

A New Era of Accountability: Resolving the Clash of Public Good & Economic Stimulation

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ABSTRACT

The clash of whether higher education should serve the public good or economic stimulation seems more alive than ever to some, and to others, it has come to an end. Disagreeing on the purpose of American higher education makes it difficult to know whether educators are being responsible for delivering what is expected of them. Rather than reviewing the important debate that has already taken place, this chapter seeks to merge the two seemingly juxtaposed disagreements and discuss how bringing the two purposes together may influence how to examine accountability. As such, an inquiry model, including ways to gather and interpret various institutional performance indicators for accountability is posited. Practical suggestions for implementation of this methodology are provided.

Keywords: Assessment, Career Readiness, Evaluation, Equity Indicators, High Achievement, Learning Dispositions, Learning Organization, Neuroscience, Scholarship, Student Learning, Transformation

INTRODUCTION

The discourse arguing whether colleges and universities graduate students who are workforce ready and able to stimulate economic growth, ready to matriculate into an advanced degree (albeit into a 4-year degree, professional school, or doctoral program) to stimulate economic growth and serve the public good or positively contributing to enhancing human well-being and decreasing inequities has been around for quite some time. Many agree that graduating students, in an affordable manner, who can demonstrate skills that set them up well for employment or ongoing education is both a public good and an economic stimulator. Shifting this conversation to exploring who is graduating and how quickly while maintaining commitment to access and completion for all also seems to fit the criteria for education as a public good that repairs social inequities and therefore also has a positive economic outcome. Focusing on the quality of the learning and development of specific outcomes as well as students' well-being may assure concerned citizens that graduates will be career-ready, able to tend to social inequities, and also enhance overall human flourishing.

The challenge to higher education institutions in this era of accountability is not whether the institution should commit to providing education for the public good as opposed to providing education that will stimulate economy; the challenge is providing evidence that higher education is doing both. For example, how does an institution show that it is providing access and ensuring timely acquisition of degrees at an affordable cost, and with evidence of high-quality career readiness skills for every graduate? Furthermore, when considering how the brain learns and develops, especially the adolescent brain (ages 10-25), the expectation that career-readiness skills can be met within four years may not be in every student's interest and therefore may not be in the public's best interest or in the interest of stimulating economic viability to graduate all students within four years. Add to this the dismissal of a one size fits all approach in order to

achieve a culture of social justice and achieve equitable graduation outcomes for all students and many nervous educators begin wondering how they can afford to repair inequities while maintaining affordability. How should higher education in-class and out-of-class educators and administrators be held accountable with the complexity of merging purposes?

Since this book is about looking forward in time to create new possibilities for in- and out-of-classroom educators, an optimistic approach is a must. In other words, what does it look like from an accountability perspective when education for public good and economic vitality has been met regardless of modality, while also ensuring evidence of high-quality career-readiness preparation? To address these questions, a deeper dive into each of the larger elements being discussed is necessary.

ACCOUNTABILITY MEASURES FOR PUBLIC GOOD VERSUS ACCOUNTABILITY MEASURES FOR ECONOMIC VITALITY

With the risk of oversimplifying the accountability conversation, it is important to note that institutional performance indicators have been and are continuing to be used by international, federal, and state agencies to determine how well higher education organizations are doing what they are expected to do. The emphasis on these indicators may have increased the tension between the public good purpose and the economic stimulation purpose of higher education. In essence, when decision makers place more weight on specific performance indicators that have been used to inform institutional funding formula decisions such as 4-year degree attainment rates, higher education leaders logically pay attention and then subsequently emphasize focus upon improving these indicators within their institutions. Figure 1 below seeks to reconcile some of the economic stimulation accountability indicators (e.g. institutional

performance indicators) with public good accountability indicators. The indicators on both sides of the argument can include four-year and six-year graduation rates, job placement rates, and accrual of student loan debt along with all the other indicators that influence that data, such as term-to-term persistence, number of credit hours accumulated toward a degree, etc., however, how these indicators are framed, disaggregated and considered for decision making makes the difference on whether educators are demonstrating accountability for economic vitality or public good or both.

In essence, economic stimulation indicators are not necessarily in opposition to public good purpose; however, if they are influencing decisions without other key ingredients that indicate the quality of each student's experience, then they could be. For example, rather than deciding that all students should graduate within four years or six years, institutions can use time-to-degree measures disaggregated by identities and intersecting of identities. Among these disaggregated identity groups are ethnicity, gender, disability, sexual orientation, religion, first generation, former foster youth, veteran, transfer, Pell grant recipient, high school graduation code, expected family contribution category, student organization level of engagement, community service level of engagement, goals for attending college, and major or professional degree, among many other identities. Including these identities and intersecting of identities would provide a clearer picture of who can graduate easily within specific time frames and who wants and/or needs more time to graduate as career-ready or advanced degree ready. Furthermore, with a disaggregation of time-to-degree with intrapersonal competency measures that align with career readiness skills, then there is an even better understanding of how context and cultural wealth may be influencing other indicators such as job placement rates and

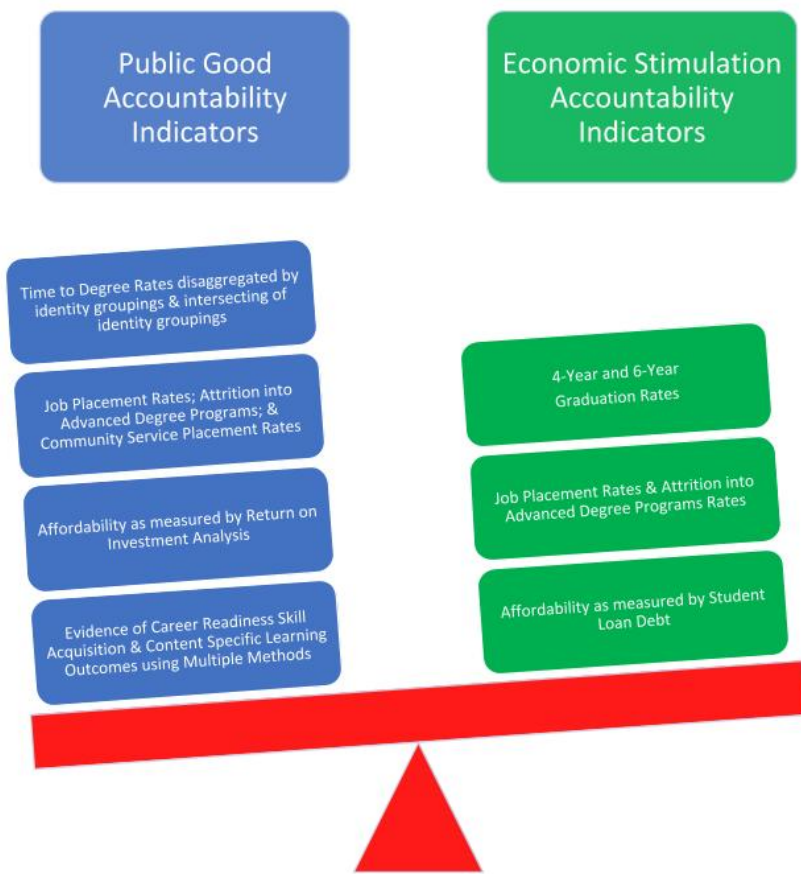
matriculation into advanced degrees. The author explores the details of what this looks like in practice later.

For now, Figure 1 demonstrates that job placement rates (which also include the creation of new jobs and careers via student innovation and those who are starting their own business, albeit social entrepreneurs or venture capitalists) are kept, as is attrition into advanced degrees, regardless of whether they are gathered from students who transfer from an Associate degree to a Bachelor's degree or from a Bachelor's degree into a professional or graduate school. However, what is added is a community/social service and advocacy status to recognize that some students return to college to gain specific knowledge and skills to go into community service areas that may not pay well or pay at all. Such volunteers and community service stewards are needed within a framework of education in service to the public good. Within this framework may also be visual and performing artists, community advocates and activists, along with others, who are deepening cultural and historical understanding and advocacy and change from which the public benefits. These would be the graduates who are not stepping into traditional-looking jobs associated with stimulating the economy.

Also included in Figure 1 is a multi-method emphasis on employer desired career-readiness skills and neuroscience supported intrapersonal competencies (NAS, 2017; 2018; 2019) as well as content knowledge outcomes correlated with students' success, which will be discussed in the next section. Finally, there is a shift from determining whether college is affordable based on the cost of tuition and student loan debt accrual to a more complex algorithm of return on investment. This algorithm is not detailed in this chapter but includes the total amount of United States Dollar (USD) investment that the student has made as well as the investments that faculty and academic and student support staff have made for each student.

Furthermore, there is the facility usage, energy consumption, technological costs, and relevant depreciation that contributes to the calculated total cost. The benefit is measured by the added value of the educational experience (most readily identifiable in a reflective student learning and development portfolio that can be evaluated for subject specific knowledge acquisition and application) as well as pre- and post-measures of employer desired intrapersonal competencies and career readiness skills. Rather than measuring the final outcome of affordability as loan debt or income to loan debt, the final outcome is viewed more holistically by measuring the student's learning and development value added and in particular some meaning-making measures that include human flourishing/life satisfaction.

Figure 1. Institutional Performance Indicators to Measure Accountability



Expanding previously used institutional performance indicators to include larger societal values as perceived by the students' community culture may be useful in determining how well higher education is serving the public good and ensuring economic vitality as well. This is a measurement practice that each institution can engage in if they so choose. Furthermore, disaggregating data by identity groups and the intersecting of identity groups can be useful to redesigning higher education so that it not only ensures access, but also subsequently guarantees quality attainment of specific learning and development outcomes.

Practical Application Tips from this Section

1. Select institutional performance indicators from Figure 1 that serve the public good and it will also be measuring economic vitality in a holistic manner such as:
 - a. Providing students with a variety of options so that they can select their appropriate identities can be done prior to enrollment in their first class. Capturing this data in the institution's transactional system will allow disaggregation of performance indicators by identity groupings and their intersections.
 - b. Time to degree is measured from the moment a student registers a degree intent, as opposed to from the moment the student begins exploring their interests.
 - c. Job placement rates, community service positions, and matriculation into advanced degrees continues to be a challenging process to record for many institutions. Providing students with freely accessible ways in which they can update their status when they leave the institution and explaining to them the necessity of keeping their information up to date before they leave can be useful to maintain updated information for analysis. An example of such an easy to

access form can be found at Atlantic Technical College

(<https://www.atlanticechnicalcollege.edu/job-placement-report-form/>)

Furthermore, removing barriers to the access of alumni data for institutional analysis with the express purpose of improvement is imperative for this to be a useful analytical tool.

- d. Measuring the acquisition of intrapersonal skills that align with career readiness skills is explained later in this chapter.
- e. Measuring subject or discipline specific knowledge has been done for decades and can be done very effectively in a value-added manner using reflective student learning and development portfolios (Kuh et al, 2018).
- f. The Affordability based on Return of Investment (ROI) Analysis requires more explanation than is appropriate for this chapter. The incredibly oversimplified representation is: student USD investment + student time on learning strategies and tasks investment + instructor time on student's learning strategies and tasks + Delaware Cost Study data (<https://ire.udel.edu/cost/>) for student's major + academic and student support professional's time to support student's learning and development + academic and student support professional's portion of salary to support student's learning and development – value added measures of students' learning and development upon departure (which include job or service position placement or successful matriculation into an advanced degree as well as attainment of expected learning and development outcomes) = affordability quotient.

2. Implement data collection and analysis strategies to utilize the performance indicators for decision-making.

Providing Evidence of Career-Readiness Skills and Content Knowledge as Accountability for Public Good and Economic Vitality

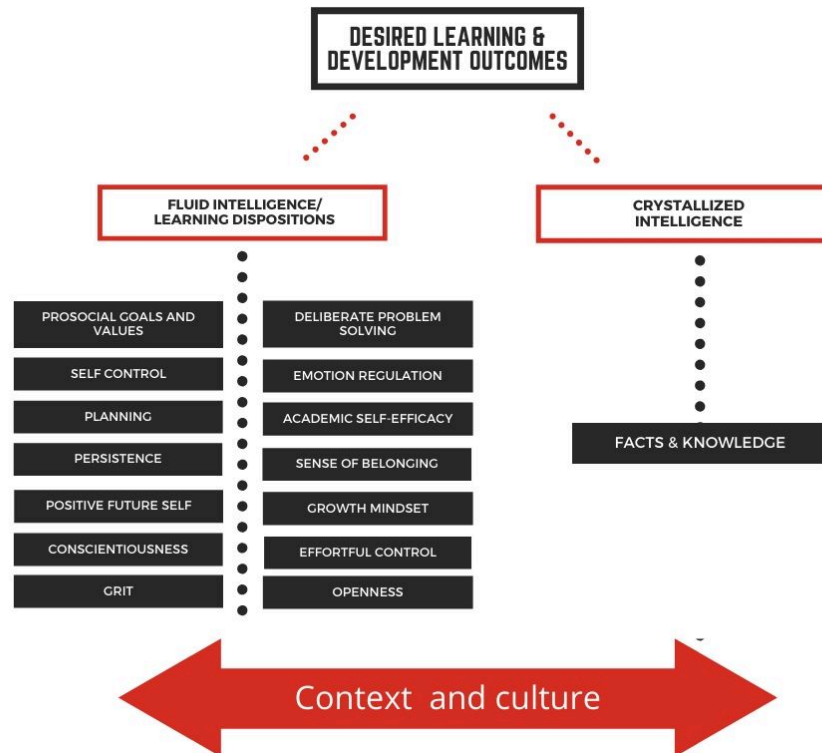
For decades, higher education leaders both in- and out-of-the classroom have been providing evidence of students' ability to acquire content knowledge using outcomes-based assessment and program review methodology (Banta & Palomba, 2014; Bresciani Ludvik, 2018; Kinzie et al, 2014; Kuh et al, 2015). What makes using this data to inform institutional systematic improvements challenging is that decades of neuroscience research have shown that every human being is having a unique experience of shared moments, and those experiences are true for each person (Bresciani Ludvik, 2016). While educators can validate many similarities in the shared experience as well as vast differences, which are often informed by varying culture and context (NAS, 2017; 2018), the individual validation doesn't make the goal of achieving high-quality, timely, and affordable degree completion easier. Add in the fact that many institutions are serving students whose adolescent brains are still developing (Bresciani Ludvik, 2017; NAS, 2019) and providing evidence of content and skill acquisition becomes even more challenging.

With regard to accountability measures, and in particular to providing evidence of learning and development discussed in Figure 1, it may be helpful to think of learning and development or skill acquisition in this way. Figure 2 represents a compendium of research from the National Sciences Foundation (NAS, 2017; 2018) and the Institute for Education Sciences (Zelazo, Blair, & Willoughby, 2016). In this figure, note that learning and development gets

separated into two primary areas. One is crystallized intelligence, also known as facts and knowledge. Crystallized intelligence includes the content/subject/discipline-specific learning or degree program outcomes. This is what differentiates an engineer from a statistician. While there will be crossover knowledge, the application of that knowledge may depend on the context.

In Figure 2, there is a set of learning and development outcomes that are known as fluid intelligence, executive functions, or intrapersonal competencies. These are not void of facts and knowledge, rather, they inform students' ability to effectively and efficiently apply their crystallized intelligence in their work or community setting. They are known by neuroscientists to be malleable and thus, may shift in ability to gather their evidence based on context, culture, and the students' neurodiversity. This means that during several points along a student's journey, educators may be able to identify their presence and then not be able to see evidence of this fluid intelligence depending on context and culture. The ability of each student to adapt to their changing environments and apply their crystallized intelligence is often embodied in their successful cultivation of these fluid intelligences.

Figure 2. Crystallized Intelligence and Fluid Intelligence



Students may enter their higher education journey with high levels of these skills and others may not. If educators know which of their students have already highly cultivated fluid intelligences, it could reduce the investment of both the student and the educational organization. In essence, such pre-assessment could be factored into the value-added affordability ROI analysis. Since these fluid intelligence skills also represent employer desired skillsets as well as skills that many community advocates value, then of course it is the responsibility of educators to optimize these skills. Table 1 illustrates how these skills relate to employer-desired career-readiness skills.

While Table 1 provides an oversimplified version of the relationship of neuroscience validated fluid intelligence skills to employer-desired career-readiness skills, the list of career-readiness skills or competencies and their description from the National Association of Colleges and Employers (NACE) (Retrieved from

<https://www.naceweb.org/uploadedfiles/pages/knowledge/articles/career-readiness-fact-sheet-jan-2019.pdf> on August 2, 2019) provides some guidance. This table demonstrates the alignment of decades of neuroscience research with statements of what employers want to see in graduates. In essence, the descriptions used by NACE, which are listed in the left column, are components of the fluid intelligence/executive functions/intrapersonal competencies shown to be malleable by neuroscientists. Note that crystallized intelligence, such as the ability to write, speak, and operate a variety of technological functions skillfully is also necessary for these NACE competencies to be realized. An examination of this table will allow educators to explore where their organizational and surrounding community goals and values may also be represented within.

Table 1. List of NACE Career Readiness Skills Aligned to Malleable Intrapersonal Competencies

Column 1. NACE Competency and Description	Column 2. Malleable Intrapersonal Competencies, Executive Functions, or Fluid Intelligence Learning and Development Outcome (Note that Crystallized Intelligence is an assumed necessity within each competency as is access to the particular learning tools necessary to learn and demonstrate competence in each area.)
Critical Thinking/Problem Solving: Exercise sound reasoning to analyze issues, make decisions, and overcome problems. The individual is able to obtain, interpret, and use knowledge, facts, and data in this process, and may demonstrate originality and inventiveness and is aware of and values this approach.	Deliberate Problem Solving Grit Attention and Emotion Regulation Effortful Control Openness Conscientiousness Utility Goals and Values Intrinsic Goals and Values
Oral/Written Communications: Articulate thoughts and ideas clearly and effectively in written and oral forms to persons inside and outside of the organization. The individual has public speaking skills; is able to express ideas to others; and can write/edit memos, letters, and complex technical reports clearly and effectively, and can identify opportunities and resources for developing this skillset.	Growth Mindset Academic Self-Efficacy Planning Utility Goals and Values Intrinsic Goals and Values Openness Conscientiousness
Teamwork/Collaboration: Build collaborative relationships with colleagues and customers representing diverse cultures, races, ages, genders, religions, lifestyles, and viewpoints. The individual is able to work within a team structure, and can negotiate	Openness Conscientiousness Effortful Control Attention and Emotion Regulation Self-Control

<p>and manage conflict. Can select an approach that aligns with the individual's culture, community, and worldview.</p>	<p>Deliberate Problem Solving Planning Growth Mindset Positive Future Self Prosocial Goals and Values Sense of Belonging Persistence Utility Goals and Values Intrinsic Goals and Values</p>
<p>Digital Technology: Leverage existing digital technologies ethically and efficiently to solve problems, complete tasks, and accomplish goals. The individual demonstrates effective adaptability to new and emerging technologies. The individual understands the impact of digital technology on work and workforce development.</p>	<p>Deliberate Problem Solving Planning Growth Mindset Conscientiousness Effortful Control Academic Self-Efficacy Persistence</p>
<p>Leadership: Leverage the strengths of others to achieve common goals, and use interpersonal skills to coach and develop others. The individual is able to assess and manage his/her emotions and those of others; use empathetic skills to guide and motivate; and organize, prioritize, and delegate work. Awareness of the variety of ways in which leadership is exercised. Understands the importance of team building to leadership development.</p>	<p>Openness Conscientiousness Effortful Control Attention and Emotion Regulation Self-Control Deliberate Problem Solving Planning Growth Mindset Positive Future Self Prosocial Goals and Values Sense of Belonging</p>
<p>Professionalism/Work Ethic: Demonstrate personal accountability and effective work habits, e.g., punctuality, working productively with others, and time workload management, and understand the impact of non-verbal communication on professional work image. The individual demonstrates integrity and ethical behavior, acts responsibly with the interests of the larger community in mind, and is able to learn from their mistakes.</p>	<p>Openness Conscientiousness Effortful Control Attention and Emotion Regulation Self-Control Deliberate Problem Solving Planning Growth Mindset Positive Future Self Prosocial Goals and Values Grit Persistence Academic Self-Efficacy Utility Goals and Values Intrinsic Goals and Values</p>
<p>Career Management: Identify and articulate one's skills, strengths, knowledge, and experiences relevant to the position desired and career goals, and identify areas necessary for professional growth. The individual is able to navigate and explore job options, understands and can take the steps necessary to pursue opportunities, and understands how to self-advocate for opportunities in the workplace. Individual receives consistent and ongoing messaging about how this CRC impacts lifelong career development</p>	<p>Openness Conscientiousness Effortful Control Attention and Emotion Regulation Self-Control Deliberate Problem Solving Planning Growth Mindset Positive Future Self Prosocial Goals and Values Grit Persistence Utility Goals and Values</p>

	Intrinsic Goals and Values
Global/Intercultural Fluency: Value, respect, and learn from diverse cultures, races, ages, genders, sexual orientations, and religions. The individual demonstrates openness, inclusiveness, sensitivity, and the ability to interact respectfully with all people and understand individuals' differences.	Openness Conscientiousness Effortful Control Attention and Emotion Regulation Self-Control Deliberate Problem Solving Growth Mindset Positive Future Self Prosocial Goals and Values Intrinsic Goals and Values

As mentioned, context and culture influence the ability to cultivate desired career-readiness skills and intrapersonal competencies. Additionally, within each context and culture a student may come from or move into, the NACE competency descriptions may not be agreed upon; however, it is likely that their basic underlying value would be recognized. Thus, it can be assumed that graduating students with evidence that they have achieved these competencies would not only be serving the purpose of higher education as an economic stimulator but also as a public good. Yet, how can this evidence be provided?

Given the brevity of this chapter, it is not possible to detail the specific ways in which evidence of career-readiness skill acquisition could be achieved. However, Table 2 lists some of the ways in which intrapersonal competencies can be cultivated and measured.

Table 2: Alignment of Interventions with NAS (2017) Intrapersonal Competencies and Assessment Measures

Intrapersonal Competency	Description	Intervention Strategy	Assessment Measure(s)	Assessment Sub-Scale(s) (if applicable)	Psychometric Property Citations
Conscientiousness (NAS, 2017)	Self-control (NAS, 2017)	A pre-session video explained what a positive future self is and why it	Self-Regulation Academic Scale (Deci, Hodges, Pierson, & Tomassone, 1992)	External Regulation, Introjected Regulation, Identified Regulation, & Intrinsic Motivation	<u>Reference for original SRQ-A (the standard version)</u> Ryan, R.M., & Connell, J.P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. <i>Journal of Personality and Social Psychology</i> , 57, 749-761.

	<p>is important to students' success.</p> <p>Students drafted and refined a vision of their life four years from now, tested the vision for alignment with their core values, shared their vision with classmates, brainstormed actions items to achieve their vision, and discovered the importance of scheduling in those actions every day and every week.</p> <p>and</p> <p>A pre-session</p>			<p><u>Reference for the adapted SRQ-A (the version for students with LD)</u></p> <p>Deci, E. L., Hodges, R., Pierson, L., & Tomassone, J. (1992). Autonomy and competence as motivational factors in students with learning disabilities and emotional handicaps. <i>Journal of Learning Disabilities, 25</i>, 457-471.</p> <p><u>Other articles that have used the SRQ-A</u></p> <p>Grolnick, W. S., Ryan, R. M., & Deci, E. L. (1991). The inner resources for school performance: Motivational mediators of children's perceptions of their parents. <i>Journal of Educational Psychology, 83</i>, 508-517.</p> <p>Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. <i>Journal of Educational Psychology, 81</i>, 143-154.</p> <p>Grolnick, W. S., & Ryan, R. M. (1987). Autonomy in children's learning: An experimental and individual difference investigation. <i>Journal of Personality and Social Psychology, 52</i>, 890-898.</p> <p>Miserandino, M. (1996). Children who do well in school: Individual differences in perceived competence and autonomy in above-average children. <i>Journal of Educational Psychology, 88</i>, 203-214.</p> <p>Patrick, B. C., Skinner, E. A., & Connell, J. P. (1993). What motivates children's behavior and emotion? Joint effects of perceived</p>
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	<p>video explained how time can't be managed but the prioritization of tasks placed into specific time slots can be managed. Another pre-session video connects future self-vision to reflection on types of careers and degree choices to actualize careers. In class, students reflected on their positive future self-vision, their current classes, and then recorded</p>			<p>control and autonomy in the academic domain. <i>Journal of Personality and Social Psychology</i>, 65, 781-791.</p> <p><u>A variant of the SRQ-A has been used in Japan, as reported in the following articles</u></p> <p>Hayamizu, T. (1997). Between intrinsic and extrinsic motivation: Examination of reasons for academic study based on the theory of internalization. <i>Japanese Psychological Research</i>, 39, 98-108.</p> <p>Yamauchi, H., & Tanaka, K. (1998). Relations of autonomy, self-referenced beliefs and self-regulated learning among Japanese children. <i>Psychological Reports</i>, 82, 803-816.</p>
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		major assignments, deadlines, exams, out-of-class activities, etc. in their planner and “speed dated” to find which classmates they shared other classes or interests with to promote sense of belonging. In-class review of planners reinforced how daily choices contribute or detract from well-being and the realization of sense of belonging and the vision for positive future self.			
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Conscientiousness (NAS, 2017)	Responsible to others (NAS, 2017)	Mindfulness Compassion Cultivation Training Program And Pre-class videos explored tips and exercises to engage in non-violent communication and difficult conversations. In-class, students discerned the difference between a crucial conversation and a difficult one, identified and reflected upon crucial conversation examples and shared personal goals about handling	Self-Regulation – Pro-Social (Ryan & Connell, 1989)	External Regulation, Introjected Regulation, & Identified Regulation	Ryan, R.M., & Connell, J.P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. <i>Journal of Personality and Social Psychology</i> , 57, 749-761.
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		difficult conversations. Self-compassion and stress regulation exercises were explored for use when conversations don't go well.			
Conscientiousness (NAS, 2017)	Hard working (NAS, 2017)	Shapin Fox, 1962) and Self-Reinforcement of Study Behavior for Chicano students (Arroya, 1984) Students were told that their ETS Proficiency Profile scores may be released to their college or to potential employ	Mid-term Exam Grades and Final Exams Grade Increase Student Opinion Scale (SOS) Increase (Sundre, 1997) ETS Proficiency Profile Score Increase (<u>not free</u>)	SOS Importance of Tests and Effort on Tests (Sundre, 1997)	Thelk, Amy & Sundre, Donna & Horst, Sonia & Finney, Sara. (2009). Motivation Matters: Using the Student Opinion Scale to Make Valid Inferences About Student Performance. <i>Journal of General Education</i> . 58. 129-151. 10.1353/jge.0.0047. Eccles, J. F., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), <i>Achievement and achievement motives</i> (pp.75 – 146). San Francisco: W. H. Freeman. Pintrich, P. R. (1989). The dynamic interplay of student motivation and cognition in the college classroom. <i>Advances in Motivation and Achievement: Motivation</i>

		ers to evaluate their academic ability (Liu, Bridgeman, & Adler, 2014)			<p><i>Enhancing Environments</i>, 6, 117–60.</p> <p>Pintrich, P. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. <i>Journal of Educational Psychology</i>, 82 (1), 33 – 40.</p> <p>Thek, A. D. (2006). Examinee awareness of performance expectation and its effects on motivation and test scores . Unpublished doctoral dissertation, James Madison University</p>
Conscientiousness (NAS, 2017)	Persevering (NAS, 2017)	2 semester individual coaching of Students to 1) develop a clear vision of their goals, 2) to connect daily activities to their long-term goals, 3) to manage their daily tasks in accordance with their long-term goals, 4) cultivate self-advocacy, 5)	Term-to Term Retention Increase Degree Completion Increase		

		cultivate learning strategies (Bettinger & Baker, 2014)			
Conscientiousness (NAS, 2017)	Rule-Abiding (NAS, 2017)	A pre-session video explained how time can't be managed but the prioritization of tasks placed into specific time slots can be managed. <i>and</i> Another pre-session video connects future self-vision to reflect on types of careers and degree choices to actualize careers. In class, students reflected on	Self-Regulation Learning (Black & Deci, 2000)	Autonomous Regulation, Controlled Regulation	<p><u>References concerning the SRQ-L</u></p> <p>Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. <i>Science Education</i>, 84, 740-756.</p> <p>Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. <i>Journal of Personality and Social Psychology</i>, 70, 767-779.</p>

	<p>their positive future self-vision, their current classes, and then recorded major assignments, deadlines, exams, out-of-class activities, etc. in their planner and “speed dated” to find which classmates they shared other classes or interests with to promote sense of belonging. In-class review of planners reinforced how daily choices contribute or detract from well-being and the</p>			
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		realization of sense of belonging and the vision for positive future self.			
Conscientiousness (NAS, 2017)	Achievement Oriented (NAS, 2017)	Setting Personal Goals and Identification of Steps to Achieve Them (Morisano et al, 2010)	Cumulative GPA Increase Term-to-Term Retention Increase		
Conscientiousness (NAS, 2017)	Awareness	Mindfulness	MAAS (Brown, & Ryan, 2003)		Brown, K.W. & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. <i>Journal of Personality and Social Psychology</i> , 84, 822-848. Carlson, L.E. & Brown, K.W. (2005). Validation of the Mindful Attention Awareness Scale in a cancer population. <i>Journal of Psychosomatic Research</i> , 58, 29-33.
Sense of Belonging (NAS, 2017)	Students' sense of belonging, fit in well, or	Students came together for 6 weeks in 2 semesters each and had discussions facilitating	Cumulative GPA Increase		

	<p>are socially integrated at college (NAS, 2017)</p>	<p>ted by trained staff that focused on their concerns about college success such as academic performance, college resources, transition issues, relationships, and other areas of concern (Folger et al, 2004)</p> <p>*****</p> <p>Students came together at the start of their college in a one-hour facilitated student panel to share their challenges and successful strategies to adjusting to and</p>	<p>***** Increase in cumulative GPA</p>		
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		<p>succeeding in college ; they highlighted the role their social identity played in their strategy selection (Stephen et al, 2014; Walton & Cohen, 2011)</p>					
<p>Sense of Belonging (NAS, 2017)</p>	<p>Students' sense of belonging, fit in well, or are socially integrated at college (NAS, 2017)</p>	<p>Students read survey responses from upper class students who shared their social identities about how much they worried about being accepted in college when they were first year students and how those worries lessened in</p>	<p>Increase in GPA</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Hoffman, M., Richmond, J., Morrow, J., & Salomone, K. (2002). Sense of Belonging Revised Scale</p> <p>.....</p> <p>NSSE Engagement Indicator (NSSE, 2019) (Not Free)</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>Perceived Peer Support, Perceived Isolation, Perceived Faculty Support, Perceived Classroom Comfort</p> <p>.....</p>	<p>.....</p>		
				<table border="1"> <tr> <td>NSSE Themes</td> <td>Corresponding Engagement Indicators</td> </tr> </table>	NSSE Themes	Corresponding Engagement Indicators	
NSSE Themes	Corresponding Engagement Indicators						

		time after they made an effort to connect with others. Students reading the survey responses then wrote an essay about their worries and made a videotaped presentation about their worries and how they know they would be lessened in time when they made similar efforts. (Walton & Cohen, 2007)		Academic Challenge	Higher – Order Learning Reflective & Integrative Learning Learning Strategies Quantitative Reasoning		
				Learning with Peers	Collaborative Learning Discussions with Diverse Others		
				Experiences with Faculty	Student-Faculty Interaction Effective Teaching Practices		
				Campus Environment	Quality of Interactions Supportive Environment		
		<p>■■■■■</p> <p>Pre-session videos provided an overview of engage</p>					

		ment and sense of belonging research as well as provided a definition of self-compassion and a science-based explanation of why it is important to practice. In-class, students quickly responded to given prompts and shared about what it means to belong, what they want their college experience to be like, and events they would like to attend, clubs they would like to join, places			
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		<p>on campu s they would like to visit, etc. Studen ts also discuss ed self- compa ssion and how they will use it in college to cultivat e courag e and resilien ce. <i>And</i> A pre- class video invited student s to revisit their vision for themse lves as a college graduat e, connec t it with their interest s in and out-of- class thus far as well as test it once again with their values. In</p>			
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		<p>class, student s created a vision for their life within their career honoring their community cultural wealth after graduating from college , identified their top 5 values, and created SMART goals and action steps to place in their monthly planner s oriented toward s achieving their visions .</p>			
<p>Academic Self Efficacy (NAS, 2017)</p>	<p>Students' belief that they can</p>	<p>NO known successful intervention in an RCT</p>	<p>Metacognitive Awareness Inventory</p>	<p>Knowledge about Cognition (Declarative Knowledge, Procedural Knowledge, Conditional Knowledge), Regulation of Cognition (Planning, Information Management Systems, Comprehension</p>	

	succeed in academic tasks (NAS, 2017)	1 semester where students are taught ANSWER Methodology and discuss learning strategies with academic advisors and peer mentors; they also schedule in learning tasks into their daily academic planners. For example, in one session – the pre-class video invited students to reflect on their mid-term grades, feedback from professors, and align it with their		Monitoring, Debugging Strategies, Evaluation),	
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	<p>own awareness of the success of their learning strategies thus far. The video re-introduced them to on-campus resources designed to support their movement forward. In class activities invited students to work in triads to discuss their success and challenges using a reflective worksheet. Students were then invited to schedule the tasks specific to their</p>			
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		success or recovery in their weekly planners.			
Growth Mindset (NAS, 2017)	Students' belief that their intelligence (or any other important personal attribute) is not a fixed entity but a malleable quality that can grow and improve	Numerous attitudinal change techniques to teach and reinforce that intelligence is malleable (Aronson, Fried, & Good, 2002) Students rated their causal factors that may contribute to their failure in school. Then they watched a video of other students talking about ways to improve academic perfor	Cumulative GPA Cumulative GPA Increased Fewer dropped classes		

		mance. Then students wrote about how they could apply the main points of the video to their lives. (Hamm et al, 2014; Haynes et al, 2008; Ruthig et al, 2004)			
Growth Mindset (NAS, 2017)	Students' belief that their intelligence (or any other important personal attribute) is not a fixed entity but a malleable	Personal testimonies from students who expanded effort on note taking and how that practice made their grades better were used and then note taking strategies were taught (Boese et al, 2013)	Covington's (1993) Self-Worth Inventory Cumulative GPA Increase Multidimensional Multi-Attributional Causality Scale (Lefcourt et al, 1979) Increased performance on test (Perry et al, 2010)		Coopersmith, S. (1967). <i>The antecedents of self-esteem</i> . San Francisco. H Freeman and Company. Coopersmith, S. (1974). Fostering a positive self-concept and high self-esteem in the classroom. <i>Psychological Concepts in Classroom</i> , 3, 192-225. Covington, M. V. (1967). The effect of anxiety on various types of ideational output measures in complex problem solving. Western Psychological Association: San Francisco. Covington, M. V. (1968). Promoting creative thinking in the classroom. <i>The Journal of Experimental Education</i> , 37(1), 22-30. Covington, M. V., & Crutchfield, R. S. (1965). Facilitation of creative problem solving. <i>Programmed Instruction</i> , 4(4), 3-5. Covington, M., Crutchfield, R., Davies, L.,

	<p>er im por tant per son al attr ibu te) is not a fix ed enti ty but a mal lea ble qua lity that can gro w and im pro ve</p>	<p>most student s improv e their GPA over time with effort. Studen ts then listed strategi es that would improv e their GPA and describ ed factors that current ly affecte d them (Wilso n & Linvill e, 1982) ■ ■ ■ ■ ■ Africa n Americ an first- generat ion student s read two articles : 1) explain ing that student s often worry about social belongi ng in college and that worries subside when student s take</p>	<p>Reading the social belonging article increased FT enrollment in the first year by 45%, reading both articles increased FT enrollment by 41%, and reading the growth mindset only increased FT enrollment by 36% over the control groups.</p>		
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		active steps to create social ties to other college students and 2) an article summarizing research supporting the idea that intelligence is malleable and can be developed with effort. (Yeager et al, 2016)			
Growth Mindset (NAS, 2017)	Students' belief that their intelligence (or any other important personal attribute) is not a fixed entity	Mindfulness and Self-Compassion Cultivation ■■■■■■	Dweck Mindset Inventory Neff Self-Compassion Scale (Raes, Pommier, Neff, & Van Gucht, 2011) MAAS	Self-Kindness, Self-Judgement, Common Humanity, Isolation, Mindfulness, Over-Identified	adapted from: https://www.classroom20.com/forum/topics/motivating-students-with Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. <i>Clinical Psychology & Psychotherapy</i> . 18, 250-255.

	ty but a malleable quality that can grow and improve				
Personal utility goals and values (NAS, 2017)	Personal goals and values that students perceive as directly linked to the achievement of a desired end in the future	Two semester individual coaching of Students to 1) develop a clear vision of their goals, 2) to connect daily activities to their long-term goals, 3) to manage their daily tasks in accordance with their long-term goals, 4) cultivate self-advocacy, 5) cultivate learning strategies	Term-to-Term Retention Increase Degree Completion Increase Improvement in course grades		

		<p>es (Bettin ger & Baker, 2014)</p> <p>■ ■ ■ ■ ■ Several types of exercis es where student s engage d in a discipli ne exercis e; then were taught a differe nt way to engage in that exercis e; they then engage d in the new method ology for the exercis e and explain ed how it related to their improv ement and usefuln ess of the exercis e in their future (Durik et al, 2015; Hulle man, et al, 2010; Schech ter et</p>			
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		al, 2011)			
Personal utility goals and values (NAS, 2017)	Personal goals and values that students perceive as directly linked to the achievement of a desired end in the future	Participants were led to believe that the activity (the affirmation) exercised in the affirmation condition, the control exercised in the control condition) would be beneficial. Students read a report about how writing about values can reduce stress and boost long-term performance. (Brady et al, 2016)	Cumulative GPA Increase Improved Final Course Grades Improved Cumulative GPA Improved term-to-term persistence Aspirations Scale (Kasser & Ryan,1996)	Extrinsic aspirations of wealth, fame, and image; Intrinsic aspirations of meaningful relationships, personal growth, and community contributions; and the aspiration of good health which turned out not to be clearly either extrinsic or intrinsic.	Kasser, T. (in press). Sketches for a self-determination theory of values. In E. L. Deci, & R. M. Ryan (Eds.), <i>Handbook of self-determination research</i> . Rochester, NY: University of Rochester Press. Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. <i>Journal of Personality and Social Psychology, 65</i> , 410-422. Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. <i>Personality and Social Psychology Bulletin, 22</i> , 280-287. Kasser, T., & Ryan, R. M. (2001). Be careful what you wish for: Optimal functioning and the relative attainment of intrinsic and extrinsic goals. In P. Schmuck & K. Sheldon (Eds.) <i>Life goals and well-being</i> . Gottingen: Hogrefe. Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. <i>Developmental Psychology, 31</i> , 907-914. Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American Dream in Russia: Extrinsic aspirations and well-being in two cultures. <i>Personality and Social Psychology Bulletin, 25</i> , 1509-1524.

		<p>z et al, 2014)</p> <p>Similar intervention but improved course grade only (Kost-Smith et al, 2011; Miyake et al, 2010; Martens et al, 2006; Woolf et al, 2009)</p>			<p>Ryan, R. M., Sheldon, K. M., Kasser, T., & Deci, E. L. (1996). All goals are not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds.), <i>The Psychology of Action: Linking Cognition and Motivation to Behavior</i> (pp. 7-26). New York: Guilford.</p> <p>Schmuck, P., Kasser, T., & Ryan, R. M. (2000). The relationship of well-being to intrinsic and extrinsic goals in Germany and the U.S. <i>Social Indicators Research, 50</i>, 225-241.</p> <p>Sheldon, K. M., & Kasser, T. (1998). Pursuing personal goals: Skills enable progress but not all progress is beneficial. <i>Personality and Social Psychology Bulletin, 24</i>, 1319-1331.</p> <p>Williams, G. C., Cox, E. M., Hedberg, V., & Deci, E. L. (2000). Extrinsic life goals and health risk behaviors in adolescents. <i>Journal of Applied Social Psychology, 30</i>, 1756-1771.</p>
<p>Personal intrinsic goals and values (NAS, 2017)</p>	<p>Personal goals and values that students experience as rewarding or meaningful</p>		<p>Written Test of Subject Comprehension</p> <p>..... Aspirations Scale (Kasser & Ryan, 1996)</p>	<p>..... Extrinsic aspirations of wealth, fame, and image; Intrinsic aspirations of meaningful relationships, personal growth, and community contributions; and the aspiration of good health which turned out not to be clearly either extrinsic or intrinsic.</p>	<p>Kasser, T. (in press). Sketches for a self-determination theory of values. In E. L. Deci, & R. M. Ryan (Eds.), <i>Handbook of self-determination research</i>. Rochester, NY: University of Rochester Press.</p> <p>Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. <i>Journal of Personality and Social Psychology, 65</i>, 410-422.</p> <p>Kasser, T., & Ryan, R. M. (1996). Further examining</p>

	<p>ul in and of the ms elv es; lin ked to stro ng inte rest</p>				<p>the American dream: Differential correlates of intrinsic and extrinsic goals. <i>Personality and Social Psychology Bulletin</i>, 22, 280-287.</p> <p>Kasser, T., & Ryan, R. M. (2001). Be careful what you wish for: Optimal functioning and the relative attainment of intrinsic and extrinsic goals. In P. Schmuck & K. Sheldon (Eds.) <i>Life goals and well-being</i>. Gottingen: Hogrefe.</p> <p>Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. <i>Developmental Psychology</i>, 31, 907-914.</p> <p>Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American Dream in Russia: Extrinsic aspirations and well-being in two cultures. <i>Personality and Social Psychology Bulletin</i>, 25, 1509-1524.</p> <p>Ryan, R. M., Sheldon, K. M., Kasser, T., & Deci, E. L. (1996). All goals are not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds.), <i>The Psychology of Action: Linking Cognition and Motivation to Behavior</i> (pp. 7-26). New York: Guilford.</p> <p>Schmuck, P., Kasser, T., & Ryan, R. M. (2000). The relationship of well-being to intrinsic and extrinsic goals in Germany and the U.S.</p>
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					<p><i>Social Indicators Research</i>, 50, 225-241.</p> <p>Sheldon, K. M., & Kasser, T. (1998). Pursuing personal goals: Skills enable progress but not all progress is beneficial. <i>Personality and Social Psychology Bulletin</i>, 24, 1319-1331.</p> <p>Williams, G. C., Cox, E. M., Hedberg, V., & Deci, E. L. (2000). Extrinsic life goals and health risk behaviors in adolescents. <i>Journal of Applied Social Psychology</i>, 30, 1756-1771.</p>
Personal intrinsic goals and values (NAS, 2017)			Intrinsic Motivation Inventory (Ryan, Koestner, & Deci, 1991),	Interest/Enjoyment, Perceived Competence, Effort/Importance, Pressure/Tension, Perceived Choice, Value/Usefulness, and Relatedness	<p>Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. (1994). Facilitating internalization: The self-determination theory perspective. <i>Journal of Personality</i>, 62, 119-142.</p> <p>McAuley, E., Duncan, T., & Tammen, V. V. (1987). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory factor analysis. <i>Research Quarterly for Exercise and Sport</i>, 60, 48-58.</p> <p>Plant, R. W., & Ryan, R. M. (1985). Intrinsic motivation and the effects of self-consciousness, self-awareness, and ego-involvement: An investigation of internally-controlling styles. <i>Journal of Personality</i>, 53, 435-449.</p> <p>Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. <i>Journal of Personality and Social Psychology</i>, 43, 450-461.</p> <p>Ryan, R. M., Connell, J. P., & Plant, R. W. (1990). Emotions in non-directed text learning. <i>Learning</i></p>

<p>(NAS, 2017)</p>	<p>g a pro social religious or political agenda or some endeavor that transcends self-interest</p>	<p>ssion, and Self-Compassion Cultivation</p>	<p>Multidimensional Compassion Scale (Jazaieri et al, 2012; 2013)</p>	<p>Cognitive, Affective, Intentional, Motivational</p>	<p>Goldin, P. R. (2018). <i>Predicting compassionate behavior: Application, development, and psychometric properties of the Multidimensional Compassion Scale</i>. Unpublished manuscript, University of California, Berkeley, CA.</p> <p>.....</p>
<p>Positive Future Self (NAS, 2017)</p>	<p>Positive images, pictures, imagined trajectory, or personal narratives that students construct to represent wh</p>	<p>2 semester individual coaching of Students to 1) develop a clear vision of their goals, 2) to connect daily activities to their long-term goals, 3) to manage their daily tasks in accordance with their long-</p>	<p>Persistence Increase Degree completion increase</p> <p>..... Positive Future Self Scale</p>		

	<p>at kin d of per son the y wil l be in the fut ure (N AS , 201 7)</p>	<p>term goals, 4) cultivat e self- advoca cy, 5) cultivat e learnin g strategi es (Bettin ger & Baker, 2014) ■■■■■ One semest er individ ual coachi ng of student s to 1) develo p a clear vision of their goals, 2) to connec t daily activiti es to their long- term goals, 3) to manag e their daily tasks in accord ance with their long- term goals, 4) cultivat e self- advoca cy, 5) cultivat e learnin</p>			
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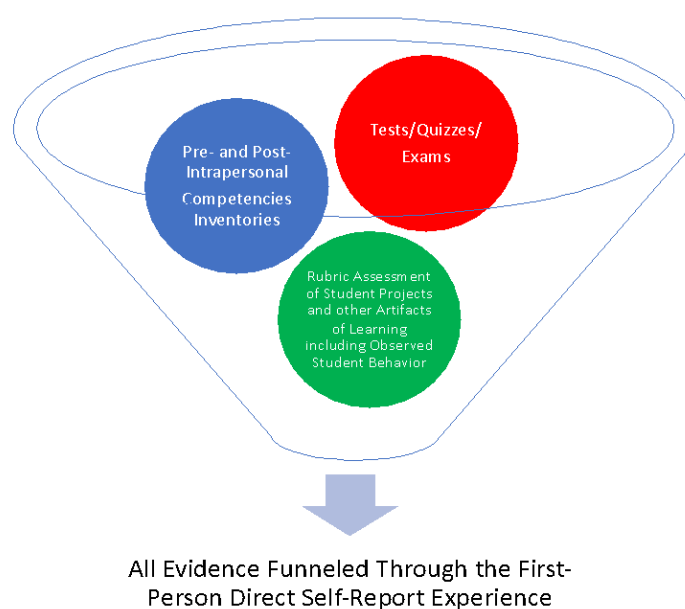
		g strategi es			
Positive Future Self (NAS, 2017)	Pos itiv e ima ges , pict ure s, ima gin ed traj ect ory , or per son al nar rati ves that stu den ts con stru ct to rep res ent wh at kin d of per son the y wil l be in the fut ure (N AS , 201 7)	Studen ts journal ed about their future journe y to positiv e acade mic identit y, and social identit y (Landa u et al, 2014)	Exam performance increase Increase in study time as recorded in an academic planning calendar		

When adding the complexity of career-readiness skill acquisition to the research on the typically developing adolescent brain, it's understandable why educators question whether a goal of four-year degree attainment for all students used as an indicator of economic viability evidence makes neurological sense. As such, the measures used to ascertain gains and drops in career-readiness skill acquisition or fluid intelligence must include the student's first-person direct experience. Not to be confused with asking the student how satisfied they were with their learning opportunity, first-person direct experience—or centering the student's voice within the experience—is intended to provide a detailed description of what the student thought, felt, and specifically how they navigated each learning opportunity in order to ascertain their perception of their learning and growth. Because the typically developing adolescent brain is prone to sense-seeking, meaning making, and high risk-taking regardless of whether rewards are positive or negative, the first-person direct report must include a deep dive into exploring sensations and emotions. This may be a surprise to meta-cognition experts who seek to privilege awareness of thoughts. In this framework, cultivating awareness of thought is important, and so is awareness of emotions and where they are experienced in the body (Bresciani Ludvik, 2019a; 2019b). This education and assessment process empower educators to obtain much more information about the role of context and culture in learning and development and as such, provides even more data to inform the selection of meaningful performance indicators for both economic viability and the public good.

Perhaps it is easier to envision the gathering of evidence of student learning and development in the form of pre- and post-intrapersonal competency assessment inventories designed to measure the malleable fluid intelligence skills previously discussed (See Table 2 for an example), crystallized intelligence facts and knowledge using tests and quizzes of

subject/discipline knowledge, and the integration of these two forms of neurocognitive intelligence via evaluation of a variety of forms of student work using rubrics. Figure 3 below seeks to depict the importance of interpreting how context and culture influence what this collection of evidence demonstrates by using reflection pieces from the students themselves who are experiencing what has been provided to them.

Figure 3. Student Learning and Development Evidence Funneled Through First-Person Direct Experience



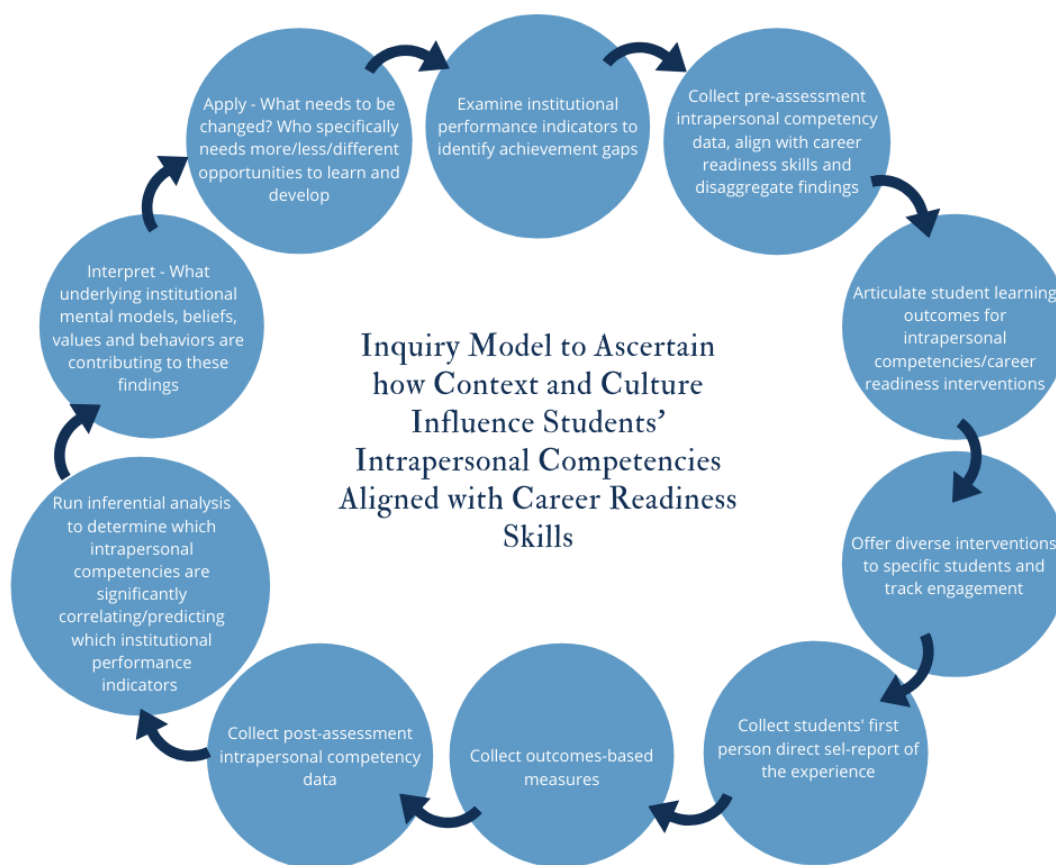
Before moving to posit the inquiry framework for an accountability model that may serve educators in the way forward, let's take a moment to summarize a few practical application tips from this section.

Practical Application Tips from this Section

1. For an illustration of how intrapersonal competencies/fluid intelligence/executive functions align with NACE career readiness skills, see Table 1

2. For just a few ideas on how to cultivate and measure the attainment of these intrapersonal competencies/fluid intelligence/executive functions, see Table 2
3. For an overview of the inquiry methodology that begins to pull all of these pieces of data overviewed in Figure 3, see Figure 4 (Bresciani Ludvik, 2019b).

Figure 4. Larger Inquiry Methodology



Positing the Inquiry Model for Higher Education Accountability

The accountability model that has existed up unto this point has been rife with debate over whether it is reinforcing the notion that higher education exists to serve the public good or whether it exists to stimulate the economy. In revisiting the figures presented in this manuscript, and in particular Figure 1, consider for a moment that engaging in inquiry that seeks to

understand how culture and context are playing a role in students' ability to become workforce ready is not a simple matter. It takes time and a willingness to suspend previous beliefs about what higher education should look like or how long students should take to complete a degree or provide some evidence that they are competent to engage in, grow, modify, or create new specific work or service in varying contexts and cultures.

The current landscape continues to be fraught with debate on the level of influence employers are exerting on desired student learning and development outcomes and competencies. Likely this dialogue is intended to assure that higher education serves economic viability. In addition, concerns are growing over continued equity gaps even though gains in access have been made evident. How can such gaps exist if higher education is serving a public good? With an emphasis on approving a delayed reauthorization of higher education act which may change the shape of American accreditation and accountability, what would a model of accountability that brings both purposes of higher education together look like? How can assurances for public good and economic stimulation be embedded within this model? And how could emerging neuroscience be leveraged?

Within all of this, emerging neuroscience is revealing complexities in the typically developing adolescent brain (ages 10-25) that must be respected within educational systems even if institutions are serving students who don't fall into the adolescent category. Furthermore, neuroscience has revealed several malleable intrapersonal competencies (Figure 2) that contribute to students' ability to succeed which means they must be attended to regardless of the age of students' institutions primarily serve.

As such, consider for a moment that if an institution were to embrace some variation of NACE employer-desired career-readiness competencies (Table 1), what would it look like to see

which students are benefiting most from the opportunities to cultivate these skillsets? What decisions could the gathered evidence inform? While Table 2 provides a summary of some very specific research on how to cultivate these intrapersonal competencies and how to measure them, educators may wonder how to begin this conversation on their own campus. In service to this kind of inquiry, the author invites an exploration of the “If, Then logic model” in Figure 5.

Figure 5. The If, Then Logic Model for Intrapersonal Competency Accountability Inquiry

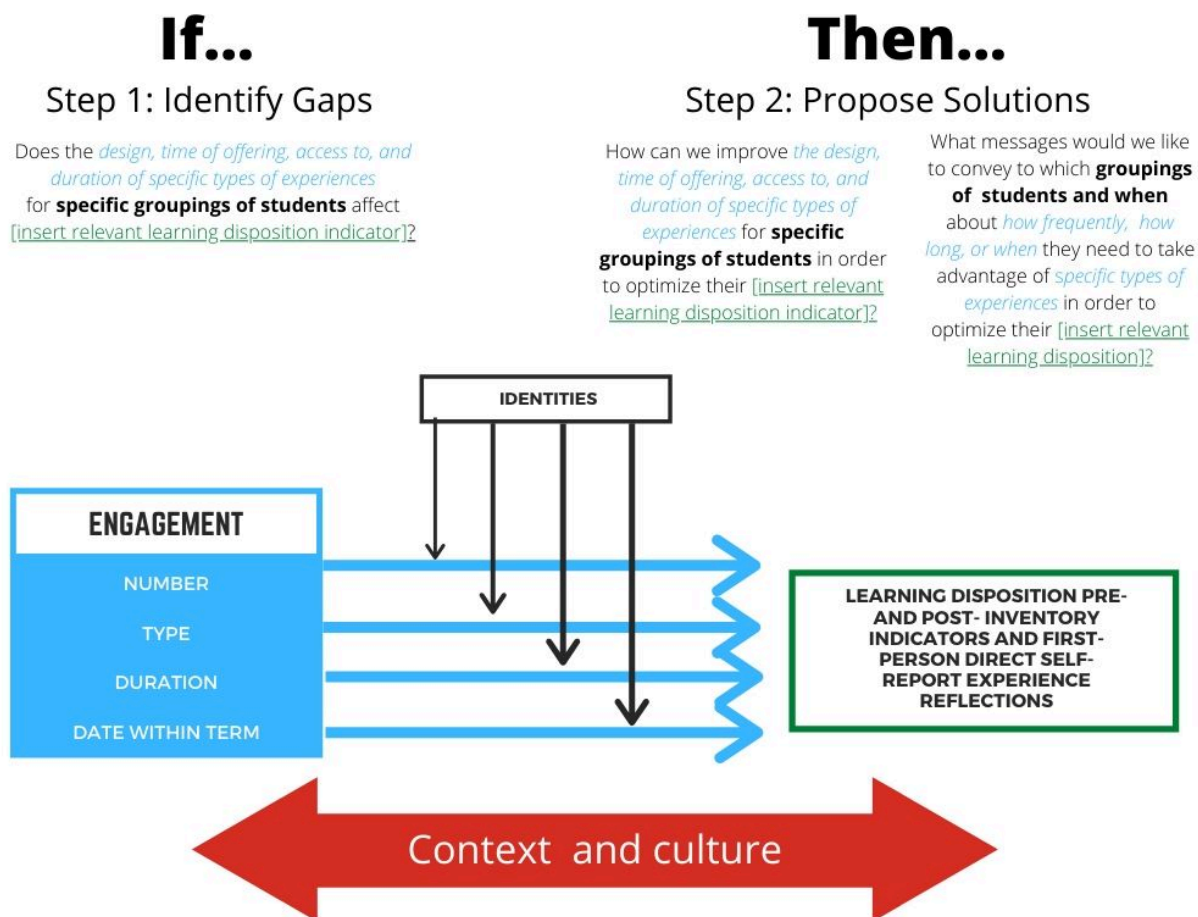


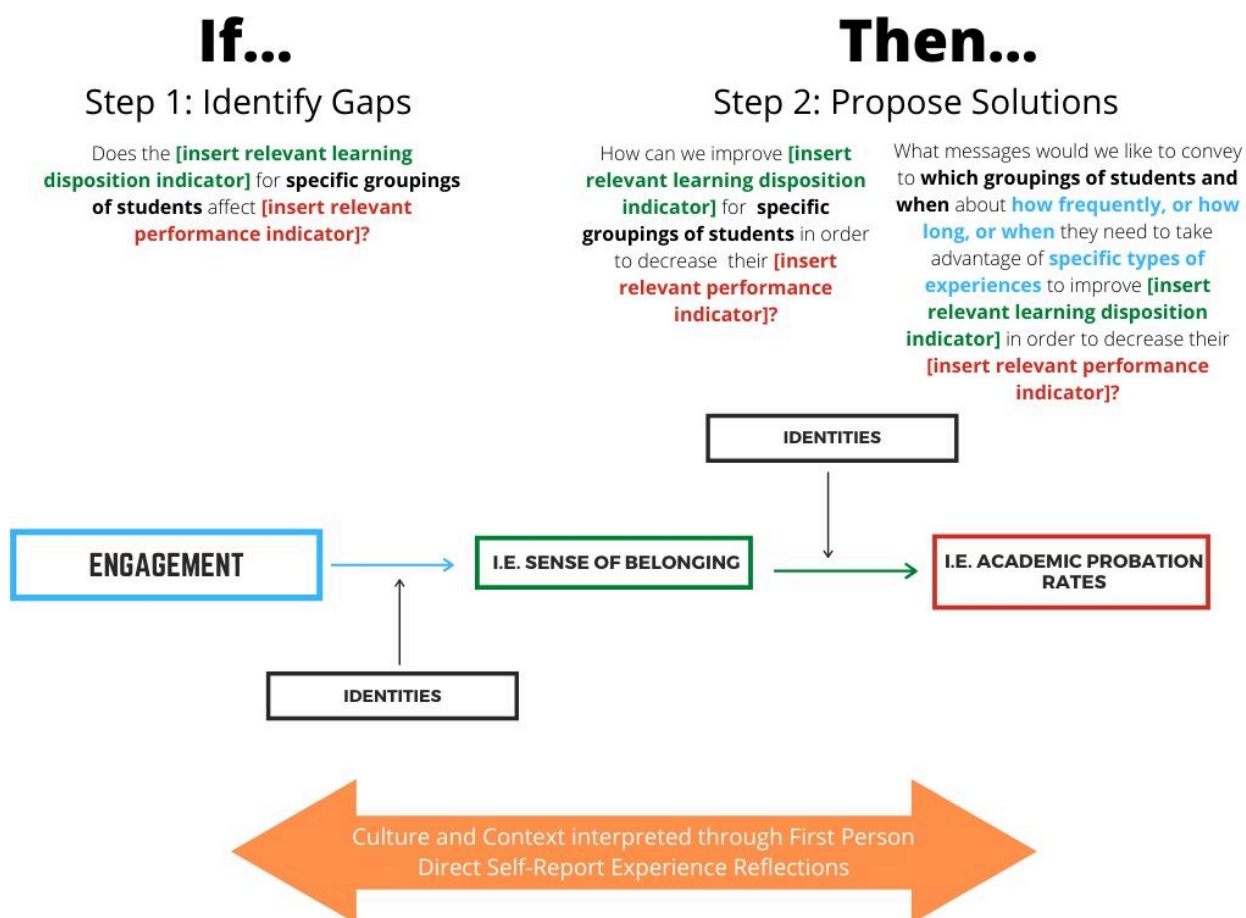
Figure 5 invites an application of any in-class or out-of-class opportunity or the culmination of them to this model. Then, track the level of engagement students had with each learning and development opportunity by noting the type of experience, how much of each

experience, for how long, and when. By also tracking this and joining it with students' multiple identities, data can be disaggregated, and through the use of pre- and post-intrapersonal competency assessment inventories and related institutional performance indicators (see Table 2), determine which experiences and ways of engaging in those experiences is most beneficial to whom. By integrating the first-person, direct self-report experience reflections (Bresciani Ludvik, 2019a; 2019b), educators can begin to understand the influence context and culture has for students' success. This kind of inquiry model will help address the quality of learning and perhaps more specifically, the quality of career-readiness skill acquisition students are showing prior to graduation.

With regard to the other performance indicators (with the exception of the Affordability Return on Investment formula, which resides outside the scope of this chapter), a similar logic of inquiry can also be applied to other institutional performance indicators. All that is needed is to replace the desired institutional performance indicator where the intrapersonal competency assessment inventory indicator is listed in Figure 5.

If there is desire to bring this all together, then Figure 6 provides the illustration of how to do that. Figure 6 invites an exploration of how each student specifically engages with each learning and development opportunity provided (in-class or out-of-class). It then relates that engagement to its influence on a specific fluid intelligence skill. If data is gathered and analyzed well, organizational leaders can determine how it influences the relevant or desired performance indicators. Most importantly, data is disaggregated by a variety of identities and intersecting of identities while using the first-person, direct self-report of experience to determine which students need what types of improvements.

Figure 6. Bringing it all Together for Public Good and Economic Viability



While Figure 6 is not illustrative of the inclusion of the return on investment affordability calculation, it demonstrates an inquiry logic that would fold into that formula. Regardless, the inquiry models outlined in Figures 5 and 6 are intended to provide ways in which educators can characterize the institutional performance indicators illustrated in Figure 1 and begin the practical application dialogue on their campus. In particular, this inquiry model and re-framing of age-old performance indicators seeks to close the doors on the debate of whether higher education exists for public good or economic stimulation and ascertain that it is both, if a different inquiry model and dialogue process about more holistic measures of student success (as described in this chapter) are implemented. Educators can responsibly determine within an

accountability framework how they are doing both with a shift in the way they approach data collection, interpretation, and indicators of institutional success.

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KEY TERMS AND DEFINITIONS

All key terms are defined within the manuscript.