 0.932 | 0.393 | 0.725 | 0.36 | 1 | | |
| Estimated Family Contr | 0.024 | 0.115 | 0.126 | 0.103 | 0.122 | 0.097 | 0.117 | -0.059 | 0.125 | 0.034 | 0.137 | 1 | |
| Age | 0.028 | -0.212 | -0.081 | -0.113 | -0.117 | -0.165 | 0.152 | 0.483 | 0.046 | 0.021 | 0.17 | -0.091 | 1 |

Step Four: Consideration of categorical variables

The effect of parental education on the average *Am I Job Ready?* testlet score was considered with an analysis of variance (ANOVA). No significant difference was found, as is visually evident in Figure 17.

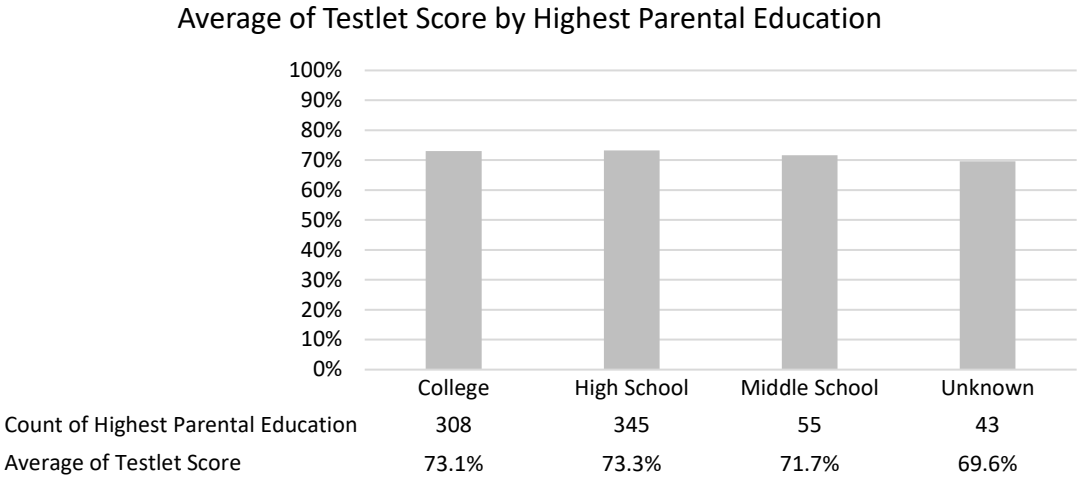



*Figure 17.* Relationship between Parental Education and *Am I Job Ready?* Testlet Average

Based on a *t*-test, gender had no significant effect ($p < .05$) on testlet score average (Figure 18).

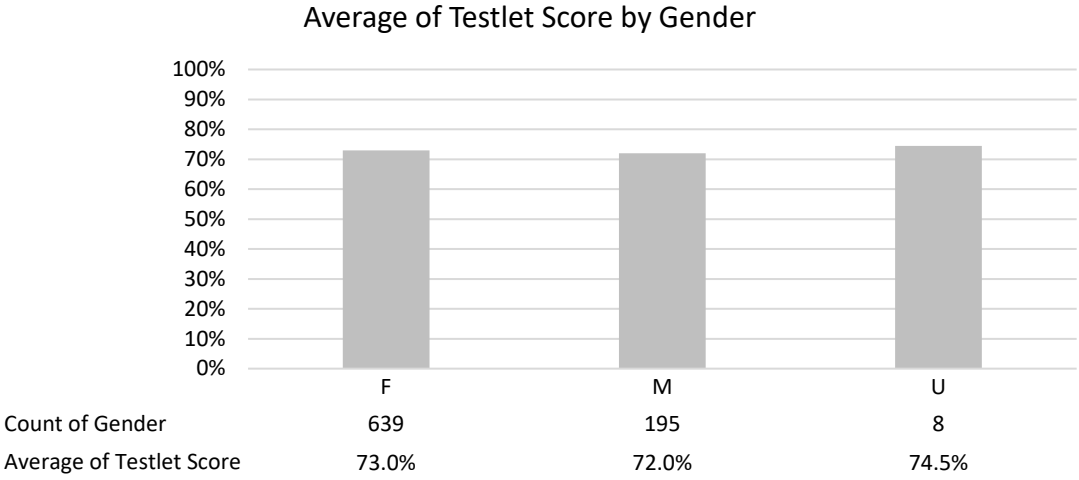
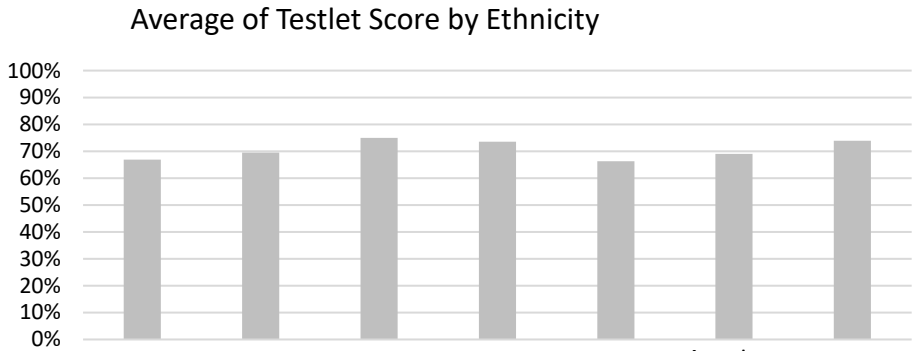



*Figure 18.* Relationship between Gender and *Am I Job Ready?* Testlet Average

An ANOVA analysis of ethnicity and testlet scores uncovered a significant difference between groups, as shown in Figure 19.




| | Asian | Non Specified | Two or More Races | White | Black/ African American | American Indian/ Alaska Native | Hispanic/ Latino |
|---|---|---|---|---|---|---|---|
| Count of Ethnicity | 9 | 17 | 23 | 682 | 83 | 1 | 27 |
| Average of Testlet Score | 66.9% | 69.5% | 74.9% | 73.6% | 66.3% | 69.0% | 73.9% |

*Figure 19.* Relationship between Ethnicity and *Am I Job Ready?* Testlet Average

African American students scored lower ($p < .05$) on *Am I Job Ready?* as compared to other students in the sample. A similar difference was found in an analysis of ACT Composite scores in the sample as well so ethnicity was not considered further.

Work-based learning was analyzed with a *t*-test and no significant difference was found in average testlet scores (Figure 20).


| | No | Yes |
|---|---|---|
| Count of WBLO | 735 | 107 |
| Average of Testlet Score | 72.8% | 72.4% |

*Figure 20.* Relationship between Age and *Am I Job Ready?* Testlet Average

As a result, no categorical variables were included as dummy variables in the regression analysis.

Step Five: Regression analysis

With the regression analysis reduced to one continuous variable, the sample included in the regression analysis was expanded from 406 (the number of subjects in the sample with all the quantitative variables) to all participants with an ACT Composite score (n = 474).

Table 9

*Regression Statistics*

| | |
|---|---|
| Multiple R | 0.324 |
| R Square | 0.105 |
| Adjusted R Square | 0.103 |
| Standard Error | 0.088 |
| Observations | 474 |

Based on the regression analysis, the proportion of the variance in testlet score (adjusted R square) that is predictable from the ACT Composite score is slightly more than 10%.

Step Six: Analysis of Variance

An analysis of variance (ANOVA) was completed based on the regression analysis. The ANOVA results are included in Table 10.

Table 10

*Analysis of Variance*

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 1 | 0.425 | 0.425 | 55.441 | 0.000 |
| Residual | 472 | 3.617 | 0.008 | | |
| Total | 473 | 4.042 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* |
|---|---|---|---|---|
| Intercept | 0.569 | 0.022 | 25.996 | 0.000 |
| Average of ACT Comp | 0.008 | 0.001 | 7.446 | 0.000 |

Step 7: Consideration of the null hypothesis

Based on the ANOVA, the null hypothesis was rejected and the alternative hypothesis, that the predictor variable of ACT Composite score is related at $p < 0.05$, was accepted.

**Findings**

The only predictor variable that emerged from the regression analysis was the ACT Composite. All others provided no predictive value (e.g., age, Estimated Family Contribution), or, at best, predicted each other to a greater extent (e.g., GPA, credits earned) than they predicted student performance on *Am I Job Ready?* As a result, the regression analysis provided limited insight beyond what is available in Figure 8, the scatterplot and analysis of the relationship between the ACT Composite and the student testlet average on *Am I Job Ready?* Slightly more than ten percent of the proportion of

the variance in *Am I Job Ready?* testlet scores may be predicted by prior student performance on the ACT based on the ACT Composite score.

This result suggests that while 10% of the variance in a student's average score on *Am I Job Ready?* may be anticipated by an existing ACT Composite score, that is the best of any of the independent variables. Nearly ninety percent of a student's soft skill testlet score cannot be predicted by any—or any combination—of the variables in this study.

**Discussion and Implications**

While the result of the analysis is statistically significant, the identification of one predictor of little more than ten percent of the variance in student performance on a soft skill assessment provides only a starting point for understanding the contribution of higher education to soft skill attainment. One other variable, ethnicity (in the case of African Americans), showed a significant difference. This was not pursued further since the same difference was observed in the only predictor variable to emerge from the regression analysis. While it could potentially be a sign of bias in the *Am I Job Ready?* assessment, it may be that the findings of Fan, Wei, and Zhang (2017) apply. Their research suggests that African Americans self-select into careers where hard skills have priority because African Americans may get a greater return on investment when focusing on "cognitive skills" rather than soft skills (p. 1051).

Returning to the original three research questions, the above results indicate that while a college degree may serve as a proxy for soft skill attainment, traditional college student success measures appear to have very limited predictive power at the associate degree level. As a result, this study suggests that a soft skill assessment is not

duplicative. It is measuring something other than what the completion of college coursework and grade point average capture.

The second question, whether other measures that are designed to predict postsecondary success, such as college entrance exams and socioeconomic factors, are predictive of student performance on a soft skill attainment, may have a partial answer. At the two-year college level, it appears that student performance on a soft skill assessment may be independent of the sociodemographic factors that are used in many models of postsecondary success. There is a contribution from academic preparation prior to college, as indicated by a college entrance exam (the ACT, in this case), but it is only around 10%. This suggests that pre-college factors may have an impact on soft skill attainment. Alternatively, it could be evidence that general test taking ability is influential. Or it could be a combination of both.

In regard to the third research question, a model for soft skill development at the postsecondary level is still at its beginning stage. Fortunately, there is value in what was not found even when the limitations of the study are taken into account. A number of potential predictors of soft skills—socioeconomic status, age, credit attainment, GPA, general education course success, and work-based learning—were not only rejected for inclusion in the regression analysis, they were individually examined and found wanting as predictors of success on a soft skills assessment. Therefore, time and effort in future research in this area may be better spent examining other possible predictors. While these results are from only one state, the size of the sample and lack of a discernable effect suggest that other avenues should be explored.

For example, years of ACT research indicates that college GPA is predicted by a combination of high school grades (34%), ACT Composite score (30%), academic behaviors (17%), student demographics (12%), and institutional factors (ACT, 2016). Based on this study, ACT Composite predicts only 10% of a student's *Am I Job Ready?* performance. Other factors examined in this study that are predictors of college GPA, such as demographics and GPA, contributed very little. A predictor that may be responsible for 10% percent should not be discounted, as factors supplying less than that have been used in models, but it unknown if this is an exclusive contribution or if other variables will be found that encompass this one and have more power.

One potential source for prediction variables are the models for student success outlined in Hirschy, Bremer, and Castellano (2011). These include maturity, self-efficacy, academic integration, social integration, family responsibilities, membership in organizations, peer group interactions, the ability to handle stress, validating experiences, and goal commitment. In many cases the challenge will be in teasing these elements apart from the soft skills themselves, although established concepts like self-efficacy (Bandura) and academic and social integration (Tinto) may provide starting points. The emphasis ACT is placing in essential (soft) skill assessments based on the Big Five personality traits, which are supported by decades of research, may point to fertile areas for future research as well (ACT, 2015; ACT, 2017).

It is possible that *Am I Job Ready?* situational judgment testlets are not valid measures of soft skills and that is why no relationship emerged from the study. This is, however, unlikely for several reasons. First, the product was developed with the end of

measuring soft skills in mind. Second, it is being sold, so customers such as KCTCS must be finding it useful to some extent. Third, the results from KCTCS, where students are completing thirteen testlets on average, suggest that end-users are finding value in investing their time in the assessment. Finally, the *Am I Job Ready?* testlets are explicit in the identification of the skills being assessed. There is a scenario for each of the seventy-one subskills (Appendix) with a set of responses to judge. Assessment items are not typically available for review, making it difficult to evaluate the match between items and content. In the case of *Am I Job Ready?,* the items and the content are accessible. The connection is readily apparent.

If one accepts that *Am I Job Ready?* potentially measures what it purports to measure—sixteen skills known as soft skills, work ready skills, or life skills—it may be that the conventional wisdom about soft skills is true. Academic success may not be a good predictor of whether a student will have the soft skills needed to navigate a workplace that is increasingly service oriented. Heckman, Stixrud, and Urzua (2006) state that non-cognitive skills are as good as a predictor of wages as cognitive skills in many cases. A struggling student or someone who never attended college may very well possess the soft skills that will provide them with opportunities for success in the new economy. Higher education, long seen as a sign of the attainment of soft skills, may not be providing the level of preparation necessary. The major investment by ACT in social-emotional learning assessments for the workplace may be an indicator that even testing companies focused on preparation for college are recognizing the need for evaluation and feedback outside of the traditional academic subject areas.

While it must be noted that a prime limitation of this study is that it did not obtain data that would allow an exploration of the relationship between work experience and soft skills, there are findings that may be informative. Age, thought to be a potential proxy for work experience, had no predictive power in regard to performance on *Am I Job Ready?* Similarly, the expected family contribution from FAFSA, which is a rough gauge for how economically successful a student or student's family is, provided no guidance on how well a student would perform on the soft skill testlets in this study. The nuances of the work experience, such as the duration and intensity of experience, the industry sector, the level of responsibility and autonomy, the training and guidance received, and the realization of success, all may be greater predictors of soft skills. These same experiences, however, may provide the very practice and feedback that is needed to improve and master skills essential to the workplace. Unraveling these intertwined experiences will necessitate the collection of data from both the employee and employer.

**Conclusion**

The magic mixture of experience and education that leads to soft skill attainment is still ripe for further investigation. Surveys of employers and thought leaders—as well as job data on emerging careers—indicate that these skills will be in greater demand as the knowledge economy evolves. Despite the fact that a college degree has often been used as a signal by graduates that they possess the requisite soft skills in addition to industry- or profession-specific preparation, this study suggests that traditional measures of academic success have limited predictive value. It would appear that in regard to the perennial problem of workforce preparation, higher education has much work to do.

# MANUSCRIPT THREE

# AN EXPLORATORY DIALOGUE ON THE UNIQUELY HUMAN ASPECT OF SOFT SKILLS

## Introduction

Proponents of soft skills have recently taken to referring to such abilities as "uniquely human" (Aoun, 2017; PwC, 2017; Morning Consult, 2018). In the following thought piece I explore whether there is a basis for such a label and address questions about the value of soft skills in general. This imagined conversation was informed by many discussions with colleagues over the past two years as I have worked to establish "buy in" for a soft skills initiative my college and at colleges within the state system of which we are a part. In my experience, most faculty voice support for the importance of soft skills. Many, however, see no need to make change to curriculum or instruction to foster the attainment of such. Others see soft skills as the latest passing fad, while a few see the call for soft skills as further evidence of a capitalist system that only wants workers who will make nice with customers, go along with management decisions, and accept without question wages that may or may not provide a family sustaining wage. This amalgam of office, hallway, and watercooler conversations serve as a window into understanding how one might begin to negotiate a change in the collective organizational thinking about soft skills. Rather that portray this as a play with a multitude of actors in a real-world campus setting, I have limited it to two individuals in a dialogue to minimize an investment in character development, maximize the focus on the arguments, and retain a resemblance to collegial interaction familiar to the academic reader.

**Part I. Soft Skills: Capitalist Tools or Golden Rules?**

Theo, a mid-level administrator assigned to lead the campus soft skills initiative last semester, stops at the office door of the college's only philosophy professor.

Theo: Would now be a good time for an update on those conversations you suggested I have with some of your colleagues?

Emma: A discussion rather than grading papers? Please, have a seat.

Theo: First, I want you to know I really appreciate your willingness to pilot the soft skills assessment with your students. I have to admit that I name dropped your involvement to try and get some others on board.

Emma: If it worked for you, it is A-OK by me. I am not participating just because I am on the committee. I really believe that clearly identifying these skills helps open our students' minds to what my classes are all about. Philosophy is not just a general education requirement—it is a way of thinking and reasoning about life. There is a wonder and logic to philosophy, and it allows you to see the world with new eyes, to borrow and extend a phrase from Proust. To me, soft skills are a practical application of the habits of mind we are trying to cultivate in our students. Did I show you the handout I created from your soft skills summary?

Theo: No. Do you mean the consensus list of soft skills I shared at our college meeting? (Table 2)

Emma: Yes, that's the one. I started to create an alignment of soft skills in the program with the habits of mind of a liberal education that I have listed in my syllabi for some time. Then I decided to just add them to your document. It is good for students to see how academics arrive at a list like this, how it is grounded in multiple references. Take a look (Table 11).

Theo: Oh, I like this. May I use it with others?

Emma: I thought you might—and yes, absolutely. Just give me credit for it too. So, tell me about these conversations.

Theo: This won't be short. It has been a few months since we last talked much and I managed to speak with several of the faculty members you suggested. And I read a couple more books too.

Emma: (chuckles) That is OK. I really need a break from my Intro to Philosophy midterm papers.

Theo: I have to start with my conversation with Dr. Killian. It was as animated as you predicted it would be.

Emma: A rail against capitalism?

**[Capitalist tools]**

Theo: Oh yes. And when he gets started, it is hard to disagree with him. He made a lot of good points, but one was the most memorable. He said that Marx, if he were here today to see the rise of the service economy, might characterize soft skills as

Table 11

*Consensus Soft Skills with Habits of Mind*

| Consensus Category | ACT Tessera /HEXACO (2019) | *Am I Job Ready?* (2016) | Wonderlic (2016) | Partnership for 21st Century Skills (2015) | World Economic Forum (2015) | Robels (2012) | SCANS 2000 (1991) | Habits of Mind[a] |
|---|---|---|---|---|---|---|---|---|
| Collaboration | Collaboration/ Agreeableness | Cooperative Teamwork | Teamwork | Collaboration | Collaboration | Teamwork | Interpersonal Skills – Working on teams, teaching others, serving customers, negotiating | Seeks connections and nurtures relationships |
| Interpersonal skills and cultural understanding | | Customer Focus | Interpersonal skills | Social and Cross-Cultural Skills | Social and cultural awareness | Interpersonal skills & Courtesy | Interpersonal Skills – Working well with people from culturally diverse backgrounds | Listens carefully and empathizes |
| Communication | | Influential Communication | Communication & Listening/ non-verbal | Communications | Communication | Communication | Basic Skills – Reading, writing, arithmetic and mathematics, listening, and speaking | Communicates precisely |
| Initiative and self-management | Resilience/ Emotional Stability | Coping with Pressure & Initiative & Planning and Organizing | Initiative & Self-management | Initiative and Self-Direction | Initiative | Positive attitude | Personal Qualities: Self-management | Takes responsible risks & Manages time and behavior |
| Critical thinking | | Analytical Problem-Solving & Decision Making | Critical thinking | Critical Thinking and Problem Solving | Critical thinking/ problem-solving | | Thinking Skills - Making decisions, solving problems, knowing how to learn, and reasoning | Thinks clearly & Reflectively |
| Responsibility and leadership | Leadership/ Extraversion | Management of Others & Strategic Vision | | Leadership and Responsibility | Leadership | Responsibility | Personal Qualities: Individual responsibility | Responsible |
| Flexibility and adaptability | | Flexibility | | Flexibility and Adaptability | Adaptability | Flexibility | | Open minded & Flexible |
| Integrity and professionalism | Integrity/Honesty and Humility | Integrity and Respect | Professionalism & Customer Service | | | Professionalism & Integrity | Personal Qualities: - Self-esteem, sociability, and integrity/honesty | Humble |
| Creativity and curiosity | Creativity/ Openness | Innovation & Continuous Learning | | Creativity and Innovation | Creativity & Curiosity | | Thinking Skills - Thinking creatively | Curious & Creative |
| Persistence and work ethic | Work Ethic/ Conscientiousness | Reliability & Drive for Excellent Results | | | Persistence/grit | Work ethic | | Persistent |

[a]*Adapted from Cronon, 1998; Costa, Kallick, & Association for Supervision and Curriculum Development, 2000; Charbonneau, Jackson, Kobylski, Roginski, Sulewski, & Wattenberg, 2009; Council of Writing Program Administrators, National Council of Teachers of English, & National Writing Project, 2011; Çalik & Coll, 2012; Hazard, 2013.*

capitalist tools. He said that while they would not rival religion as the opiate of the masses, soft skills might be the marijuana of the masses: the skill of being chill with customer demands and the concentration of wealth in a capitalist society while riding high on consumerism.

Emma: He is fortunate you were there to write that one down.

Theo: Oh, there is more. According to him, Davos man has a credo for the happy worker bees of society: If you work hard enough someday you will earn your part too. Just work, don't ask questions, and buy. The more stuff, the better.

Emma: You talked with him in January, didn't you?

Theo: Yes, that may not have been the best timing for the conversation, given that the annual Davos gathering is then.

Emma: He has a point. In some ways we, as college faculty and staff, may be unwittingly perpetuating the current class structure by cooling out unrealistic career ideas of soon to be adults while preparing them with the requisite "make nice" skills of service positions.

Theo: Yes, and it is a fair point. Positive interaction with co-workers and customers is a recognized soft skill. I don't disagree with his critique of transnational public-private venture capitalism without boundaries, but I countered by explaining the Davos attendees' worries about talent shortages in the new economy are legitimate because our students want to be prepared to work in the world in which

they live. The World Economic Forum's *The Future of Jobs Report 2018* notes that soft skills, rather than the traditional academic "cognitive" skills, to use their wording, are becoming increasingly necessary.

Emma: And how did that go?

Theo: He pulled up the World Economic Forum's website and showed me its tag line: "committed to improving the state of the world." He said he did not trust their frame of reference for improvement. Seeing the world as it is currently is important, but imaging a world as it should be is more so. According to him, a Davos man wants a soft-skilled, compliant proletariat that ensures that the smooth maintenance of the current socio-economic order. Workers are only human resources in a global economic system, commodified, discardable, and interchangeable, with no care for anything but profit.

Emma: And those will struggle to make ends meet in this new economy are our students.

Theo: Yes, that is his argument.

Emma: But many educators view their efforts as more than just preparation for the workplace. The case for soft skills goes beyond economic competitiveness. Unlike their hard counterparts, soft skills are relatively timeless. They are non-content specific, have broad applicability, and require practice. They are not apt to be regularly replaced by new discoveries, inventions, or methods.

Theo: They are, however, more fluid and difficult to assess because they are used in many different settings. Yes, you and I agree on that. Like your habits of mind.

Emma: Exactly. And you were ready to make this point with Dr. Killian.

Theo: I did my best. I am glad you told me to talk with Dr. Darmani first.

Emma: She schooled you on capitalism too, didn't she?

Theo: Yes, and I learned quite a bit about microlending in sub-Saharan Africa too. We are fortunate to have a very non-traditional economics professor. And I was glad I had read Robert Heilbroner's *The Worldly Philosophers* last summer too.

Emma: It is a good read. You can't say that about many economic histories. That is why it was a book listed as one that all high schoolers should read by *The New York Times* last year.

Theo: I am still trying to figure out how to work that into my first-year seminar course. But back to Dr. Darmani. She prepared me. Her point is that capitalism gets confounded with greed and consumerism just like government does with corruption and bureaucracy. The system gets the blame when the actors within are unethical or processes go unchecked by rational considerations.

Emma: Yes, go on.

Theo: Darmani echoed what I remember about Heilbroner's book. She said that the buying and selling of goods is not capitalism. It is a prerequisite, just as bookkeeping, standard measures, and currency are, but if the direction of production is due to custom or command, it is not a market system. This was the way of life for millennia. Custom was that you did what your parent did for a

living. When this did not hold true, it was often due to the command of your tribal leader, your king, or your emperor. There were exceptions to this general rule, such as China's civil service examination system, but she said that even it may be considered a command system, for one's station in life was determined by a government sanctioned means.

Emma: And it was that way for centuries.

Theo: The expectation for the commoner was to maintain one's position, not advance it. It was not until the invention of the market system in the sixteenth century or so—a process that could drive an entire society—that capitalism could exist. She explained that there was land, labor, capital, and the exchange of goods before this time, but the wealth and work of individuals were not used to fuel production and growth. Innovation, in many cases, was discouraged by the guilds of those times.

Emma: Because it was disruptive to the social order.

Theo: (nodding) Yes. With the advent of mass production in weaving in Great Britain, guilds petitioned the king to outlaw such mechanisms, citing the dangerous precedent it would set because they thought it would greatly concentrate wealth.

Emma: You didn't mention that to Killian.

Theo: No, I didn't. So Darmani, who clearly is a fan of Adam Smith, explained his myriad insights. Smith saw that labor, not the natural world, was the source of value. He saw the free market, "without any intervention of law" and driven by

"private interests and passions of men," resulting in a direction "most agreeable to the interest of the whole society" (Smith, 1776, p. 488). This is Smith's "invisible hand" that guides the economy. Darmani likes to point out that this phrase was used only once in *The Wealth of Nations*, which weighed in at more than 700 pages, but it is the one that accompanies his name more than any other. It is shorthand for the "drive of individual self-interest" that results in competition, and this self-regulation sets it apart from markets that are led by custom or command, family or fealty. Smith saw this—commercial capitalism in its pure form—as the "system of perfect liberty" (Smith, 1776, p. 470). He believed that society was in a process of continuous improvement, powered by invention, innovation, and market forces. Capital was only a benefit to society because it would be invested.

Emma: So in its pure form you believe capitalism is inherently good?

Theo: Darmani thinks so, and the more that I think about it I tend to agree. It supports my intuitive sense that soft skills are good for humanity. Even if they are capitalist tools, if capitalism is pure at its core, then soft skills cannot be tainted by that association.

Emma: But you don't sound as sure as yourself as you would like to be.

Theo: True. I am still rolling these conversations around in my mind.

Emma: So you tried to communicate this with Killian.

Theo: I put up a spirited defense of capitalism, and I think Darmani would have been proud. But Killian was ready.

Emma: Let me guess. He talked about capitalism's appetite for innovation and growth.

Theo: Marx has his back on that. Killian said that the great recession should have finally taught us a lesson. Marx foresaw that economic contractions do not just result in small businesses being gobbled up by larger ones. They are part of a boom/bust cycle fundamental to how capitalism works. The class of workers without capital to invest—the proletariat—can only sell their "labor-power" as a commodity to larger and larger corporations. He said the gig economy is just the latest evidence of this, and that is an example of where you see the demand for soft skills. When you are an independent contractor, your living depends on making nice with the customer.

Emma: It is a challenge to disagree with that.

Theo: I didn't try. I added that Marx thought capitalism would collapse in his lifetime. It didn't, and hasn't.

Emma: Killian returned to the capitalist appetite argument again, didn't he?

Theo: Yes. According to him the spread of capitalism into the developing world has satisfied it—for now. I added that Marx underestimated the capacity of society and government to adapt, and that capitalism, with the right checks and balances, could continue to work. He said my faith in government was misplaced, but he appreciated my willingness to debate him on the subject.

Emma: A declaration of victory by him then?

Theo: I think he thought I was ready to give up, but I tried to conclude with some points that I thought he could appreciate as a sociologist. Yes, the many limitations, ill-behaviors, and crises in the real world where motives are not so pure as in Smith's conception remain. Similar businesses work together to rig prices. Giant corporations sell below cost and then charge far more once the competition is driven from the market. Markets progress through bull and bear cycles. Unearned wealth passes to descendants because they had the luck of being born to the right family. Governments act to prop up some industries while letting others die out. But the modern capitalist economy, more entrepreneurial, complex, and interdependent than ever, survives. Our economy is founded on the <u>freedom of individual choice</u> in a competitive market. These choices are not always as informed as they should be—and sometimes individuals do not even act in their own self-interest—but the sum total of these decisions drives the capitalist economy. Any other system would, in essence, return to the custom or command systems of centuries past.

Emma: And his response?

Theo: Our conversation turned to soft skills and the initiative after that. I am hopeful he opened his mind to the usefulness of soft skills for our students even if they are capitalist tools to him.

Emma: That was the conversation that I was looking forward to hearing about. Did you have any other good ones in your quest to persuade others to join your soft skills campaign?

Theo: I did. The one with Dr. Schrock was quite enlightening. He lent me a book he wanted me to read before we talked, Yuval Norah Harari's *Sapiens: A brief history of humankind*.

Emma: That is just like him. The good news is that you can trust his judgment.

Theo: Yes, it was remarkable. One of Harari's primary theses was what I was looking for, and I didn't even realize it at the time I started reading *Sapiens*.

Emma: Do tell.

**[*Homo economicus*]**

Theo: In the past few years proponents of soft skills have started referring to them as uniquely human. Everyone seems to take it as a given that this is true. It wasn't that I disagreed, it was that I didn't read that in the research literature. It was only in the articles for general audiences.

Emma: Harari addressed this?

Theo: He didn't intend to, but when I read it, it got me thinking. *Homo economicus* is a shorthand name for the individual decision maker who participates in the capitalist economy; a rational actor who maximizes the usefulness of what is consumed and the profit in what is sold. But why did it take so long for this "species" to be make its way into the story of humanity? It would seem to be a reasonable idea that humans have always tried to act in their own best self-interest. One's survival depends upon it. At the same time one can imagine that

for as long as humans have been able to share tales with one another there have been heroic stories of self-sacrifice for others in their social group. As our ancestors evolved, these efforts extended to an imagined greater good, whether it was a god or an abstract ideal such as honor or justice. Even these ideas, however, still are rooted in a belief in value. The individual believes in these things—whether family, clan, or community; leader, god, or ideal—and they have value for the individual.

Emma: So, your point is about the power of the human imagination?

Theo: In a sense, but let me explain a bit more. I am thinking that more elemental definition of *H. economicus* may go deeper than the idea of consumer and producer. *H. economicus* may be thought of as a being that thoughtfully considers or somehow intuitively knows, based on experience, what is valued. Decisions are then made based on that. Humans have an ability to value things, even immaterial things.

Emma: What does Harari's idea have to do with this?

Theo: Harari's thesis is that *Homo sapiens* were able to share fictions. He makes the case that Neanderthals couldn't. Without myths and ideas, Neanderthals couldn't lead and coordinate large groups, let alone the armies *Homo sapiens* would eventually be able to muster. They could not socially adapt to challenges the way modern humans could. According to Harari, the social and fiction-generating abilities of *Homo sapiens* is the reason why it is the only hominid that walks the Earth today.

Emma: While Harari's hypothesis may be true, it is unlikely that anything close to definitive proof will ever be found.

Theo: Agreed. But for the purposes of the discussion I had with Dr. Schrock, it made for fertile ground. So, despite their superior physical strength, the only remnants of Neanderthals today are artifacts, bones, and some DNA from interbreeding. Modern *Homo sapiens* had some advantage that conferred greater fitness in the environment. Creativity, imagination, and abstract thinking have been mentioned as candidates for this. Yet Neanderthals were skilled tool makers. It is difficult to imagine that someone who could design a tool would not possess such attributes. Furthermore, Neanderthal art, previously unconfirmed, was recently discovered (Marris, 2018). This evidence of symbolic thinking extends our thinking about Neanderthal abilities. The communication of fictions, however, would go a step further. It could be that this set *H. sapiens* apart.

Emma: I am intrigued, but what does this have to do with soft skills?

Theo: Consider the consensus list of soft skills. Based on the fact that Neanderthals and early *H. sapiens* were successful tool making hunter-gatherers, it is within reason to think that they shared some skills, even if there were important differences in degree. These might include the six soft skills that exist even without a formal language—skills one could imagine any social animals using to some extent, such as collaboration, critical thinking, initiative, creativity, persistence, and to some extent, adaptability. Two other soft skills, communication and interpersonal relations, are in the realm of conjecture. It is unknown how these skills

manifested themselves, if at all, in Neanderthals. One might hazard a guess that these skills may have existed in some rudimentary form within the extended family group:

Emma: In your list of ten consensus soft skills, that leaves two.

Theo: Integrity and leadership. These may have differentiated *H. sapiens* from other hominids.

Emma: Your basis for this is…?

Theo: I know I am not an expert, but Dr. Schrock agreed with me.

Emma: On the fact that you are not an expert.

Theo: I am sure he would agree on that too, but what I am trying to say is that integrity and leadership require the social ability to trust one another. Harari cites evidence from archeological sites to shed light on this potentially key difference. Seashells from the Atlantic and Mediterranean have been found in thirty-thousand-year-old *H. sapiens* sites in central Europe. These shells likely arrived there through long-distance trade. The artifacts in Neanderthal sites are all made of materials of local origin. Harari believes that trade "cannot exist without trust" (2015, p. 36). In turn, it difficult to conceive of a conception of integrity—reliably honest and true—or leadership of any size group without trust. He believes that *H. sapiens* experienced a "cognitive revolution" that allowed them to share large quantities of information about the world, social relationships, and things that do not really exist—spirits, nations, and other "fictions"—except in our minds.

Emma: It was these intellectual abilities that propelled *H. sapiens* forward while leaving other hominids behind?

Theo: Yes, and these abilities are fundamental to soft skills as well. While persistence and work ethic may predate this cognitive revolution, large quantities of information take the other skills to the next level. Critical thinking requires knowledge—facts—upon which to make judgments. The greater quantities of information retained, the greater the potential for well-chosen courses of action. Furthermore, generational transmission of knowledge about the environment and the retention of stories that bind the social group together are improved. The innate impetus to gather information—to learn—is the pursuit of knowledge. Creativity often involves the synthesis of new ideas from old information. Communication allows the relatively rapid sharing of what has been learned or conceived.

Emma: And all of these abilities increase the survival chances of the individual and the group.

Theo: Yes. They moved the species beyond instinctive fight or flight reactions to more considered and flexible approaches that require forethought, judgment, and, in many cases, collaboration.

Emma: Did Harari write about all this?

Theo: Yes, but not from the perspective of soft skills. That is where my take comes in. For example, Harari plumbs the advent of trade—essentially as a thought

experiment. If trade requires trust, and fictive thought is a prerequisite, then evidence of trade may be the opening steps on a path from hunter-gathering to agriculture. Harari tenders the idea that a fictive-thought progression may move from mythical explanations and gods, to the construction of temples, and then to the first settlements and agriculture near the places of worship. As agricultural approaches matured and food production exceeded supply, this allowed economic specialization. Cities and states, leaders and laws followed, as the shared stories—fictions—allowed thousands to cooperate and work toward common goals.

Emma: So, the cognitive revolution, followed by the agricultural revolution, allowed human societies to grow larger and more complex.

Theo: Yes, and the pervasive myths and fictions—the common/collective imagination of a society—immerses its members from birth, creating a shared culture. Harari calls culture a "network of artificial instincts" (2015, p. 163). Even though culture is in a constant state of flux, it can allow millions to effectively work together. That is today's world. The age of *H. economicus*, the seeker of value.

Emma: And Schrock agrees with you on this?

Theo: We have talked a few times, and while I wouldn't claim agreement, I think he would say my ideas are coherent with Harari's thesis.

Emma: Now you are moving into my world a bit more. Let's unpack this. First, there is the moral critique. It rejects the idea that human prosperity is based in material things in favor of individual relationships as primary interest of human affairs.

Theo: Yes, a life worth living is about more than things, but Maslow's hierarchy of needs serves as the most obvious counterargument. If an individual's physiological (food, water, warmth, rest) and safety needs are not met, one's needs will not rise to the social ones of belonging and self-esteem.

Emma: And that is why there are fewer proponents of the moral critique as a singular argument. Then there is the material critique. It focuses on inequality. *H. economicus* often pursues short-term self-interest while failing to understand the impacts of material inequality in society on the potential for rewards in the long-term. According to Rogan (2018), Amartya Sen unified these two critiques into one. Famine, for example, is usually a failure of societal morals, not just one of weather or agriculture.

Theo: There is a material and moral aspect.

Emma: Yes. Sen believed that in nearly all cases both critiques would apply. Only when the "moral frameworks and social relationships that mediate economic exchanges" are made right will the needs of all be met (Rogan, 2018).

Theo: Again, the connection to *H. economicus* as a particularly appropriate way of thinking about modern *H. sapiens*, the founders of civilization. It is within civilization that a key precondition of capitalism arose: money. Before money,

individuals bartered. If each participant believed they were increasing the value of what they held in the end after the trade, it was a win-win. The specialization that arose after the agricultural revolution resulted in greater expertise and improved products, but this exposed the limits of an economy based on bartering. To engage in a fair trade, *H. economicus* has to know the value of everything that might be offered in exchange—including the value of it now and in the future when it might be exchanged again. While *H. economicus* possesses the ability to take in large amounts of information, knowing enough to determine the value of every trade quickly becomes an impossible exponential calculation.

Emma: And money provides the solution.

Theo: Yes, that is Harari's point, the one that Dr. Schrock and I enjoyed talking about the most. Not only was it a key point that Harari was trying to drive home, it made the perfect historical connection to my sociological and economic conversations with Drs. Killian and Darmani. According to Harari, anything can serve as money as long as others are willing to accept it in exchange. It may be coins, jewels, promissory notes, grain, cows, or even cigarettes in the case of some prisons. The key for Harari is that money is all about trust. He sees money as the "*most universal and most efficient system of mutual trust ever devised*" [Harari's emphasis] (2015, p. 180). The fictive nature of money—that it only has value in the imagination—has allowed thousands, then millions, and now billions to cooperate in an ever-widening economic system.

Emma: (pondering to herself) Fictive nature of money.

Theo: Yes, the trust in money allows for more efficient collection of taxes. Taxes support city-states, nations, and empires. These entities of collective power need and consume data (knowledge). Over time, they produce bureaucracies and create institutions. All these bind peoples together in larger associations than those that existed in prehistoric times. These forces beyond the immediate social group result in the reproduction of what we call culture.

Emma: And culture is but a collection of shared myths and beliefs.

Theo: Yes. To use Harari's term, these are fictions that owe their existence to a society's collective imagination. Similar to Maslow's hierarchy, there seems to be a hierarchy of trust. Trust in the value of something that can be held in one's hands, such as currency, then extends to trust in institutions that hold capital, rather than currency, because the currency they once had has been invested elsewhere—put to use in the capitalist economy. Trust is then placed in the economy itself, even in the "invisible hand" as conceived by Adam Smith. Foundational to all this is trust and the soft skill of integrity—the same soft skill that may have set *H. sapiens* apart from other hominid forebearers.

Emma: (gently suppressing a laugh) According to you.

Theo: Yes, it is a brave hypothesis, but consider the soft skills in the toolkit of *H. economicus*. She can call upon integrity and all the soft skills available in her toolkit—communication, critical thinking, reliability, interpersonal skills, flexibility—to maximize her value as she interacts with others in the world around her. Yet soft skills are fictions. They are descriptions of something immaterial.

Emma: Now we return to philosophy. An immaterial world is just as real as the material one to me.

Theo: (smiles). The moment I have been waiting for. You are the one I want to talk to about the next step in my probably all too brave hypothesis. Soft skills are, in my perspective, universal rules that apply to the material world. These rules owe their existence—even if it is in the imagination—to the very real physical world.

Emma: Or are they inventions of a culture? Could they just be capitalist tools used to maintain the social order by those residing at the top?

Theo: That is the opposing viewpoint, and an understandable one. Here is my argument. Human language provides a unique ability. We can talk about things that do not exist in the physical world. We can talk about the god Zeus, the company known as Apple, laws that set speed limits, or the nation of Canada. While these may have representations in the real world as statues and stories, buildings that are owned and occupied, laws that are written and enforced, and borders and armies, they are fictions.

Emma: I agree so far.

Theo: Harari has a great quote about this to drive the point home. He says that you could "never convince a monkey to give you a banana by promising him limitless bananas after death in monkey heaven" (2015, p. 24).

Emma: (laughs) Yet humans seem to readily and regularly believe in such things.

Theo: And that is a good thing for society, since seeing regulations, rules, and laws as mere fictions might loosen their grip upon individual behavior. One ancient way to remedy any questioning of our societal fictions is to simply state that they are universal and eternal. The Code of Hammurabi, one of the earliest legal codes, made this claim, adding that they were "dictated by the gods" for good measure (Harari, 2015, p. 107).

Emma: The Ten Commandments, of the Judeo-Christian tradition, were handed down by only one God, but their eternal nature is a given to believers.

Theo: Most fictions do not need such declarations. Over time they tend to reinforce and solidify themselves in the minds of those who have known a life within that culture. These are *intersubjective* beliefs according to Harari. He differentiates these fictions from subjective fictions. A subjective belief exists in one person's imagination. If a belief in a monster under one's bed disappears, then it is gone. The intersubjective is a belief, such as in the value of Bitcoin, that owes its existence to the beliefs of many. Its value cannot be affected by an individual, only the collective.

Emma: John Dewey makes a similar claim. According to him, the ability to hold intersubjective beliefs is critical to human sociality (Koopman, 2007).

Theo: Good. I thought you might be familiar with the idea. One could see soft skills as fictions, concepts that have been defined to guide the orderly conduct of economic activity in the capitalist economy. These skills are products of the dominant culture.

Emma: With no existence outside of our societal imagination.

**[Golden rules introduced]**

Theo: I would like to make a different case. Harari cites another category: objective phenomena. His example is radioactivity. You cannot see, touch, smell, hear, or taste it, but it is there and it can be deadly. It is as real as things you can access with your senses. My argument is that there are rules that have an objective as well as an intersubjective basis. *Golden* is the term I will use for rules that might be worthy of such a designation.

Emma: Golden rules. I think that has been taken already. If you would look…

Theo: (smiles) Yes, I am getting to that. Just another couple points.

Emma: OK, I will hear you out.

Theo: Gold is not the least reactive metal, since platinum, an element discovered in the 16$^{th}$ century, holds that title. Human knowledge of gold, however, dates back to antiquity. Its availability, malleability, and lack of reactivity has resulted in it being valued by *H. sapiens* for over five millennia. Golden, therefore, seems an appropriate label for rules based on real world evidence and reasoned consideration rather than an authority's proclamation.

Emma: I think your science teaching background is showing…

Theo: Bear with me just a bit more. I am almost there. The use of *rule* is purposeful as well. In most cases the use of the term "law" is within a legal system.

Commandments usually come from a higher power, whether earthly or heavenly. Theories are explanations with an evidential basis. All are similar to rules, but rule most closely captures what is being sought—a general descriptive essence of what happens. No one prefaces why things are the way they are by saying "as a law," or "as a commandment," or "as a theory." They say "as a rule."

Emma: Accepted.

Theo: I will not delve into the details about the laws of physics, biochemical processes, or mathematical theorems or examine areas of the sciences that are purely theoretical, such as internally consistent conjectures constructed in imaginary spaces extrapolated from knowns in the real world.

Emma: That may be best if we want to finish this conversation today.

Theo: And we may not be able to anyway, but here is where I am going. Objective understandings arise from validated experimental evidence or proofs, but purely theoretical constructs are similar to the intersubjective examples described by Harari—even if they later are found to have real world analogues.

Emma: Agreed.

Theo: Most scientific theories, however, are based on experimentation, observation, and socially constructed ideas. They serve as a model for what will be considered to be *golden rules*. Evolutionary theory is an example. This theory is supported by a century and a half of research findings. It has been found to be universally

applicable, and it did not arise from command or custom. It does not have its basis only in the imagination.

Emma: It is a theory based on observation of biological systems. It is founded in evidence collected in the real world.

Theo: Yes, and it is more. Evolution applies in non-biological systems that have the same fundamental characteristics—cycles of reproduction, differentiation, and selection. If a computer program is designed to iterate randomly with the "child" programs subjected to selection for improved performance, one will see the survival of the fittest programs.

Emma: I amend my statement. It is a theory based on observation of biological and physical systems.

Theo: That is where I am headed. Survival of the fittest serves as a good example of how the term *rule* will be used here. Survival of the fittest is a rule that emerges from observations of the biological systems. It is the product of a creative mind—or of many minds—but it is not independent of the real world.

Emma: It is founded in evidence.

Theo: Rules such as this typically apply to complex, recursive systems—systems that have feedback loops. For example, populations in a biome, particularly populations of predators and prey, are interdependent. They ebb and flow in patterns that are not entirely predictable, but they generally can be statistically modeled. Similar rules arise in other complex systems, such as economies. The

ebb and flow patterns can be seen in bull and bear markets. In these systems, where the actors are multitudinous and interdependent, but independent minded, the feedback loops become even more complex. Statistical modeling can be used, but predictability becomes tenuous at best.

Emma: I will simplify my earlier amended statement to this: It is a theory based on observations of systems.

Theo: Exactly. There are emergent properties that arise from the evidence. Rules that appear in circumstances that are similar in the most important ways. One example of a golden rule is the so-called Golden Rule itself.

Emma: So you were inspired by my wall decoration! My poster on the ethic of reciprocity (Table 12)

Table 12

*Examples of the Golden Rule (Ethic of Reciprocity)*

| Religion | Version of the Golden Rule |
|---|---|
| Buddhism | There is nothing dearer to man than himself; therefore, as it is the same thing that is dear to you and to others, hurt not others with what that pains you (Udanavarga, 5:18). |
| Confucianism | Do not do to others what you would not want others to do to you (Analects: 15.24). |

Table 12 (continued)

| Religion | Version of the Golden Rule |
|---|---|
| Buddhism | There is nothing dearer to man than himself; therefore, as it is the same thing that is dear to you and to others, hurt not others with what that pains you (Udanavarga, 5:18). |
| Confucianism | Do not do to others what you would not want others to do to you (Analects: 15.24). |
| Hinduism | That man who regards all creatures as his own self, and behaves towards them as towards his own self succeeds in attaining to happiness (Mahabharata: Anusasana Parva, Section CXIII: 240). |
| Zoroastrianism | "The fortunate person is one who makes others happy". The doctrine is connected to the golden rule in that the happiness is achievable when the person, first, thinks of others and secondly, does everything to make other people happy (Gharamaleki, 2014: 86) |
| Judaism | You shall love your neighbor as yourself (Leviticus 19:18) |
| Christianity | So in everything, do to others what you would have them do to you, for this sums up the Law and the Prophets (Matthew 7: 12) |
| Islam | Woe to the diminishers, who, when people measure for them, take full measure but when they measure or weigh for others, they reduce! (Mutaffifin: 1-3). |

Adapted from Rakhshani (2017, pp. 469-471)

Theo: It is possible that these are sources of one another—in the case of Christianity, for instance, it is Judaism.

Emma: But even if this is true, the acceptance of the rule in another culture is evidence of its applicability to a variety of human societies.

Theo: And that universality is where I am going with my golden rules argument for soft skills. I have something else to show you that I have been working on but I don't have it with me today. May we take this up again next week?

Emma: Yes, let's plan on it.

Theo: I will see you then. Until again.

Emma: Until again.

**Part II. Soft Skills: Interobjective Rules and Fundamental Tools**

Theo: (poking his head through Emma's office door) Is now a good time to pick up where we left off?

Emma: As good as any. It would be best not to linger too long before talking again. I don't want to lose track of where we are in the discussion.

Theo: I believe we were just beginning to talk about universality.

Emma: Yes, and you were going to get to your point about golden rules and how these are connected to capitalism, *H. economicus*, and soft skills.

Theo: (slight chuckle) Yes, it is a bit of a lengthy path, but much of the journey is behind us. This brings me to the universal nature of golden rules as I am defining them. That led to my discussion with Dr. DeHaan.

Emma: I was hoping you would speak with her.

Theo: I knew that the idea of general rules existed in other disciplines and I thought her interest in evolutionary psychology would be a good place to start. We spent more time talking about universals in psychology and anthropology than soft skills at first. She introduced me to Brown (2004), who notes that hundreds of universals have been identified that are common to all known peoples. These cultural and societal features of language, behavior, and mind include common behaviors like baby talk and customary greetings as well as rules such as a preference for one's own children and kin, prohibitions against incest, sanctions

for crimes against the social group, and repetition, variation, and pauses in poetry (Brown, 1991). Each of these rules has a basis in the perpetuation of the one's family and clan, whether in its genetic or social success, or improving the chances that important information is passed along in more easily remembered poetic form.

Emma: There are other fields that explore the idea of universals as well.

Theo: Yes. I circled back and talked with Dr. Darmani. In economics, the idea of general rules may be found in the conception of spontaneous order. The liberal economist Friedrich Hayek serves as the most well-known modern proponent of "social regularities" that rise from human action but not human design in a market economy (Barry, 1982). This idea has its roots in the thinking of Adam Smith…

Emma: As well as in the philosophical ideas of David Hume and Gottfried Leibniz (Dale, 2018).

Theo: The market economy is neither planned nor unplanned—it emerges from the multitude of plans made by individuals within. The guiding rules, however, may not be known to the individuals applying them. They would "intentionally act in a manner that repeats and adheres to the pattern that has proven good" without foreknowledge of the final results (Galeotti, 1987, p. 171).

Emma: Essentially acting intuitively.

Theo: Yes. One might think that the unknowability of the rules makes them less important. The intuitive application of rules that are not explicitly stated,

however, is not only possible. It is a regular occurrence. Humans may be autonomous, but they are often making decisions without knowing exactly why a choice feels like it is correct.

Emma: Sometimes it is habitual actions, other times it may be the subconscious influence of culture.

Theo: It may even be as a result of expertise developed over thousands of hours of experience.

Emma: I believe that what you are getting at is what Michael Polanyi refers to as "tacit knowledge."

Theo: Ahh, that sounds familiar now that you mention it. The choice is based in experience, but the understanding of why it is right is not readily explicable. This application may be thought of as intuitive, but the underlying rules may still be there.

Emma: It would seem that you somehow managed to bring your interest in chaos and complexity theories to your soft skill work.

Theo: You remember! Yes, there are many systems where the rules are not apparent, so mathematicians and scientists have studied the patterns that develop from simple recursive equations to better understand how complex systems organize themselves. This has provided the foundations for chaos and complexity theories, and spontaneous order has parallels with these areas of study. All result from

self-organizing processes, and in the case of societies and economics, from networks of autonomous agents.

Emma: So back to the golden rules.

Theo: Yes, I am almost there. Rules that describe collective behaviors may arise from intersubjective beliefs—ideas, such as a belief in the Ten Commandments or the need to comply with a speed limit—that exist in the collective minds of a group. Conversely, they may have their basis observations of society rather than customs or commands.

Emma: But golden rules?

Theo: Golden rules have this same basis in the patterns of the real world, but they are more than an intersubjective belief. They are based on evidence of their effectiveness in understanding and predicting the lived experience. Yet they cannot be characterized in the same way as objective phenomena. For example, radioactivity, whether it is understood or not, exists.

Emma: The element has no choice whether to undergo decay or not.

**[Interobjectivity]**

Theo: Correct. Golden rules as considered here, however, are based on experience with other beings who have the ability to make choices. The rules are applied by an autonomous mind who finds value in applying such rules. For this reason, they may be thought of as *interobjective*, a concept proposed by the philosopher,

anthropologist and sociologist Bruno Latour (1996). They have a basis in observable phenomena *and* in the conscious minds of a collective of individuals.

Emma: Interobjective. Combining elements of the ideas of intersubjective and objective.

Theo: Yes, that is how I am thinking of it. While I believe Latour's point was that facts that may be referred to as objective can only exist when there is a socially constructed agreement about what constitutes acceptable evidence, my idea flips that to how rules of successful social interaction emerge from evidence.

Emma: Yes, a different take on the meaning, but it may be compatible with Latour's idea.

Theo: So some rules may be only known by an individual at an intuitive level. Those rules cannot be golden. Even if unformulated and unexplainable intuitive rules can be applied, they cannot be agreed to in any fashion that would ensure a common understanding—and they cannot be shared. Like subjective ideas, which exist only in the mind of one individual and terminate when either the individual or the belief ceases to be, intuitive rules will come to the same end. For this reason, golden rules must be interobjective. They must be malleable and durable. They must be known and captured in the shared understanding of a society.

Emma: They must have value beyond the individual and the individual's time and place.

Theo: Only then can they be considered golden.

Emma: So, you want to make the case that soft skills are golden rules.

**[The purpose of education]**

Theo: I do. And due to the value they hold for navigating life, one would think that the transmission of golden rules would be critical to any societal system of education.

Emma: And I would say that they are and have been.

Theo: Do tell. Wait, I think…

Emma: Yes. The habits of mind I included on my new handout. They are fundamental to a liberal arts education.

Theo: When you think about it, this whole conversation has been about education. Whether production is driven by command, custom, or choice, there is the transmission and use of skills and knowledge.

Emma: When one thinks of schooling in the United States, it is usually about honing thinking skills, preparing workers, reproducing the dominant culture, socializing, and developing the individual for citizenship. It is designed to be a practical and inclusive education, but the most fundamental goal is much the same: it teaches "the ways of the people" as humans have taught their descendants in the past (Goodlad & McMannon, 1997, p. 2).

Theo: The ways of our society—job specialization, industrialization, automation, and urbanization—are far more advanced now that before. Expectations for employees and citizens alike have increased.

Emma: But there is an undeniable continuity from a liberal education—an education of a free citizen of ancient Greece—to the education expected in the United States post-World War II. I keep the first few paragraphs of the U. S. Educational Policies Commission (1961) report posted here—also on my wall—because the goals are so wonderfully lofty. The American people, according to the report, see education as a "means for improving themselves and their society" (p. 1). It calls for schools to serve the "American commitment" to a free society that values individual dignity, personal liberty, and equality of opportunity and to help each student "become the best person he is capable of becoming" (p. 1).

Theo: It sounds like the goals for a liberal arts education.

Emma: Oh, yes. It does. It declares that the "principal goal" for American society is freedom and that "freedom of the mind is a condition which each individual must develop for himself" (p. 3).

Theo: There was a recent *New York Times* story about the ideas that Americans share, no matter what political persuasion. The one thing everyone agreed on: the importance of freedom.

Emma: That, it would seem, is one thing that still defines our United States. The same report goes on to explain must take place:

> To be free, a man must be capable of basing his choices and actions on understandings which he himself achieves and on values which he examines for himself. He must be aware of the bases on which he accepts

> propositions as true. He must understand the values by which he lives, the assumptions on which they rest, and the consequences to which they lead. He must recognize that others may have different values. (p. 4)

Theo: My gosh, that is perfect. Choices based on values. It is *H. economicus*! I remembered the golden rule examples on your wall, but not that.

Emma: My walls do come in handy now and then. Underneath I keep a couple quotes from the conclusion of the report that I enjoy as well. They see the development and use of "rational powers" as central to realizing a "new level of greatness, a new realization of human dignity and effectiveness" made possible by an "education that frees the mind and enables it to contribute to a full and worthy life" (p. 11, p. 21). It really is beautiful.

Theo: Do you have anything else?

Emma: These sentiments are foreshadowed in the work of W.E.B. DuBois, who wrote that we must provide students "with such an array of facts and such an attitude toward truth that they can have a real chance to judge what the world is and what its greater minds have thought it might be" (DuBois, 1970, p. 231). And Theodore Sizer, another one of my favorite educational reformers (beside Dewey) echoed the Commission three decades later with this statement I have posted here:

> Public education is an idea, not a mechanism. It promises every young citizen a fair grounding in the intellectual and civic tools necessary to have a decent life in this culture and economy. It promises the rest of us that

> the rising generations have the tools to keep American a place worthy of residence. It signals that we are one—*e pluribus unum*. (1997, p. 40)

Theo: This "culture and economy." Another connection to *H. economicus*.

Emma: I like this education quote too. Fenstermacher says that the public realm is where the "grandeur and potential of humankind is situated," (p. 62). It is from a 1997 collection of essays on the potential for public education by Goodlad and McMannon. I have a few more quotes I like from there too.

Theo: Any from Dewey?

Emma: Actually, no, but some of the other quotes I have from that same Goodlad and McMannon book are heavily influenced by his thinking. Let's see. Linda Darling-Hammond, in the same collection, explains that a person does not just wish to be good, but to "be good for something"—to be a productive member of one's social group, balancing what one gets with what one gives, gaining a "widening and deepening of conscious life—a more intense, disciplined, and expanding realization of meanings" (1997, p. 45). This blend of the vocational and the liberal is found in Whitehead's thinking as well, as he sees any truly adequate version of either as requiring the other. This "intimate union of practice and theory aids both" (Goodlad and McMannon, 1997, p. 12). So while "oceans of ink have been spilled by the champions of liberal education on the one side and advocates of job preparation on the other," it would seem that it is not one or the other—it is both (p. 10).

Theo: Absolutely. It is both.

Emma: You have said that *H. economicus* is a being that seeks value. It is fitting that the same term—*value*—is applied to the guiding principles by which one must conduct one's own life. As the U. S. Educational Policies Commission said, an American must "understand the values by which he lives, the assumptions on which they rest, and the consequences to which they lead."

Theo: Freedom of choice is fundamental to capitalism and democracy. As a result, understanding how to make choices that maximize value is fundamental to education. The focus is on the future—a future of hopes, dreams, and consequences—that is the product of the choices we make today.

Emma: Philosophy is all about thoughtful and informed choice making for the future.

Theo: And the idea of capital is future-focused by definition. One may think of capital as tangible, such as goods or properties, but our society has progressed to where much capital is intangible—fictions, to use Harari's term. This applies to economic capital, as well as educational, social, and cultural capital. All are fictions. All are intersubjective. All have *future value*.

Emma: Many tomes have been written on the ills of democracy, capitalism, and public education. But the fundamentals would seem to be solid. Democracy and capitalism, at their foundations, are rooted in human agency. Most, if not nearly all, the shortcomings of these systems are due to the failings of the actors within. Not all are informed, rational, or good. There are those who are confused,

fallible, and malevolent. There will be those that see everything—and everyone—as a tool for their own hunger for gain.

Theo: The economic philosophy is not at fault, but the participants regularly are. Within this imperfect system lies the hope of perfection.

Emma: Like Plato's forms that are never quite realized in this world.

Theo: (smiles) Yes. The capitalist system has the potential for perfect liberty, even if that is never obtained. This state may be an intersubjective fiction, but that doesn't make it any less powerful if it is a value that a society holds dear.

Emma: It should not be, however, the only value. Many would see the values of human dignity and equality as ones that should rise above the value of human liberty. This is contained in Kant's categorical imperative—a philosophical and potentially superior formulation of the Golden Rule: "Act only in accordance with that maxim through which you can at the same time will that it become a universal law" (Kant, 1785, p. 37).

Theo: I was waiting for you to mention it. I like to think of it as a golden rule about golden rules, with the others nested within it like a set of Russian dolls.

Emma: I won't disagree with the metaphor. Now, where were we. Why were we philosophizing about education?

Theo: Ah, yes. So, my point is that universal, emergent, interobjective rules such as this have great potential for the education of sentient beings. These golden rules are

based on real world evidence, they provide guidance for the decision-making *H. economicus*, and they have value in a better future for society. They provide educational capital that will pay dividends again and again. They have increased the *fitness* of our species. Soft skills may be capitalist tools, but no matter, since they make *H. economicus* a more productive member of a capitalist society.

Emma: In the hands of a capitalist actor that only cares for his own needs, soft skills very well may be a tool—an "appendage of the machine" to echo Marx and Engels in the *The Communist Manifesto*—to control and pacify fellow beings.

Theo: In that case soft skills would only be a means to a singular and selfish end.

Emma: Sadly, it may be the that those who are poor in goodness of heart—those with no respect for the others who walk the same Earth—will always be with us.

Theo: Their misuse of soft skills, however, doesn't reduce the essential nature of these skills. The one who possesses these skills can be a first-rate citizen, colleague, neighbor, and friend—a truly win-win proposition because the individual gains as well as the society.

Emma: I like your idea about interobjective rules—and I may even accept it—but what I am enjoying the most about this conversation is the parallels we have drawn between education and capitalism. I had not paired those together before. They are both future-focused and agency driven. One can choose to invest in oneself today through effortful study and practice in the hope of safety, security, and enlightenment tomorrow. One's educational capital helps insure against other

less desirable outcomes and provides hope for something other than just toiling (or celebrating, if you have the wealth to do so) in the here and now.

Theo: *H. economicus* stands on the shoulders of the giants who have come before, but that foundation needs to be made of more than just scientific knowledge. There is ample evidence that certain skills have broad applicability. More is needed than only general labels for skills such as "communication" or "critical thinking." While one could learn these skills through practice and feedback without grasping the underlying rules—intuitively wielding these skills without understanding why they work—one's expertise will reach its limits sooner rather than later.

Emma: You are correct. It is a greater challenge to play the game, let alone win, without knowing the rules. One of my favorite studies to cite is on critical thinking. According to a meta-analysis of over 250 studies by Bangert-Drowns and Bankert (1990), critical thinking more likely to improve when one receives explicit instruction about what to do. The same findings continue to be verified in recent years (Heijltjes, Gog, & Paas, 2014).

Theo: Let's bring this discussion to its fulfillment—at least the idea I had in mind when coming to visit you again. I want to get your feedback on some rules.

Emma: Is this what you have been working on?

**[Golden rules extended—the soft skill connection]**

Theo: Yes. These are rules that support the consensus list of soft skills. For example, a well-known maxim of communication is "know your audience." It applies in oral

and written communication across all cultures. One could imagine that it applies to non-verbal communication between the members of any social species. In addition, even possessing the awareness that you don't know your audience provides guidance in determining how you might choose to share your message. For the purposes of this discussion, would you agree that understanding your audience is a golden rule?

Emma: Yes, I would agree.

Theo: If we assume that soft skills have underlying rules that have an evidentiary basis—that they are interobjective—then here is a look at the ten consensus soft skills and some possible golden rules that may apply to each (Table 13).

Table 13

*Consensus Soft Skills and Supporting Golden Rules*

| Consensus Soft Skill | Golden Rules |
|---|---|
| Collaboration | Identify shared goals<br>Put the team first<br>Freely exchange information with your collaborators<br>Attend to the needs of your teammates<br>Share credit with the rest of the group |
| Interpersonal skills and cultural understanding | Listen to understand, not to respond<br>Embrace diverse perspectives<br>Seek win-win solutions<br>Treat others as you would wish to be treated<br>Ask rather than assume |

Table 13 (continued)

| Consensus Soft Skill | Golden Rules |
|---|---|
| Communication | Know your audience |
| | Define key terms |
| | Use metaphors to connect existing ideas to new ones |
| | Ask questions to clarify understanding |
| | Accept feedback and refine your message |
| Critical thinking | Understand a situation, problem, or opportunity by evaluating it in terms of its essential elements |
| | Identify patterns and trends |
| | Attend to details |
| | Compare and contrast alternatives |
| | Remain solution oriented |
| Initiative and self-management | Take the first step (err on the side of action) |
| | Put first things first |
| | Practice humility, tolerance, and self-criticism |
| | Recognize stressors and enact coping strategies |
| | Strive for continuous improvement |
| Creativity and curiosity | Ask questions |
| | Freely explore |
| | Pursue new experiences |
| | Consider ideas from different perspectives |
| | Seek understanding |
| Flexibility and adaptability | Be open to change and ambiguity |
| | Change your behavior as the situation changes |
| | Draw from an array of skill sets or approaches |
| | Identify the needs of those around you |
| | Seek feedback on your performance |

Table 13 (continued)

| Consensus Soft Skill | Golden Rules |
|---|---|
| Integrity and professionalism | Take ownership of your actions and correct your errors |
| | Practice humility, tolerance, and self-criticism |
| | Treat others consistently and fairly |
| | Be truthful, sincere, and honest |
| | Set the standard for your peers—and all others |
| Responsibility and leadership | Nurture and empower the people around you |
| | Describe a future that others want to be a part of |
| | Be a good steward of resources |
| | Align the effort toward a shared goal |
| | Create contingency plans |
| Persistence and work ethic | Begin with the end in mind |
| | Take responsible risks |
| | Try again, fail again, fail better |
| | If you can help, help |
| | Remain optimistic |

Adapted from Beckett (1983), Covey (1989), Postman (1995), Cronon (1998), *Am I Job Ready?* (Appendix), and the author's own experience.

Emma: (laughs) A list that references Stephen Covey and Samuel Beckett. What could there be not to like?

Theo: While a reader may have slightly different versions of these rules in mind, the essence is likely much the same across various cultures. They are much like the moral of a story. For example, "if you lie repeatedly, eventually no one will

believe you—and the consequences may be serious" captures the moral of the tale "The Boy Who Cried Wolf." One can conceive of other ways of stating the moral, but the essence will be the same

Emma: Yes, the same moral could arise from a different story, whether it be the girl who screamed shark or the bird that squawked cat. Someone outside of our culture might not know the story, but if they read it, they would likely recognize the moral from comparable lessons they received. Similar to the list of Golden Rules on my wall.

Theo: The idea is that these golden rules may have a cross-cultural value to all human beings. Soft skills, as recent reports have claimed, may be considered uniquely human skills. But it may be that soft skills—these golden rules—are even more than that.

Emma: In what way?

Theo: They may be the *fundamental intellectual tools* of social beings.

Emma: That is quite a leap. You have a basis for such a grandiose idea?

Theo: Consider this. These golden rules allow intelligent, imaginative minds to propagate themselves. They facilitate the survival and reproduction of cultures. They exist in the interactions of a small group or a society of billions. They balance competition and cooperation, build upon socially constructed knowledge, and carry forth the power of interobjective ideas. Both emergent from and

elemental of the collective, these fundamental intellectual tools (FIT) are essential to the fitness of the species.

Emma: OK. So far, so good.

Theo: *Homo sapiens* have made it this far. Heilbroner tells of how humans have faced the problem of survival as part of a social group—not just as an individual—since coming "down from the trees" (1953, p. 18). According to him, our continued existence is "testimony" that we have "succeeded in solving the problem," but that it is, "at best, a partial one" (1953, p. 18). These golden rules, like capitalism and education, are future-focused. We are the sum of our choices we make. While we cannot change our past—and our past choices may place constraints on our future—we remain free to choose how we respond.

Emma: That is a start.

Theo: It is time to stop showing others how to fish. We need to explicitly share and teach the underlying *interobjective* and *golden rules* of these *fundamental intellectual tools*. While they do not qualify as capital "T" Truth, for we cannot know truth beyond what we believe or imagine as perfection, these tools are part of what makes us human.

Emma: There is no denying we are social beings. We can value and feel, sense wonder and connection, and choose freely while never being completely free of our context.

Theo: These skills, in Joseph Aoun's words, will help "robot-proof" students for the future. These soft skills are essential to an increasingly interdependent human economy and society. Dr. DeHaan said that she thinks of soft skills as contributing to the "better angels" nature of human society, to extend Pinker's thinking and phrasing (2011). This tendency toward more organization is fed and sustained by emergent properties of the system (Young, 1986; Kauffman, 1995). Yet this idea of emergent processes creating higher and better forms is not new.

Emma: No, it is not. Plato described the forms—the ideals—with the reality of this world being little more than shadows on the walls of the cave.

Theo: And the concept of emergence of forms is foreshadowed in the final words from Charles Darwin's paradigm shifting book, *The Origin of the Species*:

> Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved. (p. 425)

Emma: You were saving that for me, weren't you? My fellow co-instructor of the Bioethics course probably shared that one with you.

Theo: Oh, he would have, being the Darwin fan that he is—if he had ever met with me. He says there is too much to teach in Biology to include soft skills.

Emma: Yet he is one that actually embeds and teaches soft skills. That is why his students are so successful in their presentations at conferences and in representing the college at leadership events.

Theo: Yes, educators who see their work as a mission to educate a fellow soul travelling this Earth can teach soft skills knowing that they are preparing their students for work and for life. Students need thousands of hours of practice and guidance to master these fundamental intellectual tools.

Emma: While these skills may be more difficult to teach and assess, it is worth the effort.

Theo: Teachers can prepare students with confidence while satisfying the demands of the new economy at the same time. These skills may date back as far as our cultural memory could possibly take us, but they are as essential as ever.

Emma: Aye.

Theo: Aye? Are you getting in touch with your Scottish heritage?

Emma: I suppose I am. Adam Smith, Scottish. David Hume, Scottish. James Clerk Maxwell, Scottish.

Theo: We haven't discussed Maxwell.

Emma: You know I have a physics minor.

Theo: I do—and I don't think I have ever asked, since you invoke Maxwell, why you didn't double major in physics and philosophy.

Emma: I knew that philosophy was for me. I wasn't one for lab work. I didn't want my experimentation to be constrained by what I could afford to purchase, and I didn't see myself as a theoretical physicist, swimming in equations all the time. With philosophy, I could experiment in my head, unbounded by the discipline, using logic and reason.

Theo: Makes a lot of sense—and it seems like you would be a good example of one who enjoys crafting her arguments with soft skills, a.k.a. fundamental intellectual tools.

Emma: (gentle smile) Maybe.

Theo: Your time is much appreciated, my friend. Thank you. Until again.

Emma: Aye, until again.

Postscript: The next day Emma e-mailed Theo and asked him to summarize his argument for soft skills while it was fresh in his mind. He replied:

> Humans seek future value and they can imagine it in ways beyond that of all other known social organisms. The fundamental intellectual tools that facilitate this are more than the product of society's collective imagination. They have a basis in evidence as well. They are *interobjective*. The use of these tools is informed by

> underlying rules that may be derived from 1) the successful interactions between intelligent beings, and 2) practical understandings about our environment. While these emergent rules are incompletely understood, they are a precious cross-cultural commodity in free societies. We should bring the golden rules of soft skills out of the shadows, illuminate them, and share them with future generations.

Emma replied with a reminder to keep his own rule in mind—to know the audience—and to use this argument artfully as he moved the soft skills initiative forward. Only a select few would probably need to hear all of it. It would really depend on their engagement with and potential objections to infusing soft skills into the curriculum. In many cases, her handout and his handout might be all that was needed. His deeper understanding would be something to have ready if questioned. As for the extended case, Emma said that the General Education Committee might be one group that would benefit. She recommended re-engaging Dr. Killian as well. That, she said, would be excellent practice for the day when the president asks for a presentation to the Board of Directors about the initiative.

Theo thanked her for her insight and assistance. Then he stopped and stared at his screen for a moment, marveling at meta-nature of this effort. The success of the soft skills initiative had a dependence on his own soft skills. He smiled as he considered the Russian dolls metaphor once again. Actions within actions, ad infinitum. It was another day in the continuing human story of *H. economicus*, the seeker of value.

# CONCLUSION

# SOFT SKILLS:  OLD OR NEW?

## The Parable of the Gap

A hardy soul steps to the edge of a newly discovered river, looking to reach the other side to partake in the bounties within view and those imagined beyond. Fortunately, the soul knows how to swim.  She steps in and attempts the crossing.  The currents, however, are swift.  Despite her strength, the soul arrives downstream of where she wanted to be.  She can't return to her home with any of the fruits of her labor, but at least she can eat and gain energy for the swim back.

The day comes when she wants to cross again.  She changes her approach, walking upstream so that she will arrive at her intended destination on the other side. While it is an imperfect estimate, it works well enough.  Thankfully she has the endurance to make it.

Years later, as she is watching branches and logs float in the river, the soul arrives at a new plan for the next crossing.  Building a small raft out of wood, she sets across the river again.  While controlling the raft is a considerable amount of work, it is far less tiring than swimming.  Now she can bring back some of what she gathers to share with her family.

Then fortune smiles upon the soul.  The river, as it cuts its channel, fells an old, large tree that had been growing on the bank.  Its top lands on the other side.  Though it

requires a bit of a balancing act, the soul is able to cross the river by making her way across the fallen tree.

This serves as an inspiration. Knowing that the tree will be washed away someday, the soul enlists the help of her clan. After many failed attempts, they build a rudimentary bridge. Now everyone in the group, young or old, may cross.

The meaning of the parable is this. The River of Knowledge runs through the gap. The crossing is representative of the eternal now—the daily tasks required for existence. Swimming represents the reliance on physical strength, while the raft represents a tool borne of practical knowledge that allows the soul to rise above the water (knowledge) that flows through the gap.

Practical knowledge—the hard skills of the world—is not a perfect means to an end. Despite its benefits, practical knowledge will not ensure that the soul will land where planned because the river never stops. Like knowledge, which is ever changing, the river is ever flowing.

The bridge represents golden rules that are the essence of soft skills. Once conceptualized—based on observable evidence—and constructed, the bridge provides a direct and safe passage.

Soft skills are the bridge that rises above—indeed, transcends—the current in the river of knowledge.

## Conclusion

Neither the problem of a prepared workforce nor the call for higher education to respond to the issue is new. There is reason to believe, however, that the knowledge-driven information age economy is widening the skills gap. Colleges and universities provide an education that is valued, so much so that Americans have taken upon $1.6 trillion in debt to finance it on top of what they have already paid. Based on this investment, students and their families have an expectation that a college degree will open the doors to careers in the new economy.

Based on the research conducted in this dissertation, there is reason to be concerned about higher education's ability to address the soft skill need. While a college degree is often taken as a signal of these requisite skills, it appears that traditional academic measures may have limited predictive value in regard to soft skills. A comparison of several of the predictors with performance on the situational judgment testlets of the *Am I Job Ready?* soft skills assessment yielded little correlation. In the case of some, the scatterplots bore a greater resemblance to what you would see if you tossed a heaping handful of pennies in the bottom of a box—i.e., no relationship at all.

Yet there is good news. There is a strong relationship between the soft skills required in the workplace and the freedom-based goals of an American education. They have their foundation in the desire for a liberal education and preparation for a life—including a working life—well lived. Soft skills are old and new. They are the olden-new, uniquely human skills. They are the fundamental intellectual tools of humanity.

The policy question is not as difficult as it initially may have seemed. An education in soft skills can simultaneously address Labaree's competing goals of democratic equality, social efficiency, and social mobility. Higher education in "the age of artificial intelligence," to echo the words of Aoun, can be robot-proof. We need not fear what is coming tomorrow. It is not a Pollyanna view to think that policy leaders should be able to describe a new economic future that others *want* to be a part of.

Humans are choice machines. We differ from artificial intelligence because we choose what we value. Moreover, we make choices to obtain what we value. Yes, culture has much sway—and we may not even begin to understand all that influences us—but whether we choose well or choose poorly, we make the choice.

Humans feel value in a job well done. AI does not. Soft skills are a means to experience the dignity of work. Humans need purpose and a sense that they are making a contribution. The timeless nature of these golden rules provides an opportunity to grow, improve, and give. They are worthy of our hope for a public education.

TIMELINE OF KEY EVENTS

| | |
|---|---|
| January 2017 | *Am I Job Ready?* Pilot Implemented by KCTCS |
| June 2017 | Approval of research plan by Dissertation Committee |
| September 2017 | Approval of research plan by Human Subjects Research Board of KCTCS |
| May 2018 | *Am I Job Ready?* pilot data collection by KCTCS completed |
| September 2018 | Approval of research plan by Institutional Research Board at the University of Kentucky |
| Spring 2019 | Completion of dissertation draft |

## SIGNIFICANCE AND UTILITY OF STUDY

This study was designed to inform an understanding of soft skills for an educator or administrator in higher education. First, a foundation was laid. I described the history of soft skills, identifying the need and the skills themselves. This was complimented by examples of the policy directions that could be taken, along with a framework for analysis. This serves the needs of anyone involved in implementing soft skills initiatives of any kind, whether curricular or evaluative, at the postsecondary level.

Manuscript two examined whether the soft skills of students in higher education can be predicted by college readiness or postsecondary success measures, or some combination. The results of the study, with a sample of more than eight hundred students who completed over eleven thousand assessments, strongly suggest that current measures are insufficient for predicting soft skill attainment. As a result, the use of a soft skill assessment would be justified at the postsecondary level, particularly in light of the increasing emphasis on evidence of competency in college graduates.

My argument in the third manuscript is that soft skills are far less than a fad—they are the fundamental intellectual tools of humanity. As a result, they should be an essential element of an American education.

Whether your goal is focused on a competitive capitalist economy, a liberal arts education, or the underlying rules of successful society, soft skills are requisite skills. An investment in these skills will provide value for ourselves and future generations.

# APPENDIX

## *Am I Job Ready?* Skills and Subskills

| | |
|---|---|
| Analytical Problem-Solving | 1. Thinks Analytically and Critically: Attempts to understand a situation, problem, or opportunity by evaluating it in terms of its basic parts.<br>2. Recognizes Trends: Identifies meaningful trends in behavior, information, or data.<br>3. Identifies Problems: Recognizes issues or opportunities that require resolution.<br>4. Examines Information: Inspects and scrutinizes information or data carefully.<br>5. Generates Solutions: Considers own and others' experience along with sound judgment to create solutions to a problem. |
| Continuous Learning | 6. Finds Growth Experiences: Seeks out professional experiences to advance one's career.<br>7. Aspires to Develop: Strives to acquire new knowledge and skills for professional advancement.<br>8. Learns Willingly: Demonstrates personal motivation to acquire knowledge or skills.<br>9. Works to Improve: Puts forth effort to advance or enhance performance.<br>10. Learns Quickly: Masters new information or skills rapidly. |
| Cooperative Teamwork | 11. Works as Part of a Team: Coordinates and cooperates with others to achieve objectives.<br>12. Resolves Conflicts: Brings about successful conclusions to disputes or disagreements.<br>13. Shares Information: Proactively communicates key information to relevant team members.<br>14. Puts the Team First: Considers team goals over personal objectives.<br>15. Shares Credit: Gives credit to other team members as appropriate. |
| Coping with Pressure | 16. Remains Optimistic: Expresses a positive outlook regardless of the circumstance.<br>17. Manages Stress: Maintains composure under pressure.<br>18. Handles Criticism: Responds constructively to direct, candid feedback about one's behavior, performance or activities.<br>19. Uses Coping Strategies: Engages in behaviors to improve personal functioning in stressful or challenging situations.<br>20. Shows Resilience: Bounces back and recovers from adversity or negative feedback. |
| Customer Focus | 21. Monitors Customer Behavior: Studies the processes individuals, groups, and organizations use to select, use, and dispose of products, services, experiences, or ideas.<br>22. Identifies Emerging Customer Needs: Conducts market research to identify unmet or unsatisfied needs that consumers will likely solve by purchasing a product or service.<br>23. Aligns Customer Needs: Examines the extent to which a product or service aligns with customer expectations. |

| | |
|---|---|
| | 24. Measures Customer Satisfaction: Sets up feedback loops to measure customer satisfaction. |
| Decision-Making | 25. Evaluates Acceptable Alternatives: Chooses a course of action from among viable alternatives that achieves the desired result.<br>26. Accepts Responsibility for Decisions: Takes accountability for one's choices and the subsequent outcomes.<br>27. Takes Calculated Risks: Considers the chance of failure and potential danger before choosing a course of action.<br>28. Decides Quickly: Chooses a course of action among alternatives rapidly.<br>29. Considers Opinions of Others: Takes into account others' perspectives when making decisions. |
| Drive for Excellent Results | 30. Sets Quality Standards: Establishes acceptable and desirable specifications for products or services.<br>31. Adheres to Quality Standards: Follows acceptable and desirable specifications for products or services.<br>32. Monitors Quality: Tracks error and defect rates in a thorough and systematic fashion. |
| Flexibility | 33. Demonstrates Versatility: Draws from an array of skill sets or approaches, applying each as needed to match work requirements.<br>34. Adjusts to Changing Demands: Changes behavior or approach as work requirements change.<br>35. Remains Open to Change: Demonstrates capacity to entertain new or different ideas and approaches.<br>36. Deals with Ambiguity: Decides, acts, adjusts, and copes appropriately in the absence of clear directions or information. |
| Influential Communication | 37. Listens Actively: Actively listens to what someone is saying and paraphrases the conversation to confirm understanding.<br>38. Asks Probing Questions: Asks questions in order to uncover details and relevant information.<br>39. Communicates Clearly: Imparts knowledge, thoughts, ideas, feelings, or information in an understandable manner.<br>40. Communicates Confidently: Expresses oneself with self-assurance and conviction.<br>41. Writes Clearly: Expresses information in a written form that is easily understood by others. |
| Initiative | 42. Achieves Results: Performs work in a manner that produces desired outcomes.<br>43. Acts with Confidence: Demonstrates confidence that one's knowledge, skills, and abilities will produce desired outcomes.<br>44. Acts with Sense of Urgency: Takes immediate action by focusing and working as quickly as possible.<br>45. Acts Competitively: Strives to outperform other employees and exceed goals or expectations.<br>46. Takes Action: Completes tasks without being asked by others to address a situation, problem, or opportunity. |
| Innovation | 47. Introduces Change: Identifies opportunities and incorporates new approaches, systems, tools, and reward structures.<br>48. Embraces Creativity: Generates new ideas, products, methods, and approaches for completing work. |

| | |
|---|---|
| | 49. Focuses on Continuous Improvement: Continuously improves products, services or processes. |
| Integrity and Respect | 50. Treats Others Fairly: Interacts with others consistently and without bias.<br>51. Operates Ethically: Maintains moral principles in business and personal practices.<br>52. Demonstrates Trustworthiness: Demonstrates truthfulness, sincerity, and honesty.<br>53. Respects Diversity: Appreciates differences between different demographics.<br>54. Embraces Diverse Perspectives: Values the different perspectives offered by individuals from different backgrounds. |
| Management of Others | 55. Coaches for Performance: Supportively shares specific, concrete information about a person's performance to help them understand their strengths and opportunities for growth.<br>56. Enriches Employees' Jobs: Motivates employees by challenging them with opportunities that require them to use the full range of their skills and abilities.<br>57. Gives Direction: Provides clear guidance to employees on the activities they should perform.<br>58. Delegates to Others: Assigns specific tasks, duties, activities or projects to others. |
| Planning and Organizing | 59. Leads Projects: Accepts responsibility for organizing people, resources, procedures, and protocols to achieve a goal on a defined timeline.<br>60. Manages Resources: Deploys an organization's assets and talent efficiently to maximize productivity while containing costs.<br>61. Operates in an Organized Manner: Organizes work tasks and projects to maximize efficiency and productivity.<br>62. Manages Time: Monitors the pace of work to improve efficiency and productivity.<br>63. Creates Contingency Plans: Identifies potential risks in projects and creates alternative plans accordingly. |
| Reliability | 64. Attends to Details: Focuses on fine points, particulars, specifics, and technicalities.<br>65. Adjusts Schedule: Demonstrates willingness to alter one's calendar to accommodate work requirements.<br>66. Works Independently: Works effectively in the absence of direct supervision.<br>67. Stays on Task: Completes an activity without becoming distracted or sidetracked. |
| Strategic Vision | 68. Thinks Strategically: Creates approaches that consider a company's goals and resources, competitors, market factors, technology, and consumer behavior.<br>69. Understands the Big Picture: Possesses a broad, holistic view of an industry, issue or problem.<br>70. Creates Alignment: Creates and maintains policies and procedures that align with the organization's strategic goals.<br>71. Understands Business Practices: Has relevant knowledge regarding business practices, markets, strategies, and sales. |

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Young, L.B. (1986). *The unfinished universe*. New York: Oxford University Press.

# VITA

## Education

Master of Arts in Teaching. Miami University. Oxford, Ohio. 1992. Major: Elementary Education (with Middle School).

Bachelor of Arts. University of Arizona. Tucson, Arizona. 1990. Major: Geography. Minor: Geosciences/Mathematics

## Professional Positions

Vice President of Student Affairs (and Director of Institutional Research and Strategic Planning). Owensboro Community & Technical College. Owensboro, Kentucky. 2007-present.

Vice President of Academic Affairs (interim). Owensboro Community & Technical College. Owensboro, Kentucky. 2007-2008.

Dean of Institutional Effectiveness (and Academic Director of campuses other than the Main Campus). Owensboro Community & Technical College. Owensboro, Kentucky. 2006-2007.

Dean of Enrollment Management. Owensboro Community & Technical College. Owensboro, Kentucky. 2002-2006.

Director of Institutional Research, Planning, and Grants. Owensboro Community & Technical College. Owensboro, Kentucky. 1999-2002.

Customer Care Administrator/Technical Support. SIGECOM. Evansville, Indiana. 1998-1999.

Science Curriculum Coordinator. Indiana Department of Education. Indianapolis, Indiana. 1995-1998.

Science Teacher, Grade 8. Conner Middle School, Hebron, Kentucky. 1994-1995.

School Technology Coordinator. Conner Middle School. Hebron, Kentucky. 1993-1995.

Science and Mathematics Teacher, Grade 7. Conner Middle School, Hebron, Kentucky. 1993-1994.

Science Teacher, Grade 7. Conner Middle School. Hebron, Kentucky. 1992-1993.

Graduate Teaching Assistant. Miami University. Oxford, Ohio. 1990-1991.

**Scholastic and Professional Honors**

Distinguished College Administrator Award. Phi Theta Kappa International Honor Society. 2015.

Volunteer of the Year. FIRST LEGO League. Owensboro, Kentucky. 2014.

Robert Anderson Outstanding Judge Award. BBQ Capital of the World Speech and Debate Tournament. 2005.

State Science Education Standards Ranking (first place nationally). Thomas Fordham Foundation. 1998.

Phi Beta Kappa. University of Arizona. 1990.

**Publications**

Indiana Science Proficiency Guide. Indiana Department of Education. (Coordinator, editor, and contributor). 1997.

Open assessment items with rubrics (five items). Kentucky Department of Education. 1995.