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Editors' Note

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We are thrilled to present two special editions dedicated to assessing career preparation and outcomes in higher education. The idea for these editions took root a few years ago when we first met and discovered a shared passion for assessment and career advocacy. Lisa, Director of the Career Center at University of North Carolina at Asheville and a doctoral student, was exploring ways to enhance students' social capital through her research and career work. Kim, leading a national alumni survey at the time, was integrating assessment and high-impact practices to connect career preparation with long-term student success. As we discussed our work, we asked each other, "Is there literature on this?" The answer: not much.

These editions aim to bridge the gap between the meaningful assessment work in the field and the existing literature on this critical topic. Our professional journeys have shown us the importance of bringing together two of our favorite aspects of higher education—assessment and career services—at a time when career outcomes are becoming an increasing focus in higher education. The Strada Center for Education and Consumer Rights (2022) frames this well:

> We are now witnessing the beginnings of a movement that goes beyond completion and is focusing on post-graduation outcomes as the priority. Just as access without completion is insufficient, completion without the fulfillment of expectations for personal growth and improved opportunities leaves students, educators, taxpayers, policymakers, and employers alike less certain about the value of a degree or postsecondary credential. (p. 1)

This growing national conversation around career outcomes and preparation has raised the work of our career services colleagues to institutional and system-wide conversations and strategic priorities. Elevating this work requires innovative ways to scale career services, identify and address equity gaps, and integrate career preparation with other learning experiences that impact student success. At the same time, this focus has increased the need for stronger assessment measures and data to inform strategic priorities and practices.

Throughout our professional networks, we heard two themes. Our colleagues in career services have been talking a lot about data. Many are doing remarkable work measuring impact, student learning, and outcomes. Our colleagues in assessment and institutional effectiveness have been asked to gather data to inform strategic priorities related to career preparation and outcomes. They are searching for best practices, tested measures,

and examples of gathering meaningful data. In this dynamic, we saw a challenge and found an opportunity through JSAIII. The challenge was how to bring together these conversations. Many professional development opportunities do not create a bridge between assessment and career, and there is a limited amount of peer-reviewed published work to inform practice. These special editions of JSAIII provided an opportunity to bring these conversations together in one place where assessment and career professionals can learn from each other.

To our delight, others saw this as a great opportunity as well. We received such a great response from the call for proposals that the vision for one special edition expanded to two. We are honored to amplify voices from throughout the assessment and career "worlds" together in these special editions.

This first edition focuses on defining and measuring career outcomes. It begins with considering the ethics of first-destination data and calls us to consider measures of career outcomes that move beyond the first job and salary. The remaining articles in this issue do just that. Dumford and Miller (2017) rightfully noted that "while institutional administrators certainly want to see their graduates employed, and employed within fields related to the students' academic major, using income as the 'end-all-be-all' measure of career success may not be capturing a complete vision of successful outcomes" (p. 196). We believe that assessing career outcomes is at a pivotal point in its evolution through this recognized need to reach beyond salary and jobs. The articles in this issue first consider alternatives to at- and post-graduation measures, such as livable wages, measuring work-life balance, and subjective measures of career success. We test the validity of a national survey that looks beyond graduation to understand career outcomes through alumni's perceptions five and ten years after graduation. We reach beyond our borders to understand how career outcomes are measured and used in Australia and the United Kingdom, and provide many alternatives to measuring career success through career readiness, behaviors, and competencies.

While we are proud of what is covered in these two issues, it is also important to mention what is not included: an article on decolonizing assessment in career services. In collaboration with the authors, we have decided to place this piece on hold in respect for the safety and well-being of those involved due to the current political climate. We, the guest editors of these two editions, firmly believe that decolonizing career services and assessment by moving toward equity is vital if we are to truly serve the students who attend our colleges and universities. We encourage you to seek information on decolonization in sources such as Stewart (2017) and Okun (2021). Consider how your assessment practices may privilege some students over others, seek out the voices you are not hearing from, and continue to make the world a place where all students have an equal chance to succeed after graduation. In addition, learn from your colleagues, beginning with the many articles in this special edition, that speak to how they are seeking to engage in this work. We look forward to a time when it will be possible to share this piece, which provides practical strategies and critical knowledge for advancing equity and justice in career services and assessment.

The second special edition, coming in June 2025, moves this conversation to processes and structures for measuring career preparation at the institutional level and digs deeper into assessing specific career learning experiences. As editors, we would like to thank each of our authors and the assistant editors for sharing their work and their time to create a space for elevating this important topic. We hope you find their work as insightful and energizing as we do!

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Special Issue Series: Career Preparation and Outcomes

Ethical Reflections on Career Outcomes Data

Challenges and Solutions

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Abstract: In higher education's competitive landscape, driven by rankings, enrollment targets, and demands for return on investment (ROI) of degrees, career outcomes data is seen as a panacea. However, ethical considerations are conspicuously absent from the myriad discussions on career outcomes data collection. Critical issues such as student privacy, data security, accuracy, reliability, and transparency persist. This paper explores the ethical dimensions of career outcomes data collection and reporting, examining current practices, identifying gaps, and proposing solutions that higher education institutions can adopt to enhance transparency, accountability, and public trust.

Keywords: career outcomes data, graduate outcomes, employment outcomes, student success, higher education, college rankings, data ethics, college return on investment, student data privacy

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Despite the extensive and well-documented evidence supporting the value of college degrees, public skepticism about the worth of higher education continues to persist (Alonso, 2023; Kelderman, 2023; Palmer, 2024). With fluctuating student enrollments and reduced public funding, higher education institutions are now in a fiercely competitive market (Bauld, 2023; Blake, 2023). As competition intensifies, so does the pressure on these institutions to demonstrate the value of their degrees through career outcomes data (Blake, 2023). Historically, metrics such as employment rates, starting salaries, and industry placements informed students and the public about the benefits of a college education. However, the growing emphasis on return on investment (ROI) has transformed these metrics into powerful marketing tools (Blake, 2023). Today, the career outcomes rate is a crucial indicator, gaining prominence as accrediting organizations, rankings, and government oversight agencies incorporate it into accountability measures alongside graduation and retention rates.

The career outcomes rate, also known as placement rate, employment rate, or destination rate, represents the percentage of graduates who have successfully transitioned to post-graduation activities, such as employment or continuing education (National Association of Colleges and Employers [NACE], 2020). In contrast to graduation and retention rates, gathering and reporting career outcomes data presents significant complexities. Organizations like NACE have developed standards to bring consistency and transparency to the collection and reporting of these data. For example, NACE has standardized the outcome categories and how the career outcomes rate is calculated to ensure it can be compared from one institution to another. This rate is calculated by

dividing the number of graduates engaged in positive activities, such as employment, continuing education, serving in the military, or volunteering, by the total number of graduates for whom outcome information is available, excluding those not seeking employment or further education (NACE, 2020).

Nonetheless, the competitive dynamics of the higher education market have fostered an environment in which institutions may feel incentivized to manipulate or selectively report data, often bypassing ethical considerations (Gnolek et al., 2014; Meredith, 2004; O'Neil, 2016; Sauder & Espeland, 2009). For example, the Department of Education fined Baker College $2.5 million for inflating the salaries of its graduates. At the same time, the former dean of Temple University's Fox School of Business was sentenced to over one year in prison for falsifying data to boost the school's rankings (U.S. Department of Justice, 2021; Wethington, 2025). While national standards have positively impacted data reporting, they remain insufficient in addressing deeper issues related to consent, privacy, data accuracy, and institutional accountability. This article explores the ethical tensions inherent in collecting, reporting, and using career outcomes data, highlighting specific ethical issues in the data-gathering process. It offers short and long-term solutions for institutions seeking to collect and report career outcomes data ethically and transparently, along with suggestions for future inquiry and discussion.

National Guidelines and Transparency

Career outcomes data refers to information that tracks and describes graduates' activities after completing their education. This encompasses whether graduates are employed, pursuing further education, or engaging in other activities, along with detailed employment data such as job title, salary, employer, and industry. Despite its long-standing presence, gathering and reporting this information became more formalized only in 2014, when member institutions of the NACE agreed on specific guidelines known as the First-Destination Survey Standards and Protocols (NACE, 2020). These guidelines provided a structured approach for collecting and reporting data regarding the post-graduation career outcomes of students.

According to NACE's *First-Destination Survey Standards and Protocols* (2020), institutions gather data from both primary and secondary sources. The primary source is the First-Destination Survey, which asks graduates to complete a standardized set of questions within a specified timeframe. A sample of the data gathered and questions asked on the survey is provided in the appendix. In addition to the survey, institutions are encouraged to seek supplementary secondary data to validate and enhance their knowledge rate. Secondary sources include manual public searches of graduates via platforms like Google and LinkedIn, purchased data scrapes, and other second-hand information obtained from faculty, staff, and occasionally employers. The knowledge rate represents the percentage of graduates for whom career outcome information is available, incorporating both the survey response rate and additional data collected through secondary sources.

In addition to outlining data sources, three critical aspects of NACE's guidelines warrant attention. These include establishing uniform definitions, defined timelines for collection

and reporting, and standards for reporting student employment data, continued education, and other post-graduation activities. The guidelines provide comprehensive direction on various elements, including the composition of a graduating cohort, the categorization and definitions of employment types, the timing of graduate surveys, and the calculation of outcomes and knowledge rates. With this guidance, NACE collects member career outcomes data and produces annual reports on first-destination outcomes of undergraduate and graduate students nationwide. Tables 1 and 2 below summarize the core elements of NACE's data-gathering methods and definitions for the First-Destination Survey. Table 1 focuses on important definitions and timelines, while Table 2 focuses on key metrics and calculations used to standardize career outcomes data across institutions. It is important to note that graduates who do not respond to the survey and for whom no information can be found, also known as "no responses" are left out of the career outcomes rate calculation and, thus, out of the career outcomes conversation. Understanding who did not respond to the survey or cannot be found in secondary data sources is as important as understanding those who did.

Table 1. *First-Destination Survey Protocols*

Protocol	Description
Graduating Class	A graduating class includes those who completed their degrees between July 1 and June 30 each year.
Timing of Data Collection	The deadline for gathering data is December 31. To increase responses, NACE recommends surveying graduates before they graduate and leave the institution and up to 6 months after graduation.
Outcome Categories	The following standard outcome categories should be used in the survey and reporting. These are: ● Employed full-time ● Employed part-time ● Volunteer or service program ● U.S. Military ● Continuing education ● Seeking employment ● Seeking education but not yet enrolled ● Not seeking employment or education at this time

Note. The information in this table has been gathered and summarized from the NACE *Standards and Protocols for the Collection and Dissemination of Graduating Students Initial Career Outcomes Information for Undergraduates* (2020) and the NACE website.

Table 2. *Key First-Destination Metrics*

Metric	Definition	Calculation
Career Outcomes Rate	The percentage of graduates who have reported that they successfully transitioned to post-graduation activities and are no longer seeking an outcome. It sums the number of employed, service, military, and continuing education graduates. Please note, this equation does not include "no responses," where graduates do not respond to the survey or for whom career outcomes information cannot be found, as well as those not in the labor force and not seeking.	# Employed + # Service + # Military + # Continuing Education / # Employed + # Service + # Military + # Continuing Education + # Still Seeking
Knowledge Rate	The proportion of graduates for whom an institution has verifiable information about their first-destination outcomes, regardless of data source.	# Completed First-Destination Survey + # Secondary Source Data Collected / # Graduating Class
Response Rate	The number of graduates who responded to the first-destination survey relative to the total number of graduates surveyed.	# Completed First-Destination Survey / # Graduating Class

Note. The information in this table has been gathered and summarized from the NACE *Standards and Protocols for the Collection and Dissemination of Graduating Students Initial Career Outcomes Information for Undergraduates* (2020) and the NACE website.

While NACE's efforts have introduced a degree of standardization, they do not adequately address the deeper ethical complexities associated with collecting and disseminating career outcomes data. Although NACE guidelines promote transparency, they provide limited guidance on ethically managing conflicts between institutional interests and the need for comprehensive, representative data. When we think about career outcomes data and unethical practices, we think of the notorious business or law schools, for-profit institutions, or online school cases that have made headlines for falsifying data to boost their career outcomes for graduates and their rankings in the U.S. News and World Report (Dippie, 2022; Jaschik, 2018; Korn, 2022; Wethington, 2025). Yet, few consider the subtle ways data can be altered and manipulated.

For instance, the duration of surveying graduates and gathering secondary data directly impacts career outcomes (Makela & Hoff, 2018). The longer data is collected, the more likely graduates will report being employed or continuing education (Makela & Hoff, 2018). While NACE provides some recommendations for the timing of the career outcomes surveys, institutions are left to interpret what six months post-graduation means for them. For example, some institutions conclude data collection six months after graduation,

whereas others begin collecting data at that six-month mark. Some institutions will survey students for up to six months post-graduation, only to continue gathering secondary data for months afterward. This seemingly slight inconsistency in timing, however, creates vastly different outcomes.

Then, there is the issue of institutions choosing favorable data selectively throughout the data-gathering process. Institutions receive several data points from multiple responses to the survey plus any additional data scraping or manual online lookups for each graduate. This means that institutions can then choose which outcomes to keep. For example, a graduate who is employed at graduation will be counted as employed even if they report that their circumstances have changed in those six months. In addition, some institutions decide to survey graduates at commencement but classify any "still seeking" responses as "no response" if no updates are received within six months through additional surveying and manual lookups or data scrapes. Graduates who do not respond to the survey and for whom no data can be found are marked as no response. This is important because graduates with no responses are excluded from the positive career outcomes rate calculation, while those still seeking are included. As a result, the career outcomes rate appears artificially inflated.

These are just a few examples of practices where NACE's guidelines have not effectively guided institutions, resulting in artificially inflated career outcome rates, whether intentionally or not. Part of the problem is that NACE's guidelines allow institutions significant discretion in collecting, reporting, and interpreting these data. Additionally, these guidelines remain largely voluntary. As institutions face increasing pressure to report favorable career outcomes for their graduates from accreditation associations, rankings, policymakers, and the public, this creates an ethical dilemma.

Rankings, Competition, and Career Outcomes Data

The tensions institutions face between providing a high career outcomes rate and doing so ethically and transparently was best captured by Gray and Grace (1997) in the National Postsecondary Education Cooperative (NPEC) Working Group on Student Outcomes from a Data Perspective. Their final report described career outcomes data as a "political process" and predicted its proliferation in the industry. At that time, career outcomes data had many use cases, including:

- Providing evidence of institutional effectiveness to policymakers, accreditation associations, and consumers;
- Addressing emerging questions about returns on investment in postsecondary education for individuals and families, states, and the nation at large;
- Providing information to guide local, state, and national postsecondary policy;
- Informing institutional planning, program development, and program improvement in an era of constrained resources;
- Responding to employer concerns about whether postsecondary institutions are adequately preparing students for the workplace;
- Providing information to individuals and families to help them reach informed decisions about postsecondary institutions and programs of study. (p. 2)

Today, the politicization of career outcomes data is materializing. One example is the Gainful Employment rule, which is meant to crack down on career training programs that receive federal funding but do not deliver on their promise of employment (Knott, 2024). In 2024, the U.S. Department of Education also implemented a regulation requiring institutions participating in Title IV federal student aid programs to provide "adequate career services" to their students (Gatta & Taylor, 2024). On the state level, at least 31 states now have some form of performance-based funding model for allocating funds to public universities that link student success and outcomes to funding (NCSL, 2024). While they make up a relatively small portion of appropriations to universities, they signal an increase in holding universities accountable for student success and outcomes (NCSL, 2024).

In addition to the government, ranking and classification systems are increasingly incorporating metrics such as graduate employment rates, average salaries, and student debt into their evaluations of institutions. A recent example is the announcement of an overhaul to the Carnegie Classifications system to include a measure of social and economic mobility (Gast & Gunja, 2024; Lederman, 2024). Recognizing the significance of the Carnegie Classifications in the broader context of higher education, the American Council on Education (ACE) and the Carnegie Foundation for the Advancement of Teaching are revising the classification system to focus on what they define as the mission of higher education: "a springboard to a better life" (Gast & Gunja, 2024).

The U.S. News and World Report also reconfigured its ranking methodology, eliminating factors it no longer deemed important, redistributing weight, and adding new factors based on newly available data, including career outcomes data (Morse & Brooks, 2023). Much like the Carnegie Classifications, the rationale for this change is to reflect the priorities of prospective students and their families: "academic reputation, cost of attending, and return on investment" (Morse & Brooks, 2023, p. 1). While these are just two examples, it is evident that an increasing number of rankings, accreditations, and governing bodies are utilizing career outcomes data as a direct indicator of an institution's value, not just to their students but to society at large.

Linking career outcomes data with rankings is crucial for two main reasons. First, studies have shown that U.S. News and World Report rankings significantly impact institutions (Gnolek et al., 2014; Meredith, 2004; Monks & Ehrenberg, 1999; O'Neil, 2016; Sauder & Espeland, 2009). They influence admissions outcomes, tuition pricing, strategic planning, and internal resource allocation (Gnolek et al., 2014; Meredith, 2004; Monks & Ehrenberg, 1999; O'Neil, 2016; Sauder & Espeland, 2009). Consequently, these "high-stakes rankings" can prompt institutions to manipulate or "game" the system by providing misleading or inaccurate data (Gnolek et al., 2014; Meredith, 2004; O'Neil, 2016; Sauder & Espeland, 2009). Career outcomes data is not exempt from this trend, and given the significant discretion institutions have in obtaining these data, the pressure to report favorably on career outcomes is increasing.

The Question of Ethics

This intense pressure to show positive career outcomes data for graduates has resulted in scandals in which institutions have manipulated or misrepresented career outcomes data. In this context, universities have inflated employment rates and starting salaries or selectively reported data from successful graduates while omitting less favorable outcomes (Dippie, 2022; Jaschik, 2018; Korn, 2022). Recent cases involving Baker College, the Rutgers University Business School, Temple University's Fox School of Business, and the University of Southern California's online education program have drawn national attention to the ethical pitfalls of such practices (Dippie, 2022; Jaschik, 2018; Korn, 2022; Wethington, 2025). These actions compromise transparency and accountability, underscoring the need to examine the ethical dimensions of data collection and reporting for career outcomes data. As institutions navigate the increasingly competitive landscape of higher education, the focus on rankings has overshadowed crucial ethical considerations, particularly regarding the privacy, consent, accuracy, and accountability of career outcomes data.

Privacy and Informed Consent

A central ethical issue in the collection of career outcomes data is the protection of student privacy. In an era where data collection is ubiquitous, students may be unaware of how their information is gathered, stored, and used (Lundie, 2024). Additionally, "data creep" occurs when available data is used for secondary purposes not originally disclosed (Krotov et al., 2020; Lundie, 2024). Moreover, institutions may collect data from third-party sources, such as LinkedIn, without obtaining explicit consent from the graduate (Makela & Hoff, 2018). The underlying assumption is that the information graduates disclose is open for public use. While these practices may improve knowledge rates, they undermine the ethical principles of privacy and informed consent.

In particular, students who may have purposefully withheld information from their institution by not responding to the First-Destination Survey may find that their data has been gathered and used, potentially without adherence to ethical guidelines (Makela & Hoff, 2018). Whether institutions obtain employment information on their graduates through manual public internet searches (e.g., LinkedIn, Google, employer websites) or by using third-party data aggregators (such as data scraping vendors), they often do this without the knowledge or consent of the individuals involved, typically violating the terms of use agreements of LinkedIn and other sites. (Krotov et al., 2020; LinkedIn, n.d.; Makela & Hoff, 2018; Xiao, 2021). This raises significant concerns regarding the extent to which students maintain control over how their personal information is used post-graduation.

In the United States, personal information provided publicly via social media or other sites is generally not protected by law unless it violates intellectual property doctrines, such as copyright or trademark, or the Computer Fraud and Abuse Act (CFAA; Krotov et al., 2020; Xiao, 2021). Current regulations operate under an "opt-out consent" assumption, placing the onus of safeguarding information on the user (Krotov et al., 2020; Xiao, 2021). However, users trust websites and systems to protect their information, much as they trust other users not to violate Terms of Use agreements (Xiao, 2021). Proponents of regulations

aimed at keeping publicly available information private online particularly highlight the unintended harm that can arise from data misuse (Lundie, 2024; Metcalf et al., 2016; Xiao, 2021).

Today, vast amounts of publicly available data from multiple sources can be easily and rapidly amassed and analyzed for various purposes—many of which individuals may not imagine, let alone consent to (Lundie, 2024; Metcalf et al., 2016; Xiao, 2021). Metcalf et al. (2016) identify several categories of harm, including "traditional harms, such as physical pain or psychological distress, as well as perennial surveillance, individual and group discrimination, and 'predictive privacy harms,' where privacy invasions occur through inference rather than direct collection of personal data" (paragraph 12). Within higher education specifically, Lundie (2024) notes that students often have no awareness of how widely their information is shared across campus and through various hierarchical levels, from student staff to the President, as well as with numerous outside vendors. The potential uses of this information may extend beyond their comprehension.

Career outcomes data is not immune to this. While NACE (2020) stresses the importance of privacy, unintentional harm can still be caused. For instance, career outcomes data is now reported alongside other student data obtained from various campus sources, including demographic data, academic and program information, and additional information such as student involvement in athletics and campus life. While most career outcomes data is reported in aggregate, advanced dashboard features allow public users to drill down into specific categories. This means that someone can easily deduce the identity of graduates, their employer, and salary information, which could lead to individual harm. Group harm can also occur unintentionally when career outcomes data fails to represent the populations or programs it reports on accurately.

Accuracy, Consistency, and Representation

Another key ethical challenge is ensuring the accuracy and representativeness of career outcomes data. NACE (2020) recommends that institutions verify outcome data obtained through secondary sources to ensure accuracy. In 2016, Kelly and Walters published a study detailing the process a public research university undertook to align with NACE's First-Destination Survey standards. They found that the most significant challenge was the time required to manually verify survey responses and conduct manual searches on LinkedIn for secondary data. NACE provides limited guidance on how institutions should conduct secondary data searches and obtain accurate, verified, and ethically sourced data.

When performing manual LinkedIn searches to determine graduates' outcomes, significant discretion is left to individual staff members. For example, staff may need to consider whether the employment listed is full-time or part-time or fits into another category. Questions arise, such as: Did the student hold this job before graduation, and if so, does it still count as an outcome? If an internship is listed, is it outdated regardless of the start and end dates, or can it still be counted? If the location is missing, does it mean the graduate is working remotely, or can the employer's location be used? Finally, if a graduate's profile indicates they are still seeking a job, is that recorded or ignored?

To reduce the manual, time-intensive process, nearly 30 percent of universities gathering outcomes data use third-party vendors. These third-party vendors typically scrape publicly available information to save time and money. While research on the accuracy of career outcomes data obtained from secondary sources is limited, Makela and Hoff (2019) examined the fit rate, the proportion of matched data points, between survey responses and scraped data for one public research university. They found the average fit rate between the two sources to be only 71%, with even lower rates for employer and industry information (67%). Furthermore, they found no difference in the quality of scraped data from LinkedIn versus ZoomInfo. In addition to the issue of fit rates, they noted that certain student populations, including international students and those with lower GPAs, were underrepresented in the data scrape (Makela & Hoff, 2019). Whether secondary data is obtained manually or automatically, issues of accuracy and skewed results can lead institutions to career outcomes data that fails to reflect the experiences of the entire graduating class accurately.

Beyond accuracy, representation and the lack of quality in the available data are notable concerns. NACE (2020) guidelines encourage institutions to strive for a 65% knowledge rate, defined as the sum of the first-destination survey response rate and any secondary data gathered. According to NACE's published *First Destinations for the College Class of 2023* (2024), the average knowledge rate for Bachelor's degrees is 55.8%, falling well short of their goal. Knowledge rates are higher at private institutions (by 20%) and smaller universities with fewer than 10,000 students (NACE, 2024). However, few institutions publicly disclose survey response rates, which are crucial for understanding and analyzing career outcomes data (Bryant, 2021).

One issue is nonresponse bias, where graduates who are unwilling or unable to participate in the survey differ significantly from those who complete the survey (Cook et al., 2000). This bias can impact data validity by skewing results favorably, as graduates who are employed or continuing their education are more likely to complete the survey than those who are not (Bryant, 2021; Cook et al., 2000). In a comparison of survey methodology with wage record data obtained from the state, Bryant (2021) found that "survey methodology produced an approximately 10% higher employment rate (for an overall rate increase of 7.5 percentage points) and a 30%–45% higher average salary measure, based on a 50% smaller sample than wage record methodology" across two graduating classes (p. 11).

This nonresponse bias has significant implications for equity. According to NACE's 2023 First-Destination report, White students, students who identify as male, and those in specific majors, such as business or engineering, tend to have higher knowledge rates, either because they tend to respond to the survey at higher rates or because more career outcomes information is available online. These groups also report higher positive career outcomes, employment rates, and salaries than Black or Hispanic students and those identifying as female or nonbinary (NACE, 2024). This highlights persistent inequities in access to post-graduation opportunities among different demographic groups and disparities in survey participation and data accessibility (NACE, 2024). Addressing these gaps is critical to ensuring that career outcomes data accurately reflects the experiences and needs of all students, providing a more equitable foundation for institutional

decision-making and enabling external stakeholders to make informed assessments based on reliable information.

A high response rate can help reduce nonresponse bias (Cook et al., 2000; Groves & Peytcheva, 2008). However, achieving a high response rate is not always in an institution's best interest. While higher response rates may minimize bias, they often lead to lower career outcome rates, creating little incentive for institutions to prioritize them. For example, institutions that make completing a first-destination survey a requirement for commencement often achieve response rates exceeding 80%. However, their career outcome rates tend to be lower because most of the data is collected at graduation, when many graduates have not finalized their post-graduation plans. Additionally, only a small percentage of graduates provide updates in the six months following graduation. In contrast, some schools, particularly liberal arts institutions, delay surveying their graduates until 4 to 6 months after graduation. Although this approach results in lower response rates, it produces higher outcome rates, as timing significantly impacts survey results (Makela & Hoff, 2019).

Accountability and Institutional Responsibility

Institutions mislead the public by highlighting a high career outcomes rate without acknowledging low response rates or the absence of a representative sample. This practice can create a false sense of reality for prospective students, who may believe the data reflects most graduates' success when it represents only a small, potentially skewed portion of the population. For example, an institution might report a 95% employment rate but fail to mention that this figure is based on responses from 20% of graduates, leaving the experiences and outcomes of the majority unaccounted for. Such omissions can lead to students making life-altering decisions based on incomplete or misleading information (Kerr, 2020).

In their research, Bradley (2013) evaluates how universities in the UK mislead and misinform the public through their prospectuses. The study found that institutions mislead the public in their data-driven marketing efforts across nine categories, including “omission of facts and selective reporting; misleading wording; misleading inferences about an attribute; misleading associations between attributes; misleading endorsements; claim-fact discrepancies; falsehoods; carefully crafted comparisons; and claims without a reference point” (p. 74). Using Bradley’s (2013) nine types and applying them to real examples of U.S. institutions and career outcomes data, Table 3 shows the prevalence of using data to mislead prospective students and the greater public.

Providing accurate career outcomes data has increasingly fallen on educational institutions, and the temptation to prioritize competitive advantage over ethical responsibility must be acknowledged. The lack of strong enforcement of ethical guidelines, coupled with insufficient oversight, allows institutions to report misleading or incomplete data with minimal consequences. Whether it is institutions that tout high career outcome rates while hiding their low response rates, those who select favorable data to improve their results, or worse, those who falsify their data entirely, this erosion of trust further undermines the integrity of the higher education system.

Table 3. *Nine Ways Institutions Mislead the Public with Career Outcomes Data*

Type	Definition	Example
1. Omission of Material Facts and Selective Reporting of Data	Failing to disclose necessary information or limiting conditions for correctly interpreting a claim.	A university reports a 90% career outcomes rate but omits that the figure only reflects a small percentage of the graduating class.
2. Misleading Wording	Using confusing language that leads to misunderstandings.	A college advertises a high employment rate for its recent graduating class without acknowledging that many are employed part-time, causing prospective students to overestimate actual outcomes.
3. Misleading Inferences About an Attribute	A claim about an attribute leads to other misleading inferences about the same attribute.	A school claims graduates earn high salaries when their salaries are inflated from only one program, leading to the assumption that all programs offer similar financial outcomes.
4. Misleading Associations Between Attributes	A claim about one attribute encourages a belief about another attribute without evidence.	Highlighting hands-on curriculum or high internship participation numbers to imply superior career outcomes without providing supporting data that such programs lead to employment.
5. Misleading Endorsements	Presenting endorsements or evidence that appear independent but are not.	Featuring testimonials from graduates with prestigious jobs, suggesting these outcomes are typical while omitting that these individuals had unique advantages.
6. Claim-Fact Discrepancy	A claim that is true but requires qualifications to be properly understood.	Reporting that 90% of graduates are employed within six months without clarifying that many work in roles where a degree is not required.
7. Falsehoods	Claims that are simply untrue.	An institution falsifies employment data to inflate its career outcomes rate.
8. The Carefully Crafted Comparison	Carefully selecting terms of comparison to present a more favorable picture.	Claiming the highest employment rate among regional schools by excluding stronger-performing competitors from the comparison.
9. Claims Without a Reference Point	Offering data without a reference point making it difficult to evaluate.	Advertising an average graduate salary of $50,000 without providing any benchmarks for context.

Louch and Pry (2020) highlight the significance of data presentation, stating, "How one presents data, regardless of whether it relates to financial performance, consumer preference, or any other topic on which information is collected and analyzed, determines the way in which the receiver understands it" (p. 10). They argue that those who provide information have a responsibility to do so "clearly, coherently, and completely" (p. 5). Bradley (2013) emphasizes that higher education institutions, in particular, need to be held to a higher standard when using data in their marketing campaigns, compared to business and corporations. First and foremost, getting a degree today is a significant financial and time investment, which can have an immense impact on one's life. It is also not something you can simply try out before fully committing to and there are no refunds. Furthermore, their marketing campaigns often focus on vulnerable groups, including minors and those from lower-income households, who may not have the necessary information or resources to make well-informed decisions. Lastly, universities are highly regarded for their academic achievements, lending them a level of trust and credibility that few other organizations possess. It is essential they use that trust wisely by acting with integrity and remaining accountable to the communities they serve.

Solutions

Career outcomes data is unlikely to lose its importance anytime soon. Its growing influence on institutions, accreditation bodies, rankings, and policy decisions underscore its critical role in shaping higher education. However, this heightened focus on career outcomes has also given rise to numerous ethical challenges in collecting and reporting data. These practices not only risk harming the individuals and groups being surveyed but also have the potential to mislead the public and erode trust in higher education. As such, institutions are responsible for ensuring transparency and upholding ethical standards in collecting and reporting career outcome data.

Before solutions are proposed to address some of the ethical pitfalls in career outcomes data, it is important to note that while institutions have established data governance and Institutional Review Boards (IRB) to ensure data privacy and ethics are observed, career outcomes data tends to fall outside their scope of purview. According to the exceptions for IRB review, career outcomes data is reported on in the aggregate and is not considered sensitive, thus not causing any harm to individuals (U.S. Department of Health and Human Services, n.d.). Furthermore, it is seen as administrative data collected for institutional improvement, not for publishing findings or contributing to greater knowledge (U.S. Department of Health and Human Services, n.d.).

Similarly, data governance refers to the framework and processes by which colleges and universities manage, protect, and use their data effectively and ethically (Banks, 2024). It differs in size and scope from institution to institution. However, its key aspects are ensuring data accuracy, accessibility, privacy and security, data integration, data policy development and enforcement, and ethical use of data (Banks, 2024). However, not all data should be or is governed within a college or university (Glasgal & Nestor, 2020). Data governance may oversee one or more of the following types of data, including shared data, which are data used across multiple departments and business units at the institution; critical data, which is critical to business functions and could cause financial or criminal

penalties if interrupted; and strategic data, which is integral to strategic initiatives of the university such as retention or enrollment data (Glasgal & Nestor, 2020). Data often not included in data governance includes data that is important and helpful for a department or business unit but not the overall institution (Glasgal & Nestor, 2020). Because career outcomes data is owned mainly by career services departments, used for improving career service programming, and is not tied to a student's educational record, it is often not overseen by data governance on campus.

Beyond simply adding career outcomes data into IRB or data governance frameworks, there are three short and long-term solutions to ethically collect and report career outcomes data: (a) review, edit, and document the data collection process, (b) build towards a data-informed decision-making culture on campus, and (c) going beyond career outcomes data to tell your institution's success story. This section describes each of these in more detail.

Review, Edit, and Document

One of the first and most crucial steps is for university staff to review their data-gathering and reporting processes to identify where ethical conflicts may arise and how they can align their practices with institutional data governance plans, institutional review boards, values, and mission. To do this well, a committee should be convened, ideally of diverse roles and functions across campus, and might include people from career services, institutional research, marketing, members from the institution's data governance board, information technology, and other faculty interested in the topic or experts on data ethics. While this approach may take longer, a diverse committee allows fresh perspectives on processes, creates buy-in, and shares the workload and responsibility of career outcomes data across the institution (Fioriglio, 2023; Kelly & Walters, 2016; Webber & Zheng, 2020). Building relationships and establishing a cross-campus committee on career outcomes data can ensure ethical gathering and reporting, boost response rates, and elevate the overall importance of the data (Kelly & Walters, 2016; Webber & Zheng, 2020).

When reviewing current campus practices, Segalla & Rouziès (2023) provide a framework known as "The Five Ps of Ethical Data Handling." The five Ps are provenance, purpose, protection, privacy, and preparation. Below are their definitions:

1. Provenance refers to how data was acquired and whether informed consent was obtained.
2. Purpose refers to ensuring the data gathered isn't being repurposed for other uses beyond its original parameters.
3. Protection refers to how data is being stored and protected.
4. Privacy refers to the anonymity of the data set and who has access to the data.
5. Preparation refers to ensuring accurate, verifiable data and dealing with missing data and variables.

The committee should work together to identify where ethical pitfalls occur as they review the career outcomes data gathering and reporting processes and how those can be solved. For example, obtaining informed consent is notoriously difficult, regardless of the research topic (Xiao, 2021). However, many career center directors have noted that

fostering buy-in and clearly explaining how career outcomes data is used can enhance the ethical process and potentially increase survey response rates (Fioriglio, 2023). While this may be a long-term focus for the committee, a simple additional step of obtaining informed consent can come when procuring secondary data sources. Suppose an institution uses LinkedIn or a data scraping service to find additional data on graduates. In that case, they can reach out (via phone, email, or LinkedIn) to these graduates to obtain consent, verify information, and fill in any missing gaps. While it is an additional step in the process, it reinforces the institution's commitment to accurate, verifiable, and ethically obtained data.

As processes are reviewed and changes are made, the committee must document the steps and any changes for future reference. Documentation ensures consistent data collection and reporting over time and through staffing transitions. It also ensures that the data methodology is clearly outlined, published, and publicly available, just as any other research. Also, proper documentation can safeguard data and processes if they are scrutinized by the public or governing bodies in the future.

Build Toward a "Data-informed Decision Making" Culture

Technological advancement has resulted in a proliferation of data available on campus (Maldonado et al., 2021; Mathies, 2018; Webber & Zheng, 2020). Every action a student takes, from logging into a system to completing a form to swiping their ID, are data points collected, stored, and used in various ways at institutions (Mathies, 2018; Webber & Zheng, 2020). Yet, as Webber and Zheng (2020) argue, there is a gap between having the data and using that data to make informed decisions that provide solutions to key challenges on campus. This is especially the case with career outcomes data. While career outcomes rates can be seen splashed on billboards nationwide, websites, and admissions materials, most institutions lack the resources to utilize career outcomes data beyond its marketing function. This is where data-informed decision-making can make a difference.

Data-informed decision-making, or DIDM, is "the process of organizing data resources, conducting data analysis, and developing data insights to provide contexts and evidence base for formulating organizational decisions" (Webber & Zheng, 2020, p. 8). DIDM has gained popularity in recent years because analytics increasingly supports operations at colleges and universities, including student success, enrollment and strategic differentiation, and academic and curriculum innovation (Webber & Zheng, 2020). In such a data-informed campus culture, career outcomes data can be utilized in many ways to support an institution's strategic direction.

For instance, Hanover Research's recently published report, *2025 Trends in Higher Education*, highlights the growing demand for career-aligned academic programs as its top trend. The first step in such an undertaking is gathering and analyzing data to make informed decisions (Rodgers, 2024). In this case, career outcomes data, along with current and prospective student interest surveys, enrollment data, labor market trends, market saturation, and alumni and employer surveys, could be used to identify appropriate changes in the curriculum that would yield the best results (Rodgers, 2024). In addition to a career-aligned curriculum, there are several other ways career outcomes data can be used to meet institution-wide goals, including improving student career and academic

outcomes, identifying and bridging student skills gaps, building employer relationships, and supporting fundraising goals (King, 2021). A data-informed campus culture can help increase the visibility, relevance, and utilization of career outcomes data.

In addition to elevating career outcomes data, such a culture improves data ethics on campus in two meaningful ways: First, it will reduce data silos and increase data transparency, helping to ensure career outcomes data is gathered and reported with integrity. As Webber and Zheng (2020) note, this transparency may "reveal some inconvenient truths about the performance of colleges and universities" (p. 19), but it also holds institutions accountable. Second, it will increase data literacy on campus, equipping faculty, staff, and students with the knowledge and confidence to critically evaluate how data is collected, interpreted, and reported, ensuring ethical standards are upheld (Maldonado et al., 2021; Webber & Zheng, 2020).

While the benefits far outweigh the cost, it is important to acknowledge that building a data-informed decision-making culture is a long-term strategy requiring senior leadership commitment at the highest levels. Some of the crucial components to building such a culture include: (a) expert talent empowered by senior leadership to lead the charge, (b) technology and resources to integrate, (c) manage and safely house and share large data sets, (d) training and professional development across all levels of campus, and lastly (e) senior leaders with a willingness to take risk and innovate (Webber & Zheng, 2020). Alternatively, Maldonado et al. (2021) provides a more grassroots approach to building a data-informed campus, including identifying and bringing together data champions and ambassadors from across the institution to provide training, establishing unified metrics and a data dictionary, and establishing partnerships that guide data governance and streamline data processes. With this approach, those overseeing career outcomes data collection and reporting can play a crucial role in building a data-informed culture from the bottom up.

Going Beyond Career Outcomes Data

Career outcomes data should not solely determine the value of a degree, nor should institutions be held entirely responsible for the employability of their graduates, given that external factors like the economy and labor market significantly impact whether a graduate can achieve their career goals. While it is a valid data point, career outcomes data represents only a snapshot of information at a given time. Furthermore, as more institutions report career outcome rates upwards of 90%, career outcomes data no longer serve as a differentiator. Thus, institutions must take ownership of their value narrative and broaden their focus.

One of the ways that institutions can go beyond career outcomes data is by highlighting how institutions support their students' career development through well-established initiatives like experiential learning, embedded career competencies in the classroom, alumni-student mentoring programs, and more (Harvey, 2005; Kerr, 2020). This allows institutions to draw on additional data sets, such as for-credit internship completion or pre- and post-survey data and reflections on career competencies. Triangulating data from multiple sources can provide a richer, more nuanced understanding of career outcomes

data and showcases a favorable narrative of an institution's commitment to students' career development.

Several institutions are leaning into other surveys and data to showcase career outcomes success, including feedback from current students, alumni, and employers. For example, Western Governors University (2023) showcases data from the National Survey of Student Engagement (NSSE), Gallup Alumni Survey, WGU-Harris Poll Graduates Study, and Harris Employer Survey to better understand the overall success of their students and alumni. Lightcast, a leader in labor market data, offers universities a chance to dig into alumni career pathways via interactive dashboards, as well as through the National Alumni Career Mobility (NACM) survey, which provides alumni sentiment data on educational experiences, career satisfaction, and much more from alumni five to ten years post-graduation (Lightcast, n.d.). Steppingblocks, a big data analytics company, also provides alumni career insights beyond recent graduate outcomes and utilizes data to help inform students of career pathway options (Steppingblocks, 2024). This additional data can help fill in missing gaps from career outcomes data and provide a more holistic narrative on how alumni are faring post-graduation and where the institution can continue to improve.

Conclusion and Further Discussion

The competitive pressures in higher education, coupled with the growing demand to demonstrate the ROI of a degree, have created a complex environment where ethical practices in collecting and reporting career outcomes data are frequently compromised. While organizations like NACE have made progress in promoting transparency and consistency, critical ethical concerns—such as privacy, consent, accuracy, and accountability—remain insufficiently addressed. As highlighted through several examples, some institutions continue to falsify, misreport, and mislead the public with career outcome data. Despite this, institutions retain significant discretion in gathering and presenting this information.

This article seeks to ignite meaningful discussions on the ethics of career outcomes data, promoting a higher education system that upholds and strengthens public trust. The goal is not to push for greater oversight but to empower institutions to take ownership of the career outcomes narrative and broader student success. By adopting ethical practices, institutions can take control of how their value is conveyed, ensuring that data accurately represents their students' diverse backgrounds, outcomes, and experiences, ultimately building trust with the public.

To this end, existing data governance structures should expand their ethical considerations to include career outcomes data. Those responsible for managing these data must take the lead in updating processes with ethics at the forefront. As campuses increasingly rely on data, senior leaders and data users have a shared responsibility to build a culture of data-informed decision-making that prioritizes transparency, breaks down data silos, and safeguards students. Finally, rather than succumbing to market pressures around outcomes data, institutions should collaborate to reshape the narrative on college and degree value by incorporating broader perspectives and additional metrics beyond career

outcomes. By doing so, they can inspire confidence in the higher education system and demonstrate a genuine commitment to student success.

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Appendix
Core First-Destination Survey Questions

Question Category	Definition	Sample
Outcome Categories	NACE encourages using standard outcome categories, which are also included in its reporting. These are: ● Employed full-time ● Employed part-time ● Participating in a volunteer or service program ● Serving in the U.S. Military ● Enrolled in a program of continuing education ● Seeking Employment ● Seeking education but not yet enrolled ● Not seeking employment or education at this time	Which of the following BEST describes your PRIMARY status after graduation? Please select only ONE of the following categories:
Type of Employment	NACE encourages using standard outcome categories, which are also included in its reporting. These are: ● Employed as an entrepreneur ● Employed in a temporary/contract work assignment ● Employed freelance ● Employed in a postgraduate internship or fellowship ● Employed in all other work categories	Please select the category that BEST describes your employment:
Employment Information	Organization, job title, salary and bonus information, location	Please provide the following information concerning your employment:
Service Program Information	Organization, role, location	Please provide the following information concerning your service:
Military Information	Service branch, rank	Please provide the following information concerning your military service:
Continuing Education Information	Institution, program of study, degree to be earned, location	Please provide the following information concerning your education:

Question Category	Definition	Sample
Contact & Demographic Information	To help ensure accuracy, many institutions will ask for contact information or link surveys to individualized graduates to track who has responded and who has not. In addition, NACE has started to request institutions provide demographic data, including race/ethnicity and gender.	Please provide your contact information below: Name, Student ID, institution email, personal email, phone

Note. The information in this table has been gathered and summarized from the NACE *Standards and Protocols for the Collection and Dissemination of Graduating Students Initial Career Outcomes Information for Undergraduates* (2020) and the NACE website.

Redefining Measures of Career Success

A Holistic View of Post-Graduation Success

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Abstract: Traditional measures of career success—primarily salary and job titles—offer a limited and often misleading view of post-graduation outcomes. These narrow metrics fail to capture the complexity of career trajectories and provide little actionable insight for institutions seeking to improve student preparedness. This paper advocates for a holistic approach to measuring career success by incorporating objective indicators, such as cost of living and industry trends, and subjective measures, such as alumni perceptions of job satisfaction and career fulfillment. Examples and strategies for measuring career success beyond salary and first-destination outcomes are provided. Lessons learned from collecting these measures are shared, including leadership commitment, community building, stakeholder engagement, and the use of technology and analytics. Additionally, it is important to integrate data collection into curricula, foster industry collaboration, and establish feedback loops to align academic programs with workforce needs. By redefining career success beyond traditional metrics, this study offers a framework for institutions to assess and enhance graduate outcomes more effectively in an evolving job market.

Keywords: career outcomes, career success measures, objective career measures, subjective career measures, non-pecuniary measures, alumni surveys, industry trends, cost-of-living

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Even though the economic value of a higher education degree has been well established (Daly & Bengali, 2014; Oreopoulos & Salvanes, 2011), the debate continues about its value. The discourse on value has linked traditional measures of student success (e.g., retention and graduation) with career success post-graduation. The connection between college access, retention, graduation, and career is becoming more pronounced.

> We are now witnessing the beginnings of a movement that goes beyond completion and focuses on post-graduation outcomes as the priority. Just as access without

> completion is insufficient, completion without the fulfillment of expectations for personal growth and improved opportunities leaves students, educators, taxpayers, policymakers, and employers alike less certain about the value of a degree or postsecondary credential. (Strada Center for Education Consumer Rights, 2022, p. 1)

Measuring career success is a challenging endeavor. Traditional success metrics, such as employment rates and starting salaries, are often critiqued for their narrow scope and inability to capture the full range of graduate outcomes (Dumford & Miller, 2017; Spurk et al., 2019). Graduates are now as likely to switch industries, pursue entrepreneurial ventures, or engage in project-based or freelance work as they are to seek traditional full-time employment in their field of study. This shift reflects broader societal trends toward valuing diverse skills, adaptability, and lifelong learning (Deloitte, 2024; Dumford & Miller, 2017). In an increasingly measured market, students and policymakers demand clear evidence of higher education's value beyond initial employment statistics (Tomlinson, 2018). To address this gap, it is imperative to consider a more holistic approach to evaluating career success. Campbell et al. (2019) suggest that "there is evidence of emerging practice across higher education of a more mature integration of employability and career development learning across a whole of curriculum design" (p. 503). Therefore, examining true career success involves a multifaceted approach.

This study presents alternative measures of career success beyond the first job and salary. It first provides a foundation in the literature for measuring student success. Then, it proposes objective and subjective measures of career success that practitioners can use to move beyond the first job and salary. Finally, it concludes with lessons learned from the authors' experiences measuring career success.

Measuring Career Success

In decades past, Americans were more likely to remain with one employer for their professional career (Pew Research, 2016), making it reasonable to assume that one's employer post-college graduation would remain highly relevant throughout their lives. As market conditions, educational opportunities, and industries shift, data shows that the average person changes jobs 12-13 times within their lifetime (U.S. Bureau of Labor Statistics, 2023). Closely connecting a college degree to a specific job, company, or industry may limit the public's perception of the long-term career impact associated with higher education. As colleges and universities look to showcase their value far beyond the short term, holistically examining career outcomes may help present them more meaningfully. High-quality academic programs look beyond an alum's first job or company association at graduation and offer up-to-date curricula aligned with industry standards, meaningful oversight and governance, positive accreditation, clear learning outcomes, and more (Kayyali, 2023). While salary and employer information should not be ignored, further exploration of additional frameworks for examining the collegiate experience is needed.

Heslin (2005) noted that "even though most people who have careers are not White, male, well-educated managers or professionals working in large, hierarchical organizations, the vast majority of careers research has been focused on this very narrow subset of all the

people who are engaged in a career" (p. 127). A diverse array of alumni are excluded from the success narrative by defining career success only through salary and job title. By broadening how career success is measured, institutions create a more inclusive narrative of success for their students and utilize measures that lead to actionable results. Miller et al. (2017a) added that one way to look beyond job placement and salary is through alumni's perceptions of careers.

> While institutional administrators certainly want to see their graduates employed, this external pressure to use income as the "end-all-be-all" measure of career success may not be capturing a complete vision of successful outcomes. Other aspects of one's career can provide just as much, if not more, of a rewarding experience as can the traditional measures of income and prestige. (p. 4)

Heslin (2005) suggested using both subjective and objective measures to define career success. Objective measures are verifiable sources such as salary, promotions, livable wages, and occupational status. Subjective measures are "an individual's reactions to his or her unfolding career experiences" (Heslin, 2005, p. 114). These reactions can include career readiness, career satisfaction, finding meaning in a career, work-life balance, challenge and support at work, financial security, and social support. Taking this concept one step further, Heslin (2005) proposed a framework for various career types and how they match with objective or subjective success measures. The first career type consists of people working in winner-take-all job markets who are more likely to define career success using objective measures such as promotions, salary, and status symbols such as job titles. The second type is clan cultures, which measure career success using more subjective measures of connection with community, team, and meaning in their work. The third type is careers for those who feel they have a calling and use subjective measures of career success, including finding meaning in their work, having freedom in their choices, and feeling they are making an impact. The fourth career type is performance goal-oriented and uses subjective and objective measures such as meeting targets (objective) and feeling they are successful (subjective). The final career type is those with a non-linear career path; again, subjective measures provide insight into success for these paths. This framework can serve institutions in understanding how to measure career success more broadly and pushes researchers to start measuring success more subjectively.

The Strategic National Arts Alumni Project (SNAAP) is an excellent example of how campuses can partner with researchers to find reliable measures of subjective career outcomes (Dumford & Miller, 2017; Miller et al., 2017a; Novak-Leonard, 2024). Through a focus on alumni of arts programs (music, visual arts, performing arts), this survey couples objective and subjective measures of career success with alumni's perceptions of skills and competencies they learned while obtaining their degree. Given that most alumni from arts programs fall into Heslin's (2005) career types of clan culture, a calling, goal-oriented, or non-linear career paths, it goes without saying that "if making money is not the only thing that matters for workers and employers, it only follows that it should not be the only thing that matters for institutional measures of alumni success" (Dumford & Miller, 2017, p. 196). Findings from alumni surveys demonstrate that career success can be measured by alumni perceptions of work that reflects values, opportunities to be creative, work that

contributes to a greater good, career relating to their degree, job security, level of responsibility, overall satisfaction at work and with life, and finding flexibility in their workplace (Dumford & Miller, 2017; Modern Language Association, 2024; Novak-Leonard, 2024).

Subjective measures such as career satisfaction capture valuable perspectives on career success as well as reflect current values related to work and career. The Deloitte Global 2024 Gen Z and Millennial survey highlights that most Gen Zers (86%) and Millennials (89%) say having a sense of purpose is important to their overall job satisfaction and well-being. These generations are increasingly willing to reject assignments or employers that do not align with their values (Deloitte, 2024). Interestingly, among Gen Zers, their purpose is important for job satisfaction and well-being regardless of job seniority (Deloitte, 2024). By examining job satisfaction, institutions can understand what is important to graduates in the workforce and incorporate the data into their larger career preparation strategy. For example, the curriculum can be adjusted, career preparation offerings can be adapted, and career centers can learn about organizations that attract and retain early talent that may appeal to their students (Modern Languages Association, 2024).

Moreover, recent studies indicate that students entering higher education today prioritize different aspects of their future careers than previous generations. Surveys conducted by organizations such as the Higher Education Policy Institute (HEPI) and Mowreader suggest that students place significant emphasis on job satisfaction, work-life balance, and the ability to make a meaningful impact in their communities (HEPI, 2023; Mowreader, 2023). This is partly due to the changing social context, where environmental concerns, mental health awareness, and social justice movements have influenced how success is perceived. These values-driven motivations for career choices have altered the landscape of professional aspirations, suggesting that higher education institutions need to broaden their success metrics to capture these evolving definitions.

In addition to career satisfaction, career preparation is an important subjective measure to consider. The National Alumni Career Mobility Survey found a strong relationship between career satisfaction and alumni's perception of whether their institution prepared them for their careers and invested in their careers (Yousey-Elsener, 2024). Preparing students for their careers is critical to higher education, providing students with the resources, guidance, and support they need to transition from academia to the workforce. However, traditional assessments of career preparation often focus on short-term outcomes, such as job placement rates, rather than their lasting impact on graduates' career trajectories. A more comprehensive evaluation of career preparation should consider how these programs influence long-term career success, satisfaction, and adaptability (Sherif et al., 2020). Career readiness builds upon career preparation by specifying the essential skills required for success.

Subjective measures can also measure career readiness. Career readiness reflects the knowledge, skills, and learning strategies required to begin a career, including common workplace conduct expectations (National Association of Colleges and Employers [NACE], 2022). Career readiness is a foundation to demonstrate requisite core competencies that

broadly prepare the college-educated for success in the workplace and lifelong career management (NACE, 2022). The competencies include career and self-development, communication, critical thinking, equity and inclusion, leadership, professionalism, teamwork, and technology (NACE, 2024). Career preparation efforts should intentionally develop these skills and competencies. Career outcomes assessments should ensure they are measuring career success in part based on how well students develop these skills and how well these skills link with long-term career success.

In addition to career competencies, subjective measures can also focus on understanding the institution's impact on networking. Researchers have found that networking is critical for building social capital and achieving career success (Sherif et al., 2020; Yousey-Elsener, 2024). Social capital refers to the value of social connections and support systems that individuals develop throughout their professional lives (Sou et al., 2022). Unlike other forms of capital, social capital is rooted in individual relationships and group memberships. What makes social capital so important is its connection to helping students achieve their career goals. Research by Seibert et al. (2001) and Zhang et al. (2010) suggests that social capital is essential for attaining career success by providing access to information, resources, and sponsorship. These connections enable individuals to navigate career challenges more effectively, open pathways to advancement, and enhance their overall career development. Building and maintaining professional relationships is key to achieving long-term career success.

Feedback loops providing insights into four subjective areas - job satisfaction, career preparation, career readiness, and networking - help practitioners understand how to support student success while assisting institutions in defining their value proposition (Dumford & Miller, 2017; Strada, 2022; Yousey-Elsener, 2024). The impact of career preparation extends beyond individual alumni achieving career success; it also contributes to the broader goals of higher education. A multi-source approach to assessing career outcomes enables institutions to identify trends such as plateauing growth in specific industries, the effectiveness of career and professional development efforts, and evolving job market demands. With a deeper understanding of career success, institutions can refine their career services, enhance curriculum relevance, and develop tailored support mechanisms that align more effectively with graduates' long-term success in an evolving workforce.

Building on this broader perspective, examining career success requires looking beyond initial job placement and salary to incorporate objective and subjective measures. While early career outcomes provide useful indicators, long-term success is shaped by a range of factors, including professional growth, job satisfaction, and career preparation. By considering these diverse measures, institutions can better understand how well they prepare students for sustained career achievement and fulfillment. The next section provides tangible examples of objective and subjective measures that campuses can use to expand their definition of career success.

Objective Measures of Career Success

Objective measures of career success need to go beyond salary to provide additional depth and perspective on graduate outcomes. The measures described below are more effective when triangulated with other data sources, allowing for more nuanced views of career success. Each measure includes a section on triangulating data with other subjective or objective measures to provide additional context.

Cost of Living

The focus on starting salaries as a primary indicator of success is problematic for several reasons. First, starting salaries do not account for regional cost-of-living variations, meaning a seemingly high salary in one location might not provide a comfortable standard of living in another. Second, they fail to capture long-term earning potential or career growth prospects. A graduate may accept a lower initial salary for a position in a location that has a lower cost of living, offering valuable experience, skill development, and advancement opportunities that could lead to significantly higher earnings and job satisfaction later on (Gray & Koncz, 2024).

Third, salary alone does not reflect the broader aspects of job quality, such as benefits, job security, work environment, and opportunities for professional development (Vandenbroucke, 2023). Fourth, focusing solely on salary data provides little actionable data for higher education institutions other than funneling students into majors that lead to high-paying positions (Yousey-Elsener, 2024). Salary-focused metrics can thus provide an incomplete picture that fails to acknowledge the multi-dimensional nature of career success.

A singular emphasis on financial outcomes can misrepresent the true value of an education by neglecting other essential aspects of long-term career success (Vandenbroucke, 2023). The average salary for either an institution's or a program's graduates does not give a graduate a realistic salary expectation. Graduates may turn down positions based on institutional averages. Prospective students with their families may choose a major based on salary that could be inflated or deflated and not a realistic picture of what is happening years in the future. Moreover, salary-focused measures often fail to account for higher education's broader return on investment (ROI), including personal fulfillment, skill acquisition, and career adaptability (Levy & Graff, 2023).

To address these limitations, institutions can employ several strategies to measure living wages effectively. First, they should utilize regional cost-of-living data to adjust salary benchmarks, recognizing that the cost of living varies widely depending on location. Publicly available resources, such as the Massachusetts Institute of Technology's (MIT) Living Wage Calculator, estimates living wages based on family size and location, offering a valuable tool for benchmarking graduates' earnings (MIT, n.d.). Institutions can request data from the MIT database or the Council for Community and Economic Research Cost of Living Index (n.d.) to contextualize salary information so that current and prospective students can compare alumni salaries with the living wage standards of the regions in which they reside. This method provides a more realistic assessment of financial success and informs programmatic support for graduates facing economic challenges.

Self-reported data from alumni is another crucial component of this measure. Surveys that ask graduates about their monthly expenses, savings, debt levels, and financial stress can provide a more comprehensive picture of their economic well-being. For example, questions such as “Are you able to save a portion of your income for future goals?” or “Do you feel financially stable given your current expenses?” can offer insights into the adequacy of graduates' earnings relative to their cost of living. Contextualizing salary in light of the cost of living provides valuable data for those seeking to better understand higher education outcomes. However, focusing solely on financial outcomes limits decision-making by emphasizing career paths that lead to high salaries and locations with low living costs. Exploring alternative measures helps to broaden the perspective of career success.

Industry Trends

Graduates' success is also influenced by the industries they enter (Deloitte, 2024). Traditional metrics often focus on whether a graduate finds employment within their field of study, reinforcing an "in-field/out-of-field" binary that fails to capture the complexity of modern career trajectories. This rigid framework overlooks the reality that graduates often apply their skills across multiple sectors, leveraging transferable competencies instead of following a direct academic-to-career pipeline.

Institutions should analyze how well academic programs prepare students for career adaptability within evolving market landscapes. A thriving industry with a high demand for skilled workers may provide job security, career advancement, and job satisfaction. Conversely, industries facing decline may require graduates to pivot more frequently, acquire new skills, or redefine their professional paths. Recognizing this dynamic interplay between education and workforce trends allows institutions to assess how well they equip students to thrive in a fluid and interdisciplinary job market (Aspen Institute, 2014, Watermark, n.d.).

To incorporate industry trends into career success metrics, institutions should utilize labor market information systems (LMIS) and actively partner with employers and industry associations. LMIS tools provide data on job openings, the demand for specific skill sets, average wages, and projected growth or decline in various sectors (International Labour Organization, n.d.). These systems are available through various organizations based on regional or global locations. Readers are encouraged to explore the dataset most relevant to their context. By analyzing these data, institutions can identify which industries are expanding, where skill gaps exist, and how their academic programs align with market needs. This information is critical for curriculum development and career advising, enabling institutions to prepare students for emerging career opportunities (Aspen Institute, 2014; Watermark, n.d.).

Additionally, combining industry trends with alumni employment trends can reveal important patterns. This transparency benefits both institutions and students. For institutions, tracking and sharing data on employment trends allows them to identify potential gaps in program relevance, advocate for curriculum adjustments, and develop strategies to support graduates facing unexpected job market disruptions. For students,

this level of transparency ensures they understand real-world employment conditions in their field and can make informed decisions about their career paths, skill development, and any potential need for further education or retraining.

In addition to LMIS datasets, employer partnerships, such as the Employer Advisory Board at Suffolk University, provide another valuable source of information (Suffolk University, n.d.). Institutions can establish industry advisory boards comprising professionals from key sectors who offer insights into current workforce trends, emerging technologies, and the most in-demand skills. Regular dialogue with employers informs curriculum development and ensures that students receive up-to-date career advice reflecting the realities of the job market.

Industry trends and cost-of-living information are powerful tools for understanding career success, career trends, and how institutions can impact long-term student success. These tools are part of a broader understanding of measuring career success. Subjective measures collect additional information, often from the perspective of students or alumni. The next section explores ways in which institutions can gather this vital information.

Subjective Measures of Career Success

Oreopoulos and Salvanes (2011) contend that the financial returns of higher education have been well-established, so it is time to look beyond those returns and find ways to measure what "schooling actually does" (Oreopoulos & Salvanes, 2011, p. 159). The examples they provide include the impact of having a degree on how someone enjoys work, finds work, progresses in their career, and makes major life decisions about things like marriage, health care, and parenting. These nonpecuniary (or subjective) benefits allow for reshaping the conversation around obtaining a college degree and call for new ways to measure career success. These subjective measures use many different data collection tools such as focus groups, advisory boards, interviews, and, most often, alumni surveys.

Surveys that gather perceptions of the value of a degree can play a crucial role in defining career success beyond just salary. These subjective ratings can provide insights into nonpecuniary benefits such as job satisfaction, opportunities for career progression, and a sense of meaning in life. Moreover, when combined with career pathways, industry trends, and cost-of-living data, they offer a more nuanced understanding of career success. The Strada Foundation (2022) has stated that "by examining economic success and personal fulfillment together, as well as identifying the most successful elements of their educational experience, we can help improve the return on all the investments that individuals, families, communities, employers, and governments make in postsecondary education and training" (p. 3).

Higher education institutions have been using alumni surveys for many decades. Cabrera et al. (2005) outlined the various stages of alumni surveys beginning in 1930-1970. At that time, surveys focused on gathering data from alumni on career pathways, transitions to the workforce, and the relationship between their careers and majors. Surveys of this type seek to answer questions such as, "How satisfied are graduates with their employment? How satisfied are graduates with the degree-granting institution? To what extent are

graduates fully participating in civic activities?" (Cabrera et al., 2005, p. 6). From the 1980s to the early 2000s, alumni surveys broadened to include information about competencies gained and engagement while pursuing a degree. Surveys focusing on competencies and engagement aim to answer questions like, "What are the competencies (outcomes, abilities, and values) that college education should foster most? To what extent were alumni engaged with faculty, staff, and peers while attending college? To what extent do graduates apply those competencies on the job or in graduate school?" (Cabrera et al., 2005, p. 9). In the early 2000s, a third type of alumni survey focused on alumni's capacity to give back to the institution. The central question for alumni giving surveys is, "What is the inclination and capacity of alumni to support higher education through service, advocacy, and philanthropy?" (Cabrera et al., 2005, p. 12).

Institutions today are known to use all three types of surveys when gathering information from alumni. Volkwein (2010) underscored the importance of alumni surveys for internal and external stakeholders and suggested that these surveys should collect information on career pathways, competencies, and engagement categories. He summarized the value of alumni surveys: "Under ideal conditions, the results of alumni studies equip faculty and administrators with information for making constructive alterations to programs and curricula, as well as for demonstrating institutional effectiveness" (Volkwein, 2010, p. 127). Stoloff et al. (2016) concurred that alumni surveys should focus on collecting data beyond career pathways and satisfaction by incorporating questions about alumni experiences while obtaining their degrees. Alumni surveys play a crucial role in understanding the impact of a college degree on career success, the ROI of that degree, and how to better enhance programs and services. Parkyn (1991) emphasized that "while assessment endeavors which measure currently enrolled students focus on short-term outcomes, alumni-based research provides an appropriate context within which to measure long-term objectives" (pp. 7-8).

One of the largest criticisms of alumni surveys is their lower response rates, which may limit the sample's representativeness. Stoloff et al. (2016) reviewed a survey conducted by a large psychology department to determine if the responses to their alumni survey were representative. They concluded that although the responses were not representative, the results were still valuable and should be used to understand general information about student experiences and alumni career pathways. "Results from alumni surveys that are carefully constructed and appropriately analyzed can provide insights that can guide curriculum development and advising, thus increasing the likelihood that more students will mimic the activities of highly successful alumni" (Stoloff et al., 2016, p. 15). The key to effectively using alumni data is careful construction, appropriate analysis, and interpretation, as lower response rates could indicate nonresponse error for some topics but not others (Fosnacht et al., 2017; Standish & Umbach, 2019). Increasing response rates is discussed further in the lessons learned section of this article.

In addition to the response rate, Volkwein (2010) examined various challenges specific to alumni surveys and proposed possible solutions. The first challenge is selecting which alumni classes to survey. The author suggests that younger alumni (5-10 years post-graduation) are ideal for assessing outcomes, competencies, and engagement as

they have had enough time to reflect on their experiences while still remembering the details. The second challenge pertains to sample size, recommending that it should not be too big or too small, considering the need to ensure adequate responses for each group required for analysis. The third challenge Volkwein (2010) noted is the frequency of survey distribution. The suggested solution is to wait at least 5 years between surveys to avoid survey fatigue among alumni and to give the institution enough time to utilize the data properly. Volkwein made no recommendations regarding how frequently any group of alumni should receive surveys.

The final two challenges are related to survey design and include advice on what scales to use and the survey length. One recommendation is to use an alumni survey offered nationally, as it provides some consistency with the design elements and also offers benchmarking opportunities. Alumni surveys offered nationally include the HEDS Alumni Survey (Higher Education Data Sharing Consortium [HEDS], n.d.), Gallup Alumni Survey (Gallup, n.d.), National Alumni Career Mobility Survey (Lightcast, n.d.), Strategic National Arts Alumni Project (Strategic National Arts Alumni Project [SNAAP], n.d.), and the Alumni Outcomes and Loyalty Survey (Ruffalo Noel Levitz [RNL], n.d.). Each survey focuses on aspects of alumni data and provides different deliverables as part of its process. Whether for internal use or external stakeholders such as accrediting bodies, institutions should clearly understand what data they need before conducting national surveys or designing one in-house (Volkwein, 2010). In-house, custom-made surveys allow campuses to collect data specific to their needs. Surveys intended for other stakeholders, such as current students or employers, can utilize questions from the alumni survey. The Appendix includes a sampling of survey questions for alumni surveys.

Understanding career success through subjective and objective measures provides a comprehensive view of how students and alumni evaluate their professional achievements. While objective metrics–such as salary, employment status, cost of living, industry trends, promotions, and job title–offer tangible benchmarks, subjective measures–including job satisfaction, personal fulfillment, and work-life balance–capture the nuances necessary for institutions to understand and gather actionable insights on career success. Examining these dual perspectives highlights the complexity of defining and assessing career outcomes. However, measuring career success effectively requires more than defining key indicators; it also demands a strong infrastructure to support data collection and use. Without sustainable processes for gathering, analyzing, and using this information, even the best-defined metrics may fall short of their potential impact. The next section explores building a sustainable framework that ensures data is consistently collected, accurately interpreted, and meaningfully used to inform decision-making.

Building a Sustainable Data Infrastructure

Broadening the measures of career outcomes is just one aspect of a larger effort to assess student success and enhance the narrative surrounding the value of higher education. Establishing scalable and sustainable frameworks to support collecting, analyzing, and utilizing career outcomes data ensures campuses fully optimize these efforts. Wells and Eckert (2024) explain that “the degree to which assessment practice is successful depends

on its capacity to provide relevant and credible data on goals of interest over time" (p. 86). Strategies for building this infrastructure specifically for career outcomes data align with best practices for effective assessment frameworks. The professionals responsible for collecting and using career outcomes data often reside outside the assessment organizational structure, typically in career services offices. This section links the elements used to construct assessment infrastructures to the specific strategies for creating a sustainable infrastructure for data for career outcomes.

Leadership Commitment

Institutional leaders are pivotal in driving data collection and analysis initiatives (Wells & Eckert, 2024). Their endorsement signals the importance of this work and sets the tone for a data-driven culture within the institution. Highlighting the potential impact on career readiness, curricular improvements, and student success outcomes illustrates the value of adopting a holistic career outcomes approach (Rosenbaum et al., 2017). Leaders can support data collection efforts by allocating resources, endorsing initiatives, and communicating the significance of career success metrics.

Building a Community of Practice

Establishing forums, working groups, or committees dedicated to data collection and utilization practices fosters collaboration and the sharing of best practices (Cebulski, 2024). Cross-departmental committees that include representatives from academic programs, career services, institutional research, and alumni relations can facilitate discussions on data collection strategies, analysis, and application. Regular meetings provide opportunities to share findings, address challenges, and explore potential improvements in data practices. By building a community of practice, institutions enhance their collective capacity to understand and support graduates' long-term success (Thompson-Dyck & Schalweski, 2024).

Building a Team

Thomson-Dyck and Schalewski (2024) stated that "effective…involvement…is essential for producing timely, useful results that demonstrate impact and are used to make improvements. The challenge…is to identify who, how, and when to involve… while juggling competing priorities and information demands" (p. 52). Engaging faculty, staff, students, and alumni in data collection efforts fosters a shared commitment to understanding and enhancing career outcomes. Regular communication with collaborators about the progress of data collection, insights gained, and resulting improvements reinforces the value of a data-driven approach. Involving partners in interpreting data and developing strategies for programmatic changes ensures that the institution's efforts align with the diverse needs of its community. Celebrating success stories and recognizing faculty, staff, and alumni contributions can inspire ongoing engagement (Yousey-Elsener & Bayless, 2025).

Leveraging Technology and Analytics

Modern data analytics tools provide powerful capabilities for managing and interpreting career success data. Predictive modeling and trend analysis can identify factors contributing to successful career outcomes, assisting institutions in refining their programs and support services. For example, data analytics can reveal correlations between specific

academic experiences, such as internships, research projects, or participation in professional organizations, and long-term career success (Miller et al., 2017b). Centralized data management systems, interactive dashboards, and user-friendly data entry platforms enhance the efficient tracking of key metrics and support data-driven decision-making (Henning & Roberts, 2024). Visualizing data through dashboards allows partners to explore trends and metrics, improving the accessibility and usability of data for faculty, staff, students, and policymakers.

Training and Professional Development

Creating a truly data-driven culture requires more than just collecting information—it demands a fundamental shift in how institutions train, equip, and empower their faculty and staff to use data meaningfully. The new framework for career success tracking depends on strategic data planning, integration across multiple sources, advanced analytics, and effective visualization to translate raw information into actionable insights. To meet these demands, institutions must invest in professional development that ensures faculty, career services staff, and institutional researchers have the skills to collect, interpret, and apply data effectively (Kruchen-Spaulding & Cyr, 2024).

Incentivizing Participation in Alumni Surveys

Encouraging student and alumni participation in data collection efforts is essential for obtaining comprehensive and accurate information. As mentioned above, a strong community of practice is key to creating cross-functional teams that promote alumni engagement. Offering incentives, such as access to exclusive career resources, prize draws, or recognition for contributions, can increase response rates and data quality (StageClip, n.d.). Moreover, regularly updating participants on how their input improves programs reinforces the value of their engagement. Recognizing alumni success stories in institutional publications, on social media, and at events fosters a sense of pride and community, motivating graduates to contribute to data collection initiatives.

Feedback Loops

Establishing feedback loops to inform institutional policies and practices is crucial for continuous improvement. A feedback loop is a systematic process where data is collected, analyzed, and used to make informed decisions, with the outcomes of those decisions being reintroduced into the system for ongoing refinement (Volitaki, 2023). Data insights can drive program reviews, curriculum updates, improvements in career readiness, and advising practices, aligning institutional efforts with the evolving definitions of career success. Sharing success stories, lessons learned, and enhancements that result from data-informed decisions emphasizes the importance of data collection efforts (Henning & Roberts, 2024). Regularly communicating how data improves programs and services builds trust, support for the initiative, and a shared purpose within the institution.

Integrating Data Collection into Curricula

Integrating data collection and analysis practices into the curriculum enhances the institution's overall data pool while educating students on the importance of data-informed decision-making in their careers. Capstone projects, internships, and career development courses allow students to gather data, explore industry trends, and analyze employment

patterns. By embedding these practices into academic programs, institutions prepare students for the data-centric nature of modern careers (Modern Language Association, 2024).

Industry Collaboration: Aligning Academic Programs with Workforce Needs

Collaboration with employers and industry bodies ensures that academic programs align with workforce needs. Engaging with employers through advisory boards, industry partnerships, and regular feedback loops provides valuable insights into current and future skill demands, allowing institutions to adapt their curricula and career services accordingly (Leavitt & Leigh, 2022). Industry collaboration also facilitates data collection by providing information on employment trends, job openings, and the skills in demand. Incorporating employer feedback into academic advising and program reviews helps students make informed career decisions and enhances their readiness for the job market (Aspen Institute, 2014).

Conclusion

In redefining career success, this article highlights the limitations of traditional metrics like first-destination salary and job titles and underscores the need for a more holistic approach. Institutions can better understand post-graduation outcomes by integrating objective factors—such as cost of living and industry trends—and subjective insights from advisory boards and alumni surveys. Lessons from the field emphasize the importance of leadership commitment, community building, partnership engagement, and the strategic use of technology and analytics. Moreover, embedding data collection into curricula, fostering industry collaboration, and incentivizing participation are key to sustaining meaningful assessments. As higher education evolves to meet workforce demands, embracing a comprehensive, data-driven approach to measuring career success will better equip institutions to support graduates in achieving fulfilling and sustainable careers.

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Appendix

Example Alumni Survey Questions

Job Satisfaction

- I feel satisfied with my post-graduation plans.
- Overall, how satisfied are you with your current job?
- How well does your current job align with your career goals?
- How satisfied are you with career growth and advancement opportunities in your current role?
- Does your current job utilize the skills and knowledge you gained during your education?
- What factors beyond salary and promotions have contributed to your sense of career fulfillment?
- What is the most important factor contributing to your job satisfaction? (Select all that apply)
    - Salary and benefits
    - Work-life balance
    - Career growth opportunities
    - Company culture and work environment
    - Job security
    - Alignment with personal values
    - Other (please specify)

Career Preparation

- My institution helped me prepare for my career.
- How do you define career success at this stage in your professional journey?
- Which aspects of your academic experience were most valuable in preparing you for your career? (Select all that apply)
    - Coursework and academic curriculum
    - Internships or co-op experiences
    - Networking opportunities with faculty, alumni, or industry professionals
    - Career services (resume help, job search assistance, etc.)
    - Extracurricular activities (clubs, leadership roles, etc.)
    - Other (please specify)
- What factors do you believe have contributed most to your career success? (Select all that apply)
    - My education and degree program
    - Networking and professional connections
    - Internships or work experiences during school
    - Continuous skill development and learning
    - Mentorship and guidance
    - Hard work and perseverance
    - Other (please specify)

Career Readiness

- If you could go back, what additional resources or experiences would have better prepared you for your career? (Select all that apply)
    - More hands-on or experiential learning opportunities
    - Stronger career services and job placement support
    - More networking opportunities with alumni and industry professionals
    - More emphasis on practical skills within coursework
    - Other (please specify)
- To what extent did your institution help you develop the following skills:
    - List skills specific to the institution. Examples include professional and career skills, critical thinking, writing, etc.
    - My experience as a student at this institution included trying new things and broadening my scope.

Social Capital/Networking

- The relationships I developed as a student at this institution will last far beyond graduation.
- To what extent did your institution help you develop networking skills?
- To what extent did your institution help you build your network while obtaining your degree?
- To what extent have you maintained connections with the network you built as a student?
- What are the most valuable ways your professional network has supported your career? (Select all that apply)
    - Job referrals or recommendations
    - Mentorship or career advice
    - Business or collaboration opportunities
    - Industry insights and knowledge-sharing
    - Emotional or motivational support
    - Other (please specify)

Career Mobility

- Have you had to switch jobs, industries, or further your education to achieve career or economic mobility?
- How frequently have you changed jobs or industries since graduation?
- To what extent did your education prepare you to adapt to new roles or industries?
- What skills from your academic program have been most valuable in navigating career changes?
- What factors influenced your career transitions?
- Was your career transition driven by personal choice, employer expectations, or industry requirements?
- Did your education provide you with the skills necessary to adapt to changes in your industry?
- How prepared did you feel when facing career shifts or pursuing further education?
- To what extent do you feel financially secure in your current career?

Measuring Alumni Career Outcomes

A Validity Study

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Abstract: Colleges and universities use surveys like the National Alumni Career Mobility (NACM) to evaluate how well they prepare graduates for careers. This study tested two NACM scoring models—a five-factor model and a bifactor model—and evaluated whether results were consistent across first-generation and non-first-generation alumni. Findings supported the simpler five-factor model (i.e., support for computing five subscale scores), suggested removing a problematic item, and showed that the survey functioned consistently across groups. These findings provide the first peer-reviewed guidance on NACM scoring and support the use of subscale comparisons to inform student career development efforts.

Keywords: career mobility, career outcomes, first-generation alumni, confirmatory factor analysis, measurement invariance

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To address concerns about the value of higher education, it is crucial to provide college students and stakeholders with career outcome data that shows how well institutions prepare graduates for professional success. Students anticipate that their college education will lead to successful careers (Blaich & Wise, 2021). However, studies that connect career data to college experiences are scarce due to two primary research challenges. First, defining a positive career outcome is complex. One frequently studied career outcome is salary, an important but limited facet of career success. Other dimensions of career outcomes include career satisfaction, economic mobility, and career mobility (i.e., the ability of an individual to move between or within different jobs or roles; Büchel & Mertens, 2004; Dumford & Miller, 2017; Miller, 1984; Sicherman & Galor, 1990). Thus, institutions need to measure multiple aspects of career outcomes when studying post-graduate success.

A second obstacle when studying post-graduate career outcomes is logistical. Higher education institutions often lack up-to-date contact information for their alumni. This challenge has been addressed by third-party entities that obtain institutional alumni career

data for a fee (e.g., Measuring Higher Education Outcomes–Gallup-Purdue Index, n.d.). One such group, The Career Leadership Collective (CLC), developed a survey to measure career outcomes and relate them to college experiences. The National Alumni Career Mobility (NACM) survey defines career mobility and helps institutions articulate the value of their degrees (CLC, 2022). Since this study was conducted, the NACM survey was acquired by Lightcast.

National Alumni Career Mobility Survey (NACM)

The NACM survey is a proprietary tool developed in 2018 (CLC, 2022). NACM was designed to help higher education administrators "adapt their career development practices and to equitably guide students toward more fulfilling careers and lives" (CLC, 2022, p. 4). NACM has been administered to alumni from over 50 public and private U.S. institutions. The Collective has published national public reports, presented NACM data in webinars, and provided data visualization services to institutions. As part of the overall survey, 25 items are typically scored using five subscales: Career Pathway Preparation (CPP), Career Satisfaction (CS), Community Engagement (CE), Economic Mobility (EM), and Institutional Career Investment (ICI; see Appendix).

The CPP subscale measures alumni's readiness for their chosen career after postsecondary education. The feeling of contentment that alumni experience is measured by CS. CE gauges the extent to which alumni actively participate in their local communities, whereas EM compares current income or earning potential with the economic conditions of the households in which they grew up. Lastly, ICI reflects the perceived level of support that alumni received from their institutions in terms of career development. NACM reports consistently present these five subscale scores in campus deliverables and national dataset reporting. In addition, a career mobility index (CMI) score was reported, encompassing the CPP, CS, and EM subscales. Also, NACM scores were routinely disaggregated by demographic variables (e.g., first-generation status) to draw attention to potential equity issues.

This study examined the validity of the NACM factor structures. Validity ensures that the way we interpret scores from the survey is supported by research and evidence (American Educational Research Association et al., 2014). Benson (1998) proposed a three-step process for evaluating validity. The first step, the substantive stage, focuses on developing survey items based on a clear theoretical framework and empirical research. The second step, the structural stage, evaluates the internal structure of the survey, often through statistical methods like factor analysis, to ensure that items measure the intended constructs. The third step, the external stage, involves testing a priori stated hypotheses about the relation between the scores produced by the measure and other constructs (e.g., expected relationships). We used this process in the present study of NACM.

Evaluation of Prior Validity Information

There are no published studies on the NACM survey, despite its widespread use. Analysis of the national reports and consultations with The Collective indicates that the measure lacks a strong theoretical foundation (CLC, 2022). Typically, a validity study would end here. However, the instrument is administered to thousands of alumni every year. The use

of this instrument will not cease, so it is crucial that scores reported to universities and stakeholders are reliable and trustworthy. Previous internal psychometric reports of the NACM used structural equation modeling (SEM) to explore how the survey should be scored (CLC, 2021a, 2021b). Specifically, two competing models were tested: a five-factor model, which assumes the survey measures five distinct areas, and a bifactor model, which includes the CMI (see Figure 1). However, previous reports lacked details on which model fits the data better, leaving the scoring process unresolved.

When evaluating a measure, it is important to provide clear and detailed information so that others can understand and replicate the analysis. However, the methodology reported by The Collective leaves several gaps. For example, it is unclear whether the five-factor model was tested using exploratory or confirmatory methods, or which statistical tools and techniques were used to analyze the data. Key details such as how the data were screened and how reliability was assessed were excluded from the methodology. This limits our ability to understand or replicate their findings. Details provided indicated that Cronbach's alpha was used to assess reliability in this study. While alpha is a common choice, omega is often considered more appropriate in SEM.

Additionally, the reports failed to include measures of local fit, such as correlation residuals, which are critical for evaluating SEM model fit. Finally, the raw data was not shared, making it difficult to evaluate their results independently. As a result, further analysis is needed to compare the five-factor and bifactor models to determine which best fits the data, as this decision directly impacts how scores are generated and interpreted. Identifying the appropriate model ensures that NACM subscale scores accurately reflect the intended constructs and can be meaningfully used in practice.

Measurement Invariance

In national reports, group comparisons are made using the five NACM subscales and the CMI to explore equity concerns. Specifically, data is broken down by demographic variables, such as first-generation status. For these comparisons to be meaningful, the survey must produce comparable scores across different groups. This concept, called measurement invariance, involves confirming that any score differences observed between groups truly reflect real differences between groups, rather than issues with the survey itself (Kline, 2023).

Measurement invariance is tested in three steps. First, configural invariance checks whether the survey questions group together similarly for each demographic. For example, the five-factor model should apply equally well to first-generation and non-first-generation students. If this holds, the next step is to test metric invariance, which evaluates whether the survey items measure the underlying concept to the same degree for each group. In other words, does each item represent the associated construct (e.g., career satisfaction) equally well for first-generation and non-first-generation students? If metric invariance is not supported, different groups may interpret some items differently, raising validity concerns.

If configural and metric invariance standards are met, a researcher can test the most stringent test of invariance–scalar. Scalar invariance tests whether students with the same level of the underlying concept (e.g., career satisfaction) answer survey items similarly, regardless of their group. When both metric and scalar invariance are supported, we can confidently compare average scores between groups (e.g., comparing career satisfaction across first-generation and non-first-generation students). For example, if scalar invariance holds, first-generation and non-first-generation alumni with the same level of career satisfaction should report similar scores on the CS items. If it does not hold, one group might systematically rate their satisfaction higher or lower, even if their actual experiences are the same. Without evidence of measurement invariance, differences observed between groups may not reflect true differences and could instead result from inconsistencies in how the survey functions across groups.

First-Generation College Students

We selected first-generation status as the demographic variable for invariance testing because it is a key comparison group in national reports for NACM and is supported by extensive literature documenting distinct differences in college experiences between first-generation and non-first-generation students. First-generation college students have traditionally been defined as those with neither parent having obtained a postsecondary degree (Choy, 2001; Gable, 2021). First-generation and non-first-generation students differ in their success, as measured by graduation rates, retention rates, college experiences, and first-destination career outcomes (i.e., landing a first job out of college or being accepted into graduate school). First-generation students, on average, tend to be lower on these metrics (Chien et al., 2016; Kuh et al., 2006; Manzoni & Streib, 2019; Pascarella et al., 2004).

Given the unique challenges faced by first-generation students in college, conceptual differences in NACM subscale scores may emerge based on first-generation status. Specifically, conceptual differences may emerge in CPP and ICI because first-generation students often navigate unique college experiences, including opportunities to bridge cultural contexts and develop resilience in adapting to new environments (Gable, 2021). In addition, studies on short-term career outcomes for first-generation students yield mixed results, indicating the possibility of different short-term outcome experiences and conceptualization of items on the EM subscale (Chien et al., 2016; Choy, 2001). In particular, items referencing earning potential relative to the household in which respondents grew up may function differently across the two groups (different factor loadings or intercepts) if these items are conceptualized differently. In sum, if a model is championed, we would not be surprised by a lack of measurement invariance for the CPP, ICI, and EM subscales.

The Current Study

Given the prevalence of the NACM and the dearth of studies examining its psychometric properties, we had two goals. First, we evaluated two proposed but insufficiently studied factor structures to help guide the appropriate scoring of the NACM: a correlated five-factor structure and a bifactor structure that supports the construction of the CMI score. Second, we tested measurement invariance across first-generation and non-first-generation students. This is the first peer-reviewed published study of the NACM.

Method

Data Collection Procedure

The Collective conducted data collection for NACM in three phases. First, an online survey portal was created for each higher education institution (*N* = 77). Institutions sent messages to alumni based on their graduation year, directing them to the survey portal. Second, a social media data scrape was performed on all alumni who did not complete the survey when prompted by their institution. Third, alumni five and ten years out of college were emailed requesting survey engagement.

Participants

Data were collected from alumni from 77 different institutions across the United States in 2021 and 2022. The full dataset had 25,763 respondents. Only undergraduate alumni respondents from the 2021 (2016 and 2011 graduates) and 2022 (2017 and 2012 graduates) cohorts were retained, resulting in a sample size of 19,819. Respondents who did not have full responses on all 25 NACM items were removed, yielding a sample size of 19,313. Most records deleted at this step were missing information on most items. Respondents were also excluded if they had missing data on the "first-generation status" variable or indicated that they did not want to answer the "first-generation status" question, resulting in a final sample of 16,481. Data from the 2021 cohort included alumni who graduated in 2016 (*N* = 5,443) and 2011 (*N* = 4,298). Data from the 2022 cohort included alumni who graduated in 2017 (*N* = 5,456) and 2012 (*N* = 4,116). We split the dataset (*N* = 16,481) in half, generating two random stratified samples based on first-generation status. Having two independent samples allowed us to evaluate if any item-data misfit replicated. We were uncomfortable evaluating the quality of NACM items without replication in an independent sample.

Samples 1 and 2 contained 8,241 and 8,240 alumni, respectively. Overall, the majority of both samples were White and self-identified as female. When examining samples 1 and 2 by first-generation status (*N* = 2,537 for both samples), there were more self-identified women among first-generation students in both samples. First-generation students were more diverse than non-first-generation students across samples in terms of racial and ethnic background. These differences were expected, given prior research (Choy, 2001; Hamilton, 2023; Kuh et al., 2006).

Data Analysis

Confirmatory Factor Analysis (CFA)

To evaluate how to score the NACM survey, we tested two models using confirmatory factor analysis (CFA): a five-factor model and a bifactor model. The five-factor model (see Figure 1) assumes the survey measures five distinct areas: Career Pathway Preparation (CPP), Career Satisfaction (CS), Economic Mobility (EM), Community Engagement (CE), and Institutional Career Investment (ICI). In contrast, the bifactor model introduces an additional general factor, the Career Mobility Index (CMI), which accounts for the overlap among CPP, CS, and EM. Since the five-factor model is nested within the more complex bifactor model, we used a chi-square difference test ($\Delta\chi^2$) to determine whether the added complexity of the bifactor model significantly improved fit (Bandalos & Finney, 2019) and thus justified the creation of the CMI. We also examined global fit indices, including the standardized root

mean square residual (SRMR), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI; Hu & Bentler, 1998, 1999). These indices provided an overall sense of how well the models aligned with the data and whether either scoring approach (five subscales versus five subscales and the CMI) was appropriate. Additionally, we assessed local fit by examining correlation residuals to identify areas where the model struggled to reproduce relationships between specific survey items, flagging issues when residuals exceeded |.15| (Kline, 2023).[1]

Measurement Invariance

If one of the models (five-factor or bifactor) fits the data adequately, we could test whether it functioned consistently across first-generation and non-first-generation students, a process called measurement invariance. Measurement invariance was evaluated in three stages. First, configural invariance checked whether the overall structure of the model was the same for both groups. Next, metric invariance tested whether the relationships between the survey items and the underlying factors (i.e., factor loadings) were of similar magnitude across groups.[2] Finally, scalar invariance assessed whether students with the same level of a factor, such as CS, would score similarly on the survey regardless of their group. Each stage involved progressively adding constraints to the model and comparing the fit using statistical tests.[3] If strong evidence of measurement invariance was found (e.g., scalar invariance), effect sizes could be calculated representing the difference in the construct across the two generation status groups.[4]

Results

Before delving into the statistical details, we begin with a summary of our key findings: The five-factor model of alumni outcomes was supported for both first-generation and non-first-generation alumni and was preferred over the more complex bifactor model due to its theoretical clarity and parsimony. Across two samples, item 31 ("My salary is enough to pay my bills every month") consistently caused issues and contributed little to measuring CS. Removing this item improved and addressed local misfit issues. The survey functioned equivalently across groups, enabling meaningful comparisons. Latent mean modeling showed that first-generation alumni scored significantly higher on EM (0.72 standard deviations) compared to non-first-generation alumni, with no other practical or significant differences on the other constructs. What follows are the statistical details supporting these findings.

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[1] Correlation residuals represent the difference between observed relationships and those predicted by the model. Residuals greater than |.15| suggest areas of local misfit that may need attention (e.g., overrepresented or underrepresented relationships; Bandalos & Finney, 2019).

[2] To identify the model, one factor loading per group was fixed to equality, and the variance of each factor was constrained to 1.0 for the first-generation group, which served as the reference group (Widaman & Olivera-Aguilar, 2023).

[3] The chi-square difference test ($\Delta\chi^2$) compares nested models to determine if adding complexity improves model fit significantly. Global fit indices help evaluate overall model fit: SRMR measures average differences between observed and predicted correlations, RMSEA evaluates approximate fit, and CFI compares the target model to a baseline model. Local fit was also examined by reviewing mean residuals, with differences larger than |.25| flagged for further consideration.

[4] Mean residuals reflect differences between observed and predicted item means; deviations larger than |.25| suggest areas where the model may not perform equally across groups.

Data Screening for Samples

We screened the data to determine the best estimation method for our models (Finney et al., 2016). First, we confirmed that the full response scale (1 to 5) was used for all 25 items in both samples, allowing the data to be treated as continuous. Next, we checked for univariate and multivariate normality. None of the 25 items showed significant univariate skewness or kurtosis (see Table 1), but multivariate non-normality was present, as indicated by Mardia's kurtosis values (e.g., 118.73 to 130.20 for samples 1 and 2, respectively).[5] To address this, we estimated models using both unadjusted maximum likelihood (ML) and Satorra-Bentler adjustments (Satorra & Bentler, 1994).[6] Since results were nearly identical across methods, we reported unadjusted ML results for simplicity. All analyses were conducted in R 4.3.1 using the lavaan package (Rosseel, 2012).

Sample 1

Configural Invariance: Evaluating the Five-Factor Model and Bifactor Model

We tested the five-factor and bifactor models to determine the best-fitting structure and, hence, the appropriate scoring of the NACM. The five-factor model provided a strong global fit across both first-generation and non-first-generation alumni, with only a few local areas of misfit (see Table 2). Specifically, five areas of misfit were identified, four of which were associated with item 31. Additionally, for non-first-generation students, the model underestimated the relationship between items 21 and 22 (ICI subscale). Despite these minor local misfit issues, correlation residuals did not exceed 0.23, indicating an overall acceptable fit.

The bifactor model also fit the data well, and as expected, showed a statistically significant improvement over the five-factor model due to its additional parameters. However, statistical significance alone does not justify a more complex model. Parameter estimates for many items expected to represent the CMI were nonsignificant, suggesting that the CMI was not well-defined (see Table 3). Further, local areas of misfit from the five-factor model largely persisted in the bifactor model. Given the negligible substantive improvement and lack of theoretical support for the bifactor model, we selected the more interpretable five-factor model for further analysis.

Using this five-factor model, we proceeded to test measurement invariance across first-generation and non-first-generation alumni. The configural model fit the data well, $\chi^2(530) = 7{,}163.63$, $p < 0.01$, SRMR = 0.04, RMSEA = 0.05, CFI = 0.95 (see Table 2), supporting the consistency of the factor structure across both groups. Correlation residuals were identical to those from the sample-specific analyses. These findings provided a strong foundation for further invariance testing, ensuring that comparisons between first-generation and non-first-generation alumni would be meaningful and not driven by measurement inconsistencies.

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[5] Skewness values greater than |2| and kurtosis values greater than |7| are considered indicative of univariate non-normality (Finney & DiStefano, 2013).

[6] The Satorra-Bentler adjustment corrects chi-square values, fit indices, and standard errors to account for multivariate non-normality, ensuring more robust and accurate model evaluation.

Table 1. *Inter-Item Correlations and Descriptive Statistics of the NACM Items for Samples 1 & 2*

Item	17	29	32	19	18	8	9	10	11	31	24	33	24	16	20	25	23	26	28	30	12	13	14	21	22
17	–	0.60	0.68	0.52	0.60	0.42	0.39	0.34	0.43	0.28	0.46	0.18	0.19	0.22	0.18	0.18	0.16	0.13	0.12	0.54	0.54	0.53	0.55	0.44	0.39
29	0.62	–	0.56	0.46	0.53	0.38	0.35	0.31	0.39	0.30	0.42	0.18	0.18	0.21	0.14	0.16	0.15	0.11	0.11	0.53	0.56	0.54	0.54	0.50	0.40
32	0.68	0.56	–	0.46	0.49	0.38	0.35	0.30	0.39	0.29	0.42	0.18	0.20	0.22	0.13	0.14	0.12	0.07	0.07	0.47	0.48	0.47	0.48	0.44	0.35
19	0.55	0.48	0.48	–	0.56	0.38	0.36	0.32	0.39	0.35	0.41	0.22	0.22	0.26	0.15	0.17	0.18	0.14	0.11	0.47	0.44	0.42	0.44	0.37	0.37
18	0.58	0.53	0.49	0.55	–	0.43	0.40	0.37	0.43	0.31	0.42	0.18	0.18	0.22	0.16	0.16	0.17	0.11	0.10	0.50	0.51	0.48	0.51	0.41	0.40
8	0.42	0.40	0.39	0.39	0.41	–	0.82	0.66	0.77	0.50	0.69	0.30	0.29	0.33	0.20	0.19	0.19	0.15	0.14	0.35	0.36	0.33	0.35	0.29	0.27
9	0.39	0.36	0.35	0.36	0.38	0.83	–	0.66	0.74	0.47	0.66	0.27	0.27	0.30	0.21	0.18	0.19	0.15	0.14	0.33	0.33	0.32	0.32	0.26	0.25
10	0.33	0.32	0.31	0.32	0.34	0.66	0.67	–	0.64	0.44	0.59	0.27	0.25	0.29	0.17	0.16	0.18	0.14	0.11	0.30	0.31	0.29	0.29	0.25	0.22
11	0.43	0.40	0.40	0.41	0.42	0.78	0.75	0.65	–	0.51	0.75	0.31	0.30	0.34	0.20	0.20	0.20	0.16	0.14	0.37	0.37	0.35	0.36	0.31	0.27
31	0.29	0.31	0.29	0.35	0.30	0.50	0.47	0.45	0.51	–	0.49	0.38	0.32	0.37	0.08	0.10	0.23	0.12	0.06	0.26	0.25	0.21	0.21	0.24	0.21
24	0.45	0.42	0.44	0.41	0.41	0.71	0.67	0.60	0.76	0.51	–	0.33	0.32	0.36	0.18	0.21	0.20	0.15	0.14	0.39	0.39	0.38	0.39	0.32	0.29
33	0.19	0.19	0.19	0.24	0.17	0.31	0.29	0.27	0.32	0.38	0.34	–	0.69	0.74	0.05	0.11	0.14	0.10	0.07	0.18	0.17	0.17	0.16	0.16	0.14
27	0.20	0.18	0.20	0.23	0.19	0.29	0.28	0.25	0.31	0.32	0.32	0.70	–	0.80	0.05	0.11	0.11	0.08	0.06	0.18	0.16	0.16	0.16	0.16	0.15
16	0.24	0.21	0.22	0.26	0.22	0.34	0.32	0.29	0.35	0.37	0.37	0.75	0.81	–	0.05	0.11	0.12	0.08	0.06	0.21	0.20	0.19	0.19	0.19	0.17
20	0.17	0.17	0.13	0.13	0.16	0.22	0.21	0.18	0.21	0.09	0.20	0.05	0.06	0.06	–	0.47	0.37	0.57	0.68	0.17	0.16	0.16	0.16	0.14	0.17
25	0.17	0.17	0.13	0.15	0.15	0.20	0.19	0.18	0.20	0.10	0.19	0.10	0.11	0.11	0.47	–	0.26	0.41	0.48	0.21	0.17	0.20	0.19	0.16	0.19
23	0.15	0.17	0.12	0.19	0.15	0.21	0.19	0.18	0.21	0.26	0.20	0.15	0.10	0.13	0.38	0.28	–	0.57	0.42	0.15	0.12	0.09	0.11	0.14	0.17
26	0.13	0.15	0.09	0.13	0.12	0.19	0.18	0.16	0.19	0.14	0.18	0.11	0.09	0.10	0.58	0.44	0.57	–	0.72	0.13	0.11	0.10	0.11	0.11	0.14
28	0.12	0.13	0.08	0.11	0.11	0.17	0.16	0.14	0.16	0.07	0.16	0.08	0.08	0.07	0.69	0.50	0.41	0.72	–	0.12	0.11	0.11	0.12	0.11	0.13
30	0.54	0.54	0.49	0.49	0.50	0.35	0.32	0.27	0.36	0.27	0.38	0.18	0.18	0.20	0.18	0.20	0.17	0.16	0.14	–	0.61	0.63	0.62	0.56	0.49
12	0.54	0.58	0.50	0.45	0.51	0.37	0.34	0.30	0.37	0.25	0.39	0.17	0.18	0.21	0.16	0.18	0.13	0.13	0.12	0.61	–	0.71	0.77	0.60	0.50
13	0.54	0.57	0.49	0.44	0.49	0.35	0.32	0.29	0.36	0.23	0.39	0.18	0.17	0.19	0.17	0.20	0.12	0.13	0.13	0.63	0.71	–	0.71	0.55	0.47
14	0.56	0.57	0.50	0.45	0.52	0.38	0.34	0.29	0.38	0.23	0.40	0.17	0.16	0.19	0.18	0.18	0.12	0.13	0.12	0.62	0.76	0.71	–	0.57	0.49
21	0.45	0.51	0.44	0.37	0.41	0.31	0.29	0.25	0.32	0.27	0.34	0.16	0.17	0.20	0.14	0.17	0.16	0.14	0.12	0.57	0.61	0.58	0.57	–	0.61
22	0.39	0.41	0.34	0.34	0.38	0.26	0.24	0.23	0.28	0.23	0.29	0.14	0.15	0.17	0.18	0.19	0.18	0.18	0.15	0.50	0.51	0.49	0.48	0.60	–

Item	17	29	32	19	18	8	9	10	11	31	24	33	24	16	20	25	23	26	28	30	12	13	14	21	22
Phase 1 Sample (*N* = 8,241)																									
M	3.75	3.42	3.83	3.44	4.02	3.99	4.00	4.01	3.90	4.07	3.76	3.15	3.80	3.64	3.49	2.77	3.20	3.02	2.99	3.12	3.28	2.97	3.26	3.03	2.90
SD	1.06	1.19	1.13	1.19	0.93	0.94	0.97	0.90	0.98	1.05	1.08	1.40	1.17	1.25	1.02	1.04	1.17	1.13	1.10	1.13	1.15	1.20	1.16	1.20	1.12
Skewness	-0.98	-0.53	-1.04	-0.53	-1.24	-1.25	-1.22	-1.19	-1.07	-1.28	-0.87	-0.01	-0.71	-0.56	-0.53	0.25	-0.30	0.00	0.08	-0.21	-0.42	-0.05	-0.40	-0.10	0.02
Kurtosis	0.43	-0.69	0.34	-0.64	1.67	1.69	1.45	1.67	0.94	1.14	0.16	-1.37	-0.49	-0.80	-0.34	-0.59	-0.94	-0.95	-0.93	-0.77	-0.79	-1.02	-0.81	-1.00	-0.82
Phase 2 Sample (*N* = 8,240)																									
M	3.75	3.43	3.84	3.43	4.02	4.00	4.00	4.00	3.90	4.06	3.77	3.13	3.81	3.64	3.50	2.77	3.21	3.04	3.00	3.12	3.28	2.98	3.26	3.03	2.89
SD	1.07	1.16	1.13	1.19	0.93	0.94	0.97	0.91	0.98	1.04	1.08	1.38	1.17	1.24	1.01	1.05	1.17	1.11	1.10	1.11	1.15	1.19	1.16	1.20	1.11
Skewness	-0.98	-0.55	-1.02	-0.50	-1.25	-1.26	-1.20	-1.18	-1.09	-1.27	-0.86	0.01	-0.76	-0.56	-0.50	0.24	-0.25	-0.01	0.08	-0.24	-0.45	-0.05	-0.42	-0.09	0.03
Kurtosis	0.53	-0.59	0.31	-0.67	1.74	1.72	1.35	1.54	0.96	1.14	0.14	-1.36	-0.39	-0.80	-0.37	-0.61	-0.97	-0.93	-0.91	-0.73	-0.74	-1.03	-0.78	-1.02	-0.81

Note. Sample 1 correlations are below the diagonal while Sample 2 correlations are above the diagonal.

Table 2. *Fit Indices and Difference Tests of Hypothesized Models using Sample 1 (N = 8,241)*

Model	χ^2	df	SRMR	RMSEA	CFI	Local misfit	$\Delta\chi^2$
First-Gen (FG; *N* = 2,537)							
Model 1: Five-Factor	2,284.73*	265	0.04	0.06	0.95	Q31 → Q33, Q27, Q16, Q23	477.53*
Model 2: Bifactor	1,807.20*	251	0.04	0.05	0.96	Q31 → Q23	
Non-First-Gen (NFG; *N* = 5,704)							
Model 1: Five-Factor	4,878.90*	265	0.04	0.06	0.95	Q31 → Q33, Q16, Q23; Q21 → Q22	852.88*
Model 2: Bifactor	4,026.02*	251	0.04	0.05	0.96	Q31 → Q33, Q16, Q23; Q21 → Q22	
Measurement Invariance							
Five-Factor: Configural	7,163.63*	530	0.04	0.05	0.95	FG: Q31 → Q33, Q27, Q16, Q23 NFG: Q31 → Q33, Q16, Q23; Q21 → Q22	
Five-Factor: Metric	7,303.30*	550	0.04	0.05	0.95	FG: Q31 → Q33, Q27, Q16, Q23 NFG: Q31 → Q33, Q16, Q23; Q21 → Q22	139.67*
Five-Factor: Scalar	7,518.17*	570	0.04	0.05	0.95	FG: Q31 → Q33, Q27, Q16, Q23 NFG: Q31 → Q33, Q16, Q23; Q21 → Q22	214.88*

Note. *$p < .01$. → = the item has an underrepresented relationship with the following items. For example, for the first-gen five-factor model, the relationship between item 31 and items 33, 27, and 16 is underrepresented

Table 3. *Unstandardized (Standardized) Path Coefficients and Unstandardized Error Variances for Five-Factor and Bifactor Models using Sample 1*

Item	First-Generation							Non-First-Generation						
	CPP	CS	EM	CE	ICI	CMI	Error Variance	CPP	CS	EM	CE	ICI	CMI	Error Variance
Five-Factor Model														
17	0.95 (0.84)						0.37	0.83 (0.81)						0.36
29	0.94 (0.76)						0.64	0.88 (0.76)						0.57
32	0.90 (0.75)						0.64	0.82 (0.75)						0.53
19	0.86 (0.70)						0.79	0.78 (0.66)						0.77
18	0.73 (0.73)						0.47	0.64 (0.71)						0.40
8		0.93 (0.91)					0.18		0.80 (0.90)					0.16
9		0.92 (0.87)					0.26		0.81 (0.87)					0.21
10		0.74 (0.76)					0.39		0.63 (0.73)					0.35
11		0.94 (0.88)					0.26		0.83 (0.88)					0.20
31		0.69 (0.61)					0.80		0.56 (0.56)					0.69
24		0.96 (0.83)					0.43		0.84 (0.81)					0.37
33			1.08 (0.82)				0.58			1.05 (0.78)				0.70
27			0.82 (0.81)				0.34			1.04 (0.87)				0.34
16			1.03 (0.93)				0.17			1.15 (0.93)				0.22
20				0.82 (0.77)			0.45				0.75 (0.75)			0.43
25				0.64 (0.59)			0.74				0.58 (0.56)			0.73
23				0.70 (0.60)			0.88				0.62 (0.53)			0.99
26				0.95 (0.83)			0.41				0.91 (0.82)			0.41
28				0.97 (0.86)			0.32				0.95 (0.87)			0.30
30					0.88 (0.77)		0.54					0.84 (0.75)		0.54
12					1.02 (0.86)		0.36					0.97 (0.86)		0.36
13					1.03 (0.84)		0.46					0.97 (0.82)		0.45
14					1.02 (0.85)		0.39					0.96 (0.85)		0.38
21					0.89 (0.74)		0.65					0.85 (0.71)		0.71
22					0.71 (0.64)		0.72					0.69 (0.62)		0.78

Item	First-Generation							Non-First-Generation						
	CPP	CS	EM	CE	ICI	CMI	Error Variance	CPP	CS	EM	CE	ICI	CMI	Error Variance
						Bifactor Model								
17	0.95 (0.84)					0.01 (0.01)	0.38	0.84 (0.81)					0.01 (0.01)	0.36
29	0.94 (0.76)					0.04 (0.03)	0.64	0.88 (0.76)					0.01 (0.01)	0.57
32	0.90 (0.75)					0.04 (0.03)	0.64	0.82 (0.75)					0.05 (0.05)	0.53
19	0.85 (0.69)					0.22 (0.18)	0.75	0.78 (0.66)					-0.04 (-0.03)	0.77
18	0.72 (0.73)					0.03 (0.03)	0.47	0.64 (0.71)					-0.06 (-0.06)	0.40
8		0.93 (0.91)				-0.17 (-0.16)	0.16		0.72 (0.80)				-0.36 (-0.41)	0.15
9		0.92 (0.87)				-0.23 (-0.22)	0.22		0.70 (0.75)				-0.48 (-0.52)	0.14
10		0.74 (0.76)				-0.06 (-0.06)	0.40		0.58 (0.67)				-0.25 (-0.28)	0.35
11		0.93 (0.87)				-0.02 (-0.02)	0.27		0.81 (0.85)				-0.19 (-0.20)	0.20
31		0.72 (0.64)				0.44 (0.39)	0.55		0.57 (0.57)				-0.05 (-0.05)	0.67
24		0.96 (0.83)				0.08 (0.07)	0.42		0.90 (0.87)				0.00 (0.00)	0.26
33			0.97 (0.74)			0.50 (0.38)	0.54			1.05 (0.78)			0.01 (0.01)	0.69
27			0.77 (0.77)			0.26 (0.26)	0.34			1.04 (0.87)			0.05 (0.04)	0.34
16			0.97 (0.87)			0.33 (0.30)	0.19			1.15 (0.93)			0.03 (0.02)	0.22
20				0.82 (0.77)			0.45				0.75 (0.75)			0.43
25				0.64 (0.59)			0.74				0.58 (0.56)			0.73
23				0.70 (0.60)			0.88				0.62 (0.53)			0.99
26				0.95 (0.83)			0.41				0.92 (0.82)			0.41
28				0.97 (0.86)			0.33				0.95 (0.87)			0.30
30					0.88 (0.77)		0.54					0.84 (0.75)		0.54
12					1.02 (0.86)		0.36					0.97 (0.85)		0.36
13					1.03 (0.84)		0.46					0.97 (0.82)		0.45
14					1.02 (0.85)		0.39					0.96 (0.84)		0.38
21					0.89 (0.74)		0.65					0.85 (0.71)		0.71
22					0.71 (0.64)		0.72					0.69 (0.62)		0.78

Note. R^2 can be calculated by squaring the standardized path coefficients. R^2 can be interpreted as the percentage of the item's variance that can be explained by its corresponding factor. For example, for item 31 for first-generation students, 37% of the item's variance can be explained by the CS factor.

Metric Invariance for the Five-Factor Model

The metric model, which constrained factor loadings to be equal across groups, fit the data well, $\chi^2(550) = 7{,}303.30$, SRMR = 0.04, RMSEA = 0.05, CFI = 0.95, with minimal local misfit (see Table 2). The identified areas of misfit mirrored those in the configural model, and correlation residuals did not exceed 0.25. While the $\Delta\chi^2$ test indicated a statistically significant difference between the configural and metric models, the difference in global and local fit was negligible. Item 27 had a larger factor loading difference between first-generation (0.82) and non-first-generation (1.04) alumni than other items, prompting further investigation. Scalar invariance testing showed that latent mean differences remained nearly identical whether item 27's parameters were constrained or freely estimated, differing only at the second decimal place (Kopp & Finney, 2013). Thus, we concluded that metric invariance was supported.

Scalar Invariance for the Five-Factor Model

The scalar model, which constrained item intercepts to be equal across groups, fit the data well, $\chi^2(570) = 7{,}518.17$, SRMR = 0.04, RMSEA = 0.05, CFI = 0.95. Local misfit areas mirrored those found in the metric model, with correlation residuals not exceeding 0.25. To assess misfit in reproducing item-level means, we examined mean residuals and found minimal issues. The largest mean residual (0.11 for item 33 in the first-generation group) was negligible, given the 1 to 5 Likert scale. The observed mean for item 33 was 3.76, whereas the model-implied mean was 3.65 under equality constraints, a negligible difference. Although the $\Delta\chi^2$ test showed a statistically significant difference between the metric and scalar models, this result was likely influenced by sample size. Given the negligible difference in global and local fit (see Table 2), scalar invariance was supported.

Latent mean differences, representing differences between first-generation and non-first-generation alumni on each subscale, were examined to determine substantive differences (see Table 6). The largest difference (0.66) was found on the EM subscale, with first-generation alumni scoring higher.

When examining the results from this championed five-factor invariant model, it appears that the NACM may function better without item 31. The item better represented EM than CS in Sample 1. Additionally, item 31 did not have a large R^2 value, indicating that it contributed little to the model's overall explanatory power (i.e., it is not "pulling its weight" in the model; see Table 3). Given these findings, we recommend removing item 31 from the scale to improve model clarity and interpretability.

In sum, the five-factor model was supported over the bifactor model, which failed due to an ill-defined CMI factor. However, item 31 continued to show notable misfit, with large correlation residuals involving items 33, 27, 16 (EM), and 23 (CE). Thus, we examined whether the misfit associated with item 31 was replicated using sample 2. If so, we could estimate measurement invariance after removing item 31 and evaluate if students of different first-generation statuses differed on NACM factors.

Sample 2

Replication

The bifactor and five-factor models fit the data well for first-generation and non-first-generation alumni using sample 2 data. Substantive results and decisions were identical to those when modeling sample 1 data. The misfit found using sample 1 was replicated using sample 2: item 31 continued to cause issues for both models. Thus, the five-factor model was championed for the above-mentioned reasons, and fit was assessed when removing item 31.

Configural Invariance of Five-Factor Model and Bifactor Model without Item 31

As expected, both models fit well globally when item 31 was removed (see Table 4), with fewer local misfit issues compared to models that included it. The five-factor model showed three areas of local misfit, with two correlation residuals involving item 25 (the relations with items 30 and 22 were underestimated by .16 and .15, respectively, for first-generation students). The bifactor model had two areas of local misfit, including the underestimated relationship between item 25 and item 30 for first-generation students (.16). Additionally, for both first-generation and non-first-generation students, the relationship between items 21 and 22 remained underestimated (.15 and .17, respectively). Removing item 31 resolved many local fit issues observed in Sample 1, though two new correlation residuals associated with item 25 emerged in Sample 2. Overall, the adjusted five-factor model in Sample 2 had fewer correlation residuals (three) than the five-factor model in Sample 1 with item 31 included (five), indicating an improvement in model fit.

A statistically significant $\Delta\chi^2$ test indicated that the bifactor model fit better than the five-factor model; however, this result was expected given the large sample size. Despite the statistical significance, the CMI factor remained poorly defined, with most items failing to demonstrate significant relationships with the CMI factor. Consequently, the five-factor model was reaffirmed as the preferred structure and used for subsequent invariance testing.

Parameter estimates for the five-factor configural model (see Table 5) showed that most NACM items had at least 50% of their variance explained by their respective factors. Reliability estimates (omega) were high for the subscales for both groups: for first-generation students, CPP ω = .85, CS ω = .93, EM ω = .88, CE ω = .85, and ICI ω = .90; for non-first-generation students, CPP ω = .87, EM ω = .89, CE ω = .86, ICI ω = .90, and CS ω = .94. These values suggest minimal measurement error in the observed scores, further supporting the robustness of the five-factor model without item 31.

Metric Invariance for the Five-Factor Model without Item 31

The metric model fit the data well globally, $\chi^2(503) = 6{,}426.30$, SRMR = 0.04, RMSEA = 0.05, CFI = 0.95, with three areas of local misfit (see Table 4). The $\Delta\chi^2$ test indicated a statistically significant difference between the configural and metric models, but the difference in global and local fit was negligible. Items 27 and 16 continued to show larger factor loading differences between first-generation (0.80 and 0.96) and non-first-generation (1.01 and 1.14) alumni, as observed in Sample 1. However, latent means were

minimally different when tested under constrained and freely estimated conditions, supporting metric invariance across groups.

Scalar Invariance

The scalar model fit the data well globally and had few local issues, $\chi^2(522) = 6{,}637.88$, SRMR = 0.04, RMSEA = 0.05, CFI = 0.95. As found using sample 1, the difference between the metric and scalar models was negligible when examining the global and local fit indices.

Scalar Invariance & Latent Means Modeling. Given the equivalence of factor structures, unstandardized factor coefficients, and item intercepts across first-generation and non-first-generation students, latent mean differences on the five constructs were computed. The Cohen's *d* effect sizes for four out of the five subscales were small, indicating small differences across first-generation status (< .15; Table 6). However, the latent effect size for EM was large (.72). The first-generation sample was 0.72 standard deviations higher in EM than the non-first-generation sample. When examining the observed means and effect sizes (Table 6), they tell a similar story: first-generation alumni are scoring higher on the EM subscale compared to their peers (.72). The observed and latent effect sizes are similar because not only was measurement invariance established, but reliability (e.g., omega) was high.

Prior to this study, it was unclear if the observed differences across the two groups were trustworthy. Now, with evidence of measurement invariance, these observed subscale differences can be trusted. Given the wording of the items, it makes sense that first-generation students would report higher on EM. Since measurement invariance was established, the differences in EM do not reflect bias. It is therefore appropriate to compare these two groups of alumni on the five NACM subscales at the observed or latent level.

Discussion

Students expect college to help them find and sustain a productive career (Blaich & Wise, 2021). One way to collect evidence associated with this expectation is to survey alumni about their career outcomes. The NACM survey was created for this purpose and is widely used, yet prior to this study, it was unclear how to score the survey and whether comparisons across groups were justified.

Our study explored the scoring of the NACM, yielding surprisingly favorable results. This was unexpected given the NACM's limited theoretical foundation; specifically, the rationale for how items were selected and aligned with each construct had not been clearly documented. We found evidence supporting the five constructs purportedly measured by the NACM, providing empirical justification for using five subscale scores. We also found scalar invariance—the most stringent type of invariance—upheld between first-generation and non-first-generation alumni, meaning that NACM scores can be meaningfully compared across these groups. Recall we predicted that we might observe non-invariance for the CPP, ICI, and EM subscales. This was not the case – measurement invariance was upheld (a positive outcome) for all subscales!

Table 4. *Fit Indices and Difference Tests of Hypothesized Models without Item 31 using Sample 2 (N = 8,240)*

Model	χ^2	df	SRMR	RMSEA	CFI	Local misfit	$\Delta\chi^2$
First-Gen (FG; *N* = 2,537)							
Model 1: Five-Factor	2,052.75*	242	0.04	0.05	0.95	Q25 ⟂ Q30, Q22; Q21 ⟂ Q22	389.17*
Model 2: Bifactor	1,663.58*	229	0.04	0.05	0.96	Q25 ⟂ Q30; Q21 ⟂ Q22	
Non-First-Gen (NFG; *N* = 5,703)							
Model 1: Five-Factor	4,271.39*	242	0.04	0.05	0.95	Q21 ⟂ Q22	885.55*
Model 2: Bifactor	3,385.84*	229	0.04	0.05	0.96	Q21 ⟂ Q22	
Measurement Invariance							
Five-Factor: Configural	6,324.14*	484	0.04	0.05	0.95	FG: Q25 ⟂ Q30, Q22; Q21 ⟂ Q22 NFG: Q21 ⟂ Q22	
Five-Factor: Metric	3,426.30*	503	0.04	0.05	0.95	FG: Q25 ⟂ Q30, Q22; Q21 ⟂ Q22 NFG: Q21 ⟂ Q22	102.16*
Five-Factor: Scalar	6,637.88*	522	0.04	0.05	0.95	FG: Q25 ⟂ Q30, Q22; Q21 ⟂ Q22 NFG: Q21 ⟂ Q22	211.58*

Note. *$p < .01$. ⟂ = the item has an underrepresented relationship with the following items. For example, for the first-gen five-factor model, the relationship between item 31 and items 33, 27, and 16 is underrepresented.

Table 5. *Unstandardized (Standardized) Path Coefficients and Unstandardized Error Variances for Five-Factor Model Using Sample 2 Without Item 31*

Item	Factor Pattern Coefficients											
	First-Generation						Non-First-Generation					
	CPP	CS	EM	CE	ICI	Error Variance	CPP	CS	EM	CE	ICI	Error Variance
17	0.92 (0.83)					0.40	0.92 (0.81)					0.37
29	0.88 (.075)					0.61	0.92 (0.74)					0.60
32	0.87 (0.73)					0.66	0.88 (0.73)					0.56
19	0.83 (0.67)					0.84	0.83 (0.66)					0.78
18	0.72 (0.74)					0.43	0.72 (0.74)					0.38
8		0.92 (0.91)				0.19		0.92 (0.89)				0.17
9		0.90 (0.87)				0.25		0.93 (0.87)				0.21
10		0.74 (0.76)				0.39		0.73 (0.73)				0.36
11		0.93 (0.87)				0.26		0.94 (0.87)				0.22
24		0.93 (0.81)				0.45		0.95 (0.80)				0.40
33			1.02 (0.80)			0.60			1.02 (0.78)			0.68
27			0.80 (0.83)			0.30			1.01 (0.86)			0.38
16			0.96 (0.92)			0.18			1.14 (0.92)			0.24
20				0.81 (0.79)		0.41				0.81 (0.74)		0.44
25				0.59 (0.56)		0.79				0.63 (0.55)		0.76
23				0.68 (0.58)		0.91				0.69 (0.54)		0.96
26				0.91 (0.81)		0.44				0.99 (0.82)		0.40
28				0.97 (0.87)		0.31				1.05 (0.87)		0.29
30					0.84 (0.76)	0.53					0.84 (0.75)	0.53
12					1.00 (0.86)	0.35					0.99 (0.86)	0.35
13					1.00 (0.83)	0.45					0.97 (0.81)	0.47
14					1.01 (0.85)	0.38					0.99 (0.85)	0.36
21					0.88 (0.73)	0.69					0.85 (0.70)	0.72
22					0.69 (0.63)	0.74					0.69 (0.62)	0.76

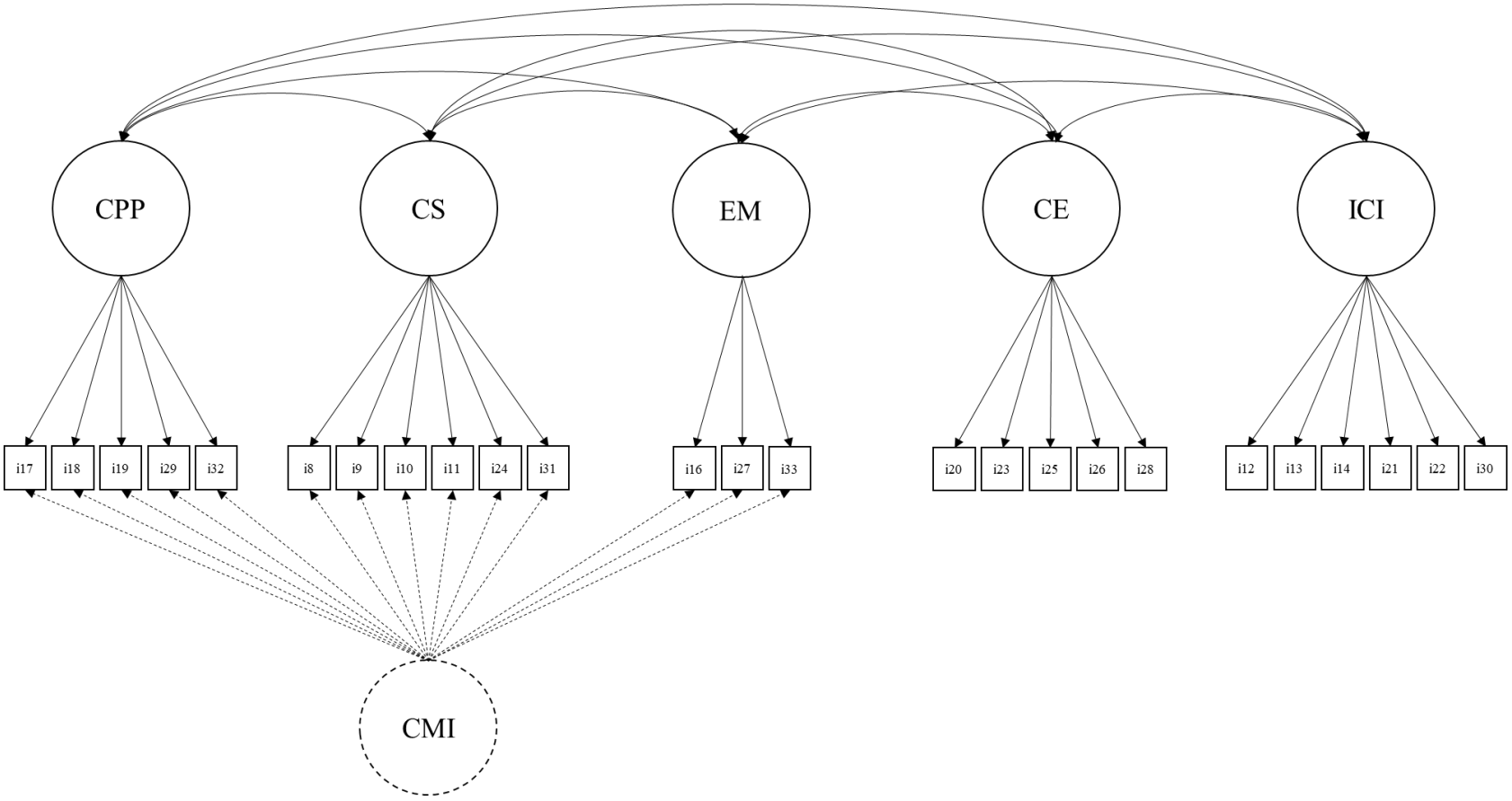
Note. All values are significant at $p < .01$.

Table 6. *Observed and Latent NACM Factor Means (Standard Deviations) and Effect Sizes*

Sample	CPP	CS	EM	CE	ICI
Observed Full Sample with Item 31					
First-Gen	3.61 (.93)	3.87 (.89)	4.05 (1.01)	3.06 (.87)	3.04 (.96)
Non-First-Gen	3.73 (.85)	4.00 (.78)	3.30 (1.14)	3.11 (.83)	3.12 (.93)
Observed Cohen's *d*	.14	.16	.68	.06	.09
Sample 1 with Item 31					
First-Gen	3.61 (.84)	3.84 (.87)	4.02 (.92)	3.08 (.76)	3.04 (.89)
Non-First-Gen	3.73 (.75)	3.97 (.76)	3.32 (1.04)	3.10 (.72)	3.12 (.84)
Latent Cohen's *d*	.14	.16	.66	.03	.08
Sample 2 with Item 31					
First-Gen	3.61 (.80)	3.85 (.86)	4.04 (.87)	3.07 (.74)	3.05 (.87)
Non-First-Gen	3.73 (.74)	3.97 (.76)	3.30 (1.04)	3.12 (.71)	3.11 (.84)
Latent Cohen's *d*	.14	.15	.72	.07	.07
Sample 2 without Item 31					
First-Gen	3.61 (.80)	3.85 (.87)	4.04 (.87)	3.07 (.74)	3.05 (.87)
Non-First-Gen	3.73 (.74)	3.97 (.76)	3.30 (1.04)	3.12 (.71)	3.11 (.84)
Latent Cohen's *d*	.14	.15	.72	.07	.07

Note. Bolded values indicate significant and non-ignorable differences across the groups. Cohen's *d* was computed using the pooled latent standard deviation across groups since homogeneity of variance (HOV) was established (Kline, 2023). HOV can be established by simply examining the variance estimates for the latent factors between groups. For example, an effect size of 0.72 indicates first-generation alumni, on average, scored 0.72 standard deviations higher on EM compared to non-first-generation alumni.

Figure 1. Five-Factor and Bifactor NACM Structures



Note. The five-factor model does not include the dashed lines. CPP = career pathway preparation, CS = career satisfaction, EM = economic mobility, CE = community engagement, ICI = institutional career investment, CMI = Career Mobility Index. In the bifactor model, the CPP, CS, and EM subscales would change to be specific factors since they cannot represent the same variance.

Indeed, given the strong evidence of measurement invariance, we could explore mean differences across college-generation status. Notably, we found a large difference between first-generation and non-first-generation alumni on the EM subscale (.72), with first-generation alumni reporting higher than non-first-generation alumni. This suggests that first-generation alumni may experience greater upward economic mobility than their non-first-generation peers.

Additional Psychometric Work

Based on our findings, we advocate for reporting five subscale scores (CPP, CS, EM, CE, and ICI) and recommend discontinuing the use of the CMI subscale score in future reporting. We did not find support for reporting a CMI subscale score. Additionally, our analysis revealed that one item on the NACM (31 – "My salary is enough to pay my bills every month") does not function well. Therefore, we recommend its removal from future versions of the CS subscale. Item 31 was associated with many areas of local misfit. Moreover, the item had a low R^2 (0.37 for first-generation and 0.31 for non-first-generation; see Table 3), accounting for less than half of the variance, across first-generation status. If item 31 is removed, additional psychometric studies are needed, as it changes the variance that is modeled. Specifically, the CS subscale needs to be reevaluated to ensure that it is clearly and theoretically defined without item 31.

If item 31 is retained, then scores should be interpreted with caution. Specifically, item 31 shows consistent misfit and explains little variance in CS. Thus, retaining item 31 could lead to inconsistencies within the CS subscale. Retaining item 31 can also complicate scoring and interpretation. The item's misalignment with the CS subscale can potentially skew results and make it difficult to draw meaningful conclusions. This finding should be communicated to universities that receive score reports to ensure they interpret and use scores appropriately, particularly in understanding how first-generation and non-first-generation alumni experience economic mobility differently. Institutions should consider these differences when making data-informed decisions about career services, financial support programs, and alumni engagement strategies to promote equitable opportunities for all graduates.

Implications

Reliable data on alumni career outcomes, beyond traditional measures such as employment status and salary, provides institutions with valuable insights. These broader outcomes can help institutions demonstrate the value of their educational experience. First, data on alumni career outcomes can offer a compelling narrative about how higher education prepares graduates for long-term success. By focusing on outcomes beyond salary, such as career preparation, satisfaction, and engagement, institutions gain a more comprehensive understanding of alumni success. Second, disaggregating the data (e.g., by first-generation status) allows institutions to identify and address equity gaps in career readiness and support. Finally, linking career outcomes to specific educational experiences creates a feedback loop that career preparation programs and career readiness education can use to better address student needs.

Our study supports score interpretations for the NACM, a tool that institutions can use to enhance career preparation programs and career readiness education (although it lacks a strong theoretical framework). For example, institutions with low CPP scores can use these scores to identify gaps in their career preparation programs, internship opportunities, or employer partnerships. Similarly, low ICI scores indicate areas for improvement in how institutions invest in career services or provide alumni networking opportunities. Importantly, these findings can help campuses frame the narrative around their return on investment more effectively. Using CPP and ICI data, institutions can demonstrate the tangible ways they prepare students for successful careers, which may improve perceptions of the value of higher education among stakeholders.

Subscales like EM, CS, and CE also provide a broader view of alumni success that aligns with evolving definitions of career outcomes. While the NACM addresses a complex construct in career mobility, our study provides psychometric evidence for scoring the survey. However, future research should address the NACM's theoretical limitations to further refine its value for institutions and career professionals.

Future Research

Future research on the NACM should begin by building a theoretical case for the subscales. A robust literature review supporting the five subscales is recommended to better link the items' empirical domain to their theoretical underpinnings. Given that reporting a profile of subscale scores is now possible, the NACM could provide valuable insights when combined with other datasets to answer a broader range of research questions. For example, researchers may conceptualize the five NACM factors as independent or dependent variables. In this context, one could study which college experiences predict these factors (i.e., subscales as dependent variables). Alternatively, the NACM subscales could be paired with other datasets to explore relationships with variables of interest, such as well-being or life satisfaction (e.g., subscales as predictors).

Limitations

It is important to acknowledge our study's limitations. A glaring limitation is the lack of theoretical evidence for the NACM constructs. Although the items were written by content experts, there is no underlying theory to support the subscales. Further, removing item 31 would change the CS scale. Thus, theoretical consideration should be given to the CS scale. Overall, all scores should be interpreted with caution.

Collecting data from alumni poses considerable challenges. A primary limitation is sampling bias. Alumni who respond to surveys may differ systematically from non-respondents, resulting in findings that may not accurately reflect the broader alumni population. Consequently, the results of this study may have limited applicability to all college alumni.

Additionally, our sample included a substantial amount of missing data. After removing records with missing data on the 25 NACM items and the first-generation status variable, the sample size decreased from 19,819 to 16,481. Missing data was deleted, which presents challenges (Enders, 2022). Future studies could employ better missing data techniques.

Furthermore, the sample used was relatively homogeneous, with most participants identifying as female and White. This homogeneity limits the generalizability of findings to other populations. Future research with a more diverse respondent pool could explore demographic differences beyond first-generation status, providing additional insights into how various groups experience and interpret career outcomes.

Conclusion

The NACM functions well as a tool for assessing alumni career outcomes, allowing for meaningful score comparisons between first-generation and non-first-generation alumni. However, we recommend discontinuing the scoring and reporting of the CMI, as our findings did not support its use. As demand for evidence of career success continues to grow, the NACM remains a valuable tool for measuring career outcomes. Ongoing psychometric work is essential to ensure that scores are interpreted equitably and with informed understanding. Higher education institutions need reliable post-graduation outcome data to demonstrate their value to students and stakeholders. Students seek assurance that their education will have a lasting impact on their career (Blaich & Wise, 2021). Therefore, continued research on the value of a college degree and refining measures like the NACM is critical.

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Appendix
National Alumni Center Mobility Survey

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

Career Pathway Preparation

17. My bachelor's degree helped prepare me for my career.
29. I was well prepared to begin my career when I graduated.
32. My bachelor's degree helped me get started in my career.
18. I am satisfied with my educational experience for my bachelor's degree.
19. My bachelor's degree is worth the tuition I paid.

Career Satisfaction

8. I am satisfied with my career so far.
9. I am satisfied with my current career.
10. I am satisfied with the level of responsibility of my current job.
11. I am content with the progression of my career.
24. I have advanced in my career as I had hoped.
31. My salary is enough to pay my bills every month.

Economic Mobility

33. I currently earn a higher income than the households in which I grew up.
27. I expect to earn more in the future than the household in which I grew up.
16. My earning potential is higher than the household in which I grew up.

Community Engagement

20. I am involved in my community.
25. I have received recognition for my community involvement.
23. I regularly donate money to charitable causes.
26. I regularly donate time to charitable causes.
28. I volunteer in my community regularly.

Institutional Career Investment

30. My institution invested in my career.
12. My institution helped me to understand career opportunities.
13. My institution helped me create a plan for my career.
14. My institution helped me envision my career options.
21. My institution helped me to network with employers.
22. My institution helped me to network with alumni.

Note. Items were taken from The Career Leadership Collective (CLC) branded, publicly available factor sheets and annual report cited in the References section (CLC, 2021a, 2021b, 2022).

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Beyond Placement Rates

Realizing New Opportunities for Using First-Destination Data

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Abstract: This article offers a roadmap for readers to utilize their first-destination data in interactive and meaningful ways. Institutions often employ their first-destination data to assess the frequency or percentage with which students achieve various outcomes. The University of Arizona uses these data to inform continuous improvement of the overall student experience. It encourages faculty and staff to partner in fostering a culture of career development throughout the curriculum. This article highlights new opportunities to combine career outcomes data with existing institutional data to understand the student experience better and enhance career development capacity.

Keywords: career development; first-destination survey, first-destination outcomes

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The evolution of career services in higher education from the post-World War II "placement" to today's paradigm, focused on meaningful connections to internships and other experiential learning embedded throughout the student experience, has been well-documented (Dey & Cruzvergara, 2014). Yet many colleges and universities still primarily use their first-destination survey data to produce descriptions of student self-reports of job placement and initial salary as proof points to demonstrate the value of a particular college or university's programming to prospective students and parents.

The helpfulness of these data to decision-making for students and their families is questionable. While the National Association of Colleges and Employers (NACE) offers standards and protocols for broad post-graduation outcomes reporting, data collection processes often vary by institution. This can cause confusion and misinformation when families compare post-graduation outcomes. The U.S. Department of Education has tried to provide more consistent and contextualized program-related salary outcome comparisons in College Scorecard (https://collegescorecard.ed.gov/). Still, it is limited to including data on students receiving federal aid. Furthermore, the tool does not make transparent what percentage of graduates' earnings are included in the calculation or how other background characteristics (such as family income) are, or are not, included, making it impossible to isolate the effect an institution may have on those earnings (Rothwell, 2015).

With the advent of services like the College Scorecard, the Georgetown Return on Investment (ROI) index (https://cew.georgetown.edu/), and the Census Bureau beta of its post-secondary employment outcomes dashboard (https://lehd.ces.census.gov/data/pseo_experimental.html), prospective students and their families have a wealth of independent, longitudinal, interactive sources for comparing salary and career outcomes across the higher education institutions they are considering. Thus, another use case for the data colleges and universities collect emerges: to identify, integrate, and expand those career-related experiences that make the biggest difference in post-graduation outcomes for students, especially for those historically marginalized in both higher education and employment contexts.

To accomplish this use case, colleges and universities can combine first-destination data with other institutional data, allowing insights to emerge that can shape future investments in student success, including the campus career development office's role in that success. In particular, triangulating data such as experiential learning course enrollments and completion rates with first-destination data illuminates where opportunities coincide. This data triangulation approach can become even more useful when the data are disaggregated to explore the effectiveness of particular interventions and high-impact practices for student populations who may experience inequitable employment or continuing education outcomes. These insights can help bridge the "either academic learning or job readiness" mentality that often takes hold in campus conversations about the value of investing in students' career development and its place within academic programming.

The University of Arizona has tested this triangulation approach, which has demonstrated that engaging in certain career seeking behaviors, such as internships, research, conversations with faculty, and applying to jobs early, contributes not only to post-graduation outcomes but also to academic success factors that matter greatly to the academic enterprise: degree progress and timely completion. The following case study spans four years of data analysis. It provides an overview of our approach to more deeply exploring first-destination survey data beyond placement rates and bridging those data with other campus-wide data sources, including course enrollments and time to degree. These analyses led to meaningful insights that inspired continuous improvement and built career support capacity across the University while supporting two key student success measures: completion and post-graduation outcomes.

The Setting

The University of Arizona

The University of Arizona is a Research I, land-grant, Hispanic Serving Institution that resides on the ancestral homelands of the Tohono O'odham and Pascua Yaqui peoples. In the Fall 2024, the University of Arizona welcomed an incoming class of more than 9,300 first-year students with an average high school GPA of 3.49, more than 50% of whom self-identified with an ethnicity other than White, and almost a third of whom are the first in their family to attend college (Burtch-Buss, 2024). The University of Arizona's one-year

retention rate is 82.8%, while the six-year graduation rate is 67.5% (University Analytics & Institutional Research, 2024).

Student Engagement & Career Development (SECD)

The University of Arizona SECD office provides a variety of offerings that help students develop in-demand career skills, find support along their career journey, and engage in experiences that expand students' capacity to solve authentic challenges facing our world. Its mission is to inspire and prepare all graduates to create lives of opportunity aligned with their purpose and values. This office also oversees the administration of the Graduating Senior Survey (also known as the First-Destination Survey). This work generates data-informed insights about student career outcomes, with attention to surfacing gaps between our aspirations for equitable outcomes and the realities of our graduates.

The Graduating Senior Survey (GSS)

The University of Arizona GSS has historically collected information from graduating seniors about their undergraduate student experiences and post-graduation outcomes. The survey includes self-reported data collected mostly prior to graduation through Qualtrics and provides a snapshot of post-graduation outcomes for undergraduate students. For the spring administration, the survey is coordinated in partnership with the University's Commencement RSVP process. Prior to academic year (AY) 2024, the University of Arizona had not participated in coordinated follow-up or third-party data scraping to contribute to overall knowledge rates. The response rate to our survey is generally between 60%–70% of a survey-eligible graduating class, typically around 7,500. Data are reported to the NACE and used in university rankings and accreditation processes. In addition, findings from the survey are intended to inform the University's strategies for supporting students in attaining their post-graduation goals.

Our Timeline and Analyses

Like many other universities, the University of Arizona has regularly participated in a first-destination data collection process for several years. Beyond sharing the percentage of our students who secured an outcome (i.e., employment, continuing education) with campus departments, reporting to NACE, and contributing to university rankings, the data were not previously utilized to their fullest extent–namely to understand predictors that lead students to these and other student success outcomes. A better understanding of these predictors allows university faculty and staff to design new interventions and iterate on existing ones, resulting in meaningful experiences and successful outcomes for our students. In 2020, SECD started considering how we might employ these data to better understand predictors of post-graduation outcomes.

Beginning in 2020–2021, SECD has asked different questions of the first-destination data. It should be noted that this means that each year, different students with different independent variables were included in the analyses. While some variables were consistent across analyses, such as background characteristics including race, sex, and GPA, other independent variables varied by year (through stepwise regression) in an effort

to improve the model fit. The paragraphs below outline each year's inquiry and the analyses conducted.

In 2020, our analysis started by first exploring the question, "How do career-related experiences (e.g., internships, research, student teaching) impact post-graduation outcomes such as securing full-time employment or acceptance into a continuing education program?" To respond to this question, we built two logistic regression models. For our full-time employment model, our predictor variables included common career-related experiences (internship, part-time employment, research, class project, student leadership, student teaching, volunteer, study abroad, preceptorship, and other experience) and whether the student "discussed career plans" with others. The "discussed career plans" variable asked students their agreement with the following statement: "While I was an undergraduate, at least one person talked to me about my career goals." Response options included strongly agree, agree, neutral, disagree, and strongly disagree. Our control variables included background characteristics such as honors college student (at any time during college), veteran, sex, transfer student, race, age, first-generation college status, cumulative GPA, field of study, and campus location. During this year, we also included a variable representing whether students experienced a disruption due to the COVID-19 pandemic. Our predictor and control variables for our continuing education model were similar, including the common career-related experiences, sex, transfer student, race, first-generation college status, cumulative GPA, field of study, and the COVID-19 disruption variable. The model also included Federal Pell Grant recipient, high school GPA, and having received a merit award.

In 2021, we kept the same question and ran similar logistic regression models to the prior year to further corroborate our AY 2020 results and continue improving our models. Similar to AY 2020, our full-time employment model included common career-related experiences, discussing career plans, COVID-19 disruption, honors college student (at any time during college), veteran, sex, transfer student, race, first-generation college status, age, and cumulative GPA. In addition, we added Arizona state residency and Federal Pell Grant recipient as control variables, added a new predictor variable ("months spent applying"), and reshaped our field of study variable. The "months spent applying" variable asked students, "About how long prior to your graduation did you begin applying to jobs?" Response options included: Less than one month, 1 month, 2 months, 3 months, 4 months, 5 months, 6 months, and more than 6 months. Our field of study variable was reshaped for two reasons: first, it prevented us from having to combine several diverse fields to create large enough groups for analysis, and second, it helped us control for fields that have generally better outcomes. Instead of broad fields of study categories, we created a variable (coined "professional field") to represent fields where a specific bachelor's degree is in high demand for paid internships and recruitment for entry-level positions. We used Classification of Instruction Program (CIP) codes and created one category that included Business, Computer Science, and Engineering CIP codes versus all other fields. Similar to AY 2020, our continuing education model included common career-related experiences, sex, transfer student, race, first-generation college status, cumulative GPA, Federal Pell Grant recipient, and COVID-19 disruption. In AY 2021, the continuing education model also

included discussing career plans, first-term GPA, Arizona state residency, and our new "professional field" variable.

In 2022, we pivoted our inquiry slightly for two reasons. First, the pandemic had interrupted student participation in some key experiences, namely internships and research, which, based on our prior models, we knew to be significant predictors of the outcomes we were interested in studying. Since participation in these experiences was somewhat abnormal during this time, we decided to explore other questions that were still relevant to our campus community. Second, our campus conversation during this time included questions about participation in not-for-credit internships, access to internships, and compensation for internships. For these reasons, we took this opportunity to further explore predictors of post-completion earnings and paid internship participation. Our questions were then: (1) "How do career-seeking behaviors, career-related experiences, and background characteristics impact post-graduation earnings?" (2) "How does internship compensation (paid versus unpaid) impact post-graduation earnings?" (3) "How do career-related experiences and background characteristics impact participation in paid internships?" The first and second questions were explored using two separate linear regression models, while the third used a logistic regression model. The predictor and control variables across the three models included common career-related experiences, race, sex, professional field, first-generation college status, Arizona state residency, and Federal Pell Grant recipient. Additionally, the first two models also included employment job function, position aligned to career interests, location of employment (in Arizona versus out of state), employment referral (via networking versus cold contacts), whether they consider their job to be a good job, and discussing career plans. The third model also included cumulative GPA and honors college student (at any time) in addition to the demographic and career-related experiences described above.

In 2023, after three years of analyzing different predictors of post-graduation outcomes, we expanded our questions to ask, "How might these experiences impact completion?" We focused on the two most common and previously significant experiences: internships and research. While our senior survey data provided us with a foundation to ask and answer this question, we needed to look beyond those data to course enrollment data to respond appropriately. We then created two comparable and representative groups (students who participated in the experience versus those who did not) in each model. We built six propensity score matching models to assess the trend of participating in a for-credit internship or a for-credit research experience and graduating in four years. We allowed bias as close to or less than 5% for all variables and did not allow any significant differences between the two groups. Our models included first-time, full-time students in Fall cohorts in 2017, 2018, and 2019. Our internship models included the following predictor and control variables: participation in a for-credit internship, race, primary college at entry, STEM primary major status at entry, Federal Pell Grant recipient, first-generation college status, honors college student (at entry), sex, Arizona state residency at entry, and high school GPA. For our student research models, the predictor and controls included participation in for-credit research, race, STEM primary major status at entry, first-generation college status, sex, and cumulative GPA. In addition to the models, we also

explored general participation in these two key experiences, including approximately how many students participate in each by using a combination of senior survey and course enrollment data, total enrollments by year, total enrollment by year in school, and total enrollments by term.

The next section outlines high-level insights generated from the prior four years of analyses. These insights are used as baselines for programmatic improvements, garnering buy-in of career development practices across campus and supporting marketing efforts regarding impactful experiences at the University of Arizona among incoming and current students and families.

GSS Insights

Using the analyses outlined above, we uncovered several insights from the data that helped us scope our priorities and leverage the experiences and connections with the largest impact.

Insight #1

The earlier students apply to jobs, the more likely they are to report full-time employment. Students who reported applying to jobs at least four months or more before graduation increased their odds of reporting full-time employment by up to six times at graduation (Forecki, 2021).

Insight #2

Students who reported participating in internships were almost twice as likely to report full-time employment compared to students who participated in other career-related experiences (e.g., volunteering, preceptorship, research with faculty, full/part-time employment, student leadership, study abroad, student teaching), but not internships (Forecki, 2020). For first-generation students, the odds were greater. First-generation students who participated in internships were three times more likely to report full-time employment than first-generation students who participated in other career-related experiences but not internships (Forecki, 2020a).

Insight #3

Paid internships predicted higher first-destination reported starting salary by $4,800 compared to unpaid internships (Forecki, 2022). While internship participation overall was not a significant factor in earnings, students who reported having at least one paid internship experienced higher predicted salaries, a finding consistent with prior research from the Strada Education Network (Torpey-Saboe et al., 2022).

Insight #4

Students who participated in research were 1.8 times more likely to report acceptance to a continuing education program than students who participated in other career-related experiences but not research (Forecki, 2020).

Insight #5

Based on the representativeness of first-destination survey respondents to all graduates, and using the student self-reports of participation on the survey combined with course-based internship enrollments, we estimate that 58%-60% of University of Arizona bachelor's degree recipients completed an internship experience (including student teaching) during their undergraduate career (Forecki, 2024).

Insight #6

Students who strongly agree that "Someone at the UA spoke to me about my career goals" were more likely to report full-time employment or acceptance into a continuing education program than those who did not strongly agree. Faculty and academic advisors are reported as the most common sources of information (Forecki, 2021).

Insight #7

Among students who graduated in four years, students who participated in a course-based internship experienced a four-year graduation rate of about 30 percentage points higher than those without a course-based internship (Forecki, 2024). It is important to note that there are a myriad of factors affecting persistence and completion (Tinto, 2022), including some factors that cannot be measured in statistical models. Beyond the unmeasurable or unobservable factors, this analysis demonstrated that the impacts of internship, or potentially other career-related experiences, should not be discounted as key experiences that help move students toward graduation. These results are consistent with emerging literature exploring the relationship between engagement in high-impact practices and degree completion (Kuh, 2008; McDaniel & Van Jura, 2022).

The following sections explain how we arrived at these insights in greater detail and how we are using the insights to inform future pathways toward student success, including post-graduation outcomes.

How We Got Here: Finding Additional Sources of Information

Arriving at these insights required adding questions to our GSS beyond the NACE baseline questions and a thorough understanding of existing data sources. As discussed previously, the questions added to the GSS probed at career-seeking behaviors (months spent applying, employment referral), participation in common career-related experiences, internship compensation, discussing career goals with others, perceptions of employment (position aligned to career interests, considering position a good job), employment job function, and location of employment which we hypothesized impacted post-graduation outcomes.

Several of these additions were sourced or contextualized from prior studies. For instance, in 2017, we partnered with Gallup to administer a survey to University of Arizona alumni. The alumni survey found that students who strongly agreed that someone at the University spoke to them about their career goals were more likely to believe they had the ideal job (Gallup, 2017). This insight inspired us to add a similar question to our senior survey. Similarly, our results (see Insight #6) from the GSS also indicated that students who

strongly agreed that someone spoke to them about their career goals were more likely to report a post-graduation outcome at the time of graduation compared to students who did not strongly agree (Forecki, 2021).

In 2022, the Strada Education Network published a report that shared that paid internships were associated with a $3,096 predicted increase in annual wages one year after graduation (Torpey-Saboe et al., 2022). We attempted a similar study for University of Arizona graduates and found that paid internships predicted higher reported starting wages by approximately $4,800 (Forecki, 2022; see Insight #3).

More recently, we have been investigating the relationship between time to degree and internship engagement and found that students who participated in a course-based internship experienced a four-year graduation rate that was about 30 percentage points higher compared to those without a course-based internship (Forecki, 2024; see Insight #7). When searching the extant literature to understand our results further, we identified prior research (McDaniel & Van Jura, 2022) that also found that students who participated in an internship or other career experience were 2.7 times more likely (or 170% more likely) to complete their degree compared to students who were not involved in these types of experiences.

The existing data sources included data housed within our University's data warehouse. Since students single-sign on to the GSS, thus collecting their StudentID, we used the information in our University's data warehouse to identify additional fields we may want to include in future analyses. It is important to note that students are provided a description of how their survey data will be used at the start of the GSS and assured that responses will only be reported in the aggregate and student-identifying information will never be published. We also include a link to our university's privacy statement to ensure students clearly understand our responsibility to protect their information.

Data sourced from our University's warehouse included demographic data such as race and ethnicity, first-generation college status, Federal Pell Grant status, sex, age at graduation, as well as academic information such as campus attended, college, academic plan CIP codes, internship and research course enrollments, first term and last term enrolled, and more. In addition to the warehouse data, we have sourced career-related engagement data from Handshake, our career management tool, including career fair attendance and appointment data. We then merged these sources with students' GSS responses for robust data analysis and disaggregation. While some of our preliminary analyses, through chi-squared tests, reflect promising trends between participation in engagement activities recorded in Handshake and post-graduation outcomes, these require further triangulation and validation before we feel confident publishing results.

How We Use the Data: Informing Next Steps

Sharing findings with campus colleagues and empowering them to utilize the data to generate their insights is a key next step in ensuring the data are used and leveraged to improve students' experiences and, ultimately, the next generations' post-graduation outcomes. The SECD office has implemented several strategies to build staff capacity to

employ the data-informed insights generated through our senior survey data and empower collaborators to explore their own questions using the data. These strategies operate in addition to external reporting requests for university rankings and/or accreditation purposes.

We have employed two methods to share these data more broadly and increase their general awareness and availability. Our first strategy was to host an inaugural Graduation and Beyond Summit. The Graduation and Beyond Summit focused on (a) sharing our University of Arizona post-graduation outcomes data by reviewing key data insights, (b) how to access the data, and (c) where historical data are available. As part of the Summit, we hosted two expert panels: one focused on integrating career development practices and skill-building into the curriculum and a second on building equitable internship experiences. Panelists included faculty members from various colleges and departments, student worker supervisors, internship managers, undergraduate students, and representatives from orientation services and academic advising. In addition, we held one concurrent breakout session focused on data and outcomes of key student populations informed by the various data sources, including Hispanic/Latinx students, first-generation students, and our Online student population.

The second strategy we used was incorporating the data meaningfully into our Career Champions program. This program provides an opportunity to put the data in front of key collaborators, such as faculty and advisors, who believe in career development work and seek opportunities to support curriculum and programmatic changes through data. In our training, we highlight the importance of discussing career plans with students as well as encouraging students to apply to jobs early. We also share our data on internships and research experiences and how those experiences often make a difference in supporting students to secure successful post-graduation outcomes, particularly for students from marginalized backgrounds. Additionally, we emphasize that our results indicate that faculty and academic advisors are often the trustworthy sources students confide in for discussing career goals. As such, holding opportunities for students to explore careers in courses or advising appointments is an important part of a student's post-graduation success.

Beyond opportunities for faculty and staff to build capacity, we have also used the data to support additional inquiry and programmatic enhancements, specifically to our internship offerings and student employment experiences. Our GSS survey results highlighted a gap in our understanding of how University of Arizona students were experiencing internships. Those results provided a foundation for us to administer a climate survey with students in November 2022 related to their internship experiences. The survey was sent to a sample of sophomores, juniors, and seniors to better understand the internship search process, the internship itself, perceptions around participation in internships, and barriers to internship participation. Our results uncovered several actionable insights.

Our first insight was to educate students on where to find paid opportunities – especially for female-identified students, who more commonly reported not receiving compensation for internships compared to male-identified students. Our second insight emphasized the importance of applying to internship postings early and often. Several students reported

applying in a short time period prior to when they expected to begin. In contrast, NACE (2022) reports that employers start recruiting interns up to eight months before the internship start date. Our third insight was to continue building capacity among faculty and staff to assist students in their internship search. Our GSS results tell us that faculty and staff are important partners for students' post-graduation success, and responses related to campus support of career goals in the Internship Survey were lower compared to other surveys. Our fourth insight was the importance of baking skill development into existing experiences, such as student employment, to meet students where they are. Another common barrier to participation included concerns around time, such as a heavy course load or having to work another paid job. Our final insight was to increase confidence in the internship search and engagement process among first-generation students. We found a lower percentage of first-generation students reported agreement with the following statements: "students like me participate in internships" and "employers are seeking students like me for internships." The insights from this survey, and by extension the prior GSS analyses, led to creating case management internship interventions specifically among our first-generation student population, sourcing additional funding for unpaid and underpaid internships, and re-designing our skill development program to operate through student employment.

Future Considerations

While our efforts over the past four years were intended to provide a broad understanding of predictors of post-graduation outcomes and student success indicators, we are always left with more questions to inform future work. At this time, some of those questions include:

- How might specific fields of study impact post-graduation outcomes? While fields of study were used as controls in certain models, delving deeper may uncover other gaps/barriers to address.
- What are the impacts of paid research experiences or other paid experiences on post-graduation outcomes or completion? Does compensation in these experiences make a difference in post-graduation outcomes as well?
- Does funding through the university for an underpaid or unpaid internship offer the same benefits as an employer-paid internship related to post-graduation outcomes?
- Does paid work-based learning provide skills that support students getting a traditional employer-paid internship?
- Are higher starting salaries contained to industries that are more likely to pay their interns?

Conclusion

The results from the GSS and extended analyses have allowed several teams at the University of Arizona to leverage the data to create, embed, and expand meaningful experiences that help students meet their post-graduation goals and, hopefully, through future lines of inquiry, other student success outcomes such as timely graduation. During this process, we have learned several strategies that have supported us in this work. We

hope you find it helpful as you explore what is possible within the context of your own campus and data availability.

Lesson #1: Develop Your Driving Questions

What do you want to know relative to your students' post-graduation outcomes? Focus on using your data in ways that allow you to intervene while students are still enrolled. What aspects of their current student journey can help inform an intervention now that might make a difference in their outcomes post-graduation?

Lesson #2: Develop Data Collaborations

Strong partnerships between offices that house campus data (e.g., career services, institutional research, assessment, registrar) help to access and pull data together. What data exists on your campus, or externally, that can help you tell the most complete story possible about a student's career journey?

Lesson #3: Review Your First-Destination Survey

What might be missing, no longer needed, or answered elsewhere? Are there other studies that can help inform new questions and assist you in making the most out of the survey?

Lesson #4: Identify Career Champions

Who on campus might be willing to ideate and test strategies to meaningfully integrate your findings into their work or curriculum? How can you celebrate that partnership to encourage others to join?

Lesson #5: Integrate Findings into Existing Student Experiences

What opportunities do you feel excited about as a potential partnership to integrate findings into existing student experiences (i.e., courses, student employment, leadership roles)? The key component is to meet students where they are and remove barriers to participation in career development offerings.

Lesson #6: Be Transparent with Methodology and Insights

What are you finding that is surprising? What requires addressing immediately versus longer term? When data demonstrate gaps in providing services or post-graduation outcomes for historically marginalized students, the tendency may be to hold that data close to avoid scrutiny or negative comparisons to institutions that do not conduct or share these data externally. The professional career services and assessment communities have an opportunity to create spaces for transparent sharing of survey methodology and the results of analyses like these that can lead to more collective insights and advocacy for strategies that make the most difference to students earlier and often within their college experience.

Lesson #7: Take Your Time and Refine

As mentioned, these insights were generated across four years of data analysis. Each year, we refined our assessment process based on the insights we had learned from the prior analyses or based on our campus's conversations at the time. Most important is to

recognize that these insights were not generated overnight or within a single dataset. It takes time to learn what you do not yet know while staying relevant to what your stakeholders may find useful for designing interventions or making a case for investment in particular efforts.

At a time when higher education institutions likely have more access to data than ever before, early interventions to address various challenges are at our fingertips. We must put the data into action to support positive student outcomes like retention, graduation, post-graduation outcomes, and more. Data transparency and building capacity among faculty and staff and across the career services community can help students accomplish their personal and professional goals. Together, we can chart a path beyond placement data that gives our current and future students and families the tools to make the most of their college education.

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Subjective Measures of Career Outcomes from National Surveys in the United Kingdom and Australia

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Abstract: This article considers various subjective and qualitative measurements of career outcomes and success found in national-level graduate surveys in the United Kingdom and Australia. It reviews how these measures might add to our broader understanding of career success aligned with social cognitive career theory (Lent et al., 2002) and reflects on the concept of "scarring" (Borland, 2020). These considerations help assess the value of measuring subjective and qualitative information on graduate career outcomes and how such insights might inform career and employability services and inclusive and integrated career-focused activities in higher education.

Keywords: career outcomes, career success, graduate surveys, higher education

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The United Kingdom (UK) and Australia have a long history of graduate surveying, with many decades of comprehensive national graduate outcomes data from higher education (HE; Frawley & Harvey, 2015). Measurements of graduate outcomes are used by individual HE providers, the HE sector, and national governments in multiple ways, such as a mark of quality or an indicator of value for money, as information for potential candidates, and as a factor in funding allocations.

Initially, this paper outlines the HE context in both the UK and Australia. It looks at the graduate surveying process and provision in each country, drawing out a selection of the subjective measures in each survey to inform the reader about the data available and its existing and potential uses. This is then considered in light of careers and employability theory and research, and recommendations are drawn for career professionals, HE providers, the HE sector, and local and national governments. The paper explores to what extent additional self-reported measures in graduate surveys add to our broader understanding of career journeys and success.

Theoretical Frameworks

This paper takes a rigorous approach grounded in careers and employability research by utilising social cognitive career theory (Lent et al., 2002), which focuses on individual thought processes when making career decisions. This theory "highlights people's

capacity to direct their own vocational behaviour (i.e., human agency), yet it also acknowledges the many environmental influences [...] that serve to strengthen, weaken, or even override human agency in career development" (Lent et al., 2002, p. 277). This marrying of career decision-making with the external factors that may support or limit the individual's ability to enact, or follow through on, their plans has the potential to be further explored through the subjective questions in the UK Graduate Outcomes Survey (UK-GOS) and the Australian Graduate Outcomes Survey (Aus-GOS) that explore how personal circumstances affect career decision-making and success. Furthermore, social cognitive career theory identified personal characteristics that affect graduate outcomes, such as sex and gender, ethnicity, disability, and socioeconomic status (Bolton & Lewis, 2024; The Sutton Trust, 2021; Toogood, 2025). It also focused on how contextual influences, such as family or peers, combine with self-efficacy beliefs and the individual's outcome expectations to affect career choice behaviours. Other contextual influences include economic background as well as 'person inputs' such as gender, ethnicity, and disability.

Looking more broadly at what is known about careers, existing employability research underscores the importance of adopting a long-term perspective, considering career development across a lifespan rather than focusing solely on the first job after graduating (Tymon, 2013). Nevertheless, national policymakers, HE providers, and individuals often emphasise the graduates' first destination as a measure of success, potentially because this is the primary focus of graduate outcomes surveys. A significant proportion of students pursue HE primarily to enhance their employment prospects (Baik et al., 2019). A key measure of success from the students' perspective may, therefore, be whether their degree has met this expectation and whether they have secured a role.

Reviewing Australian data, 79% of graduates secure full-time employment within 4-6 months of completing their degrees (Aus-GOS, 2023). However, a notable 27.8% are employed in positions where they do not fully utilise their skills or qualifications (Aus-GOS, 2023). This condition, termed "career-undermatching," involves graduates accepting roles below their skill levels and qualifications. Pennington and Stanford (2019) noted that this mismatch typically leads to lower wages and restricted career advancement, with long-term adverse consequences to overall well-being and lifetime earnings. This pattern is also seen in the UK, where research from the Social Mobility Commission in 2017 showed that over a decade, only one in six workers who started that period in low-paid work could be classed as "escaper" who successfully made a sustained move away from low paid work by the end of the period (D'Arcy & Finch, 2017). Graduates who begin their careers in positions that underutilise their skills are likely to remain underemployed, a phenomenon known as "scarring" (Borland, 2020). These roles often offered lower job satisfaction and stability (Pennington & Stanford, 2019), leading to prolonged negative impacts on a graduate's career trajectory (Bills et al., 2017; Ng & Feldman, 2007).

Social cognitive career theory reminds us that graduates from low socioeconomic status backgrounds are particularly vulnerable to these outcomes, facing higher risks of unemployment and underemployment. Bradley et al. (2008) found that Australian graduates from lower SES backgrounds were disproportionately represented in non-graduate roles—jobs that do not require a degree. Upon graduation, students from

low SES backgrounds experienced lower full-time employment rates and earned below-average graduate salaries (Andrewartha & Harvey, 2017; Pitman et al., 2019). These students also faced barriers in accessing competitive graduate roles and are less likely to secure high-status occupations (Burke, 2015; Reay et al., 2009; Rivera, 2012; Rivera & Tilcsik, 2016). Kozman and Khan (2024) showed that in the UK, there are differences in graduate earnings by free school meal status, gender, and race. Outcomes are also affected by gender, ethnicity, disability, and socioeconomic status, all indicating inequity (Bolton & Lewis, 2024). The increasing polarisation of jobs, partly due to technological advances, has been linked to an observed decline in mobility (García-Peñalosa et al., 2023; Xu, 2023). This problem could, therefore, worsen in the coming decades.

Therefore, it is timely and valuable to reflect on whether the self-reported, subjective data available via national graduate surveys in the UK and Australia can provide further insight into the meaning of graduate career 'success'. While it is unquestionably true that initial post-graduation employment statistics provide valuable insight, there is a need to look beyond solely quantitative measures such as the percentage of graduates in employment. This paper explores the value of subjective and qualitative questions to capture a more nuanced picture of graduate success.

National Higher Education Contexts in the UK and Australia

There are almost 300 HE providers in the UK, ranging from small specialist institutions to very large universities. Collectively, these providers educated 2.86 million students in 2021/22, the majority of whom were UK students studying as undergraduates for a first degree (Bolton, 2024). The UK also has a significant cohort of international students and a thriving transnational education market (Gordon & Modhvadiya, 2023). The London Economics 2023 impact report for Universities UK identified that the UK HE sector is responsible for a direct economic impact to the UK of £46.1 billion, along with a further £69.5 billion in indirect and induced impact. This equated to a gross value-added impact from UK HE of £71.3 billion, which included operational and capital expenditure, direct spending via institutional supply chains, and 768,000 HE-related jobs and subsequent employee spending (Booth et al., 2023).

Australia has around 197 HE providers, comprising 42 universities and 155 non-university higher education institutions (NUHEI; Norton, 2023). The NUHEIs consist of Technical and Further Education (TAFE) institutions, and specialist international, creative arts, and theological colleges. Most (37 out of 42) Australian universities are publicly funded and comprise the bulk of HE enrollments, educating around 1.6 million students. Like the UK, international students are also a vital source of income for Australian universities, providing around $AUD8.6 billion, or just over a quarter of all university funding. International student numbers have climbed steadily since the pandemic. While Australia shares similarities with the UK and other western HE systems, there are differences. Unlike the UK or the USA, where students often leave home to attend university, students in Australia tend to commute and, therefore, often attend the university closest to their home.

In both countries, the social impacts of an established HE sector are evident. In the UK, HE is a key driver of social mobility; low-income students are four times more likely to become socially mobile if they attend university, and lower income gaps are seen between graduates from disadvantaged backgrounds and their peers when compared to income gaps among non-graduates (The Sutton Trust, 2021). However, it should be noted that equity of HE access and outcome is not consistent across students' ethnicity, sex and gender, disability, and socioeconomic status (Bolton & Lewis, 2024; CFE Research, 2022; Skills Development Scotland, 2023). There are also differences in how each of the four nations within the UK funds its HE provision, resulting in differences in students' fees, grants, and loans. This has the potential to further impact inclusion, accessibility, and equity across the UK and within each nation.

In Australia, HE equity policies have consistently focused on increasing participation from five underrepresented groups: individuals from low-socioeconomic status backgrounds, non-English-speaking background individuals, residents of regional/remote areas, Indigenous people, and individuals with a disability. Despite reforms seeking to widen participation and address skills shortages, such as the Higher Education Contribution Scheme in 1989, the Review of Australian Higher Education (i.e., Bradley Review; Bradley et al., 2008), and the demand-driven system (Kemp & Norton, 2013), challenges such as funding constraints, rising student debt, and disparities in access persist. Current policies are based on forecasts that predict that by 2050, 55% of the Australian workforce will require a degree, representing a substantial leap from current levels (Department for Education, 2024). The Australian Universities Accord was developed and introduced in mid-2024 in response to this and other issues. The Accord aims to address these issues by creating a more sustainable and equitable HE system via re-evaluating funding models, enhancing support for disadvantaged students, and fostering closer ties between universities and industry to better align educational outcomes with labour market needs.

Measuring Graduate Outcomes

United Kingdom

Graduate outcomes data has been systematically collected in the UK for around 60 years in various formats, firstly via the First Destination Survey and then the Destinations of Leavers from Higher Education (DLHE) Survey. After an extensive review in 2016, the current UK-GOS has run for all leavers from the academic year 2017/18 onwards (Higher Education Statistics Agency [HESA], 2024a). Earlier surveys largely focused on the industries that graduates entered, but increasingly, the focus has been on individual and cohort outcomes and roles. The positioning of the main survey point has also shifted over time; UK-GOS asks all graduates for information about their activities 15 months after the end of the course; DLHE collected that information after 6 months, with a further longitudinal follow-up survey at 3.5 years (Frawley & Harvey, 2015). The UK also has a Longitudinal Education Outcomes (LEO) dataset, which connects educational data to employment and earnings.

The current UK-GOS is managed by the HESA, part of Jisc (https://jisc.ac.uk), the UK digital, data and technology agency focused on tertiary education, research and innovation. They

manage the data collection process and subsequent response coding, working with external surveying providers. UK-GOS is a population survey and thus aims to survey the entire population of interest. In any given year, the population comprises all full-time or part-time students reported as obtaining relevant HE qualifications. This includes first degrees (undergraduate), postgraduate taught degrees, and postgraduate research degrees. The population is divided into four cohorts by date of completion, with separate survey contact periods for each cohort. Within each contact period, online survey links are shared, and for UK-domiciled graduates only, this is followed up with a telephone survey when the online survey elicits no response. Response rates have been showing a small but sustained drop in recent years (44% of responses were usable in 2021/22, 46% in 2020/21, and 52% in 2019/20), and response rates are higher for UK-domiciled graduates than internationally domiciled graduates (HESA, 2024b).

The dataset is shared in various ways, with many of the national level and HE provider statistics freely available through HESA's open data repository (HESA, 2024b). This repository allows data to be broken down by a range of factors, such as personal characteristics and subject of study. Uses of the UK-GOS dataset include national league tables such as those available from the Complete University Guide, The Guardian, and The Times newspapers, as well as applicant-focused sites such as Discover Uni (https://discoveruni.gov.uk). HE providers use the data to support strategic evaluation and improvement via feedback from the measures in UK-GOS, which allow internal and external benchmarking. The data also supports HE provider submission for national quality evaluations such as the Teaching Excellence Framework (Fung, 2024). The results of UK-GOS are often used extensively in providers' marketing materials and information, potentially attracting students and bolstering retention.

Australia

Like the UK, Australia has a long history of graduate surveying. The routine surveying of graduates commenced in 1972 with the Australian Graduate Survey (AGS). The AGS served as the national census for newly qualified HE graduates and was conducted annually from 1972 to 2015 by Graduate Careers Australia (2024). However, collecting, analysing, and presenting the data took around two years, resulting in a significant delay between the completion of studies and data publication and analysis. In 2016, the AGS was replaced by the Aus-GOS, and the process transitioned to an online format. This move was part of the Quality Indicators for Learning and Teaching (QILT) initiative, which provided comprehensive data on graduate outcomes to improve education quality and graduate success in Australia. Over 400,000 students, graduates, and employers respond to a QILT survey each year. QILT is a set of four government-endorsed surveys, as outlined in Table 1. This paper focuses solely on the Aus-GOS, but information on the other QILT surveys is included to show Australia's holistic approach to surveying. While each survey measures different aspects, they all work together to provide performance information for the whole student life cycle from commencement to employment and beyond.

Table 1. *Quality Indicators of Learning and Teaching Survey Types and Measures*

Survey Name	Participants	Measures
Student Experience Survey	Current HE students.	The overall student experience.
Australian Graduate Outcomes Survey (Aus-GOS)	Graduates 4-6 months after course completion. Undergraduate and postgraduate. Domestic and onshore international students.	Labour force and further study outcomes.
Employer Satisfaction Survey	Employers who have employed a recent graduate. 4-6 months post-graduation.	Employers' views on their recent graduate hires' skills and work readiness.
Graduate Outcomes Survey – Longitudinal	Graduates 3-4 years after course completion. A follow-up to those graduates who opted-in from the GOS.	Medium-term employment and further study outcomes, supplementing the GOS.

In addition to employment, the core Aus-GOS questionnaire also measures further study outcomes, graduate preparation, and level of satisfaction. Survey responses are also used to build the Employer Satisfaction Survey sample. Aus-GOS is administered three times a year in November, February, and May. The survey takes around 10-15 minutes to complete. A series of follow-up reminders and prizes are on offer to increase participation. The 2023 Aus-GOS was conducted among 126 HE institutions, including all 42 universities and 84 NUHEIs. The NUHEIs represented 7.6% of total responses. A total of 116,250 valid survey responses were collected across all study levels, representing a response rate of 38.7 percent, a slight decrease from the 39.4 percent achieved in 2022.

Data collected from the surveys is published annually and available on the QILT website (https://quilt.edu.au). The survey results are displayed in various formats at the national, state, and individual institution levels. QILT data is instrumental for HE providers, serving multiple critical functions and enabling benchmarking. The Australian government uses QILT data to inform policy decisions and allocate funding. Additionally, the data powers two comparison websites, ComparED (https://www.compared.edu/au), which allows current and prospective students to compare courses and institutions based on real student feedback, and CourseSeeker (https://www.courseseeker.edu.au), which shows course information, entry requirements, and admission processes.

The extensive data collected from graduates in the UK and Australia via the above surveys are frequently used to quantify certain aspects of graduate outcomes, such as employment or salary. However, the subjective questions also have the potential to offer a more nuanced insight into graduate career experiences, motivations, and outcomes. Selected career theories that help to underpin this insight are identified in the next section of this paper before these elements are drawn together in the discussion section.

Subjective Questions in Graduate Outcomes Survey Design

The UK and Australian surveys both collect quantitative outcome data, e.g., salary, and more subjective and qualitative self-reported data from graduates (e.g., well-being and job preparedness). To review whether these measures add to our broader understanding of career journeys and success, some subjective questions and responses from the most recently published data in each country are included in this section. The full UK-GOS question set (HESA, 2023) and most recent results (HESA, 2024b) are available from HESA. The Aus-GOS question set and results are available from QILT (2024). All the statistics in the following sections come from these sources.

United Kingdom

This section focuses specifically on self-reported subjective and/or qualitative measures collected from UK-GOS graduates as part of the standard survey. This includes to what extent the individual's recent qualification played a part in their current activity, how their education has contributed to where they are today, and how they feel about their current situation and general well-being level (Office for Students [OfS], 2024). A series of optional question banks are available for institutions to request at an extra charge, but as these are not taken up universally, they are not considered further.

UK-GOS respondents are asked what they are doing at the time of the survey, with an immediate follow-up question, "which of these activities do you consider to be your most important activity?" A note of clarification is provided: "Your most important activity might be the one which is most related to your future plans, the one which pays you the most money, or the one that you spend the most time doing." This allows the graduate to shape how their response appears in the national dataset, and to identify what is personally important to them. The responses to this question are in Table 2, which shows that the majority of survey respondents (61%) identify full-time employment as their most important activity, followed by part-time employment (11%) and then employment and further study (10%). These questions must be answered for a valid survey response.

Table 2. 2021–2022 Graduate Outcomes by Activity

Activity	% Respondents
Full-time employment	61
Part-time employment	11
Employment and further study	10
Full-time further study	6
Other including travel, caring for someone or retired	6
Unemployed	5
Voluntary or unpaid work	1
Part-time further study	0
Unknown pattern of employment	0
Unknown pattern of further study	0

Note. Adapted from "Figure 1 - Graduate Outcomes by Activity," by HESA, 2024 (https://www.hesa.ac.uk/data-and-analysis/sb268/figure-1). CC BY 4.0 by Jisc.

Table 3. *2021–2022 UK Graduates' Main Reason for Taking Their Job*

Reason	% Respondents
It fitted into my career plan / it was exactly the type of work I wanted	46
To gain and broaden my experience in order to get the type of job I really want	14
It was an opportunity to progress in the organisation / It was an opportunity to progress in the industry I am interested in	11
In order to earn a living	10
It was the best job offer I received / I did not receive any job offers	7
It was in the right location / It allowed me to work in the right location	4
To see if I would like the type of work it involved	4
The job was well-paid / It was well-paid	3
To work in my family business	1
In order to pay off debts	0

Note. Adapted from "Chart 13 - Graduates in UK Work by Main Reason for Taking the Job and Skill Group," by HESA, 2024 (https://www.hesa.ac.uk/data-and-analysis/graduates/chart-13). CC BY 4.0 by Jisc.

Two questions can be considered to allow respondents to express opinions in the activity questions. Employed and self-employed graduates are asked for the main reason they decided to take their job. This is an optional question for the survey respondents. They can select from ten responses that give insight into whether their reasons were career-focused, pragmatic, or exploratory. The most popular response from those who graduated in 2021/22 was "It fitted into my career plan / it was exactly the type of work I wanted," reported by 46% of respondents. Full responses from 2021/22 are in Table 3.

Graduates are also asked an optional question on whether the qualifications they have just completed were required to get the job. Responses here allow the graduates to reflect on whether they felt their qualifications and/or subjects were needed or advantageous in securing their jobs. Table 4 shows the 2021/22 responses. Just over a third of graduates (34%) confirmed that both the level and subject of qualification was a formal requirement. A further 25% said the qualification was not a formal requirement but gave them an advantage, with 25% saying that their qualification was not required to secure their job.

Respondents are then asked three optional questions under the heading "Reflection on activity to date," which are worded slightly differently depending on their main activity. They are asked three questions on a five-point Likert scale, and these questions (Figure 1) allow the graduate to reflect on their current activity and the qualifications leading up to it. Note that Figure 1 provides an overview, and graduate reflections may vary by their main activity. Further breakdowns by activity are available on the HESA website (2024b). While the majority of graduates do reflect positively about their activities to date, there are a significant minority who are less content. This is most notable in relation to whether they are utilising what they learned in their current activity, with 21% of UK graduates disagreeing or strongly disagreeing with this statement.

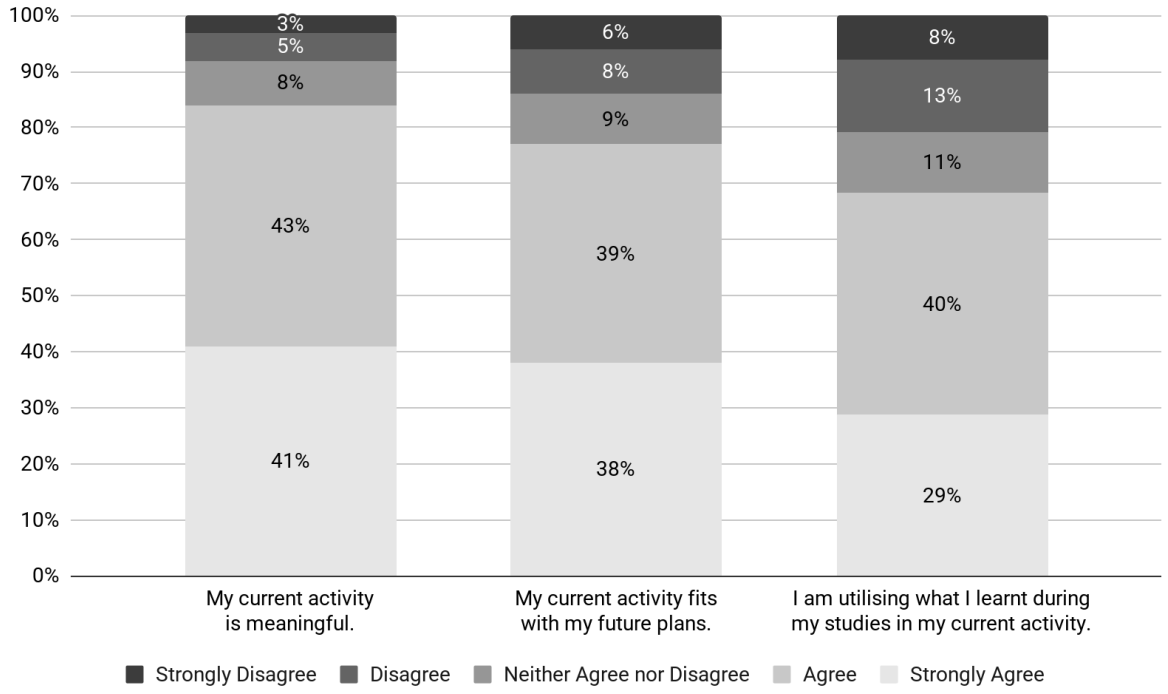
Four optional subjective well-being questions follow, as shown in Figure 2. These questions are clearly very personal and subjective in nature, touching on the graduates' state of mind and contentment in their current position and activity. The results show generally good levels of happiness, satisfaction, and feeling that what they do in life is worthwhile, but also high anxiety levels.

Table 4. *Responses Provided by UK graduates in 2021/22 in Relation to Whether they Required their Qualification for Their Job*

Qualification Required for The Job	% Respondents
Yes: both the level and subject of qualification was a formal requirement	33.6
Yes: while the qualification was not a formal requirement it did give me an advantage	25.3
No: the qualification was not required	24.9
Yes: the level of qualification was a formal requirement	10.5
Yes: the subject of the qualification was a formal requirement	4.6
Don't know	1.2

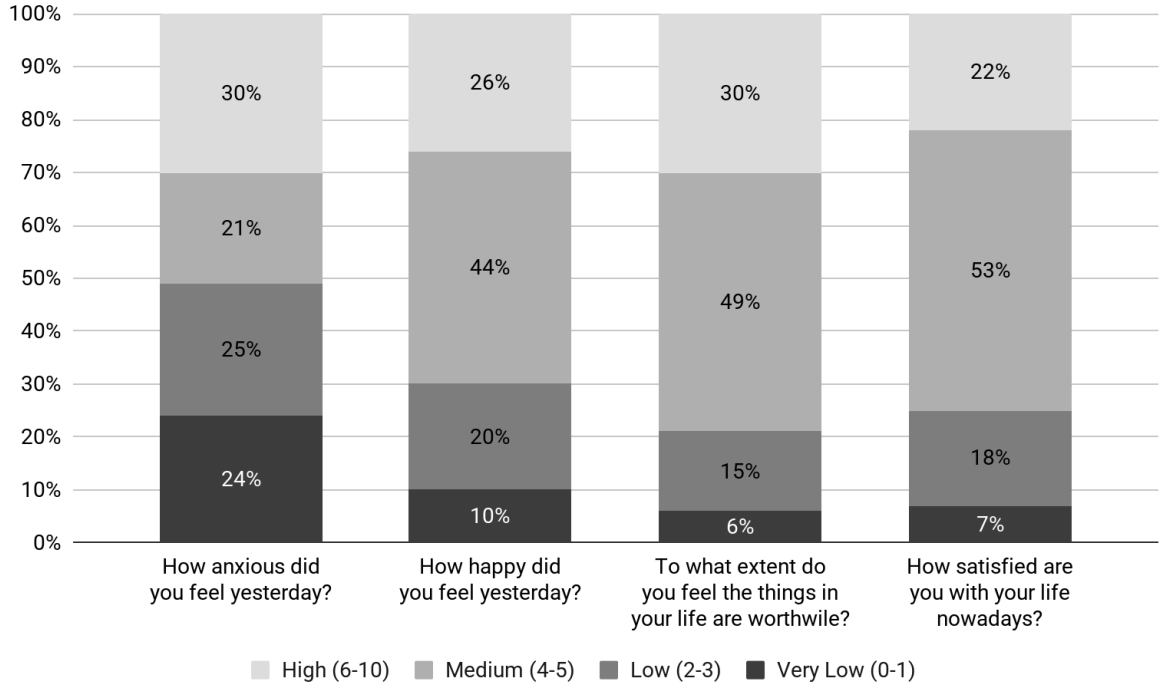
Note. Adapted from "Chart 14 - Graduates Working for an Employer in the UK by Qualification Required for the Job and Skill Group," by HESA, 2024 (https://www.hesa.ac.uk/data-and-analysis/graduates/chart-14).CC BY 4.0 by Jisc.

Figure 1. *UK-GOS: Respondents' Reflections on Their Activities to Date*



Note. Adapted from "Figure 17 - Graduate Reflections," by HESA, 2024 (https://www.hesa.ac.uk/data-and-analysis/sb268/figure-17). CC BY 4.0 by Jisc.

Figure 2. *UK-GOS: Respondents' Reflections on Their Subjective Wellbeing*



Note. Adapted from "Chart 10 - Graduates' Subjective Wellbeing by Activity," by HESA, 2024 (https://www.hesa.ac.uk/data-and-analysis/graduates/chart-10). CC BY 4.0 by Jisc.

Australia

Similar objective employment information is initially captured in Aus-GOS, focusing on whether the respondent worked in the last week, and if so, the nature of this work, whether they have been seeking work in the last four weeks, and whether they are available for work. Factual data on the hours worked is collected, and respondents are also asked whether they would prefer to work more hours and, if not, to select from a list of reasons to explain the number of hours they work. This list allows the respondent to identify factors that may be affecting their workforce participation, allowing a more nuanced picture of their broader activities to emerge and potentially helping to identify systemic barriers to workforce participation.

The main reasons for working in jobs that underutilise skills or education fall into two categories: labour market factors and personal factors. Among domestic undergraduate graduates, the most common labour market reason was that the job served as a career stepping stone (Table 5). This suggests that graduates are willing to accept jobs that temporarily underutilise their skills, expecting to move on to more suitable roles later. For personal factors, many graduates reported being satisfied with their current job, indicating that despite the underutilisation of their skills, the job met other important criteria and provided benefits unrelated to career progression. These trends were consistent across genders.

Table 5. *Undergraduates' Main Reason for Working in a Job That Does Not Fully Utilise Skills and Education 2023*

Reason	% Full-Time Employment	% Overall Employment
Personal Factors		
Studying	6.4	20.7
I'm satisfied with my current job	14.7	10.9
For financial reasons	8.2	5.5
Caring for children or family member	1.3	1.7
Travelling/gap year	1.0	1.3
Other personal factors	0.4	0.4
Subtotal	32.0	40.5
Labour Market Factors		
No suitable jobs in my area of expertise	7.2	8.5
No suitable jobs in my local area	6.0	6.7
Considered to be too young by employers	2.1	1.3
Considered to be too old by employers	0.5	0.4
Not enough work experience	9.8	9.9
No jobs with a suitable number of hours	0.6	1.1
Entry level job/career stepping stone	27.8	18.3
Other labour market factors	1.2	1.2
Subtotal	55.2	47.4
Other Factors	12.7	12.1
Total	100.0	100.0

Note. Adapted from "Table 15, Australian Graduate Outcomes Survey," by Quality Indicators for Learning and Teaching, 2024, p.34, *2023 Graduate Outcomes Survey: National Report*. (https://qilt.edu.au/docs/default-source/default-document-library/2023-gos-national-report.pdf?sfvrsn=5925e306_2). Copyright by the Social Research Centre Pty Ltd and the Commonwealth of Australia.

Graduates are subsequently asked on a 5-point Likert scale about their agreement with a series of statements. These statements consider whether they needed their education, training, and knowledge in their job and whether they use their skills and abilities. Where respondents indicate that they feel they have more skills or education than needed for their current role, they are asked to reflect on the reasons for this, again incorporating factors such as caring duties, a lack of suitable jobs in their specific location or area of expertise, further study commitments, and a long-term health condition or disability, as outlined in Table 6. The questions also allow them to identify that this is a "career stepping stone" or to highlight that their work experience or residency status affects their ability to take a more senior or relevant role. This is an opportunity for reflection and a subjective assessment of their current career position.

Table 6. *Main Reason for Not Working More Hours, of Undergraduates Employed Part-Time by Preference for More Hours 2023 (% of those employed)*

Reason	Seeking More Hours	Not Seeking More Hours
Personal Factors		
I'm satisfied with the number of hours I work	0.0	34.9
Studying	18.2	38.8
Health issues	0.8	1.8
Caring responsibilities	4.2	10.2
Pursuing other interests	0.0	7.9
Subtotal	23.2	93.6
Labour Market Factors		
No suitable jobs in my area of expertise	9.5	0.7
No suitable jobs in my local area	4.7	0.3
Considered to be too young by employers	1.0	0.0
Considered to be too old by employers	0.8	0.0
No jobs with a suitable number of hours	4.7	0.2
No more hours available in current position	43.7	3.6
Subtotal	64.4	3.6
Other Factors	12.4	2.8
Total	100.0	100.0

Note. Adapted from "Table 2, Australian Graduate Outcomes Survey," by Quality Indicators for Learning and Teaching, 2024, p. 6, *2023 Graduate Outcomes Survey: National Report*. (https://qilt.edu.au/docs/default-source/default-document-library/2023-gos-national-report.pdf?sfvrsn=5925e306_2). Copyright by the Social Research Centre Pty Ltd and the Commonwealth of Australia.

Agreement with statements about the extent to which the graduates' skills are being utilised can be used to measure perceptions of overqualification. In 2023, 38% of graduates felt that their jobs did not fully utilise their skills. However, there are notable differences between those in part-time or casual roles and those in full-time positions. Graduates may be more willing to accept a temporary role for which they are overqualified. However, there are still a large number of graduates accepting permanent roles where they feel underutilised. Among full-time workers, only 27.8% reported that their jobs allowed them to fully utilise their skills and education, and of those, more than half attributed this to labour market factors.

Graduates were also asked to rate how well their degree prepared them for their current jobs. Overall, 74.6% reported that their degrees prepared them well or very well. However, the sense of preparedness varied significantly by degree type (see Table 7). For instance, health sciences degrees scored high on preparedness, with pharmacy topping the list at 92.8%. In contrast, creative arts degrees ranked the lowest, with only 61.2% of graduates feeling well-prepared for their jobs.

Similarly to UK-GOS, respondents are asked whether their qualification is a formal requirement for their role and whether it is important to have the qualification to be able to do the job. Participants are then asked to reflect further on the preparation they received from their HE provider for employment and/or further study, allowing them to provide clear

Table 7. *Domestic Undergraduates' Preparedness by study area. Domestic graduates reporting that their course prepared them well or very well for their current job by study area and study level, 2023 (% of those employed full time).*

Study Area	% Domestic Undergraduates
Creative arts	61.2
Agriculture and environmental studies	64.0
Science and mathematics	67.5
Architecture and built environment	73.4
Computing and information systems	74.3
Health services and support	77.1
Engineering	78.8
Medicine	81.3
Nursing	85.7
Pharmacy	92.8

Note. Adapted from "Table 18. Australian Graduate Outcomes Survey," by Quality Indicators for Learning and Teaching, 2024, p. 38, *2023 Graduate Outcomes Survey: National Report*. (https://qilt.edu.au/docs/default-source/default-document-library/2023-gos-national-report.pdf?sfvrsn=5925e306_2). Copyright by the Social Research Centre Pty Ltd and the Commonwealth of Australia.

feedback and encouraging further respondent reflection on the quality and nature of their course and overall support. Similar questions are included in UK-GOS but are part of the optional question bank.

Discussion

Understanding career success and support

Despite both countries collecting nuanced information about graduates and their outcomes, mainstream reporting frequently focuses on the number of graduates successfully applying for full-time traditional graduate roles in articles such as those from Personnel Today (Faragher, 2024) and Bloomberg (Kehnscherper, 2024). The proportion of graduates moving into full-time graduate-level roles after their course is perceived as an indicator of individual and institutional success and, thus, institutional reputation. This perception is fed by league table publications in the UK, where national newspapers collate data on student satisfaction, career outcomes, staff to student ratios, and more. Reducing these complex responses to headline statistics overlooks the many personal characteristics and factors affecting career journeys, as identified by social cognitive career theory. Background contextual influences such as an individual's economic background, alongside person inputs such as sex and gender, ethnicity, and disability, can create variety in individual understanding of career success and what a positive graduate outcome looks like. Career scholars and researchers recognise this (Heslin, 2005; Shockley et al., 2015), and in practice, career practitioners focus on supporting individuals to achieve positive outcomes for them personally. However, there is a need for the HE sector and providers, in both Australia and the UK, to work collaboratively on broadening student, graduate, and public understanding of the reality of non-linear careers and the multi-faceted nature of career success. This could be achieved through sharing a wider variety of career stories and integrating employability and career development into the curriculum across all course areas.

Such building of awareness and understanding needs to incorporate the many reasons people engage with HE through making better use of the comprehensive, subjective data available from UK-GOS and Aus-GOS. In both countries, career services are critical in supporting students' transition to the workforce and enhancing graduate employment outcomes, yet they remain chronically underfunded and under-resourced. Universities face increasing pressure to demonstrate the employability of their graduates (Andrewartha & Harvey, 2017), but cost-efficiency agendas and governance models have led to significant cuts in support services, which are often outsourced or centralised (Connell, 2019; Croucher & Woelert, 2022). These measures undermine the delivery of the consistent, person-centred support essential for student success. This impact can be even greater for groups facing significant labour market disadvantages, including disabled graduates and those from low socioeconomic status or non-English speaking backgrounds, who can experience lower employment rates, skill-job mismatches, and reduced earnings (Baker et al., 2018). Precarious funding challenges exacerbate these issues, as career services rely heavily on insecure funding. This limits the capacity to attract and retain skilled practitioners while undermining service quality, staff well-being, and job security, ultimately hindering their ability to effectively meet the needs of students and industry.

Understanding environmental influences

Both UK-GOS and Aus-GOS recognise the contextual and environmental factors that align with social cognitive career theory through the inclusion of survey questions focusing on why graduates choose to take certain roles. In the UK graduates are able to identify whether they took a particular role because they were driven by a clear career aim (i.e., "It fitted into my career plan / it was exactly the type of work I wanted") or whether their decision was more pragmatic (i.e., taking a role "In order to earn a living"). In Australia, Aus-GOS encourages respondents to reflect on the realistic considerations related to their workforce participation and to identify where wider contextual and environmental factors might be affecting this, e.g., caring duties or a lack of suitable jobs in their specific location. With 10% of UK graduates saying they took their job due to the need to earn a living and 15% of Australian undergraduates saying they are underemployed, the significance of these pragmatic considerations is clear. Including these subjective measures within each national survey adds to the overall understanding of whether the outcome is a "success" for the individual. This line of questioning increases our understanding of the cultural influences outlined in social cognitive career theory (Lent et al., 2002), particularly the proximal environmental influences that may affect career decision-making. By asking graduates who feel under-employed to reflect on the reasons for this explicitly, the qualitative and subjective questions in the Australian survey, in particular, allow for analysis beyond binary consideration of employment and unemployment, into under-employment and the factors behind this.

Impacts on equity, diversity, and inclusion

Where pragmatic and financial reasons underpin career decision-making, there is a proven risk of getting stuck in that role, with a "scarring" effect on the individual's career (Borland, 2020). Borland demonstrates that there can be long-term negative effects on career progression and well-being for those in this position and that students from under-represented groups are most affected. This could be exacerbated because students from low SES backgrounds typically underutilise university career services, which are critical for gaining labour market information and building essential career skills (Harvey et al., 2020; Karimshah et al., 2013). The impact of career-undermatching extends beyond professional stagnation, with significant implications for overall well-being (McKee-Ryan & Harvey, 2011).

Both background contextual influences and personal inputs are identified as part of the cultural influences that indelibly shape a person's sense of self-efficacy and their outcome expectations. Person inputs have also been shown to link to inequitable graduate outcomes (Bolton & Lewis, 2024; The Sutton Trust, 2021; Toogood, 2025). Quantitative employment data collection allows inequity to be identified, but arguably, the subjective and self-reported data allows for an initial deeper analysis into the barriers experienced. Such an analysis may justify further qualitative work to understand how to dismantle these barriers to support equity, diversity, and inclusion. Therefore, there is a clear need for career learning strategies that address underemployment and policy interventions that consider the evolving labour market for graduates, focusing on the student and graduate groups that have historically been the most vulnerable to scarring (Jackson & Li, 2022).

Conclusions and Recommendations

This paper has demonstrated the value of subjective measures in graduate career surveys. Highlighting that they add to the understanding of career "success" for individuals and support a broader understanding of the graduate labour market and institutional and national outcomes. However, it is also recognised that overly simplistic reporting risks limiting the use and understanding of these rich and nuanced datasets. It is therefore recommended that HE providers work individually and collectively as a sector to report on their graduate outcomes in ways that develop public understanding of the reality of non-linear careers and the risks of scarring.

At the national level, subjective measures can better support the understanding of progress towards equity, diversity, and inclusion in education and the labour market in the UK and Australia, which aligns with national policies. There is scope to use subjective measures in exploring graduate social mobility and outcome gaps; using UK-GOS and Aus-GOS outcomes beyond salary metrics would support a better understanding of these key topics. This would allow a better understanding of equity, diversity, and inclusion in both countries and support the delivery of the aims and objectives of the Universities Accord in Australia (Department for Education, 2024) and the Office for Students' student outcomes expectations in the UK (OfS, 2022).

This awareness-raising also needs to extend to in-curricular and extra-curricular work with students and graduates, led by careers and employability professionals, supported by all academic and professional services staff, and by wider institutional and national policy. In both the UK and Australia, some demographic groups have been identified as experiencing less positive graduate outcomes when outcomes are considered by ethnicity, sex and gender, disability, or SES background. Students from lower SES backgrounds have also been identified as less likely to engage with their university career services. This makes the case for integrating employability in the curriculum so that employability, career, and labour market information become structurally unavoidable in HE. It also highlights the need for well-resourced and supported professional careers teams who can design and deliver the expert careers education, information, advice, and guidance required to support inclusion and equity of outcomes.

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Quality and Impact at Scale

Measuring Career Effectiveness Beyond Participation

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Abstract: Due to scalability and resource constraints, career development efforts at a large higher education institution (10,000 students or more) can be intimidating to implement and assess. However, there are metrics beyond quantitative figures that can measure the impact and effectiveness of services and ways to engage in cross-campus partnerships to reach students across disciplines and backgrounds. This article focuses on assessment questions and methods that can be practically implemented in strategic efforts to collect and use critical data related to career development, experiential learning, and post-graduation outcomes.

Keywords: assessment, evaluation, strategic planning, student services, partnership, collaboration, career readiness

The effectiveness and value of career services work at higher education institutions across the country can be measured in several ways. However, assessment looks different based on the size and scope of colleges and universities and their career development teams. In particular, special considerations need to be made for career services units at larger institutions, where the scalability of services can often conflict with traditional success metrics, thus painting an incomplete picture for stakeholders of all kinds and limiting creativity. This case study highlights the approach one career services department at a large state institution has taken regarding assessment and reporting, identifying proactive solutions, determining program and service effectiveness, collecting and adapting to feedback throughout the year, and considering what may be missing from the complete data-informed picture when recording attendance numbers alone.

Assessment Challenges and Opportunities at a Large Institution

The Carnegie Classification of Institutions of Higher Education defines a “large institution” at the four-year college level as one with an “enrollment of at least 10,000 degree-seeking students” pursuing bachelor’s degrees or higher (American Council on Education, 2024, Large section). At Virginia Commonwealth University (VCU), a large, primarily residential campus, our central Career Services team serves nearly 30,000 students across multiple physical campuses and online mediums as part of a diverse and decentralized R1 (Doctoral - Very High Research) institution. VCU was also designated by the U.S. Department of Education as a Minority Serving Institution in 2022 (Porter, 2022). “55% of [VCU] undergraduate students and nearly half of all students are from minority backgrounds, 37%

of incoming freshmen at VCU are first-generation college students, [and] nearly one-third of all undergraduate students are Pell-Grant eligible" (VCU, 2024, VCU is a Diversity Champion section).

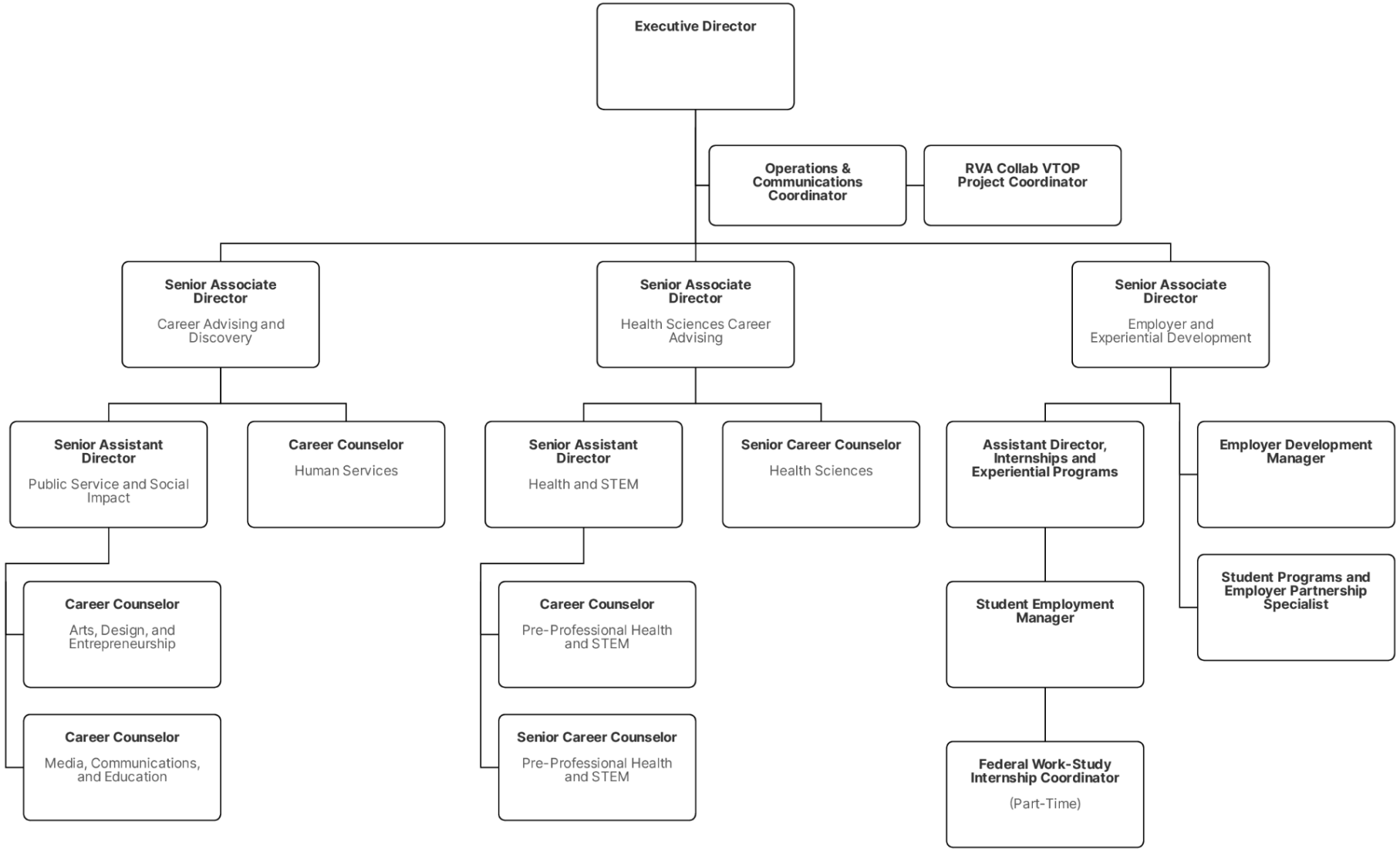
Assessment and reporting play essential roles at higher education institutions of all sizes. Effective collection and utilization of data influences in-demand resource allocation, justification for programs and services, and assists with storytelling that impacts everything from student, faculty, and staff recruitment to garnering internal and external funding and support to grow into the future. However, a significant challenge regarding assessment efforts at a large institution is the sheer scale needed to determine impact and effectiveness, especially when compared with smaller institutions. For example, in career services units nationwide, baseline data collection and reporting efforts typically center around student and alumni utilization of career advising/counseling services (e.g., appointments, drop-ins), attendance at events and programs (e.g., workshops, career fairs, employer information sessions), internship participation data, and post-graduate outcomes ("first destination") information (National Association of Colleges and Employers [NACE], n.d.a). Engaging students at scale can be a tremendous challenge in each of these areas. For example, even if our career advising team of 10 individuals meets with 10,000 unique students over a year–more than many institutions have enrolled as part of their campus community–that means serving just one-third of the VCU student population. A large, in-person career fair may draw over 800 students and feel very robust for the employers and students involved; however, that is less than 3% of the VCU student population directly benefiting from that positive experience. Teaching multiple sections of our 30-seat career development courses still engages a very small subset of students. Administering a campus-wide internship survey and getting 1,000 responses only represents a sliver of what VCU students are doing regarding experiential learning.

Does this mean that assessment and reporting do not have the same positive impact at a large institution, where career services staff-to-student ratios are typically high and it may not be feasible to hire more staff or acquire technology solutions to meet the needs of every enrolled student? Of course not. However, it does mean institutions need to consider success metrics other than percentages of the total population engaged. We will highlight some approaches and best practices later in this article. However, it is still important that we be transparent about the specific challenges that larger institutions face in this area of our work as career development professionals.

Utilizing Strategic Plans to Guide and Prioritize Assessment Efforts

As of 2025, VCU has a hybrid-decentralized model of career services with the central career services office, VCU Career Services (VCS), providing resources to the entire campus community and two other offices funded by and reporting to the School of Business and College of Engineering, respectively. In addition, as seen in Figure 1, a few other staff members across campus report to various units whose roles focus on career coaching, employer/alumni development, internship coordination, and other relevant functions.

Figure 1. VCU Career Services Organizational Chart, Spring 2025



Over the past six years, the VCS team has undergone significant changes, including moving into a newly formed Division of Strategic Enrollment and Student Success in Summer 2020. VCS is currently implementing our second departmental strategic plan under the current leadership, slated to run through Spring 2026. Drafting and executing strategic plans has consistently been a meaningful experience for our team. We often find that while doing the work of our strategic plan, our subgoals ("action steps") shift over time based on scope and staffing. We are willing to let the larger goals take on a life of their own and remain open to changing the work outlined as needed. The purpose of the strategic plan is not to simply say one exists for the department but rather to let the work play out to accomplish our vision to better serve students, alumni, employers, faculty, campus partners, and other stakeholders. Having a strategic plan enables us to easily agree to or thoughtfully decline solicitations and suggestions for collaboration or project work that do not align specifically with our strategic goals. While we may want to participate in everything brought to us by internal and external colleagues, we have to stay focused on the key tasks at hand, and having a strategic plan that guides our work aids us in doing so with intentionality.

In our 2019-2022 strategic plan, our team prioritized assessment efforts by utilizing Ruffalo Noel Levitz' College Student Inventory (Ruffalo, n.d.), Federal Work Study, and Handshake system data to create a target list of students to receive tailored campaign emails. The emails had an open rate between 37% and 68%, far exceeding the standard 23% for the education and training industry, as reported by MailChimp (n.d.). We also used data to track specific promotion efforts to employers and alumni through meetings, emails, and events as we marketed the VCULink networking platform and encouraged them to engage in flash mentoring, which is mentoring students through brief interactions within the site. These strategic items allowed us to target specific populations and share our services when they otherwise may not be aware of them.

Before making measurable changes, we needed to track what we were already doing. Many of our strategic action steps included capturing baseline data for specific success metrics. Once we knew what "typical" looked like for our office, we actively employed strategies to improve outcomes. "Goal One" of our 2022-2026 strategic plan aimed to "honor the intersections between identity and career through engaging, data-driven programs and services." Data-driven was in the name, and assessment has undoubtedly been essential to achieving this goal. The first subgoal aimed to "regularly collect and utilize direct student feedback through multiple mediums to determine impact and effectiveness" through surveys, focus groups, a newly appointed Student Advisory Board, which began in September 2022, and post-event evaluations. In a subgoal centered on developing and designing a career readiness initiative, we added questions related to the NACE Career Readiness Competencies (NACE, n.d.b) to already existing means of assessment, including the first-year and transfer intake survey, the first-destination survey for new graduates, and both the Transforming Federal Work-Study Internship and Work+ on-campus employment efforts. We were able to see tangible impact when we measured our work and added assessment into existing methods.

Additionally, we continued including questions within the VCU Internship Funding Program participants' pre- and post-surveys. We also designed an assessment to survey faculty to learn which NACE Career Readiness Competencies they already actively discussed in the classroom and connected to assignments. By learning what students already knew and which competencies faculty were already teaching, we gained a better understanding of where to start building a career readiness initiative that will educate students.

Multifaceted assessment data provides us with valuable insights we can use to continue to move our work and our strategic plan forward. In truth, assessment is foundational to our team's routine practices. It helps us tell our story to students and key stakeholders throughout the year. We continue to leverage our strategic plan to keep assessment at the forefront of our work.

Best Practices and Lessons Learned

With a staff that is relatively small for the size of our institution (approximately 2,500:1 student-to-career counselor ratio), the VCS team has to be creative and intentional in the ways we provide services to our students and recent graduates, as well as how to collect, analyze, share, and utilize critical data internally and externally to make improvements and a positive impact. Our assessment, reporting, and program enhancement efforts have focused on key areas: advising, programming/events, career readiness, and first-destination and career success beyond salary and foundational questions.

Career Counseling/Advising

More than a decade ago, our career counseling team moved from a "major model" to an "industry model" regarding the way we serve students, engage with faculty and academic departments, and hone subject matter expertise in different fields. We wanted our approach to career advising to reflect the growing trend in career services to designate career pathways by related areas of interest that could cross the boundaries of academic disciplines (Dey & Cruzvergara, 2014). With this in mind, we developed the following industry areas: Arts, Design & Entrepreneurship, Education, Human Service, Healthcare, Media & Communications, Public Service, and Science, Technology, & Math. Each of our career counselors has an industry specialty area and also serves as a career counseling generalist, supporting any student who reaches out to connect and ask questions. This approach has helped us better serve students and recent alumni by allowing them to prioritize industry specialty or schedule availability when booking advising appointments.

When considering scale at a large institution, VCS career counselors have diligently provided industry-specific resources for our department website so students can access what they need at any hour. Our goal is to empower students to access information in a 24/7 manner rather than requiring them to book an appointment to feel supported. Similarly, our office hosts drop-in hours throughout the academic year where students and recent alumni can stop by our suite without an appointment for a quick 15-minute coaching session with one of our Peer Career Advisors (PCAs). Regardless of whether students or recent alumni meet with us in an appointment or a drop-in session, we disseminate a post-meeting survey to assess their experience and ask for their feedback, as shown in

Appendix A. An advising satisfaction survey is automatically deployed via Handshake after career counselors mark individual appointments or drop-ins as complete.

We have adapted our approach to better serve our campus community based on student and alumni feedback. Examples include shifting our appointment hours to prioritize offering more options in the late morning and afternoon, adding a new appointment type for interview skills, and playing music in our lobby to create a welcoming environment. Students utilize the interview skills appointment type, and our front desk manager reports that students engage by asking us what music we are playing in the waiting area. Some have even asked if there is a shared playlist that they can add music to themselves. These small, student-led changes cost us nothing to provide and enhance their interactions with our office.

As many institutions looked to retail to begin offering a net promoter score, VCS incorporated a version of that question into our advising satisfaction survey (Dey & Cruzvergara, 2014). By asking for specific insights, we can share student and recent alumni feedback quickly with career counselors so they can make necessary adjustments. This immediate feedback allows us to remain agile and responsive and more effectively tell the story of our impact to leaders within our division. Our team submits an annual technology fee proposal that includes testimonials of students' positive experiences using the VCU Handshake system. We utilized assessment to stop scrambling to email interested students for feedback each year and instead added a question about Handshake to the advising satisfaction survey. Using the data we collect from this survey, we can quickly and easily find student stories to feature in our proposal.

Career Programming/Events

With a campus of our size, we are constantly thinking about scale, so our collective goal is to serve more students through programming and events than through individual advising. We can effectively reach more students via classroom presentations, workshops, and career fairs than via 1:1 advising appointments. For example, in April 2023, we met with 542 students in advising and nearly double (1,021) in programming. Keeping this approach in mind, we measure many different aspects of student engagement, including tracking monthly program counts and attendance. We then report our numbers to one another, and anyone can share what factors they see contributing to whether our numbers were up or down. For example, in the past 5 months, we stopped reporting on pre-professional health online learning modules as part of our programming data because our institution launched pre-health minors. Creating pre-health minors was an innovation grant project that was actualized because one of our team members saw a need for it and made it happen. The creation of pre-health minors will help students to chart out which classes they need to take. Conversely, our pre-health Canvas modules are no longer relevant since the minors have replaced them. As a team, we anticipated that our program numbers would drop, but for a very good reason.

Additionally, we assess every event we implement. It is not enough to feel like we did a good job; we want proof and to learn where we can improve. After every class presentation and workshop, we share a slide with a QR code that takes participants to an

evaluation. This evaluation has continued to evolve as we learn from students, alumni, and the broader career development field. In this survey, shared in Appendix B, we ask, “Tell me the most important thing you learned during this workshop,” to gather data that lends itself to storytelling. Students’ answers to this question also help us refine content. Sometimes, something we may say in a session becomes a student's main takeaway, so we find ways to incorporate that content into other programs. In James Clear’s *Atomic Habits* (2018), he shares that people are more likely to follow through on a goal if they write it down. Therefore, we ask, “What is the one action you will take as a result of attending this workshop?” We hope that by reflecting on this one action in the moment, students and recent alumni will follow through on completing an action they picked for themselves. We were also curious whether learning was taking place in our programming, so we added the following question with a Likert scale choice of responses: “I feel more informed on this topic than I did beforehand.” We wanted to know whether students already knew the content or truly learned something new. Lastly, student feedback is imperative, so our last prompt is “Feedback for presenter (positive and/or constructive).” Presenters often receive overwhelmingly positive feedback, and sometimes, they can spot input specific to their style (i.e., speaking too softly or too loudly), which helps them polish their presentations. Moreover, because the survey is anonymous, we hope students are more likely to be honest with us.

Career Readiness

Career readiness is at the heart of what we do. Many of our strategic plan goals have centered on career readiness. We have been working to infuse career readiness across campus using NACE’s Career Readiness Competencies as a guidepost.

“Goal One” of our 2019-2022 strategic plan aimed to “infuse career and professional development into campus culture” (VCU Career Services, 2022a). We knew students were having career development conversations with faculty and staff all over campus, and we did not want campus partners to feel compelled to funnel everyone through our office, especially with the capacity constraints previously mentioned. Instead, we wanted to equip faculty to enhance the conversations they were already having with students. With this in mind, our team developed a training program for faculty and staff to empower them to have career-related discussions with students and to expand our department’s reach across campus.

What started as a fairly academic undertaking consisting of pre-tests and post-tests for participants evolved as we gathered feedback from our certified “VCU Career Champions” to make changes continuously. We originally asked all participants to take a pre- and post-test within a Canvas module for each of the three VCU Career Champions training sessions to track whether learning was taking place. We found that pre- and post-test completion was sporadic. Furthermore, we found that sometimes participants’ knowledge decreased after the session due to the wording of the questions. Participants even wrote in their post-surveys that while their post-test scores did not show improvement, they believed they learned a lot from the session. We considered their feedback and looked at other train-the-trainer sessions across campus, such as Rams in Recovery, which focuses on supporting students recovering from substance use disorder, and Green Zone training,

which prioritizes aid for military veterans or military-affiliated students. None of them had a pre- or post-test, and we chose to begin measuring learning by asking participants directly in their post-survey. We also noted how difficult it was for participants to get to three separate sessions and that tracking their attendance for each session caused more administrative work for us. After a pause, we decided to continue the work of the training program in our 2022-2026 strategic plan, relaunching with a new format in Fall 2023 and continuing to gather data and refine the experience. Our training now includes one three-hour session rather than three separate one-and-a-half-hour sessions, which has increased participation and completion overall. As of January 2025, our team has trained 147 VCU Career Champions.

Additional career readiness-related work included creating tailored, individualized Handshake email campaigns to educate students and encourage them to be proactive in their development. These campaigns have increased drop-ins and appointments.

In our 2022–2026 strategic plan, "Goal Two's" central message is to "champion career readiness and student success through education and outreach." Our team conducted benchmarking on peer institutions' best practices for incorporating career readiness into their campus culture and began to investigate what could work for our campus. Our College-to-Career (C2C) Blueprint started as a grant-funded pilot project between VCS, VCU REAL (Relevant, Experiential, and Applied Learning), and VCU's Department of Psychology within the College of Humanities and Sciences, focused on infusing career readiness and internship experiences into the academic curriculum. As part of this project, VCS team members partnered with faculty and staff to map out how the current core curriculum within the department aligned with the NACE Career Readiness Competencies (NACE, n.d.b) and then evaluate areas for future growth and development to give students a well-rounded, relevant learning experience within the major. Since then, nine additional departments within the College have committed to similar Blueprint initiatives/projects with our team, helping to bring career readiness and internship preparation directly into the curriculum through thoughtful assessment and planning.

Post-Graduation Outcomes

Each May graduation cohort at VCU comprises approximately 4,000 students, including bachelor, master, and doctorate degree-level graduates. In 2018 when VCS first became strategically involved in the creation, distribution, marketing, and campus engagement for the annual VCU First-Destination Survey, in partnership with Institutional Research and Decision Support (IRDS), response rates hovered close to 30%, not providing a representative sample of graduate outcomes for the campus community. While we saw notable increases in response rates in the first year through the platform changes and intentional marketing efforts alone (from approximately 31% in 2018 to 50% in 2019), partnering directly with over a dozen different schools and colleges at VCU on branching survey questions, student response rate strategies, and regular data updates has made the most significant difference. Since collaborating and approaching the survey more intentionally, including building and sharing it through the Handshake platform, we have collectively increased the combined data rate (via direct responses and knowledge rate data sources) to 78% of the graduation cohort.

As part of our core institution-specific questions, we ask graduates about their experiential learning participation while at VCU. 77% of the 4,154 May 2023 graduates participated in at least one experiential learning opportunity, and 32% were offered full-time employment based on those experiences. We also asked about the relation of their post-graduate plans to their program/field of study (92% related) and individual career goals (93% related). We gauge their satisfaction with their employment or continuing education plans (90% satisfied). We also ask if they want to take advantage of the career advising and other resources available to recent alumni, then follow up with respondents accordingly. Beyond the typical metrics of employment versus seeking status, these questions help us understand the alignment between students' expectations and what VCU can provide related to career and professional development, as well as proactively reach out to individuals to provide support in the months after graduation. Additionally, IRDS created and now updates an internal First-Destination Survey Data Dashboard bi-annually that all VCU faculty and staff can access for recent and year-to-year comparisons on post-graduation outcomes data down to the academic major/department level.

Approaches Beyond Traditional Methods and Metrics

As part of the aforementioned strategic plan action group work over the last few years, one of our core strategies for moving our work forward has been to "refine program and service feedback and evaluation process to amplify student participation and representation, including increased support for underserved student populations" (VCU Career Services, 2022b). To achieve this strategy, the team set a specific action step to "regularly collect and utilize direct student feedback through multiple mediums to determine impact and effectiveness" (VCU Career Services, 2022b). As project work began on this action step, the team faced the critical question of how exactly we would and should determine the impact and effectiveness of our work with students beyond the traditional measures of engagement and post-graduate outcomes cited above. Through collaboration and consultation with assessment experts within the Provost's Office and Academic Affairs at VCU, the project team came up with 12 metrics that could both easily be tracked for progress over time and would directly speak to the ways we wanted to connect with and receive feedback from students, both directly and indirectly.

We decided to track engagement metrics throughout the 2022-2026 VCS strategic plan. They included those related to student engagement with our Handshake system and the employment opportunities available therein (internship, full-time, and federal work-study applications), as well as student feedback survey responses throughout the year (seeking an increase in positive responses and decrease in negative responses overall). Additionally, we have been tracking campus partner relationship development, classroom presentation requests from faculty/staff instructors across campus, website and newsletter engagement, and whether or not we are effectively closing originally-established equity gaps in service engagement with specific at-risk or underserved populations in our campus community. We now actively track relevant data points annually to see how we are on course and trending along the way, with the ability to note and address any issues that arise and celebrate wins when we meet our minimum and stretch goals in specific categories.

There are so many ways for students, alumni, employers, and campus community members to engage with a career services office and for us to make a difference to our stakeholders and their experiences. When approached strategically and consistently, assessment efforts paint a compelling picture of what is working and what needs improvement and ensure that the data we collect is utilized appropriately throughout the year as needs and resources change.

Future Considerations

Career services will continue to be evaluated in specific, meaningful ways in the years ahead related to the return on investment for earning a college degree. We can tell an impactful story about student, employer, and campus-community engagement with our resources and services, as well as how student outcomes (including career readiness and first destinations) are improving over time, addressing any barriers to success or new resource needs that arise along the way. As the VCS team has aimed to do over the last few years, we encourage similar units at other large institutions to regularly evaluate assessment practices, including working with campus experts, to ensure you measure impact and effectiveness appropriately for your specific student population and campus community. Do not be afraid to admit that your practices or measurements need updating or highlighting where you are falling short and how you can address it thoughtfully.

At a large institution, career services ability to work at scale means utilizing technology and communications, leaning into programming, events, and campus partner engagement to reach students beyond one-on-one appointments, and measuring impact and effectiveness in ways that go beyond attendance numbers. Suppose you measure success only by what percentage of the student population accesses your services in person, for example. In that case, you will be missing out on understanding how students want to and are actively engaging with your team and offerings in other ways, including through intentional, broader partnerships. Meeting students where they are – the classroom, their student organizations, their on-campus student employment roles, social media, and online in general – and making sure your services are accessible and not missing certain students along the way will enable you to offer career services at scale in a way you can be proud of, no matter the size of your student population or department staff.

Conclusion

As career services operations strive to meet the ever-changing needs of students, alumni, employers, and campus and community partners, assessment can be a major tool for success if approached with intention and customized to the institution itself. This shapes and refines the story that needs to be told to ensure impact and effectiveness. Strategic planning can set long-term goals and keep work throughout the year within scope for reaching those goals. While program attendance, service utilization, and post-graduate outcomes are common baseline data collection areas for many career services departments, there are ways to assess and frame each of these success metrics in ways that set up larger institutions to get a better picture of engagement and what needs to be improved to meet critical milestones. Additionally, thinking about other ways and areas of work to assess the quality and growth for career services departments ensures that

resources are cultivated and allocated in the right direction to serve the broader campus community and institutional goals. Ideally, this article provides a few new perspectives and ideas for larger institutions to consider in their assessment efforts, helping increase the support for student success at colleges and universities nationwide.

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Production editing for this article was completed by *JSAIII* Editor, Heather J. Strine-Patterson, as part of the journal's commitment to publishing quality scholarship with care and consistency.

Appendix A
Advising Effectiveness Survey with Branching Questions

Automatically collected data includes student ID, name, date and time, and email address.

Primary Questions for Branching

- Did you have an advising appointment or drop-in?
    - Drop-ins (branches to *Peer Career Advisor Questions*)
    - Appointment (branches to *What type of appointment did you have?*)
- What type of appointment did you have?
    - Suit Yourself Appointment (branches to *Suit Yourself Questions*)
    - All Appointments, other than Suit Yourself (branches to *Advising Questions*)

Peer Career Advisor Questions

- Which Peer Career Advisor did you meet with for your drop-in?
- The Peer Career Advisor was able to accurately answer my question(s) and refer me to appropriate resource(s).*
- The Peer Career Advisor encouraged me to ask questions and discuss concerns.*
- I left my drop-in session with a clear next step.*
- Any additional feedback or a shout-out for the Peer Career Advisor?
- I would recommend the Peer Career Advisor to a friend or classmate.*

Suit Yourself Questions:

- I was able to find the item(s) I was looking for.*
- What item(s) were you looking for during your visit?
- The selection of clothing and accessories was inclusive.*
- The quality of the clothing met my expectations.*
- What is one way we can improve our Suit Yourself closet?
- I would recommend the Suit Yourself closet to a friend or classmate.*

Advising Questions

- Which Career Advisor did you meet with?
- I was able to meet with the advisor at a time that was convenient for me.*
- If I had specific questions and concerns in mind during your session.*
- I left my career advising session with a clear next step.*
- Any additional feedback or a shout out for the Career Advisor?
- I would recommend the advisor to a friend or classmate.*

Front Desk Questions + Net Promoter Score (seen by all students and recent alumni)

- The front desk staff assisted me promptly.*
- The Career Services front staff was welcoming and approachable.*
- The office space was accessible for my needs/requirements.*
- I would recommend Career Services to a friend, roommate, or classmate.*
- What is one way we could improve our office/waiting area if you visited our office?
- If a front desk staff member wasn't able to assist you, did they refer you to an appropriate resource/person?
- If applicable, how has Handshake been a helpful tool in your career development or job/internship search process?
- Any additional feedback or a shout-out for the front desk/office?

* All scaling options consist of: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, and N/A.

Appendix B
Programming Evaluation

1. Enter the number provided by your presenter.
2. Tell me the most important thing you learned during this workshop:
3. What is the one action you will take as a result of attending this workshop?
4. I feel more informed on this topic than I did beforehand.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
5. Feedback for the presenter (positive and/or constructive):

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Moving Past Utilization

Understanding Proactive Career Behaviors and Satisfaction with Career Services

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Abstract: This study examined the impact of proactive career behavior on career readiness and career goal attainment among college students. It was hypothesized that students who engage in career interventions possess higher levels of proactive career behaviors. In addition, inferential statistics were used to discover if a higher degree of career engagement correlated with students' perceptions of career interventions, their impact on career readiness and career goal attainment, and satisfaction with services. Results highlight students' self-reported engagement in proactive career behaviors and uncovered an unexpected outcome - differing levels of engagement in internal versus external behaviors.

Keywords: career engagement, career decision-making, proactive career behavior, career services

Tracking and assessing student outcomes has become common for higher education administrators. Stimulated by enrollment declines, consumer doubt about the benefits of education, highly publicized college rankings, and Federal mandates for completion, many units on college campuses have started tracking and assessing outcomes (Kushimoto, 2010). This includes college career centers that contribute to student success by helping students attain gainful employment after graduation (Hammond, 2001). Historically, college career centers focused on assessing student utilization and satisfaction by administering surveys after workshops, career fairs, and other programs. Since the Great Recession, more focus has been on universities to report student career outcomes and related assessment measures (Irwin et al., 2019). Moreover, the focus on assessment has also put a spotlight on understanding the career competencies students are garnering through career development interventions and requires career center professionals to move beyond assessing utilization to focusing on career outcomes.

At the University of Baltimore (UBalt), a public institution in an urban area serving non-traditional commuter students, the Career and Internship Center (CIC) takes a holistic approach to assessing student learning outcomes and unit effectiveness. This holistic approach to assessment includes tracking utilization, satisfaction, engagement, learning outcomes, and employment-related outcomes, including internships, student employment, and first-destination data. In addition, the CIC conducts a unit effectiveness study every five years in conjunction with UBalt's regional accreditation review. Moreover, to develop a stronger understanding of students' career engagement behaviors, an empirical study was completed on students' proactive career engagement behaviors (Mathews, 2022). The

study sought to understand what proactive career behaviors students engage in inside or outside of career services and if students with strong proactive career engagement behaviors are more satisfied with career services. The study's results helped the CIC move past assessing utilization and satisfaction to studying students' career behaviors and motivations. An unintended outcome of the study was insight into which career behaviors students are more or less likely to engage in to advance their careers. (Mathews, 2022).

The Case for Engagement

Since the Great Recession, some institutions have successfully re-designed career services offices and added additional resources to career centers (The Council for Adult & Experiential Learning, 2018). However, across institutions in the United States, many students still do not engage in the services offered by their career centers. One reason for this lack of engagement is that career centers are a support service students must intentionally choose to engage in (e.g., opt-in services). Unfortunately, the lack of engagement in support services, like career services, can negatively impact student success (Hoyt, 2021).

As a campus resource that students can optionally utilize, educators relegate engagement in career development to students' ability to display proactive career behaviors. However, career center administrators rarely assess proactive career behavior among college students. Moreover, the literature is lacking regarding students' motives to engage in career development and the impact of career interventions on student success (Jackson & Tomlinson, 2019).

Literature Review

Stakeholder expectations concerning career outcomes have increased since the Great Recession (Ratcliffe, 2015). Student success is no longer solely defined by persistence and completion but also by gainful employment rates (Kim et al., 2014). The focus on career outcomes, coupled with the rising cost of higher education, has made college career centers a focal point on many campuses, where they help build students' career readiness and work to impact gainful employment post-graduation (Ratcliffe, 2015). As a result, career center administrators are constantly seeking to increase student engagement in career services, regardless of their opt-in status.

The shift to focusing on career services in higher education has been well established in mainstream, opinion-based literature surrounding education issues; however, research-based evidence linking career services' engagement to career readiness and career attainment is lacking. Currently, there is little evidence proving a clear connection from a theoretical perspective concerning students' outcomes and college students' engagement in career services (Hirschi & Freund, 2014). The lack of research linking career interventions and career services to students' career outcomes may be due to the large number of variables found in the literature, which prevents the ability to compare studies (Sampson et al., 2013). In addition, the definitions and competencies associated with key variables, such as engagement, career readiness, career goal attainment, and underemployment, lack consistency across the literature (Hilbrecht et al., 2017).

Proactive Career Behavior and Opt-in Career Services

One variable that can provide insight into students' engagement in career services is proactive career behavior. Though some institutions may require academic advising or career-related courses, overwhelmingly, students display self-motivation to access the programs and services offered in career centers. Inasmuch, students' goal orientation and internal motivation might impact students' decision to engage in opt-in career service interventions. Therefore, the proactive career behavior of students is worth investigating to increase engagement in the services and resources offered by a career center.

Proactive career engagement is "the degree to which somebody is proactively developing his or her career as expressed by diverse career behaviors" (Hirschi & Freund, 2014). This includes engaging in various career management activities and displaying career behaviors such as career planning, self-exploration, and networking (Hirschi & Freund, 2014). Proactive career engagement focuses on the degree to which students display career management activities and behaviors to accomplish their goals (Chan et al., 2013). In addition, several variables intersect with proactive career behavior including career adaptability (Spurk et al., 2020), values (Jackson & Tomlinson, 2019), motivation (Parker et al., 2010), career success (Hilbrecht et al., 2017), goal setting (Clements & Kamau, 2018), personality (Brown et al., 2006), self-efficacy (Kim et al., 2014), and career maturity (Sampson et al., 2013).

Methodology

This study utilized a quantitative research design methodology featuring descriptive and inferential statistics to describe proactive career engagement. Several variables were examined, including satisfaction with college career center interventions, perception of the impact career services have on career readiness and career goal attainment, and proactive career behavior, specifically focusing on results concerning proactive career behavior.

Study Context and Level of Analysis

Data analysis was conducted using a multi-pronged approach. First, descriptive statistics explain the composition of the respondents and their reported satisfaction levels with career interventions administered by career services, including describing the frequency distribution of the student sample by demographic make-up, such as class level, race, age, and college affiliation (major). Frequency distribution allows for counts and percentages of each individual participating in the study (Remler & Van Ryzin, 2015). Second, measurements of central tendency, including mean, mode, and median, describe respondents' satisfaction with career interventions. This measurement included calculating the distribution spread for satisfaction in relation to the mean by group (Remler & Van Ryzin, 2015).

Inferential statistical calculations determine if a relationship exists between satisfaction with career interventions and perceived impact on career readiness and career goal attainment compared with proactive career engagement. Specifically, the Pearson correlation (Pearson's *r*) determined the strength and empirical relationship between the variables (Remler & Van Ryzin, 2015). Correlation was selected for this study because it is a

unit-free measure that compares two different variables (Remler & Van Ryzin, 2015). This comparison includes exploring the similarities and dissimilarities between two data sets–in this case, proactive career engagement and satisfaction with career interventions (Kothari, 2004).

Participants' Information

The population targeted included students currently enrolled at UBalt. The CIC asked students who scheduled and attended an appointment with them to voluntarily participate in the study after engaging in various opt-in career interventions. The potential participants included a diverse group of students, as UBalt is the most racially diverse institution in the University System of Maryland (UBalt, n.d.). The institution also has several unique characteristics, including serving adult learners, being a non-residential commuter campus, and being located in an urban setting. Student demographics were self-reported and analyzed by group, including class year (undergraduate or graduate), college (Arts and Sciences, Public Affairs, and Business), race, and age.

For the 2020-2021 academic year, the UBalt's student body consisted of approximately 4,000 students. The 700 students majoring in law and not served by the main CIC were excluded from participating in this study (UBalt, n.d.). Of the non-law students, 34.3% are in Business, 29.5% in Public Affairs, and 21.4% in Arts and Sciences (UBalt, Office of Institutional Research, 2019). Regarding the class level, 1,917 were undergraduate students, and 1,530 were graduate students (UBalt, n.d.). In addition, the average student age is 28 for undergraduate students and 33 for graduate students (UBalt, n.d.). Lastly, of the students currently enrolled at the UBalt, 45% are Black, 39% are White, 6% are Hispanic, 5% are Asian, and 4% are multi-racial (UBalt, n.d.). Student participants reflected the overall student body, including 55% Black, 23% White, 7% Hispanic or Latino, 5% Asian, and 9% Multi-racial (Mathews, 2022).

Demographics

The Proactive Engagement Scale survey was administered to 229 students engaged in services offered by the CIC over an eight-week period. Of the 229 documented cases, 181 were considered one-on-one coaching sessions. A total of 75 respondents participated in a career intervention and opted to complete the survey, resulting in a 41% response rate. Of the 75 respondents, 30 (40%) were enrolled in academic programs at the Yale Gordon College of Arts and Sciences (CAS), 24 (32%) were enrolled in programs at the Merrick School of Business (MSB), and 16 (21%) were enrolled in programs at the College of Public Affairs (CPA). Five (7%) students opted not to report their academic program. Data on the class level was also collected. Of the 75 respondents, 39 (55%) were undergraduate students, 24 (32%) were graduate students, 10 (13%) were recent graduates, and two (3%) identified as certificate or continuing education students.

Data were also collected on respondents' ages and race. The ages gathered were divided into nine categories to replicate the UBalt demographic reporting standards. The groups included: 16–18, 21–22, 23–24, 25–29, 30–34, 35–39, 40–44, 45–49, and 50–54. Table 1 displays the distribution of age ranges for all respondents.

Table 1. *Number of Respondents by Age*

Age	*n*	%
16–18	7	9.3
21–22	5	7.0
23–24	3	4.0
25–29	21	28.0
30–34	14	18.6
35–39	12	16.0
40–44	2	2.6
45–49	2	2.6
50–54	2	2.6
Unknown	7	9.3
Total	75	100.0

Participants selected for this study were currently enrolled students at the UBalt who opted to engage in a career intervention in the CIC in the fall of 2021. The participants scheduled an appointment with a professional staff member in the CIC for a pre-selected career intervention. The student scheduled an appointment through the CIC's Career Management System, UBworks, and was required to select a specific career intervention from the list of offerings:

- Career Change Assistance
- Career Closet
- Decide Career Path/Major
- Graduate School Planning
- Internship Assistance
- Interview Preparation
- Job Location & Development
- Job Search Assistance
- Leadership Development
- Myers-Briggs Type Indicator (MBTI)
- Networking Strategies
- On-campus Employment
- Practice Interview
- Professional Development
- Professional Headshot
- Resume/Cover Letter/Development/Review
- Salary Negotiation
- Self-branding & Marketing
- Strengths
- Take/Review Career Assessment

The aim was to have a sample population of between 100 and 200 students participate in this research study. On average, 500 students from the UBalt engage in interventions administered by the CIC per semester (CIC, 2020).

Measuring Career Engagement

The Career Engagement Scale (CES) developed by Hircshi and Freund (2014) to measure career engagement in college students was selected for this study. The scale isolates proactive career behavior from distinct career components, such as career management,

career planning, or career exploration (Hirschi & Freund, 2014). The CES defines career engagement as "the general degree of being engaged in different career management behaviors" (Hirschi & Freund, 2014, p. 578). The entire nine-item scale for measuring proactive career engagement was used in this study. The nine questions are all prefaced with the statement "To what extent have you in the past six months" (Hirschi & Freund, 2014):

1. Actively sought to design your professional future
2. Undertook things to achieve your career goals
3. Cared for the development of your career
4. Developed plans and goals for your future
5. Sincerely thought about personal values, interests, abilities and weaknesses
6. Collected information about employers, professional development opportunities or the job market in your desired areas
7. Established or maintained contact with people who can help you professionally
8. Voluntarily participated in further education, training or other events to support your career
9. Assumed duties or positions that will help you progress professionally. (p. 580)

Validity of the Career Engagement Scale

Hirschi & Freund (2014) took several steps to develop the nine items included in the CES. First, a literature review was conducted concerning self-directed career management, career self-management, and career competencies. Second, six career behaviors were identified from the literature review that described proactive career behaviors. The six career behaviors identified were career planning, career self-exploration, environmental career exploration, networking, voluntary human capital/skill development, and positioning behavior (Hirschi & Freund, 2014). Third, a deductive item generation strategy was utilized by creating three items for each behavior mentioned above, followed by a pilot test with a group of 24 university students. The pilot test had a (M = 22.5, SD = 2.3), and the feedback garnered was utilized to narrow each set of three questions for the six career behaviors down to one question for each behavior (Hirschi & Freund, 2014). In addition, the authors decided to add three general career engagement questions to the six career behaviors, arriving at the nine-item scale. Fourth, a five-point Likert scale was used to show the degree to which someone is engaged in proactive career behavior, ranging from "almost never" to "very often."

The revised version of the CES was administered to 146 German university students to assess the factor reliability and establish the scale's unidimensionality (Hirschi & Freund, 2014). The completed analysis resulted in an item correlation ranging from .35 to .77, showing that the items were reliable in measuring a one-dimensional construct (Hirschi & Freund, 2014). A second pilot test was administered with a larger, more homogenous sample of 2,027 students to test the finalized one-factor structure of the nine-item scale and to assess invariance across gender. This version of the scale resulted in a total sample Cronbach's alpha of .88, indicating good internal consistency for the one-dimension CES (Hirschi & Freund, 2014). The average scale scores (item means) were 3.08 (SD = 0.86) for the total sample, 3.09 (SD = 0.87) for the female group, and 3.04 (SD = 0.85) for the male group.

Results

Career Services Requested

Students had to identify which career interventions they requested and/or participated in during their appointment. Students selected from 19 service options and could select all that applied. Twenty-six (35%) respondents reported receiving *resume/cover letter development or review services*, 14 respondents (19%) utilized *job search assistance*, 13 respondents (17%) utilized *career change assistance*, and 11 respondents (15%) utilized *professional headshots*. Table 3 represents the career intervention services utilized by all respondents. Respondents indicated that they utilized all 19 services throughout the study, with r*esume and cover letter development* selected the most.

The findings demonstrated that students at the UBalt who engaged in career services in the fall of 2021 were satisfied with the services delivered by the CIC. Regardless of services rendered, 94% reported being "very satisfied" or "satisfied" with career interventions. None of the respondents reported being unsatisfied with their career coaching experience. In addition to satisfaction with services rendered, students reported that their career coaching experience impacted their career readiness.

Table 3. *Career Coaching Service Requested*

Service	*n*	%
Resume/Cover Letter Development/Review	26	35
Job Search Assistance	14	19
Career Change Assistance	13	17
Professional Headshot	11	15
Decide Career Path/Major	7	9
Internship Assistance	7	9
Interview Preparation	7	9
Take/Review Career Assessment	7	9
Career Closet	6	8
Practice Interviewing Skills	6	8
Job Location & Development	5	7
Salary Negotiation	5	7
Self-branding & Marketing	5	7
On-campus Employment	4	5
Graduate School Planning	3	4
Leadership Development	3	4
MBTI Assessment Interpretation	3	4
Networking Strategies	3	4
Strengths Assessment Interpretation	3	4

Table 4. *Percentage of Responses to Career Engagement Scale Items Actions in the Past Six Months*

Item	Very Often	Quite Often	Moderate Amount	Occasionally	Almost Never	*M*
Actively sought to design your professional future	41%	27%	20%	12%	0%	4
Undertook activities to achieve your career goals	36%	32%	23%	9%	0%	4
Cared for the development of your career	56%	28%	9%	7%	0%	4
Developed plans and goals for your future	53%	21%	17%	5%	3%	4
Sincerely thought about personal values, interests, abilities and weaknesses	56%	32%	8%	3%	1%	4
Collected information about employers, professional development opportunities or the job market	32%	23%	23%	17%	5%	4
Established or maintained contact with people who can help you professionally	23%	20%	27%	17%	13%	3
Voluntarily participated in further education, training or other events to support your career	23%	21%	19%	27%	11%	3
Assumed duties or positions that will help you progress professionally	23%	21%	24%	24%	8%	3

Students also reported that their coaching experience impacted their career goal attainment. Aside from the requested service, it is unknown what the specific goals were for each coaching session. Nevertheless, 92% of students reported that their coaching experience impacted their ability to attain their career goals. As a result, students reported satisfaction with their coaching experience and perceived that engaging in career services impacted their career readiness and career goal attainment.

Students (*N* = 75) who engaged in a career intervention at the CIC during the fall 2021 term at the UBalt reported high proactive career engagement behavior levels as measured by the CES. A composite score for all 75 participants' responses was determined using the Likert scale associated with the nine items (Table 4). Notably, 44% of respondents reported engaging in proactive career behaviors "very often," and 35% reported "often. Of the respondents, 19% indicated "moderately" engaging in proactive career behaviors, and 3% indicated "occasionally" engaging in proactive career behaviors. It appears the students

who received coaching services at the UBalt in the fall of 2021 and participated in this study are career-minded and engage in a degree of proactive career behaviors, including career planning, career exploration, networking, and vocational identity and clarity activities (Hirschi & Freund, 2014).

Lastly, the study sought to determine if a relationship existed between a high degree of proactive career engagement and satisfaction with career services (r = .601, p = .034), including perceptions regarding career readiness (r = .612, p = .920) and career goal attainment (r = .650, p = .598). A Pearson's correlation coefficient calculation compared respondents' CES scores with their scores on satisfaction, career readiness, and career goal attainment. The results indicated no relationships between career intervention outcomes—satisfaction, career readiness, and career goal attainment—and the degree of proactive career engagement. Students at the UBalt reported being highly engaged in proactive career behaviors and highly satisfied with the services rendered at the CIC. Moreover, students viewed the services as impacting their career readiness and career goal attainment regardless of their CES score.

Discussion

This study explored the impact of proactive career behaviors on career readiness, career goal attainment, and satisfaction with career services. The purpose was to understand two unknowns, including (a) the perceived outcomes of engaging in career interventions administered by the college career center and (b) what students who displayed proactive career behaviors perceived about the impact of services rendered on their career readiness and/or career goal attainment. Assessment of career services is frequently limited to evaluating satisfaction. This study allows career practitioners to move beyond satisfaction and examine the behavioral patterns of students in connection to career development. Insights gained can help career practitioners develop high-impact services and programs that meet the developmental needs of students while providing a method for measuring growth and outcomes. In addition, measuring student perceptions of their career readiness and the connection to career outcomes provides a pathway to understanding career interventions' impact on post-graduation outcomes.

Implications

The degree to which students engaged in internal and exploratory-related proactive career behaviors was higher than those requiring external focus or interpersonal interactions. CES questions 1 to 6 measure internal and exploratory-related proactive career behaviors; each had an overall mean score of four. These scores indicated that students engaged in behaviors such as career planning, self-exploration, industry exploration, and market research. In contrast, CES questions 7 to 9, which measure external focus and interpersonal interactions, had a mean score of three. These scores reflected behaviors involving building social capital, such as networking, attending career events and training, and positioning behavior.

The study's results also uncovered an important distinction in the proactive career behavior of respondents. Respondents scored lower in the CES domains associated with

external proactive career behaviors relevant to building social capital. This unintended result provided insight into why past programs focused on mentoring and networking may have been unsuccessful. Moving past utilization and satisfaction to studying the proactive career behaviors of respondents has been beneficial for the CIC at the UBalt, and results can be used to increase student engagement in career services. For instance, uncovering that students engage in external proactive career behaviors at lower rates has led the career services team to design a secondary study about students' perceptions of external career behaviors.

In total, results uncovered students' positive perceptions of the impact career services have on their career readiness and that students are satisfied with CIC services regardless of their level of proactive engagement. The study is also an example of the benefit gained when career services professionals expand assessment beyond utilization and assess the behaviors of their students and the impact of services rendered. Many institutions would benefit from knowing the level of proactive career engagement amongst their student body upon enrollment and collecting data on the impact of career interventions on career outcomes.

Limitations

The study has a few notable limitations. First, the intended collection of 100 to 200 surveys was not attained even though the CIC had 490 appointment requests for the fall of 2021. A possible cause is that the participation window coincided with the Thanksgiving holiday break, reducing the available days for students to schedule appointments with the CIC staff. In addition, of the 229 appointments during the study, only 181 were one-on-one coaching sessions. Nearly 50 documented appointments took place over email or other alternative interaction modes, such as virtual mock interviews.

Another limitation is the students' demographics at the UBalt which must be considered when applying the results to other institutions with different student body compositions. The average age of students at the UBalt is 28 at the undergraduate level and 34 at the graduate level. In addition, the UBalt is a commuter institution that does not offer residential living and is designated as an urban institution. Finally, the UBalt is designated as a minority-serving institution by the U.S. Department of Education. Inasmuch, the unique make-up of the student body could be reflected in the high degree of proactive career engagement revealed in the study and might not be comparable to younger students, students attending residential campuses, or students attending predominantly White institutions.

The last limitation is that career readiness and career goal attainment are concepts defined by the researcher but remain undefined by respondents. It is unknown if the students' definition of career readiness is comparable to the definition adopted by the UBalt's CIC. In addition, it is unknown what specific career goals students perceive the career coaching interventions helped them attain. Though assumptions can be made based on the type of career coaching service requested, the study does not provide insight into how students defined career readiness or what goals career services helped them attain.

Conclusion

This study shows how career services practitioners in higher education can move past assessing utilization to assess and measure program and student outcomes, including the impact of proactive career behaviors on career readiness, career goal attainment, and satisfaction with career services. Two questions guided this study:

1. What are the perceived outcome(s) of engaging in career interventions administered by college career centers in relation to career readiness and career goal attainment?
2. Are there differences in perceived outcomes based on the degree of proactive career engagement?

Using a sample of the student body at the UBalt, respondents participated in a two-part survey, including the CES, to gauge their perceptions about satisfaction with career services and the perceived impact that services rendered had on their career outcomes. This study's results were mixed with the findings, showing that students perceive that engaging in career coaching services does, in fact, impact their career readiness and goal attainment. The results were inconclusive regarding perceived outcomes of engaging in career interventions due to the overwhelmingly satisfactory responses participants reported concerning their engagement in career coaching services. Of note, unintentionally, the study uncovered differences in the types of proactive behaviors students engaged in, favoring internal and career exploration activities such as career planning, self-exploration, and occupational research versus external behaviors such as networking.

Since the Great Recession, college outcomes have been spotlighted, especially regarding career readiness and goal attainment. College career centers are tasked with ensuring that students are career-ready and attain gainful employment after graduation. However, assessing outcomes related to career development interventions administered by college career centers is difficult for several reasons. First, one difficulty stems from the literature using a myriad of terms to describe the phenomena of career development. Second, career planning is interconnected with a plethora of concepts, and it is impossible to narrow down what variables impacted students' career outcomes. In addition, career services are largely opt-in services engaged by a small portion of the student body. Lastly, many career centers focus on assessing satisfaction and have yet to start evaluating the effectiveness of services on career outcomes or the career behaviors of their populations. As demonstrated in this study, moving past utilization can help colleges determine the perceived impact their career interventions are having on student career outcomes, which has the potential to confirm the impact of career services on students' post-graduation outcomes.

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Developing and Assessing Meaningful Career Readiness Metrics

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Abstract: Return on investment and the value of a college degree are central topics related to U.S. higher education. National data indicate that alumni who received high levels of career support from their institutions are more likely to view their degrees as worthwhile investments and demonstrate a higher propensity to give back as alumni. Despite this, many colleges and universities prioritize metrics that provide little value to the student experience and focus on less impactful data. This piece illustrates how institutions can strategically develop and assess meaningful career readiness metrics focused on institutional effectiveness and student success beyond degree attainment. The process includes posing equity-minded questions that challenge current career readiness education models, aligning career readiness efforts with university priorities, and performing a comprehensive state of career readiness audit of the campus. By adopting these intentional, transparent, and collaborative methods, institutions can more effectively develop and assess metrics for measuring institutional career support and equitable student success.

Keywords: career readiness, student success, metrics

Higher education is in the midst of an evolutionary shift. With the convergence of declining or stagnant enrollment (Blake, 2024), questions related to the value of a college degree (Blake, 2024), and the importance of work-integrated learning (Busteed, 2024), this moment and higher education's response is critical. The definition of student success must go beyond degree attainment and consider how alumni benefit from their degrees in their work and lives post-college (Clayton & Torpey-Saboe, 2021). This article outlines how West Chester University (WCU) used data and a change management process to advocate for expanding the definition and metrics of student success beyond earning a degree. By evolving the career readiness education model on campus, WCU reached more students and collected more meaningful data to effectively measure progress and success. By being intentional about the factors contributing to this evolutionary moment in higher education, this process aligned the university with incoming student interests and alumni insights into their motivations for attending college.

Literature Review

Traditionally, colleges have focused on measuring three main factors for effectiveness: enrollment, retention, and completion. Chan and Cruzvergara (2021) argued that a shift is needed to assess students' desired outcomes, such as what they should learn and ultimately gain from their college experience. Measuring outcomes beyond the point of graduation and first destination allows an institution to understand and promote its

effectiveness in meeting both its mission and the interests of its students. In addition to measuring outcomes, student career engagement data can be a powerful metric. However, it must tell a compelling, relevant story. For that to happen, institutions need to understand what current students want, as well as their perceptions as students and after graduation.

Students preparing to enter college expect that a degree is connected to their future careers. When considering value, current students agreed that having a college degree increased their job prospects and was necessary for their desired career (Kondakciu, 2023). They also saw it as necessary for economic stability and mobility, believing that a degree would result in higher earnings, future promotions, and the skills needed to succeed financially (Kondakciu, 2023). Inside Higher Ed and College Pulse surveyed current students and found that 80% of respondents felt college should prepare them for a career they love; however, only 46% of respondents thought their college was doing this well (Flaherty, 2024).

In hindsight, alumni noted similar expectations when pursuing a degree. The National Alumni Career Mobility (NACM) report found three of the top four reasons alumni cited for attending college were related to their future career and economic mobility (Yousey-Elsener, 2024). Career success is the primary motivation for obtaining a degree, with 60% of respondents selecting that as their motivation, followed by intellectual development at 51% of respondents, financial gain at 44% of respondents, and required for my career aspirations at 41% (Yousey-Elsener, 2024).

Student expectations and perceptions hold steady well after graduation (Yousey-Elsener, 2024), and they inform how students feel about the value of their investment in a degree over time. According to the Gallup Purdue Index, a national study of alumni, just 17% of respondents stated that the career services they received on their campus were helpful. That same 17% were three times more likely than those who rated career services less helpful to agree that their degree was worth the cost. They were also nearly three times more likely to give financially to their alma mater (Gallup, 2016). In 2022, the NACM report found that just 19% of alumni respondents reported high levels of career support from their institution (The Career Leadership Collective [CLC], 2022). Similar to findings in the Gallup Purdue Index, the 19% who reported receiving high levels of career support from their institution were 2.8 times more likely to agree that their degree was worth the cost (CLC, 2022).

The data from the Gallup Purdue Index to the NACM survey results suggests that colleges have made very little progress in moving the needle on supporting students' future career plans over the past seven years. However, the relationship between career support from an institution and a graduate's perception of the value of their degree remains. Strada Education found that alumni who felt they were given the support they needed to get a job were eight times more likely to agree that their student loans were worth it (Torpey-Saboe, 2021). Brandon Busteed (2021), executive director of education and workforce development at Gallup at the time of the Gallup Purdue Index, noted, "the impact of work relevance and high-quality career services on the value and return on investment of a degree is astronomical. Yet, the percentages of graduates whose educational experiences

included these aspects remind us this impact is more a rarity than a norm" (para. 5). The idea that high-quality career services are more the exception than the rule is especially poignant in light of student expectations and alumni motivations for attending college. The data indicates that career readiness is a high priority for students and alumni and a low priority for institutions that continue to offer career readiness as an optional service. This disconnect highlights the need to improve the support students receive for their future careers. Institutions that seek to support student career success while strengthening the value of their degree are well served by implementing a strategic plan that guides change efforts, gathers metrics that measure who has/does not have access to career services, and assesses the impact of that access.

Career Readiness as a Campus Imperative

Both incoming students and alumni value their degrees opening doors to their careers. What was once the sole function of a career center now requires campus-wide involvement. This is especially important given that career services are optional and occur outside of class on most college campuses. Career conversations and readiness should not happen solely within the four walls of a career center (Kozhuk, 2023). There are additional opportunities within the classroom, co-curricular experience, advising, and on-campus jobs, just to name a few. Positioning career services as central to the college experience rather than tangential encourages a shared responsibility amongst the campus and creates a more robust experience for students (University Innovation Alliance, 2021).

Ideally, engaging in career readiness should not require the luxury of time outside of class or a certain amount of social capital. When career readiness is thoughtfully and strategically embedded into the classroom, it becomes more accessible and helps students make meaning of their college experiences (VanDerziel, 2022). It also paves the way for students to feel that their institution supports them and invests in preparing them for their careers (Flaherty, 2024). In addition, it increases their propensity to give back to their alma mater (Gallup, 2016). These are just some of the reasons that point to the need for institutions to view career readiness as a campus-wide imperative rather than an optional service in one office or division. Institutions have powerful tools at their fingertips, including "expertise, clout, visibility, [...] energy, and resources" (Studley, 2016, para. 2). Those powerful tools come from various divisions, departments, and individuals within an institution. By leveraging social and intellectual capital on campus, colleges and universities extend the reach and impact of graduating students who "can move into the world of work, participate in the society, and handle their debt" (Studley, 2016, para. 9).

There are several examples of how institutions leverage their resources to center career readiness. One example is having required career readiness courses for credit. Others thoughtfully integrate career readiness into the on-campus student employment. A final example is equipping career champions, including staff and faculty across the campus, to engage students in career conversations. These examples differ from traditional models of delivering career readiness education, which are optional and lack connectivity to the students' required experiences, like going to class or meeting with their academic advisor. Students' interests and alumni's perceptions present the opportunity to integrate career

readiness into the campus experience more thoughtfully. The need to use a thoughtful process and strategic framework for change also emerges.

Utilizing the Lippitt-Knoster Model for Managing Complex Change

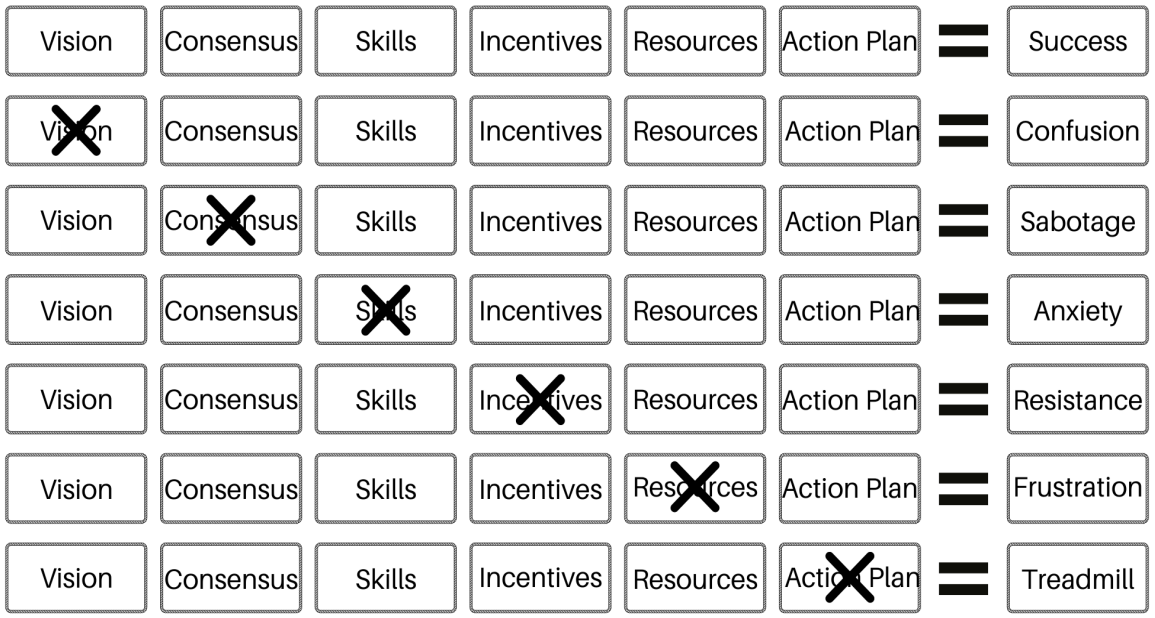
At WCU, the Career Center recognized the need to rethink traditional service delivery and assessment related to career readiness. This led us to create a process and data collection informed by the Lippitt-Knoster Model for Managing Complex Change. It is one thing to understand the landscape of higher education and the expectations of students. Implementing changes based on that knowledge is quite different. Moving through a change in the complex environment of higher education presents many challenges. In order to implement data- and trend-responsive career readiness education strategies and use new metrics to measure success, we had to rethink traditional service delivery and assessment methods. This large-scale change also required navigating shared governance structures with transparency. The Lippitt-Knoster Model served as a guiding framework while navigating this initiative.

The Lippitt-Knoster Model for Managing Complex Change (Knoster, 1991; Lippitt, 1987) identifies six elements necessary for effective change, including vision, consensus, skills, incentives, resources, and an action plan (Caredda, 2020). If any one of these elements is missing, the change effort will be unsuccessful with a different negative change outcome (see Figure 1). Applying this 6-element model to develop new career readiness strategies and metrics was beneficial because it provided ample context before the work began, creating a sense of buy-in and shared purpose. Rather than starting with an idea and working to get buy-in without any context of what constituents valued or needed, this model encouraged starting with a vision and building consensus around that vision early in the process. It also clearly outlined the potential pitfalls of skipping a step so that common issues could be avoided early in the process through thoughtful decision-making. For example, data collection and landscape analysis may seem like a viable starting point; however, constituents must first understand a clear and compelling vision. Asking faculty, staff, students, and external partners to fill out a survey without context on how the data will be used, or any input in creating the survey, will yield low interest and, therefore, be less informative. It could also lead to confusion or potential sabotage, as outlined in the model.

Vision and Outcomes

At WCU, the first step was identifying the vision and outcomes. What did we want to achieve by embarking on a broader landscape analysis and this work, and why did it matter? We identified three outcomes for our landscape analysis: 1) equity mindset, 2) access, and 3) scale. The first was to approach career readiness on campus through an equity-minded lens. This was inspired by the belief that career readiness work is equity work, the campus's established commitment to equitable outcomes as an EAB Moon Shot for Equity school, and the Boyer 2030 Commission's assertion that you cannot have equity without excellence nor excellence without equity (The Boyer 2030 Commission, 2022). Early in the process, we established our intention to create more equitable systems and environments for students to be career-ready. This asset-minded framework kept us

Figure 1. *The Lippitt-Knoster Model for Managing Complex Change*



focused on understanding systemic barriers rather than deficit-minded thinking that leads to making assumptions about students' out-of-class time and how they need to spend it.

The second outcome was to enhance the university's already established commitment to access. As a public institution, WCU is deeply committed to providing affordable, high-quality education that allows every student, regardless of situation or background, to obtain a college degree. If a degree is the key to opening doors, the institution must grant students a key and teach them how to use it to unlock doors. The institution is also responsible for guiding students to doors they can unlock. Understanding how to leverage the skills learned through a degree, how to translate curricular and co-curricular experiences to a professional setting, and what opportunities exist in terms of career paths are essential for career readiness.

The third outcome was to find innovative, data-informed solutions for scaling career readiness to just over 17,000 students. We recognized that we had to consider all 17,000 students from the start because we believed they deserved the tools, encouragement, resources, and knowledge to meet their professional goals. Meeting the needs of such a large population was no small feat and, therefore, required critical thinking at scale.

Building Consensus

Once the outcomes were developed, we created an introductory presentation that included a brief overview of the project, data on the state of higher education broadly, our intended outcomes, context on some of the questions we planned to ask, and what would happen after data collection. In tandem with delivering this presentation to over 300 constituents across five divisions, cabinet, and external boards, the survey questions were reviewed by several faculty and staff across campus. The outcomes developed were shared in the presentation. We explained that these outcomes were created to guide the

work so that we could intentionally gather feedback on how we would achieve them. We acknowledged that career readiness was equity work and that there was a need to change how career readiness education was distributed to students. In faculty spaces, we engaged in critical conversations that brought us to the consensus that the purpose of college did not have to be intellectual development or preparation for a career. The two can and should co-exist while honoring the relevance and importance of each.

Skills and Resources to Incentivize Change

Many skills were needed to encourage and achieve change at WCU. Changing how career services were scaled and measured institutionally required collaboration, communication, and critical thinking skills. We used these skills to begin the first step in gathering data in this change process: a survey to gather feedback.

The relationships, trust, and collaboration between the career center, faculty, and staff were leveraged to advance changes. Communication throughout the process involved equal parts listening and sharing. Communication about change started before any change took place. It ensured that those impacted by the change understood why it was necessary and their role in that process. Naturally, people will have many ideas and personal interests tied up in how something evolves. Being able to think critically is paramount to actualizing any change. This includes regularly revisiting the initial outcomes and using that to be thoughtful about the approach that is taken. It also included synthesizing what is learned to ensure it addresses the most pressing needs of the campus and its students. Being on a college campus, we were mindful of proposing changes that could be reasonably scaled and managed, assuming no new resources would be available. Not having the resources to make proposed changes could lead to frustration, according to the Lippitt-Knoster model (Caredda, 2020). As a result, what we promised, implemented, and measured needed to be strongly considered. For example, we could not promise to meet with every student individually throughout their college education. Still, we could promise to work towards getting career preparation integrated into enough classrooms to ensure that every student has career readiness touchpoints throughout their time on campus.

When the survey was launched, there were several incentives for participation. According to the Lippitt-Knoster model, change without incentive can lead to resistance (Caredda, 2020). We balanced incentives across two fronts. First was the survey. There was a raffle for a gift card for completing the survey for each constituent group. For alumni, each response triggered an additional two dollars designated to the Fund for Unpaid Internships. On the faculty side, we kept each college appraised of the total number of responses and where each stood compared to the other colleges. A light competition proved to be effective. After sending the survey to each constituent group and conducting two employer focus groups, we received over one thousand responses from students, alumni, employers, faculty, and staff. We then analyzed the data from each collection, and several themes emerged that led us to areas of opportunity moving forward.

The second need for an incentive came with changing how we deliver services, which informed us what we needed to measure going forward. With data in hand that showed the willingness of faculty and staff to have a role in students' career readiness but lacking the

time to do so, the Career Center had an opportunity to present solutions that played to their interests without burdening them. Showing the campus that the department was willing to take the lead, think critically about solutions to existing problems, and commit to an iterative process of listening, learning, and adapting proved an effective incentive for trying something new. Some examples of those new solutions included pre-packaged career assignments, online modules, and class engagement in large-scale career events with pre-built reflection activities.

Action Plan: A New Model with New Metrics

The data guided us to changes impacting our overarching equity outcomes, future access, and scalability by clearly showing what was going well in relation to career readiness and where the opportunity gaps existed. This ultimately led to our action plan, which included collaborating with faculty who were willing partners but reported that they lacked the time and expertise to integrate career readiness into their classrooms. We developed pre-packaged career assignments and online learning modules that could be seamlessly integrated into the classroom setting. These were designed to address many barriers students and faculty cited for not engaging in career readiness activities, such as time, capacity, and confidence.

This new iteration of our service delivery model made it necessary to develop new metrics to measure effectiveness. These new measures were created as university metrics, not career center metrics. The metrics used engagement data we already have access to or existing surveys we administer. The metrics included (a) students rating the institutional support they received for their future careers through our Experiential Learning Survey, (b) calculating the total number of unique students engaged in career readiness activities through data in our online career services manager, Handshake, (c) determining equity gaps by race and biological sex in engagement using Handshake data and university headcount enrollment data, (d) exploring equity gaps in first-destination outcomes by race and biological sex using WCU's first-destination survey, and (e) the career and economic mobility of alumni using Lightcast's NACM survey. Some of these metrics are predictive, some focus on initial outcomes, and some measure longer-term outcomes. To create a baseline, unique engagement as well as equity gap metrics in engagement and first-destination outcomes, were calculated starting in the academic year 2021-2022, allowing us to study trends and any persistent gaps over time. The following sections provide more details for each of these measures.

Rating of Institutional Career Support

We knew from national research that a graduate's perception of the career support they received from their institution impacted how they viewed institutional investment in the degree (CLC, 2022). Knowing how alumni rated the institution for career support helped draw a larger picture related to degree value after a student graduated and had time to see the impact of their experiences on their career. However, collecting students' ranking of institutional career support allowed us to know how students felt about the career support they received from the institution in real time. This ensured the institution graduated students who felt supported and whom we predicted would be more likely to

see the value of their investment. It is important to note that this differs from a satisfaction survey related to an event or service. Instead of developing a new survey for this metric, we considered the surveys we were already using.

We decided to use the Experiential Learning Survey since it is distributed each fall to the entire campus except for first-year students. The survey was developed in partnership with faculty, and the career center distributed, analyzed, and reported the results. The Experiential Learning Survey typically yielded responses across all colleges and most majors, giving us a representative sample of the student body. Whether or not students have engaged in experiential learning, they are encouraged to take the survey. For those who have not engaged, it allowed us to explore barriers. It also allowed us to identify relationships between those who have engaged in experiential learning, which includes experiences such as internships, research, or volunteering, and how they rate the career support they received from the institution. At WCU, we found an increase in students' perception of the support they received for their future careers if they engaged in at least one experiential learning activity. In 2024, with just some changes implemented related to integrating career readiness into the student experience, we saw an increase in students' perception of the career support they received from the institution compared to 2022.

Unique Students Engaged

Another metric is tied to the accessibility of career readiness education. This metric focused on whether career experiences were embedded in learning spaces students frequented, like the classroom. This metric allowed us to better understand how many unique students we served, which groups were over or underrepresented in that number, and in which spaces they engaged. The career center collected data around two types of services–optional and required–to calculate the unique number of students engaged in career readiness activities. Optional services included one-on-one career counseling appointments, online resume reviews, workshop attendance, recruiting and networking event attendance, visits to the career closet, and use of the professional photo booth. Required services included class presentations, classroom assignments, and online learning modules developed for classroom use. For the past two years, there have been approximately 4% gains year over year in unique students engaged (Table 1).

Table 1. *Gains in Engagement with Career Services Academic Year 2021-2022 to Academic Year 2023-2024*

Academic Year	% of Unique Students Engaged	# of Unique Students Engaged
2021-2022	40%	6,810
2022-2023	44%	7,432
2023-2024	48%	8,127

Note. Percentage is taken against the total number of students at WCU, n = 17,000.

The gain of approximately 700 students each year is not attributed to increased staff but to prioritizing time in spaces like the classroom that extend staff reach. Those gains would not have been possible through one-on-one appointments. Another benefit to understanding unique students served was disaggregating the data by race and biological sex. This showed the campus where investments needed to be made for students to access career readiness education.

Equity Gaps in Engagement

At WCU, equity gaps in persistence and retention were calculated and used to impact student degree attainment positively. The career center calculated equity gaps in the same way. However, we used them to explore career readiness engagement. To do this, we pulled the total number of unique students engaged in the career center's services, which included appointments, online resume reviews, class presentation attendance, career closet usage, professional photo booth visits, workshop attendance, and recruiting and networking event attendance. These data were available through our online career services manager, Handshake. The students who engaged were then disaggregated by race and by biological sex. Using the university's public student data from the Office of Institutional Research, we pulled the overall number of students by race and biological sex. We calculated engagement against the total number to see the percentage of a demographic population engaged. Next, we calculated the overall percentage of students who engaged against the overall student population on campus. We compared that overall percentage to the percentages for each race and biological sex and noted where there were gaps, as outlined in Table 2. We identified which racial, ethnic, or biological sex groups were underrepresented in engagement with our office and to what degree. This revealed year-over-year patterns in the data related to underrepresentation in engagement. This important metric allowed us to examine our service delivery model through the lens of underrepresented students and think critically about how to close that equity gap by modifying our service delivery model to be more accessible. We found a persistent and growing equity gap in engagement for our Latino and Latina student population, and other data are being utilized to create strategies to shrink and eventually close that gap.

Equity Gaps in First-Destination Outcomes

In addition to calculating equity gaps in engagement, the career center calculated equity gaps in First-Destination Survey outcomes specific to race and biological sex. The same calculation was used, replacing the unique students engaged with unique students who had a positive first-destination outcome. The first-destination survey reported students' career paths within six months of graduation. Positive outcomes in first-destination data included employment, continuing education, starting a business, or entering military or public service. Reporting first-destination outcomes in the aggregate told a different story than disaggregating the data to understand who was represented in the positive outcomes category and who was placed in the overall narrative's margins. While the overall percentage of students with positive first-destination outcomes is above 90%, we found equity gaps for our students who identify as Latino and Latina, as well as our Multiracial students. Unlike the gaps in engagement, these gaps ebb and flow between years, so

Table 2. *Calculating Equity Gaps Using Enrollment and Engagement Data*

Variable	Description of Calculation
Demographic Group	Disaggregate by race, biological sex, first-generation status, or any other demographic data.
# of Students Engaged	For each demographic group, enter the unique number of students engaged in services (make note of how you define engagement)
# of Students Enrolled	For each group, use university data to enter the total number of students enrolled at the institution from that demographic group
% of Students Engaged	Calculate the percentage of students engaged in each demographic group taking the number engaged against the number enrolled
Equity Gap	Calculate the percentage of students engaged overall, taking the total of all engagement against the total of all students enrolled across demographic groups. Then, subtract the percentage of students engaged in each group from the percentage of engagement for all students enrolled.

a specific trend has not been identified. As a university, we already administered the first-destination survey. We just repurposed the data to understand representation in positive first-destination outcomes. We expect the strategies we have implemented in the classroom to impact these data moving forward since more students will have access to the foundations of career readiness.

Alumni Career Mobility

Lastly, using the NACM survey, WCU measured the career mobility of their graduates who are five and ten years out. This will take place on a three-year cycle going forward. The impact of a college degree has rippling effects throughout a person's life. Assessing graduates' career and economic mobility beyond their first destination assisted the institution in understanding those rippling effects and the institution's role in those longer-term outcomes. It highlighted relationships between high-impact career experiences and economic mobility, which served as a road map. For example, if engagement in experiential learning impacted high career mobility for graduates, it would be in the institution's and student's best interest to ensure those experiences are accessible through the curriculum and co-curriculum.

Accountability

The last part of the change management plan is developing an ongoing action plan (Caredda, 2020). For WCU, this focused on identifying how to infuse ongoing accountability and shared governance into the process, which was equally instrumental post-change as it was throughout the process. One of the best ways we discovered to

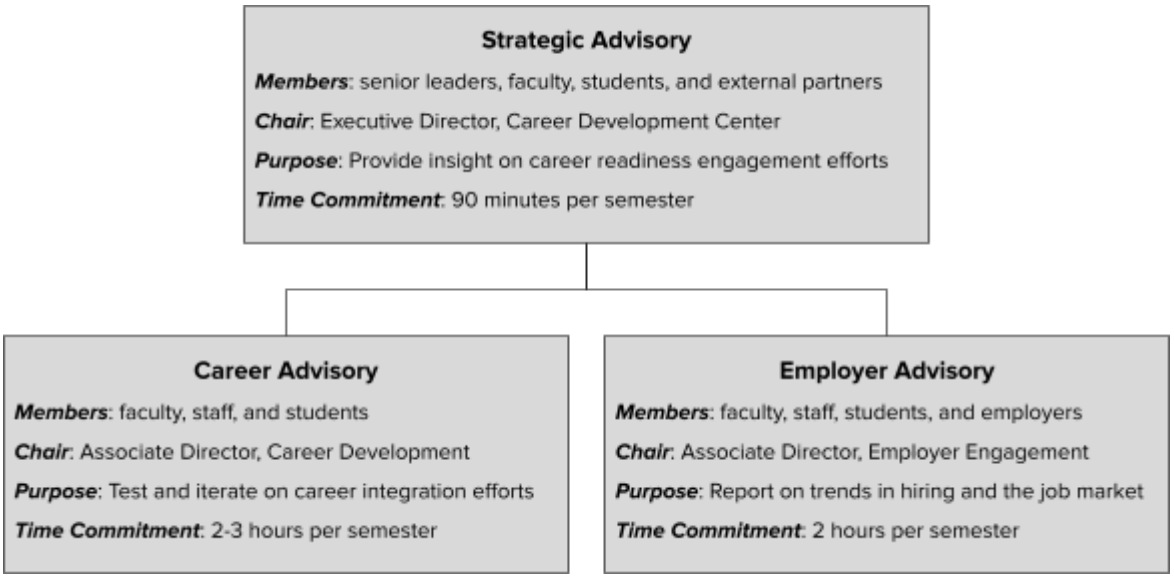
remain accountable was to share data with the campus community regularly. For WCU, that included yearly state of career readiness presentations to the campus for targeted groups and through open forums. These presentations reviewed our annual progress on the new metrics we established and invited the community to celebrate our collective wins and think critically about our shared challenges. That level of transparency invites the campus community back to the table once per year to understand the data and contribute to enhancing the state of career readiness.

Another accountability measure is the creation of the Career Readiness Collaborative at WCU. The Career Readiness Collaborative is a group of faculty, staff, students, and external partners led by the Career Center, who, based on the belief that all students deserve access to the knowledge, tools, and encouragement to pursue a fulfilling professional life, work to break down barriers and provide equitable career readiness education to all students. The structure of the committees, referenced in Figure 2, includes a strategic advisory committee composed of campus leaders, students, and external partners. There are also two sub-committees, one focusing on career integration in the curricular and co-curricular experience and one centered on employer engagement in the career readiness process. The career integration advisory sub-committee comprises faculty, staff, and students. The employer advisory sub-committee comprises external partners, students, and staff.

Lessons Learned

We learned several lessons along the way, the first being that career readiness is a team sport. Our natural instinct as collaborators led us to build a high level of partner engagement in this process early and often. We thought of it as a better way to inform our work. We did not expect how critical it would become when it came time to make actual changes later in the process. It makes sense, but sometimes, this point gets missed when

Figure 2. *Structure of the Career Readiness Collaborative at WCU*



collaboration suddenly happens in the midst of the process rather than from the very beginning. Collaboration also helps you to really know your campus, the culture, and what the appetite for change might be. There is an important difference between hearing about a best practice and assuming it will work on your campus versus understanding what your campus needs, what is in the way of their needs, and then identifying which best or new practice provides a solution.

Another lesson learned was utilizing the team's strengths and making time and capacity for the work. It is too easy to get sucked into the day-to-day of a job, leaving little time at the end of the day for strategic work that propels the mission forward. At WCU, we converted a portion of one of the career counselor roles to a project manager and faculty-facing role. That person had experience and talent in analyzing data and tending to details. She partnered with me, and as the executive director, I focused more on the vision, collaboration, and strategy for campus-wide change. This complement worked well. Left to my own devices, I would have had all the ideas while struggling to implement them. My colleague would have had a strong plan for action but may have lacked the political capital on campus to get the attention of senior leadership and other critical partners. When that career counselor role switched to make capacity for this work, additional graduate student support was hired to pick up the career counseling appointments.

Lastly, we learned that ensuring all students are career-ready is a journey, not a destination. The work of collaborating, strategic planning, analyzing data, and providing the campus with valuable services and data is never done. The wins can be found in the progress towards closing gaps in engagement and outcomes, securing new faculty partnerships for classroom integration, regularly providing valuable insights to the campus, and seeing students and alumni report that they feel better supported by the institution for their future careers. Change does take time. However, intentionality is the real game-changer.

Conclusion

The annual state of career readiness presentations, along with the ongoing work of the Career Readiness Collaborative, will ensure that the process and progress at WCU remain transparent and collaborative. This level of accountability enables career readiness metrics and success to be owned by the university rather than by one department or division. It also ensures that the metrics are measured promptly and utilized to target and alleviate challenges, as well as celebrate successes. Through thoughtful planning and the use of a change management model to guide the complexities of the work, large-scale change is possible. As with any change, this is more a journey than a destination, and having compelling and relevant metrics that are measured, utilized to inspire ongoing change, and shared with the broader institution is paramount. As higher education continues to move through this evolutionary shift, new and innovative strategies and updated, impactful metrics will bring clarity, focus, and success to the future of higher education and its generations of students.

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