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ABOUT:

The Journal for Advancing Business Education is a practitioner and scholarly journal that publishes the best work in the field of business education to enhance teaching, achieve student learning outcomes, and meet program goals. The Journal follows the general IACBE theme of "Moving. Forward. Together." All submissions are subject to a double-blind peer review process. The Journal is an online journal and accessible on the IACBE Web page. The Journal for Advancing Business Education is a biannual publication.

MISSION:

The mission of the Journal for Advancing Business Education is to publish best practices and scholarship in business and business-related fields to improve business education and society.

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FROM THE EDITOR

Dear Reader,

An issue that recently gained momentum is the following: There is a need to repair business education. Declining enrollments, questioning the value of a higher ed degree, and managing student debt, are just a few of the problems that plague business education. The system is definitely damaged, if not broken. What is needed is a reboot to fix it. However, one has to be strategic about tackling these major challenges and putting a sustainable, long-term plan in place. All higher ed stakeholders, including students, parents, administrators, money lenders, and the government, have to work together to make this happen.

America is acknowledged as a leader in higher education. Students from around the world choose to attend U.S. colleges and universities to have access to the best research facilities, best professors, and best opportunities for talented students. Yet, the higher education system still needs improvements to address these challenges:

- Leaving students underprepared for the workforce and for life.
- Encouraging and subsidizing student debt.
- Mismanaging social mobility.
- Being slow in responding to market trends.
- Failing to adapt the learning infrastructure to the needs of today's learners.
- Using outdated pedagogy to teach knowledge.
- Overemphasizing college rankings.

What can be done to fix this ailing business education system and help restructure how society approaches education?

- Make higher education more affordable and accessible.
- Acknowledge that there is a place for technical and vocational education.
- Provide an education infrastructure that allows for more adult and life-long learning.
- Put experiential and real-world learning front-and-center.
- Encourage university-industry partnerships.
- Provide business education with a purpose.
- Offer flexible, stackable degrees that allow for differentiated delivery.
- Achieve gender equity and diversity.
- Harness the power of artificial intelligence.

At the end of the day, it is necessary to stop subsidizing a broken system and instead reform business education. Let's apply all we have learned about business and education to create a system with clear and undeniable value to the aforemented stakeholders.

Thank you!

Christian Gilde
Managing Editor

Journal for Advancing Business Education

WHAT IS MISSING FROM MANAGEMENT EDUCATION?
THE KNOWLEDGE AND SKILLS FROM THE GROWING PROFESSION OF
EXECUTIVE COACHING!

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ABSTRACT

This research seeks to understand whether business schools are lagging in their preparation of future leaders. The author explores the question, *should the knowledge and skills of executive coaching be integrated into management education*? The growing profession of coaching and its integration into the workplace, demands our attention as educators. The interview questions explore the potential of integrating executive coaching skills and knowledge into management education from the point of view of senior leaders as the future employers of business graduates. An outcome of this research is the insight into what employers expect of educators, as they prepare students to become future leaders.

INTRODUCTION AND BACKGROUND

Currently, the discipline of coaching lives outside of the traditional business curriculum, or at the most, it lives at its fringe. We can infer from employers' active engagement of both internal and external coaches that they value the skill and knowledge that their leaders gain from their interactions with executive coaches. The literature reflects support that the gained skills can serve senior leaders as they face their daily challenges. Coaching aligns with and supports participative leadership and empowerment (DiGirolamo & Tkach, 2019; DiGirolamo & Tkach, 2020). Coaching serves leaders and managers as they gain insights on their own thinking (Jamison, 2018). It also serves leaders as they learn how to motivate and empower their followers (Filipkowski, Heverin, & Ruth, 2019).

The profession of executive and leadership coaching has significantly expanded (Mackenzie-Ruppel, 2021). Executive coaches will partner with senior leaders to onboard them to their new roles; it also prepares highly valued talent to rise-up and be *ready* for the senior leadership opportunities that require forward-thinking individuals. As scholars and educators, we must explore the discipline of executive coaching as a source for a meaningful body of knowledge, skills, and theories, that will serve business managers and leaders.

There is a gap that needs to be considered; a decision must be faced as to whether coaching should be actively integrated into the program-level outcomes for both undergraduate and graduate business education. Currently, training for coach practitioners and internal executive coaches emerges from *external* organizations, rather than from *universities* and *colleges*. Are business schools lagging behind this shift in leadership preparation? Coaching can be a powerful tool, as well as lay the foundation as a meaningful philosophy, that can serve current, emerging, and future leaders.

To answer these questions, research was needed that will inform the pathway for educators as they serve the goals of students and business professionals. In the next section, we explore *why* it is critically essential that education remain cutting edge and forward thinking.

Why Is This Research Important?

This research is critical as there are multiple influences upon the success of higher education and its mission to serve its students. The influence and perception of the global pandemic, the authority of business accreditors, and the needs of the business world, can be conflicting and confusing. When a new and valued business profession begins to grow *outside* of the university system, educators need to take notice.

The knowledge, theories, and skills related to the discipline and profession of leadership and executive coaching has not found its way into the canon of management education. Jamison (2018) found that leaders who wish to create a coaching culture may find resistance or reluctance from organizational leaders and managers. Jamison (2018) further suggested that this reluctance can be lessened if coaching is introduced as a legitimate management practice within traditional business curriculum and management education.

The Impact of the Global Pandemic on Higher Education.
College administrators point to the global pandemic as the cause of enrollment drops. Though the global pandemic has heavily and negatively impacted many colleges, this deflection

of responsibility to keep curriculum lean and mean, has allowed professional certifications to emerge as a meaningful credential for students and employers. In the March 6, 2020, The Chronicle of Higher Education reported, prior to the shutdown of face-to-face education across the United States, that 30% of colleges faced some market risk with 10% of colleges facing severe market risk (Mackenzie-Ruppel, 2020). At the 2020 Northeast Business and Economics Association Conference (NBEA.us), the factors were presented that influenced higher education's under-performance *prior* to the 2020 Pandemic. Acceptance and accountability may inspire academic leaders to recognize the factors that have weakened Higher Education; the global pandemic was the straw that broke our backs. (Mackenzie-Ruppel, 2020).

The influencing factors of Higher Education' underperformance prior to the 2020 Pandemic, start with Public Doubt in the economic value of a college education. Although there is evidence that earning a college-degree will improve the economic future of an individual (Source: Georgetown University), public doubt still exists (The Trends Report, 2019, CHE). This research is important because business education must ensure that the knowledge, skills, and disposition gained in college is economically relevant to the professional journey and goals of the student.

Defining Premier Business Education

For many, business education is about workforce preparation. When we consider the enrollment dips and the growing interest in professional education, business educators must be hypervigilant to the threat of professional organizations becoming the *'go-to'* educational providers, as is the case with leadership and executive coaching.

Business Schools must take the lead as the premier source of business education. We need to consider the success of the mega-university model, which offers a degree at a low cost with high convenience. We need to recognize that some students believe that the credential of a college education is *all* that is needed, regardless of the educational content (Mackenzie-Ruppel, 2020). It is unclear as to who and how premier business education is defined. Mackenzie-Ruppel (2021) shared the various influences and authorities that define the content of business education. This included state government (Program Registration, 2020), academic disciplines and their national associations, educational institutions and their regional and national associations, and the federal government, who has delegated and empowered the regional accreditors (e.g., MSCHE). (Harcleroad, 1980; Hegji, 2018). The concern is that the regional accreditors do not define the disciplines' content (Harcleroad & Eaton, 2005). That role should be filled by the discipline-specific business program accreditors (e.g., IACBE and AACSB). Yet, there has been an intentional move away from a model curriculum (AACSB, 2013; AACSB, 2018; AACSB, 2020; AACSB, 2021), leaving the institutions to make their own decisions as to the content of their business curriculum.

A GROWING BUSINESS PROFESSION: LEADERSHIP AND EXECUTIVE COACHING

Thomas Leonard started a non-profit organization in 1996 called the International Coach Federation (ICF) to support fellow coaches. Its progressive success has led to significant research and global membership. It is now considered the gold standard for coach certification. (International Coaching Federation, 2021; International Coaching Federation, 2020; International Coaching Federation Website). ICF is not alone in controlling the education and certification arm

of this growing profession. Other organizations include: The International Authority for Professional Coaching and Mentoring (IAPC&M), Center for Credentialing and Education (CCE), European Mentoring & Coaching Council (EMCC), International Association of Coaching (IAC), and the Association of Coaching (AoC).

ICF-sponsored research has revealed that both individuals and organizations have adopted coaching practices. The use of coaching skills has expanded beyond professionally trained coach practitioners to include managers, leaders, human resource professionals, and talent-development professionals. A 2019 study attracted 22,457 responses from 161 countries and territories with a 46% response increase over its 2016 study. Results revealed that there were approximately 71,000 coach practitioners in 2019. This reflected an increase of 33% on the 2016 estimate. Add to this statistic the number of managers and leaders using coaching skills, which was estimated to have risen by 46%, bringing the total estimate to 86,900 individuals using coaching skills and approaches in the workplace (International Coaching Federation, 2020).

Compelling to this exploration is that only 10% of the training was university-based (International Coaching Federation, 2020). Business Coaching was up to 65% in 2019 from 62% in 2016. 94% of coach practitioners offered other services (e.g., consulting, training, facilitation services). 50% of coaches reported that clients are mostly managers and executives. A typical coaching client was between 35 and 44 years of (37%); 30% were 45-55 years old and 24% were under 35 years old (International Coaching Federation, 2020). Business educators need to recognize this growing profession and consider its integration into the curriculum.

Organizational Development (OD)

A series of studies spanning six years, sponsored by the Human Capital Institute (HCI) in collaboration with the International Coach Federation (ICF), have focused on coaching cultures in organizations (Filipkowski, Heverin, & Ruth, 2019). The results revealed that thirty-two percent (32%) of responding organizations used internal coach practitioners, external coach practitioners, and have managers and leaders using coaching skills. Approximately 83% of organizations reported plans to expand the use of coaching skills by their organizational leaders and managers. Respondents reported that coaching activities were used to develop leaders (55%), enhance performance management discussions (49%), and to develop talent (51%) (Filipkowski, Heverin, & Ruth, 2019). The intersection of managing, leading, and coaching is present in the world of business. Some may perceive coaching as a new profession, but it is built on a rich and meaningful history.

The Unknown History of Coaching and Its Theoretical Foundation

The theoretical foundation for coaching builds on a rich history. The early influencers include Napoleon Hill (1883 -1870), Samuel Smiles (1812-1904), Dale Carnegie (1888-1955), Bill Wilson (1895-1971), and Bob Smith (1871-1950), Collectively these self-help philosophers emphasized self-reliance (Wildflower, 2013). The emergence of Humanistic Psychology (1950s) led to understanding human drive with less focus on pathology and more on the holistic focus of the human experience. A holistic view with a focus on raising up human potential emerged (Maslow, 1968; Schultz, 1994; Wildflower, 2013).

The theoretical foundation of coaching evolved from the influences of Richard Price (studied Psychology at Harvard), Michael Murphy (influenced while at an Ashram in India), and the Esalen Institute (Wildflower, 2013). The theoretical foundation for coaching emerged from the same theorists that filled our Organizational Behavior textbooks such as Abraham Maslow and Kurt Lewin.

EXPLORATORY RESEARCH IS UNDERWAY

Revising management education requires exploratory research that includes the requirements and desires of business education stakeholders. A larger multi-phase study will include the viewpoints of management faculty and graduated students, in addition to the senior leaders/employers, whom are included in this paper. The range of research questions will explore the interest, the process, and the potential benefit of integrating coaching skills, theories, and knowledge into the canon of management education. Business educators must face the reality that more organizations are hiring coaches to help onboard leaders and to support rising talent as they move up the corporate ladder. More senior leaders are being trained to coach others within the organization. Yet, management education has left the coaching discipline on the fringe, mostly living within the Organizational Behavior (OB) course within its business curriculum.

A multi-phased research agenda was designed to deeply explore this topic. In this first paper the insights gained from a valued stakeholder of business education, is reported. The subjects for this study are senior leaders willing to share their experience and expectations of business education as it pertains to executive and leadership coaching. This research will inform business educators on how its influence over future leaders, can remain relevant. The IRB-approved protocol was followed.

Subjects

Eleven senior leaders were interviewed: two (2) held the title of President, four (4) held the title of Executive Vice President/Senior Vice President, two (2) held the title of CIO/CFO, and three (3) held the title of Vice President/AVP.

Of the eleven senior leaders, two (2) were female and nine (9) were male. A diversity of industries was explored with healthcare representing the largest. The industries include: 27.2% Healthcare; 18.2% Finance; 9.1% Marketing; 9.1%, Movie industry; 9.1% Real-estate; 9.1% Education; 9.1% Human Services; 9.1% Technology.

Research Methods and Results

The IRB-approved protocol was followed. In-depth interviews were used to capture the experience, insights, viewpoints, and opinions of the eleven subjects. The interviews followed the protocol for a semi-structured interview, which allowed the researcher to probe the subject's answers, while still maintaining the basic interview structure. The interview schedule of questions inquired as to each subject's experience with coaching, familiarity with the coaching process as compared to mentoring, consulting, and therapy; inquiry was made into organizational culture as relates to coaching, and the subject's expectation of business educators in preparing our students

to become their employees (see appendix for schedule of interview questions). The interviews were recorded and transcribed without any subject identifiers being captured. The original recording was destroyed as soon as the transcript was created. The researcher systematically and manually identified words and sentences that expressed concepts and themes. Content analysis was used to mine the data points from the transcribed interviews. A multi-staged iterative process was used to reduce the data and to allow the themes to emerge.

A total of 138 data points were drawn from the eleven transcripts. These data points were systematically reduced by the researcher in an iterative process to allow the themes to emerge. A total of fifteen (15) themes emerged that are being presented under three umbrella concepts. They are: (1) executive leadership coaching within organizations, (2) expectations of business graduates after being hired, and (3) expectations of business educators in preparing graduates to be workplace successful.

RESULTS

Results Concept #1: Executive Leadership Coaching Within Organizations

Gaining insight into the thinking of senior leaders is a valuable source of knowledge for business educators. A total of 61 datapoints drawn from the eleven senior leaders' interview transcripts, were reduced, allowing seven (7) themes to emerge. These themes collectively tell a story. They reveal how executive and leadership coaching has become a valued tool to influence the development of leaders. These results reveal some of the internal challenges that business leaders must navigate, such as hiring internal vs. external coaches and justifying the investment. The recommitment of senior leaders to the softer skills that elevate communications, active listening, collaborating, and thoughtful decision-making, was revealed. An intimate insight of the inner workings of leadership development and the behaviors that senior leaders value in their rising leaders, was also revealed.

Theme #1: Leaders are Exposed to Leadership Coaching in Different Ways

The interviewed senior leaders who had been exposed to executive coaching, first experienced it in the workplace. Many of the leaders were exposed to coaching either as the recipient of coaching, being selected as high-potential talent; or the leader observed others in the organization receiving coaching. For some, coaching was part of the day-to-day communications with other workplace colleagues or in the activity of managing interns. It was not always clear to the senior leaders as to how executive coaching fit into the workplace landscape. Was it positive or negative that a person was given an executive coach? None of the interviewed senior leaders had been exposed to coaching prior to what they experienced in the workplace. Coaching was not part of their business education. Select data points that illustrate this theme include:

- ✓ *"I was introduced to leadership coaching through advances in my corporate experiences at work."*
- ✓ *"Learned that it was a formal process that companies use to invest in people they are looking to grow and to advance."*

- ✓ *"… 40 years ago, I was skeptical. I'm not skeptical anymore; coaching is so common and it's so important."*
- ✓ *"…we are coaching at all levels … we carve out five-minutes in our support meeting to talk about personal development, professional development, and use that time for some type of coaching."*
- ✓ *"The first time I learned that my CEO had a coach, I was shocked. I loved our CEO. It was a shock that someone who was already a CEO, who I look at as a person that knows everything, was getting a coach."*

Theme #2: Shift in Coaching from Being Perceived as Remediation

A theme emerged that coaching has made a shift *away from* a form of remediation. Coaching is now positioned as a valued gift to those rising leaders that are showing the most potential. Coaching is also used to help a valued leader to transition or onboard so that the leader is able to *fit* into the new or current organizational culture. In the past, a senior leader who was getting close to a cliff may have been given a coach to pull him back from the ledge and prevent him from failing. For some, the perception of that role for coaching, still exists. A senior leader may resist being given an executive coach because of the perception that coaching is a sign that you are not on track and may be slipping.

The realization is becoming more common that executive and leadership coaching is a meaningful investment to those senior leaders who are most valued by the organization. It is now a tool to accelerate the development of rising and high-potential leaders so that they are ready for promotion, more quickly. Also, a valued leader who has a set of skills that are essential for organizational success, may be given a coach to round out the skills that are less developed. Coaching is also often used to upskill a newly promoted or hired senior leader. Often coaching engagements focus on the softer skills, such as communication, leadership style, and executive presence. Select data points that illustrate this theme include:

- ✓ *"I was very lucky, because coming into a company at a very senior level, you can't really trust anyone; I didn't have the friends I had at my prior company. And so, it was super helpful."*
- ✓ *"Coaching has evolved. Now companies bring in executive coaches for high potential executives, not because they're going to derail, but much like coaches for Tiger Woods and Serena Williams. You have a coach to help you be better."*
- ✓ *"I love the transformation. Companies used to use coaching as a remedial tool, now you give it to help your highest potential executives, so they achieve their full potential."*
- ✓ *"Initial perception was that it was something of a negative connotation"*
- ✓ *"Look at the people that are receiving coaching; they are perceived as the most important people in the company."*
- ✓ *"I was fortunate to have a coach. When I worked as a C-suite executive, reporting to the president, there was a lot of bullying in the company. When I went to the CEO about it, he asked me, 'would it be helpful to have a coach to help you deal with this?' He should have said, 'I'll change the culture'."*

Theme #3: Senior Leaders Align Coaching with Mentoring

The coaching profession makes clear that coaching is *not* mentoring, *not* therapy, and *not* consulting. The International Coaching Federation (ICF) defines coaching as a partnership between the coach and coachee "*in a thought-provoking and creative process that inspires them to maximize their personal and professional potential. The process of coaching often unlocks previously untapped sources of imagination, productivity, and leadership.*" (International Coaching federation Website, 2021).

When exploring how the senior leaders perceived the process and concept of coaching, its alignment with *mentoring* revealed a near full overlap. The concept of *mentoring* suggests that the coach had previously walked the same or similar steps that the coachee is now needing to navigate, and therefore the coach can provide the mentorship. This is in conflict with the purist view of coaching. The senior leaders also suggested that consulting, which is when the coachee is clearly advised on the right path to take, also aligns with their view of coaching. And finally, it was peripherally suggested that coaching can bleed a bit into *therapy*, which the coaching profession strongly stands against. In summary, the senior leaders align coaching most closely with mentoring with some seeing a broader overlap with consulting and even a little therapy. Select data points that illustrate this theme include:

- ✓ *"Coaching gives guidance based on experience that someone else has."*
- ✓ *"It's everything, especially mentoring and some therapy".*
- ✓ *"Isolating coaching to one category is a loss. We should take a holistic view at how to help a business professional."*
- ✓ *"It's hard to imagine coaching without mentoring"*
- ✓ *"Coaching should be integrated with mentoring. Someone should have background in the field that you work with."*
- ✓ *My coaching experience is from the private equity ownership exit process. ... The lines become blurred between mentoring and coaching."*

Theme #4: External vs. Internal Organizational Coaches

Insight on the benefits and/or challenges of hiring either external or internal coaches to support leadership talent revealed the various factors that CHROs must consider. *"**Internal coaches will reiterate**"* and reinforce the current culture; yet this is "*wrought with bias.*" Hiring an external leadership coach will bring an "*external view*". An internal coach may encourage a "*herd mentality,*" which may be lessened by hiring an external coach, who will allow the coachee-leader to broader the path of exploration and insight. On the other hand, an external coach is unable to help the coachee "*figure out how to get through the conflict; an external coach is not going to help you figure out how to fight for resources for your project over your counterpart, and how to handle tension.*" This theme emerged without any clear direction or preference. It is a valuable theme as business educators should understand the different market paths for its students. Select data points that illustrate this theme include:

- ✓ *"Every company has a culture. Internal coaches will reiterate that culture, 'this is how you do it, based on our culture'."*
- ✓ *"My hesitation exclusively having internal coaches is that this it's wrought with bias."*

✓ *"It is important to have an external view OR you end up with herd mentality; everyone's kind of doing the same thing,".*

Theme #5: A Coaching Culture is Desirable, but it is Unclear How it is Defined

The literature around the future of the workplace suggests that a coaching culture can elevate an organization's performance and optimize employee' talent. Inquiry surrounding the senior leaders' experience with and in a coaching culture revealed a range of viewpoints. A unified viewpoint did not emerge. It was clear that working in a coaching culture is desirable, but there was no clarity as to how a coaching culture is defined. An insight that emerged is that students need to be aware of coaching and its focus on interpersonal relationships in the workplace. This facet of a coaching culture is essential. Senior leaders expressed that listening, communicating, collaborating, gaining insight, spending time with people to know them, and to become known, all contributed to developing and maintaining a coaching culture in the workplace. The command-and-control culture is over; influence is power. Select data points that illustrate this theme include:

✓ *"A coaching culture will steer professionals that the company deems as high potentials, in the right direction."*
✓ *"...don't always be rushed; understand that practice doesn't necessarily make perfect, only perfect practice makes perfect. So always listen for the right way to do something."*
✓ *"A lot of the big breakthroughs are just things that happen, and then become understood."*
✓ *"I was taught that you coach salespeople, and based on how they take your coaching, you spend more or less time with them."*
✓ *"Some people really want to be coached and take the guidance; they grew and make a lot of money. The people didn't do what the coaching session suggested, fizzled out. So yeah, I was brought into a coaching culture."*
✓ *"As a president, I surrounded myself with people that were as knowledgeable if not more knowledgeable than me. They would be my pseudo coaches."*

Theme #6: Measuring the Benefits of Coaching

Business professionals are inculcated to seek the return on an investment and to understand that what gets measured gets done. A theme that emerged is how to define the payback on a company's investment for an executive coach for a new, rising, transitioning, or sitting leader. The theme that emerged is that a direct link between the investment and the return is unrealistic. As one leader stated, "*coaching requires patience*." A low-level anxiety of coach expense justification exists. The sponsoring executive must be able to answer to the higher-ups that the coaching engagement *did* lead to observable change that serves, or will serve, the organization. This leads to more clear understanding of the desired outcome for a workplace coaching engagement. This list reflects a range of the desired outcomes for a workplace coaching engagement:

✓ Coaching to a milestone (e.g., presentation, promotion).
✓ Defining and observing the desired behaviors in the coachee/leader.
✓ Increased awareness and seeing the world differently.
✓ Broadening the intentional awareness of how the coachee sits amongst his or her peers.
✓ Accurate empathy, which was described as being able to stand in another's shoes and then consider what that person needs from you.

- ✓ Defining success and then setting criteria to compare and measure progress toward the defined success.
- ✓ The leader's development of an open mind.

The development of the soft skills is part of the fabric of the desired outcomes for executive coaching. There was an awareness that coaching should not be a forever crutch, but a transformational relationship that allows the business professional to shift and elevate. Teaching a rising leader to "*leave time for unexpected insights to develop*" is an outcome of coaching that serves the organization with effective decision-making. The nature of the sport alignment with coaching has allowed coaching to become more accepted and to thrive. One senior leader suggested that a person needs a different coach to build different skills, just as "*Derek Jeter has a strength coach, an agility coach, and a psychologist*." Select data points that illustrate this theme include:

- ✓ *"Coaching requires patience."*
- ✓ *"After the engagement, how do you know the change happened, without a baseline? How do you know if the coaching prevented a bad behavior? ... be intentional about the value you're going to get and the amount of investment you make."*
- ✓ *"Defining what success will be, and then have criteria to measure how you're doing against it."*
- ✓ *"It's a thought process. Coaching is helping someone to think, to get the best possible outcome."*
- ✓ *"Encourage them to be open minded and listen, be receptive. ...you learn a lot by listening."*
- ✓ *"Take the time to let things unfold; let ideas be shared and let the things that you don't know filter in and be open minded."*
- ✓ *"Have a mindset to be able to work together and have open dialogue."*

Theme #7: Coaching Resources Dedicated to Support Diversity, Equity, and Inclusion.

How an organization distributes resources sends a message of what the organization values and supports. A theme that emerged is that an organization's commitment to diversity, equity, and inclusion will be demonstrated by who is selected to receive the benefits of leadership coaching. Hiring an external coach is expensive but can make a significant difference in the career trajectory of the coachee. It was suggested that there is "*not enough focus on diversity, equity, and inclusion in coaching and the equitable distribution of coaches*." The coach does not need to be diverse but must be "*equipped for the nuances of bias*" in the workplace. It was suggested that the next frontier of addressing DEI will be the support of leadership at the highest levels of the organization, not just at the entry or middle level. It was suggested that "*coaching has to be ready for that.*" It was suggested that senior leaders are "*not looking at the country it serves*" with an eye toward DEI.

Results Concept #2: Expectations of Business Graduates After Being Hired.

The themes that emerged begin to shift us from the intimate insider view of coaching within the organization to an external view of what a graduate could expect as he or she transitions from

student to employee. These insights are valuable as they emerged from the probing of answers provided to other questions that were not directly seeking this information. The gift of insight is valuable to business educators who may serve as student advisors and mentors. A total of 43 datapoints drawn from the eleven leaders' interview transcripts, were further reduced, allowing three themes to emerge.

Theme #1: Who Will Get the Job?

Senior leaders expect that the candidate has business skills and foundational knowledge, but that did not emerge as the defining criteria or characteristics that will allow one candidate to be selected over another. The academic transcript and professional resume should clearly communicate the candidate's achievements both in college and in work history, so these boxes can the *checked*. The candidate must understand that in the interview, the senior leaders are looking for the traits that will allow the candidate to thrive, integrate, and rise within the organization. Senior leaders desire new hires to be coachable. A candidate must find the path to demonstrate that he or she is team-oriented, hard-working, desirous to get involved, and willing to fit into the culture of the organization. This is the challenge as the official interview questions may not provide the candidate a sufficient runway to make this clear to the hiring committee. The candidate must set an intentional desired outcome for the interview to make these traits observable. Select data points that illustrate this theme include:

- ✓ *"Well, for one, they have to be coachable."*
- ✓ *"Undergrads are pretty much a commodity these days. But it's about the person; if they are not coachable, that's hard."*
- ✓ *"Give me an employee who is team oriented, hardworking, empathetic, and focused, and I can train them to do anything."*
- ✓ *"I want my new hire to be enthusiastic, motivated, want to make a difference, want to be on of a team, and to get involved."*
- ✓ *"I am looking for someone who is energetic, excited, happy to be there, not just there."*
- ✓ *"I ask myself if the person can fit into my organization."*

Theme #2: Expectations of Young Leaders as They Develop and Rise in the Organization

Once the candidate is hired, senior leaders are immediately assessing the individual for current and future challenges and opportunities. Pulling the curtain back, we gained insight into the non-published expectations for these new hires as they seek to rise in the organization. Similar to the expectations to be hired, there was no explicit expression for technical skills. Rather, the focus was on behaviors that allow for meaningful and purposive interpersonal interactions. The outcomes of these interpersonal skills must be directed toward the best interest of the organization's goals. A quality that was expressed as expected for rising leaders is "*self-awareness*." The rising leader must have a maturity as to self-understanding. One senior leader shared that many young rising leaders, "*didn't know who they were… they didn't have a real sense of their skills.*" Rising leaders also need to "*be able to dissent*." It was suggested that young rising leaders are afraid to disagree. Rather they need to learn how to disagree, support their positions, and "*say it in a professional manner*." Other traits that emerged was the ability to empathize, actively listen, and actively receive, accept and integrate critical feedback. Another major expectation is being a "*hard worker*." Young and rising leaders need to work harder than more

experienced leaders to achieve the same outcomes. Understanding this dynamic is lost on some and can be detrimental to moving forward. Select data points that illustrate this theme include:

- ✓ *"Be able to dissent. I find that so many people in the business world are afraid to dissent because their focus is on the wrong thing. They worry, 'if I don't agree, then how am I going to be perceived.' People need to be coached to disagree, but then you need to be able to support why and say it in a professional manner."*
- ✓ *"If they didn't have self-awareness, then they didn't know who they were; it becomes a struggle to move forward."*
- ✓ *"Not only listening to advice, but also evaluating the advice, so that the person performs better."*
- ✓ *"...willingness to accept insight and guidance and to evaluate it against what they know about themselves."*
- ✓ *"Be coachable in ways that will improve performance."*
- ✓ *"Listening is not always hearing; you have to really concentrate to understand. Paying attention is very important."*
- ✓ *"I look for is someone who has a vision and has a plan on how they can support our agency and our mission."*
- ✓ *"...be open to constructive feedback is really important."*
- ✓ *"They must work more. They need to learn how to accomplish what an experienced person can accomplish in less time."*

Theme #3: Expectations of Rising Leaders as they Begin to Lead Others

A theme emerged relating to the expectations of rising leaders as they begin to lead others. The natural progression for the employee is to assume higher levels of responsibility, which may include leading others. As the coaching profession was being explored, insights emerged that aligned with the existence of a coaching culture and how that translates into the one-on-one interactions between supervisor and subordinate.

Two veins appeared in the data. One path revealed a tough-love vibe that is practical and clear that the employee relationship is economic in nature. The employee is being hired for a job, and the explicit exchange of salary for results, should not be minimized. At times there is a harshness to these leader comments as they describe supervisory roles. For example, it was suggested that *"it's not up to anyone else to unstuck you; you have to unstuck yourself."* Similarly, it was expressed that a person is expected to do a great job. "*we're not going to pay you extra or promote you, because you're doing a great job… you've got to go that next level." "Handholding"* or needing to be "*told what to do*", described negative attributes.

The other path revealed a coaching vibe that expected our leader to offer support and encouragement. For example, it was suggested that "*a genuine interest in helping people do what they are trying to do*" be demonstrated. Another leader stated, "*I expect high levels of tolerance and acceptance.*" And another leader advised that the new supervisor "*respect other people; keep an open mind, and then people will trust you.*" A coaching practice was expected to be part of the leadership role. The use of powerful questioning to inspire subordinate development emerged in the data suggesting that "*the best coaches are the best questioners [and that] open ended questions can get them whatever they want.*" Furthermore, a senior leader shared that "*it is an eye-opening*

experience when somebody asks you a question that really makes you think. We don't take enough time to really allow our brains to explore solutions on our own."

These insights offer evidence that coaching skills and practice could benefit graduate students who wish to pursue leadership careers. The ability to communicate is a primary skill and activity as rising leaders begin to lead others. Select data points, in addition to those discussed above, illustrate this theme:

- ✓ *"They must take the initiative without the hand holding and the constant reassurance that they're doing the right thing."*
- ✓ *"Be able to take criticism ... It's not an attack, it's nothing negative. It doesn't mean you're getting fired."*
- ✓ *"A good coach, coaches someone to be able to do what they want to do better, not forcing their own position on to them."*
- ✓ *"Coaching is not pushing; coaching is helping somebody accomplish what they want to accomplish."*
- ✓ *"Encourage them to be open minded and to listen, be receptive. You learn a lot by listening."*
- ✓ *"I think that they should be prepared and open to learning and adapting."*
- ✓ *"...may not come up with the right solution at first, but brainstorm, take that initiative, and move the project forward."*
- ✓ *"You have to be able to communicate; communication is so critical."*
- ✓ *"How do you communicate a plan to the team? What's in your head? How do you communicate in a clear, succinct way?"*

Results Concept #3: Expectations of Business Educators in Preparing Graduates to Be Workplace Successful

The role of business educators is to understand the profession that the discipline serves, develop the curriculum that aligns with that profession's history and body of knowledge, establish a sequence, and set of delivery methods, that allow the students to systematically acquire a worthy depth of discipline-related knowledge, and to prepare the student with skills and a disposition that will allow him or her to enter into the world of business. The closer we get to understanding what the marketplace leaders need and desire from our students, the more relevant our roles as business educators will become.

A total of **34** datapoints drawn from the eleven senior leaders' interview transcripts were further reduced, allowing five themes to emerge. Four of the themes collectively paint a picture of what business educators need to do to prepare students, beyond knowledge acquisition. They are (1) weakening student entitlement, (2) managing student expectations, (3) elevating the need for real-world working experience, and (4) acquiring skills that allow knowledge to be applied. The fifth theme provides business educators a practical pathway and direction as to how business education should *integrate* coaching skills and knowledge into the curriculum.

Theme #1: Weakening Student Entitlement
There is nothing that will more easily alienate the mentorship of a senior leader than entitlement from an individual who has yet to earn it. A plausible theory is that senior leaders

believe that the entitlement is planted and nurtured during the college journey. An inflated sense of entitlement for recognition for moderate work products, needs to be dampened. An entitled behavior can cause a young leader damage to his or her fledgling career. Select data points that illustrate this theme include:

- ✓ *"I find a lot of people right out of college feel entitled that they should climb the ladder quicker than other people."*
- ✓ *"So, you were at the top of your class, well, you know what? even if you graduated from an Ivy, you're starting lower than you think."*

Theme #2: Managing Student Expectations

Dampening entitlement is tightly tied to managing expectations. Professors with real-world corporate experience are best prepared, and more credible, in clarifying expectations. The senior leaders were very clear that young and developing leaders need to sit in many chairs and win many battles, before being elevated. Expecting rapid promotions may be a symptom of a college culture where praise is given to readily. The senior leaders are expecting faculty to set higher standards, which will force students to lift a heavier load before feeling success. Select data points that illustrate this theme include:

- ✓ "*…you're just out of college, like whoa! You're going to crush the world. But then you enter reality and see what you're worth. There is a disconnect. Manage their expectations about their worth*."
- ✓ *"...you're just out of college, like whoa! You're going to crush the world. But then you enter reality and see what you're worth. There is a disconnect. Manage their expectations about their worth."*
- ✓ *"...what they bring to contribute to the organization, right out of college, is not as valuable as they think."*
- ✓ *"There's an impatience in college grads. After six months they are ready to move on. Manage their expectations!"*

Theme #3: Gaining Real-world Experience

Senior leaders expect new employees to hit the ground running. These seasoned leaders know that experience, as compared to education, can be the better teacher. One leader shared her preference of a candidate with 2-year degree matched with strong job experience, over a 4-year degree with no experience. The experience can be gained from professional work assignments as well as integrated into the learning journey. The senior leaders provided explicit examples of workplace simulations that would develop the students. Examples include creating teams and then observing student-leader behavior when faced with challenges. Also, it was suggested that forced failure be built into the simulations. Having student face failure is a source of powerful learning. These senior leaders also valued professors who had corporate careers before entering into academia. Select data points illustrate this theme:

- ✓ *"Create situation where the xx hits the fan, and the game is over; the students get punched in the face with a bad situation. How do they react? Then the students must reflect. Perhaps*

they will see where they got ahead of themselves, or become overly emotional, or took things too personal."

✓ *"I had professors with significant business experience and were able to talk about their professional experiences"*

✓ *"Create team environments that need to get things done, including winning and losing and dealing with failure…"*

✓ *"Observe students inside group projects. Find out who steps up to lead, observe who can coach, see who can make decisions, and who is able to influence others. That's really the value of group projects."*

Theme #4: Acquiring and Using Skills

College provides students with foundational knowledge related to the discipline, but the senior leaders expect their new hires to have learned how to apply that gained knowledge. This translated into students acquiring skills that allow knowledge to be transformed into solutions. Social skills also emerged as expected from graduates. The ability to speak with ease and with maturity, emerged as a sub-theme. The soft skills were consistently cited as necessary for workplace success. Students need to know how to work in teams, show empathy, and demonstrate emotional intelligence. Select data points illustrate this theme:

✓ *"Help students build an appropriate talk track. They talk about what they did in college; but they may be talking to a 45-year-old executive who does not want to talk about college. Their talk-track needs to be monitored and improved."*

✓ *"Students need to learn how to talk in groups. There was a recent hire who is constantly talking about her own interests. Nobody cares how much you know, until they know how much you care."*

✓ *"Have curriculum focus on measuring and advancing soft skills."*

Theme #5: Coaching Skills, Knowledge, and Practice Should Be Integrated into Business Education

The senior leaders recognized the value of coaching as both a skill and a disposition. When considering all that these senior leaders expect from business educators in developing their next generation of leaders, coaching need to be part of the recipe. These leaders were generous with their suggestions as to how coaching skill could be practiced during the college years. Some recommended a course or a concentration. They recommend coaching be integrated into the classroom exercises as with peer-to-peer evaluations. They suggested books, such as Collins "*Good to Great*." They also recommended that students learn how to ask powerful questions with the intent of inspiring insight.

The senior leaders often referred to an athlete's development and compared it to the trajectory of a rising leader. Leaders want their new employees to be comfortable with coaching and be willing to be coached. Transformational leadership was also cited and compared to coaching in the workplace. Select data points serve as clear illustration of this theme:

✓ *"Coaching can be aligned with sports. An athlete in high school is getting skills on how to play baseball, swing the bat, and run the bases. They get a scholarship and to the major*

leagues. The coach does not have to teach them how to run the bases, that's already understood. The coach can focus on raising the athlete to the next level."

✓ *"Teach students coaching skills. If you're looking for information, ask the right questions that allow for expansion; 'tell me more?' They should create an inquisitive thirst for information, so they help someone without being too aggressive."*

✓ *"The formal educational process should include a coaching component so that the students are aware of the value of coaching. Gaining that coaching knowledge is less for their own development, but for when they are in a leadership role."*

✓ *"...have a formal coaching curriculum so that students within a business program can learn early in their academic career, the concepts of coaching, and how they could be applied"*

✓ *"...promote the practice and make people comfortable"*

✓ *"there's a whole pattern of transformational leadership ideas…"*

Summary of Results

The three umbrella concepts and the fifteen related themes are summarized below in Table 1.

Table 1
Summary of Research Results

Executive Leadership within Organizations	**Expectations of Business Graduates after being Hired**	**Expectations of Educators in Preparing Graduates to be Workplace Successful**
Theme 1 - Leaders are exposed to executive coaching in different ways *Theme 2 - Shift in coaching from being perceived as remediation* *Theme 3 - Senior leaders align coaching with mentoring* *Theme 4 - External vs. internal organizational coaches* *Theme 5 - A coaching culture is desired, but it is unclear how it is defined* *Theme 6 - Measuring the benefits of coaching* *Theme 7 - Coaching resources dedicated to support diversity, equity, and inclusion*	*Theme 1 - Who will get the job?* *Theme 2 - Expectations of young leaders as they develop and rise in the organization* *Theme 3 - Expectations of rising leaders as they begin to lead others*	*Theme 1 - Weakening student entitlement* *Theme 2 - Managing student expectations* *Theme 3 - Gaining real-world experience* *Theme 4 - Acquiring and using skills* *Theme 5 – Integrating coaching skills, knowledge, & practice into business education*

CONCLUSION

The profession of executive and leadership coaching has entered into the world of business and is influencing the development of new, rising, transitioning, and senior leaders. Business education is the connector and pathway that prepares, educates, and transitions individuals who wish to enter into the world of business. A transformational mindset is needed to ensure that business educators are aware of what is needed and desired in the marketplace so that there is no gap in the preparation for these rising professionals. This must be an active process, rather than passive. As the executive and leadership coaching professional has grown, there appears to be only minimal evidence that business education has been updating its curriculum and student learning outcomes to incorporate what is expected. This research is exploring this pathway. Three super-ordinate concepts, or steppingstones, have emerged from this research. This includes an intimate peek at executive leadership coaching within organizations from a senior leader's viewpoint, what a senior leader may expect of business graduates after being hired, and what senior leaders expect from business educators in preparing these graduates for the demands of the workplace so that they are positioned for success.

In the past, executive coaching was perceived as remediation for a senior leader who may be getting too close to the cliff and needed to be rescued. This perception is starting to fade as the most valued leaders are welcoming the partnership of an executive coach. It was made clear that senior leaders view coaching as an extension of mentoring, though the coaching profession suggests otherwise. The decision to staff internal coaches vs. hiring external coaches speak to culture (reinforcing it with an internal coach) vs. breakthrough thinking (seeing the broader pathway that an external coach may inspire). The concept of a coaching culture emerging within the organization was softly embraced but needs time to mature. The dilemma of measuring the ROI benefits of the investment is a challenge that will not be easily resolved. And finally, the linkage of the coaching resource and its support of an organization's DEI initiatives found its way on to the radar of this research.

The research *shifted* from an internal POV of coaching within the organization, toward the expectations of newly hired business graduates. The journey begins with the hiring decision. Insight was gain on what differentiates one candidate from another. Senior leaders desire new hires to be *coachable*, team-spirted, hard-working, and willing to fit into the culture of the organization. After being hired, leaders will focus on behaviors that allow for meaningful and purposive interpersonal interactions. Self-awareness, empathy, self-understanding, the ability to disagree, and the willingness to be coached, are expected of the rising leader. And ultimately, if successful, the rising leader will lead others with confidence and skill.

This leads to our research goal of understanding what business educators can do to prepare graduates for success in the workplace. Senior leaders expect that faculty will lessen student entitlement, manage their expectations, and help them gain both skill and experience. The integration of coaching skills, knowledge, and disposition emerged as a needed component in business education.

Future Research

The next stage in this research plan is to explore and gain insight from those who will educate and influence our future leaders. Research is already underway to conduct in-depth interviews with eleven (11) senior management faculty from eleven (11) different institutions of higher education. The goal is to report on their insights as relates to the integration of coaching skills, knowledge, and disposition, into management education.

The final stage in this research plan is to conduct in-depth interviews with twelve (12) graduates who have earned an MBA between 5-15 years ago and are now firmly established in their professional lives. The goal is to mine what they have experienced in their MBA programs and to capture their insights as to their preparation for the business world. We can draw from their experiences and insights to further improve management education for future students.

The details of the research reported in this paper as well as the planned future research will allow other researchers to replicate this study to determine if similar results can be found and deeper insights can be gained.

Acknowledgements

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APPENDIX

Schedule of Interview Questions

➢ What is your senior leadership EXPERIENCE with coaching?
➢ Describe your familiarity with the coaching process as compared to mentoring, consulting, and therapy.
➢ Have you worked in an environment with a coaching culture? Please provide details.
➢ What do you EXPECT of business graduates, related to their preparation to participate in an organization with a *coaching culture*?
➢ What can Business Educators DO to better prepare business graduates to:
  1. contribute to a coaching culture?
  2. use coaching skills and knowledge in their development of others?
  3. be prepared to be coached as they rise through the organization?
➢ What is your opinion as a senior leader on the potential benefit and/or risk of integrating coaching skills, theories, and knowledge, into college-level management education?

AN ENTREPRENEURIAL CENTER TO DRIVE INNOVATION:
BUILDING, TEACHING, AND LEARNING IN A CLASSROOM OF THE FUTURE

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ABSTRACT

How do educators prepare students to work in the innovative, dynamic, and evolving 21st century work environments when most of our classes are held in traditional front-facing classrooms designed for 20th century learning? This article presents the journey of how an entrepreneurial classroom was built to support the development of innovative skills among higher education students. Included is the space design process and outcomes, pedagogical approaches, and outcomes of research conducted in the space to understand how the space supports students as they learn and apply innovation.

INTRODUCTION

Entrepreneurship and innovation have continually captured the interest of the business community around the world. These concepts are no longer relegated to just start-ups, but rather have become sought-after skillsets, widely used to keep pace in a competitive business environment. As such, teaching and applying innovation through processes, such as active learning and design thinking, have increasingly been incorporated into education, particularly business curriculum (Katz, 2003). While learning these concepts can be done in any space, paring the learning of innovation within a space designed to optimize the experience can elevate the learning of these critical skills for students. Moreover, working within a space that mirrors the modern workplace can better prepare students for their future.

This article presents the results from a study of a unique design for an entrepreneurial classroom and lab space with the goal of understanding how this distinctive environment aids the learning of innovation skills. Along with this research, this article will describe the classroom design, the instructor experience and approaches, as well as the development of an *Innovative Learning Environment Model* which is presented as a framework for future work in this area.
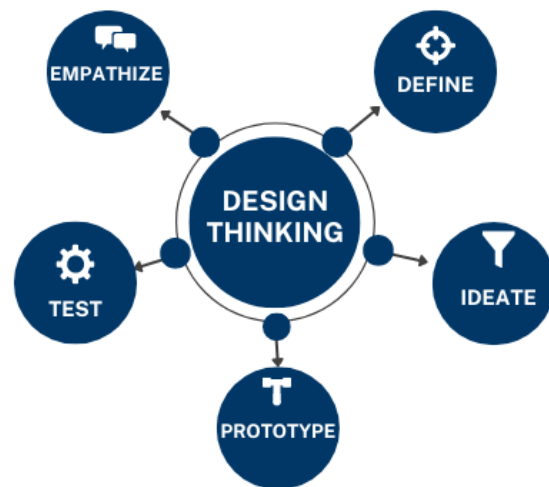
BACKGROUND

Understanding what is meant by innovative skillsets is an important place to begin this work. Many skills have been identified as competencies needed for innovation in the literature. The process of innovation focuses on the ability to communicate, network with others, and collaborate within a team (Bilén et al., 2005). But innovation moves beyond these team-based skills. Of course, a systematic ability to manage and organize all elements of a project are important, as well as reframing understandings along the process (Lynch et al., 2021). However, apart from these more apparent skills, innovation can also include the ability to observe, empathize with the subject, as well as reflect on the problem to help further its focus and definition (Hagg, 2017). Moreover, innovation often simultaneously embraces a bit of chaos and the need to adapt as one must learn to work within ambiguity and uncertainty. Therefore, risk-taking, and creative problem-solving are often needed in the process. Neck and Greene (2011) also make the point that this uncertainty can help challenge participants as they move from solving simple problems to taking on more complex problem-solving. These are often among the same general skillsets sought after by employers today for a variety of professions (Forbes, 2022).

While teaching innovative skills can involve many process-driven approaches, today most of the focus is on more action-orientated pursuits. Constructionist learning theory states that knowledge is built most effectively when students are actively engaged in building things in their world (Papert & Harel, 1991). As an outcome of this theory, activity-based learning is a successful teaching model in the field of management, medicine, engineering, and science, and it has recently found its way to business schools (Ranganath, 2012). Using this approach, a learner "constructs" his own small version of knowledge from past knowledge or current experiences and interacts with presented theories, data, and information taught during a particular lesson or class (Samson, 2014). The goal of activity-based learning is for learners to construct mental models that allow for 'higher-order' performance such as applied problem-solving and transfer of information and skills. This active process also helps to push students out of their comfort zone to personally engage in their

own learning, rather than being a passive observer. Over the last several decades a host of active learning approaches have been developed including experiential learning, SCALE-UP, problem-based learning, activity-based, and team-based learning (Talbert & Mor-Avi, 2018). These pedagogical approaches also help support elements of student wellness, motivation, critical thinking, sense of belonging, learning attitudes, and overall student success (Handrianto & Rahman, 2019).

In addition, design thinking methodology, originally used for product design, is now being adopted, all or part, in teaching the development of these innovative skillsets. This process (Figure 1), typically includes the five stages of empathize, define, ideate, prototype, and test, in a series of feedback loops to iterate the problem solution. According to Garbuio et al. (2018), this design process can introduce more complex, ambiguous, ill-defined problems, which can aid in developing a host of innovative skills. This type of pedagogy supports exploration of new perspectives through student-to-student activity and interaction, with the teacher serving as the coach and mentor.

Based on this background, how does the learning environment work with these concepts to support the development of innovation skillsets? As the interest of active learning pedagogies expanded over the years, traditional classroom environments also began to shift. This led to pedagogies such as flipped classrooms where student learning in-class is supported by activities

Figure 1 Design Thinking Model

that may include inquiry-based learning, active learning, and peer-learning (Danker, 2015). No longer was the focus on the instructor, but rather the classroom began to shift focus on student-to-student interaction to incorporate more movement, team activities, and collaboration. According to Talbert and Mor-Avi (2018), elements of active learning centers include formal classroom spaces used for educational activities with deliberate designs to support activity that comprise both digital and analog tools (computers, interactive software, whiteboards). These new classrooms support movement and sharing among the students. Moreover, according to Auernhammer and Roth (2021), these environments also encourage safety and freedom for participants to visualize, communicate, and collaborate as well as take risks, question, and view problems from new perspectives. Thus, designing a space that meets students diverse learning styles, encourages communication and collaboration required by today's skilled workforce, while also being able to adapt to the use of tools and technology as well as instructors' class plans including lectures and activities is key for innovative spaces.

Based on these insights and research, Oregon Tech moved forward to design an Entrepreneurial lab that would be a space to encourage students to be active participants in their own learning. The following section will describe the design process and principles as well as lab features that used the best practices found in active learning classroom research and melded it with a modern work environment.
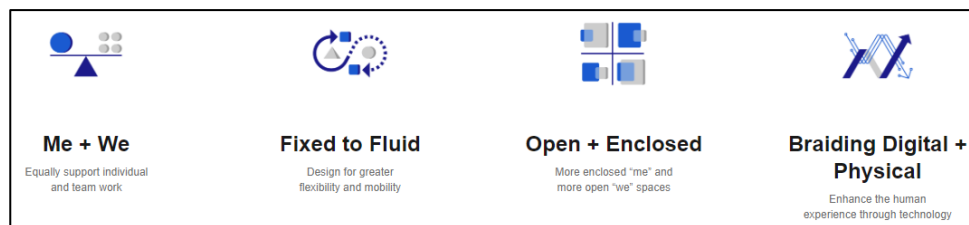
DESIGN

In 2021, Oregon Tech embarked on designing and building an Entrepreneurial lab. When approaching this project, a team of faculty, administrators, and designers decided to push the boundaries of what the future of learning spaces could be. They used their collective knowledge regarding the advantages of active learning classrooms and their ability to support learning more effectively. The goal was to design a space that would be a learning environment that could mimic a modern workspace. Today, workspaces are no longer cubicle jungles or closed-off offices, but rather open spaces that support collaboration, communication, and idea generation among colleagues. The team used the best practices found in active learning classrooms and melded it with a modern work environment. Throughout this article, the space will be referred to as the entrepreneurship lab, classroom, center, or space.

Design Process

The design process began with a series of collaborative engagements between the university team and the design firm. This started at the programming phase of the design process, where conversations and discoveries centered around how the space might be used and would function for instructors and students. The core idea discussed was to build a classroom as a mix of a modern workspace and collaborative classroom. Following the concept discussion, the group moved to design development, through a series of iterations of the room layouts and furniture selections. With the aid of 3D software and designer-led sessions, the team was able to visualize, imagine, and refine the space together (Figure 2).
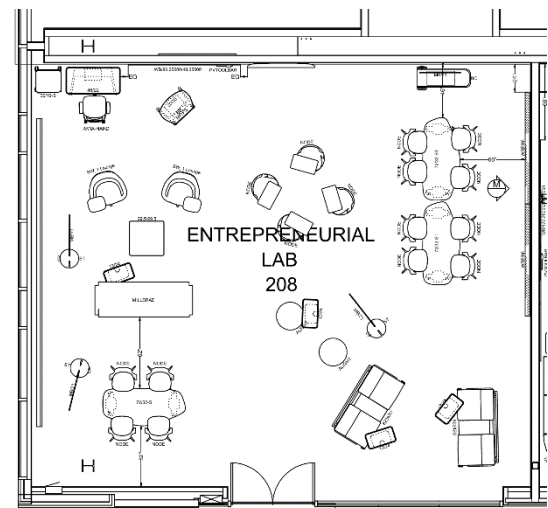
Figure 2 Entrepreneurial Lab Layout

Figure 3 *New Design Principles* (Steelcase)

The design is founded on the *New Design Principles* (Figure 3) that include the following concepts: 1) me + we, which allows space for individual and team collaboration; 2) fixed to fluid, a variety of furniture that supports flexibility and mobility as required; 3) open + enclosed, space that could be transformed to support a variety of modalities; 4) braiding digital + physical, the inclusion of use-centered technology integrated into the design (Steelcase, ND). These principles, along with uncommon furniture choices helped the team to build the space.

Classroom Features

The final entrepreneurship lab features a variety of both classroom and non-classroom components with the overall goal of supporting collaboration. Unlike many higher-education active learning classrooms that are mostly hard surfaces that allow for reconfiguration, this design includes a wider variety of furnishings such as sofas, swivel chairs, and small writing surfaces paired with mobile hard surfaces. The furniture is designed for flexibility, giving instructors and students the ability to adapt the space to support different learning modes and activities. The room supports large groups, small groups, and individuals, with a range of postures, privacy, and seating options which promotes individual control, choice, and comfort. Tools and solutions like the mobile whiteboards, stands, wall rails, and Smartboard help to support brainstorming, agile-inspired activities, and posting of student work. Students can create, share, and move as they work within the space (Figure 4).
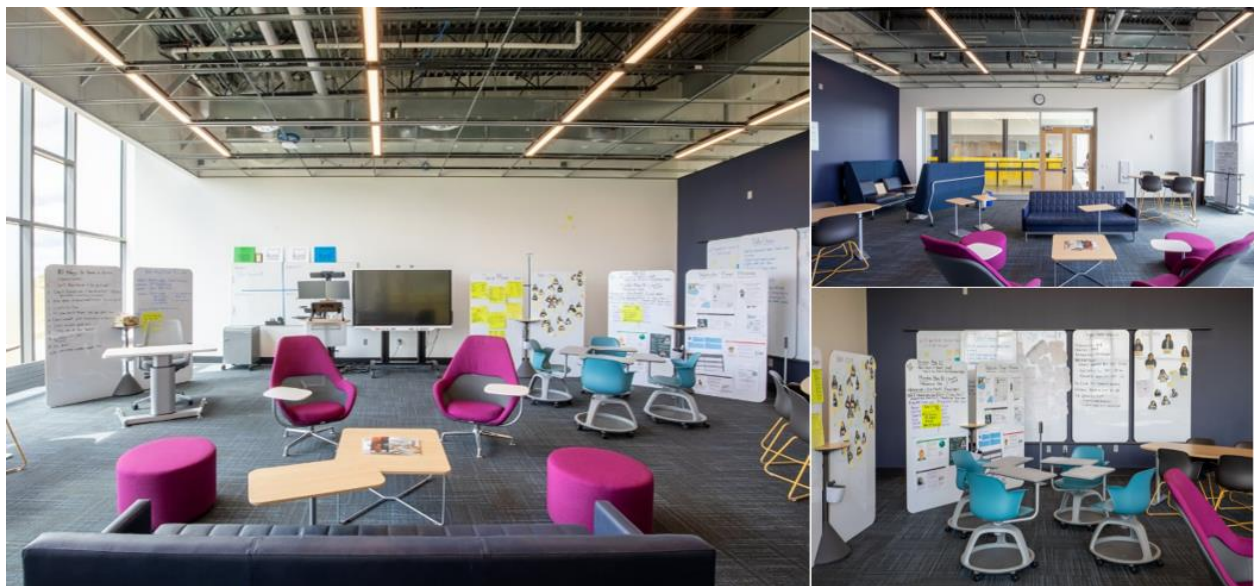
Figure 4 William A. Olson, Jr. Entrepreneurial Laboratory (Photos courtesy of Hyphn)

The design goal of the entrepreneurship lab was an adaptable creative space that supports student learning in a way that traditional front-facing classrooms cannot. Once the design process was complete, the team was curious about how the space performed. The next section will discuss the research that was conducted to understand how the center and its design supports student learning.

RESEARCH METHODS

The goal of this project was to understand how the non-traditional entrepreneurial lab design supports student learning when compared to traditional front-facing classrooms. Specifically, the focus of the research was to understand 1) how the classroom tools and features

aid students in their learning, 2) how the classroom helps to develop innovation skills, and lastly, 3) how the classroom supports areas of student success like motivation and retention.

The research used a pre-post survey which was constructed using the features found in the *Active-Learning Post-Occupancy Evaluation Tool* (Scott-Webber, Strickland, & Kapitula, 2014). The survey for this study was modified to include questions related to the three areas of interest. First, the survey included questions related to the classroom tools such as writing surfaces and technology. Next, a set of questions related to various innovation skills and activities was incorporated. Lastly, a section of the tool asked students how the physical environment aided their learning and motivation. The survey tool also included two open-text questions regarding how the classroom supports learning, creativity, and innovation.

This exploratory study was conducted in 2022 in five undergraduate business classes that were taught in the space. The classes comprised one 200 level and four 300-level courses including: marketing, entrepreneurship, integrated marketing communication, business presentations, and marketing special topics. The participants included majors from business (70%), information technology (24%), as well as healthcare (2%), and communication (4%) (Table 1). While most of the 200-level course contained first-year students, the remaining classes included students from multiple education levels.

Participant Demographics

Educational Level	Percentage	n
First-Year	26%	13
Sophomore	7%	14
Junior	46%	23
Senior	14%	7
Total		50

Table 1: *Participant Demographics*

The pre-survey was administered in the first week of class before students had an opportunity to actively work in the entrepreneurial lab. When completing the pre-survey, students were asked to base their responses on their experience taking a business class in a traditional classroom. The post-survey was administered during the last two weeks of class in the same courses. For this final survey, students were asked to respond to the same set of questions based on their experience in the entrepreneurial space. These two responses were compared to understand the similarities and differences between the learning experience in traditional classrooms and the entrepreneurial classroom.

It should be noted that to eliminate any differences among instructors, a stricter comparison of running the same course in different classrooms with the same instructor was not practical for this study. However, the university where this was work was conducted, Oregon Institute of Technology, has a mission of hands-on education that is widely adopted by nearly all faculty across majors. The business professors regularly and widely practice active learning pedagogies, regardless of the classroom they teach in. Therefore, students tend to encounter similar teaching methods across a variety of business classes, which can somewhat eliminate the differences between instructors.

Once the research methods were determined, the data collection was conducted over one term in several classes. The outcomes of this research were analyzed to understand how the space performed. The following section will present the findings of the study.

RESEARCH FINDINGS

The following section lays out the findings of the comparisons between the student experiences in traditional front-facing classrooms versus the entrepreneurship lab. The findings are focused on three key areas; 1) how the classroom tools and features aid students in their learning, 2) how the classroom supports characteristics of innovation, and lastly, 3) how the classroom helps support student success. These key findings are discussed in more detail below.

Classroom Tools and Features

The entrepreneurial lab, as noted above, contained several unusual features in its design, which include multiple movable whiteboards, room to display more permanent postings of class content, a wide variety of hard and soft seating at different levels, as well as a movable Smartboard. Students were asked to reflect on their use of these classroom tools and features as compared to a traditional classroom with rows of desks or tables, wall-mounted writing surfaces, and Smartboard or monitor mounted in the front of the room.

First, students were asked how tools in the classroom, such as mobile whiteboards and markers, helped them to think through ideas (Figure 5). In traditional classrooms, 74% of students noted that these tools never or rarely help them, while 9% state these features are sometime useful, and only 17% often or always find them of use. When queried further, most students mentioned the importance of sitting where they could get a good view of the front board or monitor used by the instructor. When describing the traditional classroom, many also stated that features such as whiteboards, markers, or monitors were primarily for the instructor's use.
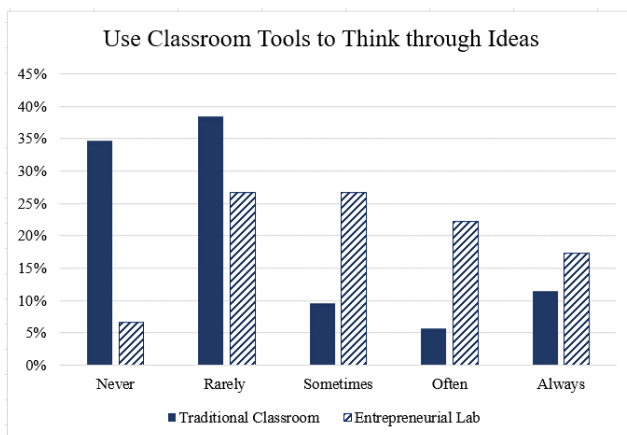
Figure 5: Use of classroom tools to think through ideas

In the entrepreneurial lab, 33% of students noted that they never or rarely used classroom tools, while 67% stated that these tools were sometimes, often, or always used to think through ideas. The use of tools such as the multiple whiteboards throughout the room helped student to work in teams and collaborate. In contrast t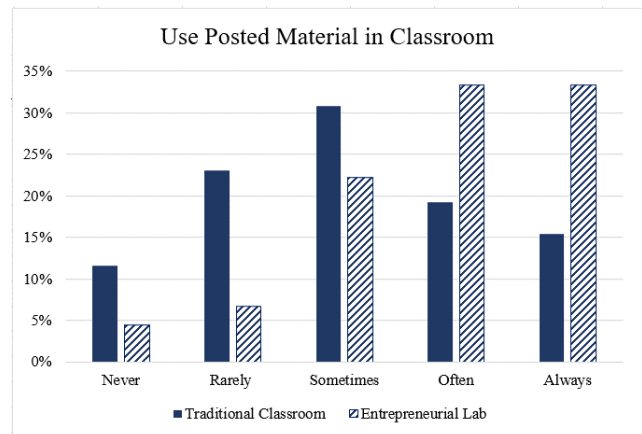o the traditional classroom, there was no mention of the importance of being able to see the front of the room. Rather, students more often mentioned the ability to see and talk to peers during the class.

One of the features of the entrepreneurial space was that instructors were able to keep items displayed throughout the term, rather than erasing or removing after each class. For example, items like a SWOT analysis developed by the class, could be posted and referred to throughout the term. While this is possible in a traditional classroom, it is not a practice that most faculty use in a higher education environment.

Figure 6: Use of posted materials in classroom to guide learning

Students were asked about how these posted materials helped to guide their learning. In the traditional classroom, 35% of students stated that posted materials never or rarely helped to guide their learning (Figure 6). Nearly 31% noted that displayed items sometimes aided learning, while 34% stated they often or always had an impact. In contrast, while in the entrepreneurial lab, only 11% of students stated that the postings never or rarely had an impact, 22% stated sometimes, while 67% stated that the postings help to guide their learning of the course materials and concepts.

Students were also asked about the furniture in the spaces which denotes some contrasts between the traditional and entrepreneurial spaces as well. Most of the comments regarding the traditional classroom focus on the sightline to the front of the room. Students also noted that these spaces do not support natural interactions between students, so the focus tends to be on the instructor.

After experiencing the entrepreneurial spaces, which contains a variety of movable furniture (Figure 4), students described the level of comfort in the room which allowed them to be more relaxed, able to collaborate, and far less crowded than a traditional classroom. Students also mentioned that they enjoyed having choice within the space regarding the selection of furniture around the room.

Overall, the addition of multiple writing surfaces, specifically for use by students, were found to aid learning in the entrepreneurial classroom. Moreover, ability to use more permanent displays of materials throughout the term, also supported students as they learned concepts. Lastly, choice regarding the furniture helped students feel they could relax and collaborate in the space.

Classroom Ability to Supports Innovation Skill Development

One of the main goals of the classroom design was to support the development of innovation competencies. These include skills such as collaboration, communication, creativity, observation, risk-taking, dealing with ambiguity, and managing a project. As such, the entrepreneurial lab was compared to the traditional classroom regarding how the space supports these aspects of innovation.

The ability to collaborate with others is at the heart of innovation activities. Therefore, the students were asked about how the spaces help them to collaborate and communicate ideas with others (Figure 7). In the traditional classroom, 37% note the space does not support collaboration, while 48% somewhat or strongly agree. In contrast, 85% of students agree that the entrepreneurial space supports working with classmates.

Students were also asked about their ability to communicate ideas with peers in class (Figure 8). Forty percent of students found the traditional classroom supported this type of communication, while in the entrepreneurial class, 89% somewhat or strongly agreed that the space supported their ability to communicate ideas with peers.
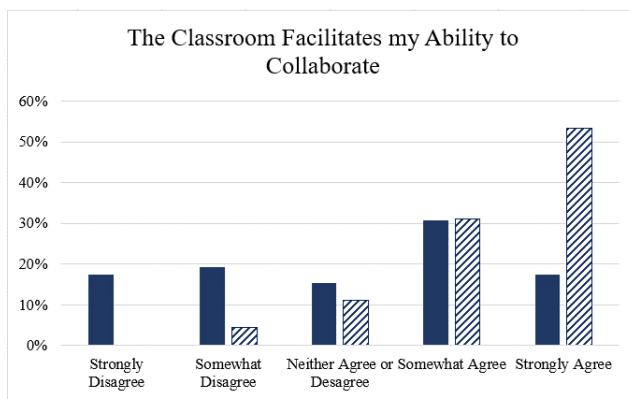
Figure 7: The classroom facilities my ability to collaborate
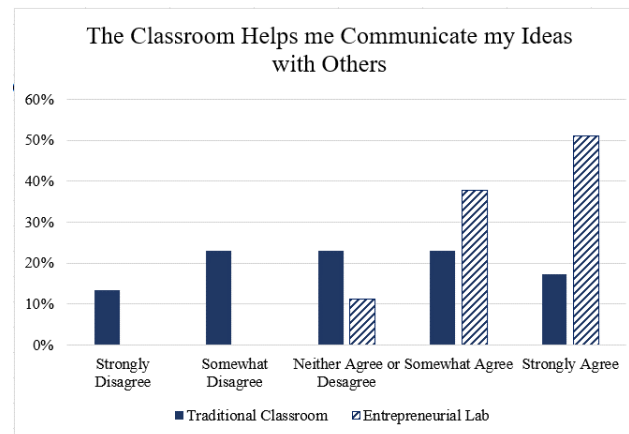
Figure 8: The classroom helps me communicate my ideas with others

Since the innovation process requires creativity and the ability to work through an innovative process, such as design thinking, the next questions focused on the ability to be creative, as well as innovate ideas. While in the traditional classroom, 42% of students reported that they did not find these spaces supported creativity, while only 33% found they could be creative in these classrooms (Figure 9). Alternatively, 91% of students found the entrepreneurial classroom supported their ability to be creative.

When reviewing the ability of the classroom to support students in the innovation process, 33% of students reported that the traditional classroom does not support innovation, with most students (40%) stating they were neutral on this topic in the traditional classrooms (figure 10). Meanwhile, 80% of students found that the entrepreneurial environment helped to innovate ideas.

Understanding that innovation can only happen in a safe environment in which participants are willing to take risks, students were asked how the classrooms support their risk-taking ability. In the traditional classrooms, 35% noted they did not find the classroom supported risk-taking, while most (33%) were neutral on this topic (Figure 11). Thirty-three percent found that the traditional classrooms allow them to take risks. When considering the entrepreneurial classroom, 69% of students found they were able to take risks in the space, with just two students noting they did not find the classroom helped them in this regard.

Lastly, knowing that innovation requires the ability to not just partake in one or two activities, but requires long-term project management skills to achieve desired objectives, students were asked how the spaces supported this management process. In the traditional classrooms, 27% of students found that the space did not support these activities, 33% were neutral on the topic, and 40% found the classroom supportive. In contrast, 80% of students found the entrepreneurial lab helped them to manage projects, while 20% were neutral on the topic.
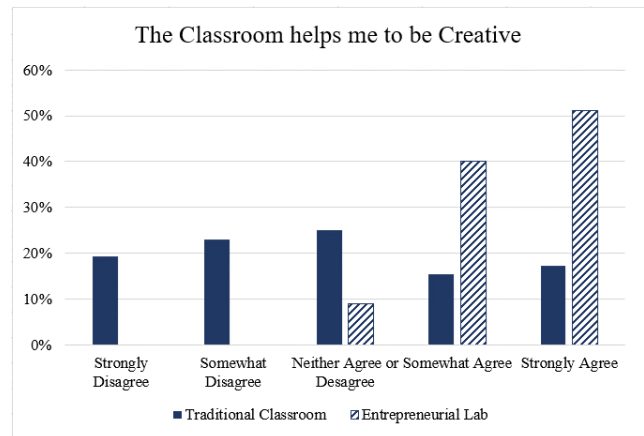
Figure 9: The classroom helps me to be creative
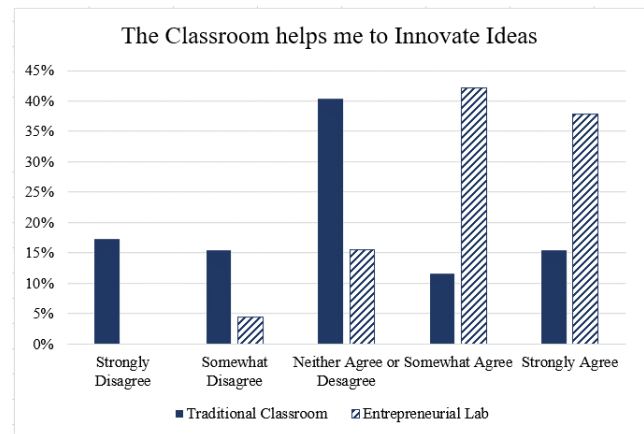
Figure 10: The classroom helps me innovate ideas
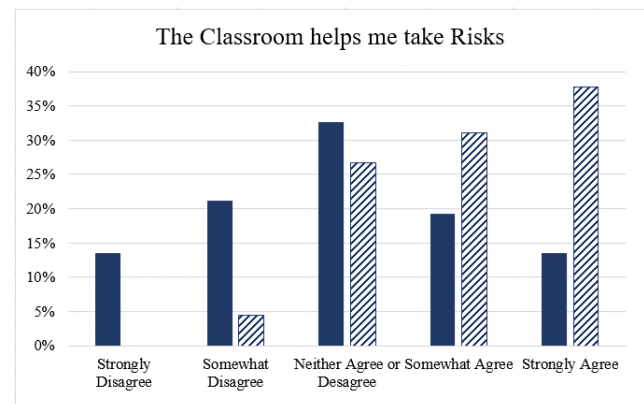
Figure 11: The classroom helps me take risks

In all areas queried, the entrepreneurial classroom outperformed the experience in the traditional front-facing classrooms with regard to the development of innovation-related activities. This seems to imply that this space design can help support the development of these innovative skillsets in students.

Student Success & Connections

The final area that was explored were areas of student success and support, such as motivation and confidence, along with the ability to make connections with each other. Past research has found that students' self-confidence effects their learning such as in the level of a student's participation, seeking goals, interest in lessons, and decreasing a student's anxiety in being comfortable when working with classmates and the instructor (Akbari & Sahibzada, 2020). Motivation and confidence have been found to support various aspects of student success such as being able to discuss and share personal opinions in a class (Akbari & Sahibzada, 2020). These can include more than just success in a particular class but can expand to students being more persistent in meeting their educational and career goals (Handrianto & Rahman, 2019).

When comparing the traditional versus the entrepreneurial classrooms, students expressed high level of motivation to learn in both spaces. In the traditional classroom 64% of students noted they were motivated to learn at higher levels (Figure 12). While in the entrepreneurial space, this rose to 91%, with zero students stating they were not motivated to learn in the class.

Students were also asked about their level of confidence in participating in the class (Figure 13). This question had similar results as the motivation question, but more students strongly agreed they were confident participating in the entrepreneurial lab. In the traditional classrooms, 65% noted they were confident, with 40% somewhat agreeing with this statement. In comparison, 73% of students
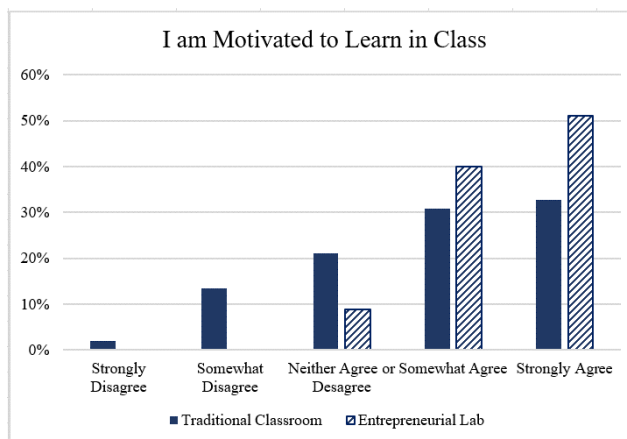
Figure 12: Motivation to learn in class
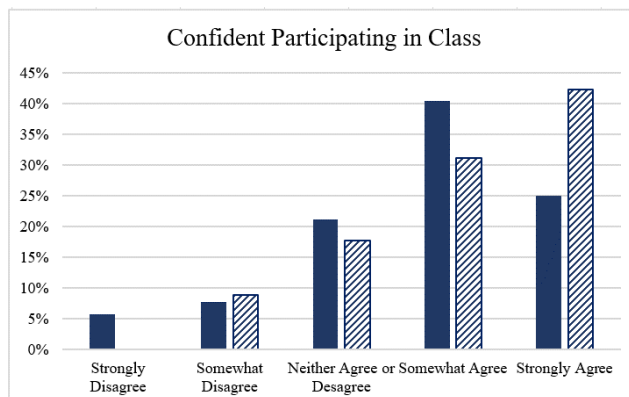
Figure 13: Confident to participate in class
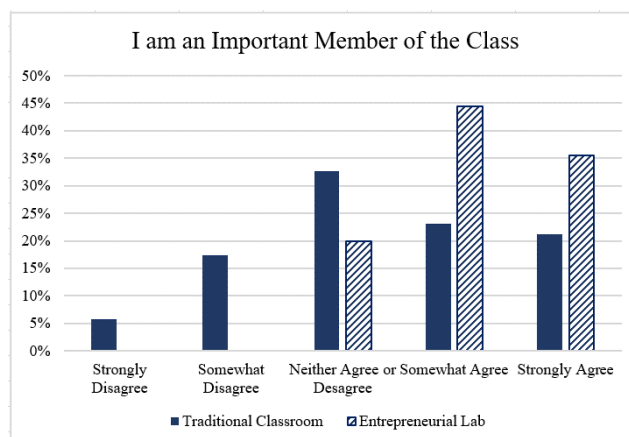
Figure 14: Confident to participate in class

agreed they were confident in the entrepreneurial classroom, however 42% strongly agreed with this statement.

Lastly, students were questioned if they believed they were an important member of the class (Figure 14). Only 44% somewhat or strongly agreed with this statement while attending a traditional classroom. In contrast, 80% of students stated they believed there were an important member of the class when in the entrepreneurial space.

The final questions explored the students' ability to make connections with each other, since prior research indicates that students that build relationships with other students and the instructor are far more likely to be successful.

Students were first asked if the classroom helped them make connections with other students. In reviewing the traditional classroom experience, 34% disagreed with this statement, while 40% found that they did connect with other classmates in this environment. Turning to the entrepreneurial space, 83% stated they made connections with other students, while only 4% disagreed.

Students were also asked if they made friends in class (Figure 15). In the traditional classroom, 35% stated they did not make any friends. However, 50% stated that they did have a friend in class. In the entrepreneurial space, 82% stated they made a friend in class while only, 2% said they did not.

Lastly, students were questioned if they felt their learning was supported by other classmates (Figure 16). In the traditional classroom, 48% agreed with this statement while 20% somewhat or strongly disagreed they had support from other students. When in the entrepreneurial lab, no students disagreed with this statement, while 80% agreed or strongly agreed they had support from other students in the class.

Overall, the entrepreneurial space more strongly supported students in areas of student success such as feeling motivated and connecting with classmates. These areas of student support can help students better perform in the class, as well as over the long term, by feeling connected with the institution, instructor, and peers.
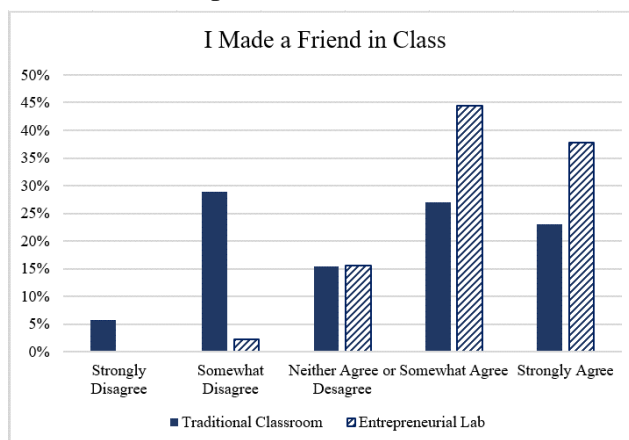
Figure 15: I made a friend in class
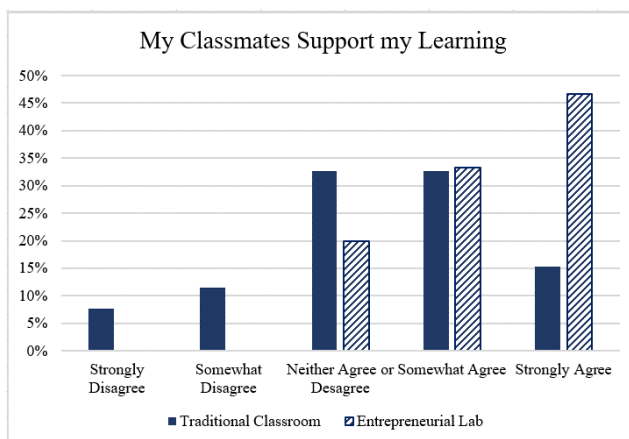
Figure 16: My classmates support my learning

Student Feedback

The participants also were asked to include feedback, using open text, regarding their experiences in the two types of classrooms. The replies were reviewed for keywords about how they described their experiences and word clouds were constructed to be able to compare the responses.

The first question asked students how the physical classroom environment impacted their learning experience. Many students found the traditional classroom had little to no impact on their learning (Figure 17). Many noted their main concern focused on ability to see the board in the front of the room or note-taking. While a few students considered their traditional classrooms to be more professional and helped them focus on the lecture, most described their learning in these spaces using verbs like sleepy, uncomfortable, and not supporting group work.

In contrast, the entrepreneurial lab experience was described as comfortable, open, and supported their ability to focus (Figure 18). Most students mentioned the ability to work with classmates using collaboration and communication. Many students noted that the classroom was fun, modern, and reflected a real-work-experience which helped them to relax, stay positive, and engaged.

Impact of Space on Learning

Traditional Classroom Experience	Entrepreneurial Lab Experience

Figure 17: Traditional Classroom Learning Experience

Figure 18: Entrepreneurial Lab Learning Experience

The second question that was asked in a free text form was how each space supports creativity and innovation. In the traditional classroom, most students expressed that there was no impact on creativity (Figure 19). This was mainly due to being restricted to the rows which

inhibited teamwork and discussion. Traditional classrooms were also referred to as uninspiring, uncomfortable, and the tools are limited to instructor use.

Students also reflected how the entrepreneurial lab supported creativity and innovation (Figure 20). Many students mentioned that the space was designed to allow for movement and openness. Many also mentioned the use of the numerous writing surfaces to support idea-generation, brainstorming, and discussion within teams. They mentioned that the environment supported expression and interaction among their peers.

Impact of Space on Creativity and Innovation

Traditional Classroom Experience	Entrepreneurial Lab Experience

Figure 19: Traditional Classroom Support of Creativity & Innovation

Figure 20: Entrepreneurial Lab Support of Creativity and Innovation

The following are samples of a few comments from the students that were collected in this research.

The open design of the classroom seems conducive to inspiration, as opposed to traditional settings where it often feels restraining or otherwise demeaning, like processed cattle.

The energy in the entrepreneurial lab is different compared to my other classes, but I enjoy the change. It makes it easier for me to learn and connect with the professor and classmates.

The open environment is more comfortable, which makes learning easier. We can also see each other during class, so communication flows freely.

I really enjoy the non-traditional classroom setup. I like that I have my own personal space to really get into a place of learning.

The overall takeaways from the student comments show an even stronger difference of experience between each classroom. The traditional classroom is more constrained, and the focus is on the instructor and note-taking during lecture, while the entrepreneurial class experience is described most often as comfortable, open, and able to support discussion among peers.

THE INSTRUCTOR EXPERIENCE

While the study was not designed to have instructors specifically compare aspects of the entrepreneurial lab to traditional classrooms, feedback was solicited from the instructors that taught in the lab to understand their pedagogical approaches, as well as their observations and experiences using the classroom. The instructors using the space included only business faculty since the lab was primarily designed for the management department.

Activities

The instructors all used various forms of active learning pedagogy (Figure 21). While they all included some form of lecture during the class, they incorporated a host of activities. These included students working together to present and critically examine ideas, turning ideas into action, managing projects, and applying design thinking techniques. The instructors had students incorporate all classroom tools and a variety of technologies.

Instructors were also asked for their observations of the type of activities that they witnessed students engaged in (Figure 22). This included collaborating with other classmates and communicating their ideas with each other. Students were also engaged in creativity, iterating ideas, as well as taking some risks. Occasionally students were observed working alone, but more often they were engaged in activities that connected them with other students. All instructors also noticed that students engaged in managing projects through the term.

Due to the focus on innovation skills, the faculty were questioned about how the classroom helps to support various elements of innovation. The instructors were quick to point out the ability of students to move within the space naturally and easily, making communication and creativity effortless. This was enhanced using various digital and analog tools they incorporated such as whiteboards and technology that allowed for sharing student work with the class. The following feedback

Activities Used When Teaching

Present ideas to other classmates
Critically examine ideas w/ classmates
Lectures regarding class content
Work w/ others to turn ideas into actions
Work individually/alone
Work on projects together
Apply design thinking techniques
Apply concepts learned in course
Students use classroom tools
Students use posted materials

Figure 21: Activities used when Teaching

Activities Observed

Students collaborate with classmates
Communicate ideas with others
Engaging in creativity
Risk-taking
Students working alone
Students connected with classmates
Students innovating/iterating ideas
Managing projects to achieve objectives
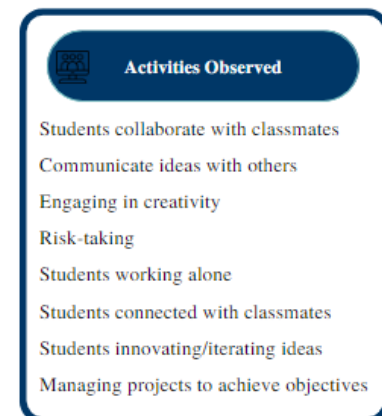
Figure 22: Activities Observed

from one of the faculty members summarizes how the design enhances student-to-student collaboration.

> *Previously, when I tried executing collaborative learning activities in a traditional classroom setting—where students sit in rows with long tables separating them—I had great challenges rearranging furniture so that students could collaborate in a timely manner. Much time was spent just trying to create a collaborative workspace for students. In contrast, the entrepreneurial space is arranged in such a way to encourage immediate collaboration. With its mobile desks, rolling chairs, and open floor plan, students can assemble their teams in seconds.*

The faculty also noted that the classroom carries such amenities as natural lighting, high ceilings, multiple indoor and outdoor views, carpet, vibrant colors, soft and moveable furniture, rolling chairs, multiple seating and standing options. This was seen as adding to a healthy environment that seemed to have an impact on student wellness, motivation, productivity, and performance.

How the Classroom Supports Teaching

The instructors were also asked to reflect on how the classroom helped them in their teaching. All had strong positive experiences within the classroom over the course of the study. Interestingly, they did not note any challenges in adapting to the space, which is likely because they were all adept at working within an active learning classroom. Overall, the instructors stated that the classroom helped to facilitate student-to-student collaboration, and it helped them encourage student innovation. Moreover, the instructors reported their own level of engagement with the students increased. The faculty also reported that the entrepreneurial lab allowed them to take more risks in their own teaching as they experimented with new teaching techniques. The instructors reported the classroom helped them to better manage the class and projects over the term. And finally, the space not only offered students choice, but allowed instructors more freedom of choice as they were teaching.

Instructors using the space not only managed the schedule but also coordinated how the space could be used for permanent displays of course materials. Because there were so many writing surfaces and wall spaces, the classroom accommodated more of a sense of ownership by the instructors, similar to K-12 instructors. This allowed the faculty to post content that was built upon over the term to enhance the learning experience for students. These included things like SWOT analysis, user personas, mind-maps, idea boards and more, all common tools used in business environments along with rainbow-colored post-its. The following is a summary of this characteristic of the room from one of the instructors:

> *Given that I teach all of my classes in the entrepreneurial lab, I am afforded many teaching advantages. I can prep my courses well in advance. Student creative works can be displayed throughout the term. Key learning points can be referenced throughout the course. I consistently hear from students how much they appreciate the fact that they can reflect on their work and how they feel that their work has meaning beyond a due date.*

The faculty using this space were quick to point out many of the advantages of teaching in this classroom. They noted, by its very design this space "contributes positively to a collaborative and cooperative learning environment for students. It is conducive for those who appreciate and celebrate the student-centric active learning environment."

The feedback from faculty on the entrepreneurial lab design serves as an important perspective for understanding the effectiveness of student-centered learning environment in promoting collaboration and innovation. Building on this feedback, the study's findings offer valuable insights into the specific ways in which the entrepreneurial lab outperformed the experience in the traditional classroom. The following section will delve deeper into the findings and draw broader conclusions about the design principles that are most effective in promoting a culture of innovation among students.

DISCUSSION

Based on this study, the entrepreneurial lab outperformed a traditional classroom in nearly all inquiries of the study, particularly in terms of supporting innovation. The following discussion will present some general conclusions about the entrepreneurial classroom design based on this research.

Re-Envisioning Classrooms

Active learning classrooms have been designed, used, and studied for many years. As noted above, they have a deliberate design to support activity, such as chairs and tables with casters to encourage ease of movement and reconfiguration. But even some of those designs, particularly in the higher education environment, tend to have hard surfaces that still strongly mimic elements of a traditional classroom. Conversely, the design of the entrepreneurial lab has some elements of a typical flexible active learning classroom, however the design goes beyond this to mimic some of the more modern workspaces with sofas, and huddle nooks with a host of writing surfaces.

Based on the instructor and student feedback of the space, this entrepreneurial classroom design seemed to outperform a typical active learning classrooms due to its more natural ability to support instant collaboration and connection. Moreover, the student results show their ability to learn and thrive in this space. So, we ask, why can't a classroom have a wide variety of furniture, hard and soft, low and high, to allow for choice, movement, and collaboration? While there is still a place for traditional classrooms and lecture-based teaching, this design seems to intuitively support teamwork, projects, innovation, and creativity based on its space and design.

Sense of Awe & Pro-Social Mindset

When first walking into the new entrepreneurial center, one of the instructors noted, it is not uncommon for a student to pause, take notice, and express a feeling of "awe," especially if their prior learning experiences have been confined to a traditional classroom. The importance of classroom design when it comes to facilitating student learning and behaviors is often overlooked by many educators and administrators. That feeling of "awe" as a reaction to space design, can

take a person out of their egotistical self and promote a collective mindset—a sense of being part of something greater than self (Carruthers, 2022). This collective pro-social mindset is only the beginning of what students and instructors experienced in the new learning space and can aid in the development of innovation skills.

According to Sarah Williams Goldhagen (Carruthers, 2022), awe and wonder can be evoked in many ways, such as through the use of natural light, the incorporation of artwork or other visually stimulating elements, the use of colors and textures that evoke positive emotions, and the inclusion of interactive and engaging learning materials. Williams Goldhagen also highlights the importance of intentionally designing learning spaces that promote a sense of awe and wonder, as this can lead to increased creativity, innovation, and collaboration among students (Carruthers, 2022). In addition, Dillon and Morris (2012) examined the impact of classroom design on student engagement. The authors found that students who were exposed to a classroom that incorporated elements of awe and wonder reported higher levels of engagement and motivation to learn.

The Development of Innovative Skills

As noted, the prior literature has identified a host of competencies that can be characterized as skills needed for innovative pursuits. These include the ability to effectively work within a team to collaborate, communicate, and network. Also, innovation requires the capacity to empathize with users, to observe and reflect, as problems are further defined. Next, innovation also thrives in an atmosphere that is somewhat ambiguous and uncertain, requiring adaptability and risk-taking. Innovation also involves the ability to solve an array of problems, from simple to much more complex. And lastly, there is an element of innovation that necessitates the ability to manage, organize, and reframe components of a project, while working to meet the desired outcomes.

These skills do not necessarily fit with standard organizational bureaucratic cultures or environments filled with desks, tables, and cubicles. It is no wonder why many organizations have reimagined the workplace to support a culture of innovation, required in today's competitive environment. As noted by Auernhammer & Roth (2021), the "organizational environment either constrains or enables creative agency, which produce the social structure." Cultivating environments of safety and freedom are critical when encouraging learning and innovation. The instructor, pedagogy, and the environment can build and reinforce confidence and intrinsic motivation in students (Auernhammer & Roth, 2021).

Model: Environment to Develop Innovative Skills

Based on this research, and prior identification of innovative skills in the literature, the following *Innovative Learning Environment Model*, is presented as a framework to design learning spaces (Figure 23). The center area highlights five key areas of innovation skillsets that include the ability to work within a team, to manage complex projects in a highly ambiguous situation that require the ability to reflect, empathize, and collaborate. As discovered with this research, the most natural environment for this to occur is not within a traditional front-facing classroom. Therefore, this model has been developed to outline the key elements that are required to promote innovation. These include the following:

- **Furnishings**: The space should include a wide variety of furniture that allow students choice and enough area for freedom of movement. Unlike more traditional front-facing classrooms, or even some active learning furniture, the design should support instant and natural collaboration.
- **Tools**: The tools should include a host of movable writing surfaces like whiteboards. It should also comprise areas where the instructor and students can post their work over the term.
- **Technology**: The technology in the classroom should include a variety a movable tech to promote the sharing of work and support multiple applications.
- **Supportive Culture**: The environment must be able to cultivate a safe and supportive place for students to take risks, make connections, and reflect on their work to iterate ideas. While the instructors and their pedagogy play a huge role in constructing this culture, as discovered, space design also plays an important role.
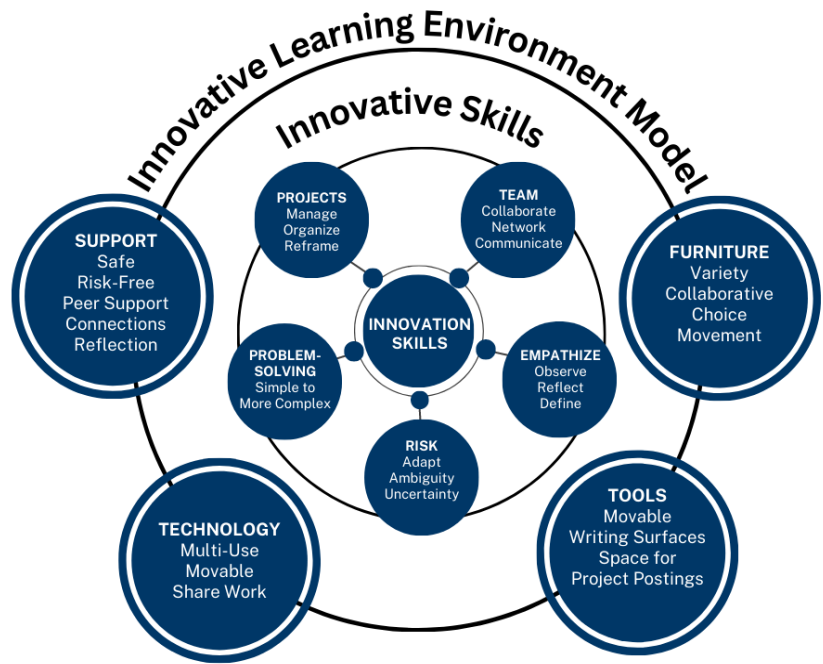
Figure 23: © Innovative Learning Environment Model

LIMITATIONS AND FUTURE WORK

Since this was the first study conducted on this entrepreneurial lab, it certainly has some limitations. As with many early studies, this was purposely designed to be small in scale with queries in several areas of interest. While this work yielded optimistic results, more work should be conducted to enlarge the number of participates as well as faculty teaching in the space. In addition, it would be of interest to understand if an innovation space would be beneficial in other disciplinary areas beyond business. Additionally, rather than a pre-post survey methodology, it would be more useful to complete the same study with the same group of instructors teaching in two different classrooms so that the comparison can more strongly focus on the effects of the classroom on learning, student engagement, and the development of innovation skills.

Based on the results of this work, the researchers are interested in the further study of the *Innovative Learning Environment Model*. This could include how this model works within the current entrepreneurial lab, as well as other locations in higher education, K-12, or even work

environments. This would help to understand if the environmental components identified can be further optimized to promote the development of innovation skills among various populations.

CONCLUSIONS

This paper explained the design of a unique and forward-thinking classroom. Following its implementation, research was conducted to understand the student's learning experience in the entrepreneurial lab compared to traditional front-facing classrooms using a pre-post survey methodology. This research focused in three key areas; 1) how the classroom tools and features aid students in their learning, 2) how the classroom helps to develop innovation skills, and lastly, 3) how the classroom supports areas of student success like motivation and retention. The research showed the entrepreneurial classroom outperformed in all three of these areas when compared to the traditional classroom experience. As a result, an *Innovative Learning Environment Model* was developed   that identified key components of a learning space that supports innovation.

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USING DEVELOPMENTAL FEEDBACK TO ADDRESS
FREE RIDERSHIP IN TEAM PROJECTS

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ABSTRACT

Team projects have become an increasingly utilized strategy in teaching in the business and management disciplines. While team projects have been shown to facilitate higher-level learning and provide a wide range of benefits relative to the development of individual student skills, their use presents challenges to both new and experienced instructors. This article addresses the context of and benefits associated with team projects, discusses some of the challenges instructors need to consider and address in using them and presents two tools designed to facilitate the most efficacious use of teams in the classroom.

EMPLOYER NEEDS IN A RAPIDLY CHANGING WORLD

The increasingly highly volatile environment in which most organizations operate today has modified the skill set employers seek in not only entry-level hires but also in those employees it needs to promote to higher levels of responsibility. While technical skills have traditionally been important factors in both hiring and promotion, the rates of change associated with technological developments and organizational processes renders skills taught in the classroom to become quickly obsolete. As a result, employers are increasingly seeking critical thinking and adaptability skills among their employees in addition to collaborative interpersonal skills related to communication and teamwork (Caudron, 1999; Ingols & Shapiro, 2014; Shuayto, 2013). This heightened uncertainty and the need for near-constant adaptability and responsiveness have also resulted in a dramatic increase in use of teams and collective decision making in organizations with an associated need for employees who have well-developed teamwork skills (Applebaum & Blatt, 1994; Taninecz, 1997) as more than 80% of organizations report using multiple types of workplace teams (Cohen & Bailey, 1997; Sundstrom, 1999).

Employers are increasingly recognizing that well-developed teamwork and communication skills can be a source of competitive advantage by providing organizations with enhanced quality, productivity, and ultimately, profit (Bartlett & Ghoshal, 2002; Guthridge, Komm, & Lawson, 2008; Hagen, Udeh, & Wilkie, 2003; Halfhill & Nielsen, 2007; Lawler, Mohrman, & Ledford, 1998). As a result, there continues to be a significant increase in the demand for employee talent with well-developed interpersonal skills which can be executed when working both one-on-one and in teams (Choi, Slaubaugh & Tian, 2021). Workplaces today require employees who can work together effectively in teams to ensure high levels of performance (Goltz, Hietapelto, Reinsch, & Tyrell, 2008; Lawler, Mohrman, & Ledford, 1998; Nielsen, Sundstrom, & Halfhill, 2005; Halfhill & Nielsen, 2007).

As a result of these dynamics, the ability to effectively work within teams is one of the skills most sought by employers in potential new hires at the management level (Ashraf, 2004; Chen, Donahue, & Klimoski, 2004) and particularly sought in new business school graduates (Tarricone & Luca, 2002; Thacker & Yost, 2002). One recent employer survey found that an applicant's ability to effectively collaborate in a team environment consistently ranks among the top skills sought by the employers, in tandem with associated leadership, problem-solving, and communication skills (National Association of Colleges and Employers, 2021). This need was further evident in another study which found that more than 70 percent of employers recommended that colleges and universities place more emphasis on teamwork and collaboration skills across their curricula to enhance prospects for employability (Association of American Colleges & Universities, 2009). A more recent report from the Graduate Management Admission Council found the top five proficiencies employers seek are oral communication skills, listening skills, written communication skills, presentation skills, and teamwork/adaptability; all of which are developed through well-designed team project pedagogies (GMAC, 2021).

MANDATE

This employer need for applicants who are highly adept at working as part of a team as well as managing teams has been incorporated into the most recent revision of the accreditation

principles and standards of both the International Accreditation Council for Business Education (IACBE) and the Association to Advance Collegiate Schools of Business International (AACSB). IACBE has identified teamwork as a key learning outcome for business programs at the associate, bachelor, master and doctoral levels (IACBE, 2021). AACSB standards mandate that general skill areas in business schools incorporate the ability to work in diverse, team environments, encouraging business schools to offer students challenging projects that require active, collaborative, and experiential learning (AACSB, 2020). As a result of both IACBE and AACSB's prominence in management education, this mandate for inclusion of the inclusion of teamwork as part of accreditation has resulted in both accredited and nonaccredited business schools redesigning their curricula to support the development of interpersonal and teamwork skills which are essential for their students' career success (Ritter, Small, Mortimer, & Doll, 2018) and, at this point in time, virtually every business school has, to some extent, adopted student team projects within their curricula (Jiang, Yang, Guo & Zhang, in press).

ADVANTAGES OF TEAMS

Beyond the needs and demands of employers, team-based learning pedagogies have been shown to be highly effective in facilitating specific learning outcomes (Kolb & Kolb, 2005; Loyd, Kern, & Thompson, 2005). Team projects are based on active learning strategies, such as discussion and problem solving, requiring that students utilize each other as sources of knowledge and perspective, and in contrast to traditional passive learning methods, such as lectures, create a richer, more engaging learning environment (Williams, Beard, & Rymer, 1991). Team projects have been shown to facilitate cooperative learning environments that promote active and higher-level learning or thinking (Hernandez, 2002) as well as aid in the development of interpersonal skills, especially among students who have minimal full-time work experience (Choi, Slaubaugh & Tian, 2021).

The use of project-based assignments completed in teams has been shown to facilitate more engaged learning, greater comprehension and retention of information, higher levels of student motivation and achievement, development of critical reasoning skills, and enhanced communication skills (Hansen, 2006). Similarly, they have been shown to facilitate content learning, retention of content, and the ability to apply learning in both quantitative and qualitative contexts (Michaelsen, Pamelee, McMahon, & Levin, 2008).

Team-based project learning generally requires students to investigate new areas of knowledge and understand and apply this knowledge to uncertain and complex situations and allows them to do so far more effectively than they are able to do individually (Hernandez, 2002). It has also been found to aid in the development of skill and knowledge sets of students relative to the application of acquired knowledge to real-world problems (Fellenz, 2006) through utilizing both experiential and collaborative learning (Brutus & Donia, 2010).

Specific empirical studies have found that team-based projects enhance students' leadership cognition and competence (Chen, Snell, & Wu, 2018; Han, Lee, Beyerlein, & Kolb, 2018; Mayo, Kakarika, Pastor, & Brutus, 2012), teamwork skills (Chen, Donahue, & Klimoski, 2004; O'Neill, Hoffart, McLarnon, Woodley, Eggermont, Rosehart, & Brennan, 2017), global awareness and cultural intelligence (Erez, Lisak, Harush, Glikson, Nouri, & Shokef, 2013; Taras, Caprar, Rottig, Sarala, Zakaria, Zhao, Jimenez, Wankel, Lei, Minor, Bryła, Ordenana, Bode,

Schuster, Vaiginiene, Froese, Bathula, Yajnik, Baldegger, & Huang, 2013), problem-solving abilities (Fortner, 1999), communication skills (Strom & Strom, 1999), and willingness to attempt new and difficult tasks (Kromwey, 1995). Team projects create opportunities to analyze questions and solve problems from different points of view, opening up students to alternative perspectives of framing problems and learning from their peers (Aggarwal & O'Brien, 2008; Batra, Walvoord, & Krishnan,   1997; Hammar & Chiriac, 2014; Johnson & Johnson, 2004). They also help to develop negotiation and collaboration skills (Dommeyer, 2007; Hall & Buzwell, 2012; Williams, Beard & Rymer, 1991), which are increasingly desired by employers (Hansen, 2006; Johnston & Miles, 2004; Schlee & Karns, 2017; Yeoh, 2019).

Team-based projects impact behaviors and outcomes in the class as students whose coursework involves team-based learning have been found to be better prepared for class (Nieder, Parmelee, Stolfi, & Hudes, 2005) and present higher levels of achievement relative to learning objectives (Zgheib, Simaan, & Sabra 2010). Team-based learning has been found to aid instructors in teaching and more effectively managing larger size classes (Fellenz, 2006) as well as better accommodate "at risk" students, resulting from increased social support and/or teammate "tutoring," in successfully completing and staying engaged in their coursework (Michaelsen, Sweet, & Parmalee, 2009).

Numerous studies have reported that team-based learning contributes to both the development and enhancement of a number of specific skill areas sought by employers including content learning, application learning, quantitative and qualitative analytical skills, critical thinking skills, problem-solving skills, and interpersonal and team skills (Fink, 2002; Koles, Stolfi, Borges, Nelson, & Parmelee, 2010; Michaelsen, Sweet, & Parmalee, 2009; Ofstad, Pharm, & Brunner, 2013; Vasan, DeFouw, & Holland, 2008; Wiener, Plass, & Marz, 2009). Its benefits have further included a documented impact on the development of such skills for students who have limited experience in a professional work environment (Choi, Slaubaugh & Tian, 2021). As noted above, the acquisition, and even mastery, of technical and functional-related skills, regardless of business function, is no longer sufficient for employers today. Functional skills need to be accompanied by well-developed communication, problem solving, interpersonal, collaboration, organization, and teamwork skills to ensure employability and career success.

POTENTIAL CHALLENGES WITH TEAMS

As beneficial as team projects are to enhanced learning and skill development, their use presents instructors with a number of challenges. First and foremost, unless students have some prior experiences working in project teams and/or, preferably, have been presented the opportunity to learn about team theory and process, they may have limited success in reaping the benefits of teamwork. While team projects are designed to assist students in the development of interpersonal, communication, conflict resolution and problem-solving skills, the subject of working cohesively and effectively in teams is rarely part of the content within courses in which team projects are assigned. As a result, unless course content presents material that allows students to understand and appreciate the value of teamwork and how to best work as part of a team, students are unlikely to gain the perspectives and experiences associated with working in teams which employers seek and value.

Outside of courses in organizational behavior, and sometimes principles of management, group and team dynamics are rarely part of course content in the business disciplines. Hence, students often fail to understand and are unprepared for assuming collective responsibility. This can result in apathy, neglect, and defaulting to completing work assignments individually rather than cooperatively (Maiden & Perry, 2011), whereby students simply "divide up the work" and then combine their individual work into a finished product which has not been integrated, reviewed, or proofread. This lack of direction in how to create and be a part of an effective, high performing team can further result in skewed contributions of individual members and a perceived lack of fairness or sense of justice surrounding team projects, which has been found to be a significant barrier to student learning and development (Bowes-Sperry, Kidder, Foley, & Chelte, 2005).

Team projects usually involve one common grade for all team members, regardless of individual contribution. This can result in perceptions of a lack of fairness or justice regarding distribution of workload and effort, given the eventual outcome of a common grade (Bowes-Sperry, Kidder, Foley, & Chelte, 2005). This can further result in two distinct, yet often co-existing, kinds of behavior among team members. The first is experienced among higher achieving students who may feel "burdened" by having teammates who are less enthusiastic, diligent, or grade-conscious than they are. Group assignments are often not appreciated, and actually often disdained, by high-achieving students who may perceive that such projects result in extra work on their part in needing to raise the levels of output produced by their team members to satisfy their own standards for performance (Woolard, 2018). As a result, higher achieving students may find that it is more efficacious and less time-consuming for them to complete entire team assignment individually and simply add their team members' names to the finished project. Doing this allows high-achieving students to have more control over the work that is submitted as well as completed to their standards, maximizing the chance of receiving the highest possible grade.

The second kind of behavior involves the very well-researched and documented problem of "free riders." Free riding, also known as social loafing in the behavioral science disciplines, takes place when a student or students fail to contribute their fair share of work to a team, as perceived by other team members (Aggarwal & O'Brien, 2008; Hall & Buzwell, 2012). Free riding has been found to be a serious problem among student teams (Van den Herik & Benning, 2021) and the most common complaint received by instructors from team members (Brooks & Ammons, 2003; Friedman, Cox, & Maher, 2008; Fellenz, 2006).

Incidents of free riding in student teams is more likely to take place when teams receive a common assessment and grade of the team effort, without identification or evaluation of individual contributions to the project (Fellenz, 2006; Ghorpade & Lackritz, 2001). Indeed it has been found that there is a direct relationship between the lack of assessment of individual performance in team projects and free riding (Bowes-Sperry, Kidder, Foley, & Chelte, 2005). Perhaps more troubling is the effect that free riding can have on other team members whereby non-free-riding students decide to reduce their efforts in an attempt to maintain some sense of equity (Comer, 1995; Webb, 1982; Williams, Beard, & Rymer, 1991).

Combatting free ridership can be a distinct challenge. One suggestion in this regard has been the use of smaller groups, given that free rider behavior incidence has been found to increase with group size (Aggarwal & O'Brien, 2008). The use of smaller groups, however, limits the amount of work and scope of projects which can be assigned to a team during a fixed time, limited academic term.

Multicultural teams can present additional challenges to teams relative to free ridership (Brett, Behfar, & Kern, 2006; Popov, Brinkman, Biemans, Mulder, Kuznetsov, & Noroozi, 2012; Strauss, Mackey, & Crothers, 2014), largely due to differences in cultural norms (Cox & Blake, 1991; Li & Campbell, 2008; Popov, Brinkman, Biemans, Mulder, Kuznetsov,& Noroozi, 2012), and, especially, the distinction between individualist and collectivist societies. One study found that Asian students, despite being collectivist in nature, disliked common grade-based group projects due to the difference in cultural perspectives on individualism and collectivism between multinational group members (Li & Campbell, 2008). However, students from collectivist cultures will be less likely to engage in free ridership if others in their group are also from collectivist cultures (Earley, 1993).

Students have also been found to reduce their efforts toward a group task when they feel that other team members are more competent or skilled (Comer,1995), hence students for whom English is not a first language might perceive that their native English-speaking group members are more qualified to understand the assignment and communicate, both orally and in writing, the team's work (Clark & Baker, 2011). In response, and somewhat counterintuitively, students from collectivist cultures are more likely than those from individualist cultures to engage in free-riding (Payan, Reardon, & McCorkle, 2010) yet international students favor more severe consequences for those students found or reported to be free riders than American students do (Van den Herik & Benning, 2021). Ultimately, however, most students appreciate any efforts by which instructors attempts to address the problem of and decreased the incidence of free riding (Maiden & Perry, 2011). The potential challenges associated with the use of teams are summarized in Table 1.

Table 1 - Potential challenges with the use of teams
Students inexperienced and unprepared to work in teams
Perceptions of inequity when team members receive a common grade
Free ridership
Cultural differences
Differences in motivation and skill levels among team members

FACILITATING BETTER TEAMS

Given the myriad learning benefits associated with the use of student project teams and the employer need for well-developed teamwork skills, instructors need to be proactive in addressing the challenges associated with the use of student teams. A variety of strategies and pedagogical tools can be deployed to maximize the potential learning and development opportunities associated with student teams.

Instructor Support
One strategy is to provide teams with as much support as possible, especially early on in the course. At the very least, regardless of the course content and topic, some class time should be spent reviewing the challenges and opportunities associated with working in teams as well as some examples provided of highly effective teams. Topics that should be covered here, at a minimum, include benefits and challenges of working in teams, stages of team development, conflict

resolution techniques, conducting productive meetings, member roles, responsibilities, expectations and accountability, and effective communication. During the first few weeks of team projects, instructors should monitor, and preferably observe, individual teams without overtly influencing team process and dynamics. Teams can be encouraged to develop their own formal process and control mechanisms to which all members agree (Courtright, McCormick, Mistry, & Wang, 2017). Individual team members are likely to be more committed to any expectations and behavioral norms that they themselves develop as opposed to those suggested, or even mandated, by instructors. During the early stage of team activity, instructors should further encourage the creation of team processes which provide for sufficient participation by all members.

Instructor availability and accessibility during the initial project stages heightens opportunities for students to seek guidance and support as well as disclose individual concerns. Studies have found that early active support by instructors directly influence students' increased positive attitudes toward approaching group projects (Taylor, Hunter, Melton, & Goodwin, 2011; Bailey, Barber, & Ferguson, 2015) as such engagement allows the instructor to assess whether the group has organization or process issues, challenging dynamics, or potential free-rider problems. It has been noted that early instructor support can greatly reduce the incidence and severity of these issues as the instructor can identify and provide appropriate counsel to a group (Abril, 2016; Schippers, 2014).

Providing Class Time for Team Meetings
Very few students today are simply full-time students without additional responsibilities which demand their time. Even many traditional undergraduate students find it necessary to work 20-40+ hours per week while being enrolled as a student full-time. Many have children or other family caregiver responsibilities. Many have commitments to institutional athletic programs, are involved in volunteer or charity work, or have made a choice to commit to various extracurricular activities, often in leadership roles. In addition to this, at this writing, students are similarly navigating the challenges and associated stressors associated with conducting these various pursuits in tandem with an evolving global health pandemic.

As a result of these demands on student time, team projects have to be designed and delivered with the understanding that students are going to face obstacles in attempting to meet outside of class time as a team. Many comprehensive, semester-long projects require a significant amount of time to manage and complete and while electronic communication, especially email, texting, and virtual meetings, can aid in communication and task completion, it is critical to provide teams with some class time in which they can meet (McKendall, 2000). Class time represents time during the week in which all team members are, or should be, available. In addition to alleviating time pressures teams may be experiencing, class-time meetings also provide a perfect opportunity for instructors to observe and consult with student teams regarding dynamics, process, and progress. This can be of particular importance at the beginning of projects as team members can discuss individual preferences and availability, establish expectations, and clarify roles, responsibilities, and schedules for completion of work (Abril, 2016).

Grading – Common Versus Individual
As noted above, the assignment of a common grade to all team members for the team's work can be a point of contention which can impact individual team member behaviors as well as willingness to commit to the team. Students are often frustrated with team projects when there is a common

grade assigned to each member regardless of individual effort (Conway & Kember, 1993). This is based on the fact that team members are well aware that a sense of inequity can easily result when inherently weaker and less motivated team members receive higher grades than they would on their own based on the work of the more motivated and higher performing team members (Kisner, 2007). This can be a particular problem when teams have multiple projects to complete within a given semester and a higher percentage of the overall course grade is derived from common grades assigned on team projects. In these cases, the senses of both inequity and resentment of higher performing team members can result in breakdown of the team.

The reality is that if a team submits a group / team project there is limited to no opportunity to practically assign individual grades based on the content of the project, unless somehow the project can be divided into discrete, individualized components; however, it then ceases becoming a true team project. A variety of suggestions have been offered regarding differentiation of individual contribution to team projects. These include grade penalties for free-riding students (Lejk, Wyvill, & Farrow, 1996; Mello, 1993; Rust, 2001) and as well as providing the option for teams to "fire" noncontributing members from their group (Abernethy & Lett, 2005; Strong & Anderson, 1990) upon which "fired" team members are then required to complete a project that is of comparable scope to the team project on their own. The problem with both of these approaches, however, is that while they may create a sense of fairness, justice, and hence satisfaction among higher-contributing/performing team members, they are punitive in nature and meant to "hurt" those who have not contributed according to the expectations of their team members. While this may be parallel to what is experienced in professional employment, instructors have a responsibility to attempt to develop their students as much as possible relative to the professional standards of conduct and behavior necessary for career success. Punitive approaches are counterproductive to learning and skill development for all team members, both higher and lesser-performing individuals. The challenge in the classroom then becomes managing this process of assigning a common grade in a manner which facilitates learning and development on the part of all students but particularly among those who are lesser-performing.

PROMOTING INDIVIDUAL ACCOUNTABILITY AND PERFORMANCE

As noted above, instructors who utilize group project pedagogies face distinct challenges in ensuring that teams are equipped to produce the highest quality work project possible while simultaneously maximizing the developing of important teamwork skills among team members. Two separate yet complementary approaches to achieving these dual outcomes are the use of peer feedback and assessments and personal activity reports. Both will be explained below.

Peer Feedback and Assessment
There is an extensive literature on the use of peer assessment and feedback in team projects. Team-assessment researchers agree that peer input is an essential component to determining individual grades which are perceived as fair (Conway & Kember, 1993; Lejk & Wyvill, 2010; Goldfinch, 1994; Johnston & Miles, 2004; Dommeyer, 2007) as it contributes to a more comprehensive assessment of both the work of student teams as a whole and the contributions of individual team members (Falchikov & Goldfinch, 2000). Peer assessment has also been cited as an exceptional

means of preparing students for the realities of the professional work environments in which they'll be participating (Falchikov & Goldfinch, 2000; Friedman, Cox, & Maher, 2008).

Peer feedback has been offered as an appropriate means of encouraging accountability among students for their contribution to and performance on the team (Bowes-Sperry, Kidder, Foley, & Chelte, 2005; Brooks & Ammons, 2003; Friedman, Cox, & Maher, 2008), potentially mitigating free rider effects (Johnson & Smith, 1997) and motivating team members to work more collaboratively (Choi, Slaubaugh & Tian, 2021). It has also been cited as contributing to more positive attitudes toward group projects because such feedback methods allow students to feel they are more in control of the result of their efforts (Pfaff & Huddleston, 2003).

Contribution to team efforts has been found to be directly related to the use of peer assessment. Students have been found to achieve higher individual levels of performance when peer assessments are used (Erez, Lepine, & Elms, 2002; Topping, 1998), especially when such assessments contribute to final course grades (Feichtner & Davis, 1984). One study found that as the percentage of the grade determined by peer evaluation increases, the rate of free riding among group members decreased (Bowes-Sperry, Kidder, Foley, & Chelte, 2005). Similarly, several additional studies found a negative correlation between the number of peer process evaluations and free-riding (Aggarwal & O'Brien, 2008; Brooks & Ammons, 2003; El Massah, 2018). Hence, providing peer feedback more frequently as well as weighting it more heavily in the overall course grade diminishes free rider behavior.

The efficacy of peer feedback can be increased by providing it at intervals during the work on a team project. Several studies have reported that multiple peer process evaluations completed during a project, which focus on contribution and collaboration rather than the project's content, can create early awareness of possible free-riding problems (Aggarwal & O'Brien, 2008; Brooks & Ammons, 2003; Dommeyer, 2007; Pfaff & Huddleston, 2003) and allow underperformers to improve their team members' perceptions of their contribution and performance (Aggarwal & O'Brien, 2008; McKendall, 2000; Feichtner & Davis 1992). Both higher and lesser performing individuals are likely to see such early feedback "warning" as a fair means of communicating expectations and allowing for performance improvement. This is particularly important for multicultural teams as international students reported that peer feedback provided prior to the completion of a given project prevented free-riding and improved communication and, ultimately, performance among group members (Sridharan, Muttakin, & Mihret (2018).

Several caveats are in order regarding the use of peer feedback and assessment as while it can be quite effective in increasing perceptions of fairness, its success is heavily dependent on its execution (Ahmed, 2018). First and foremost, it is important from the outset that it be perceived by both instructors and students as a developmental, rather than punitive, tool. This has implications for both what is contained on the feedback instrument, the frequency of its use, and the consequences for students who receive low assessments. Ideally, if peer assessment is to be used as a component of student's course grades, students should receive at least one formal peer assessment prior to that which is being utilized for course grade calculation. This allows students an appropriate opportunity to adjust their contributions based on teammate perceptions of which the student may or may not have been previously aware. Some students have personalities and preferences which lead them to be non-confrontational so earlier feedback provides these students with the opportunity to communicate their perceptions anonymously to their teammates and allows those who are perceived as lower contributors to receive that information in a non-threatening manner in that this earlier feedback will not influence course grades. This strategy presupposes

that students will be allowed to fill out feedback forms anonymously which will assist in encouraging candor and more open communication.

Instructors also need to determine the assessment criteria that will be involved and the measures/rubrics, if any, which will be provided to students. The criteria selected should relate to those areas in which the instructor feels are most critical to both team success and skill development as well as in tandem with any specific course learning outcomes which might exist. Measures should be as detailed as possible to reduce subjectivity and provide some sense of both reliability and validity. While the process of utilizing peer assessment can involve a significant investment of time on the part of instructors (Abernethy & Lett, 2005; Maranto & Gresham, 1998), the majority of that time can be attributed to the development and design of the instrument. A well-developed and designed instrument not only makes the process of receiving feedback more valuable to students but also minimizes the amount of time the instructor will have to devote during the collection and dissemination of peer assessment feedback.

Students must also be encouraged, if not required, to provide narrative support for their rankings of their teammates. Specific behavioral feedback is not only more developmental in nature in allowing students to more clearly state expectations for behavior and performance but also helps to minimize the risk of low ratings which might be based on explicit or implicit bias and/or personality differences. It is critical that students understand that they are accountable for and must accept responsibility for the feedback they provide to their teammates (Topping, 1998). A sample Peer Feedback Form is presented as Appendix A.

Personal Activity Reports

It is not unusual for students, both when working individually and in teams, to procrastinate in completing assignments that are not due in the very short-term (i.e.., the coming week or even days). Given that team projects usually involve an amount of work that makes them impractical for individual assignment, shared responsibility for completion, and completely undefined and ambiguous individual responsibility for contribution, they are often put off until perilously close to their due dates, resulting in lower quality work and less opportunity for building team skills.

A strategy to combat procrastination on team projects as well as discourage free rider behavior is the use of a weekly Personal Activity Report (hereinafter referred to PAR) from each student. PARs allow instructors to not only detect free rider behavior but also both individual and team procrastination and intervene, as necessary. The help to ensure a more equitable distribution of work among the team, which increases team members' perceptions of fairness; aid in the development of lesser-performing students, who may simply need a bit more encouragement or support; and provide incentives for completing work on a timely basis. I have successfully utilized PARs in the following manner:

Once teams and team projects have been assigned, each student is required to submit a weekly PAR to the instructor. PARs must be submitted via email no later than 12:00 PM each Monday with absolutely no extensions on this deadline. Weekly PARs are required from the first assignments of the team project until the team has completed and submitted its final work project. Students are told "the purpose of these reports will be to ensure that you continue to make steady progress on course projects and to provide you with timely, personalized, one-on-one feedback which would otherwise be unobtainable, given the size of the class and scheduling constraints," under the following directives:

These reports will be completely informal and should be presented in the body of an email, rather than as an attached document. Your report should comment on five separate things; 1) progress I've made / activity I've undertaken (since the last weekly report); 2) sources I've consulted (again, during the past week); 3) useful information I've found; 4) the coming week's work plan; 5) areas of concern / questions (if any). Because these are personal activity reports, you will be describing the work YOU have completed, not that of your team members, although, of course, some of your personal work will be that which is done in collaboration with other team members.

Students should expect to receive instructor feedback on their weekly reports by the end of the day of submission. While these reports are not going to be graded in any way or receive credit toward your course grade, failure to submit any required PAR by its Monday morning 12:00 PM deadline will result in one point deduction per missed report on the final numerical course grade.

The subject line of your weekly PAR should read "Week ___ PAR." Two sample PARs are presented below and should be used as guidance for both formatting and expectations of content.

The sample PARs provided to students are presented as Appendix B. As noted, students do not receive credit toward their final grade for their PARs yet failure to submit a weekly PAR results in a one point reduction of the final numerical course grade for each missed PAR.

The use of PARs involves a model of learning in which the instructor becomes a coach for students, rather than an evaluator, during the course of team projects and provides appropriate developmental feedback which encourages students to assume responsibility for both their contributions to the group and professional development. PARs promote individual accountability which, in turn, helps instructors better aid in facilitating teams processes, differentiate performers from nonperformers (Page & Donelan, 2010), and help mitigate the consequences of free ridership (Joyce, 1999). From a practical standpoint, getting students into the habit of documenting their work and accomplishments will be extremely beneficial for them in their careers, where documenting accomplishments is critical to success in obtaining promotions and new jobs.

PARs also helps to offset any potential biases against individuals who may receive low peer feedback scores unfairly (Freeman & Greenacre, 2011; Hall & Buzwell, 2012; Kao, 2013), replacing this bias with a more objective reporting and documentation of an alleged free-rider's contribution to the team and knowledge of the group project (Maiden & Perry, 2011). Instructors can gain a very realistic objective sense of the relative contribution of each team member to group projects via a review of PARs and, more importantly, can provide students with feedback in this regard which can work in tandem with peer review feedback received from team members. The ultimate outcome of the use of this combination of peer feedback and PARs is near-zero incidence of free rider behavior, greatly improved quality of team projects (as assessed through instructor feedback), and extreme levels of satisfaction with team projects (as communicated via end-of-course feedback from students).

CONCLUSION

It is hardly surprising that team projects have become such a critical component of contemporary management education given the myriad benefits they provide to students. Faculty have readily embraced this form of assigning work and facilitating learning, given both the benefits it provides to students for more efficacious learning of subject matter as well as for its impact on developing critical thinking, communication, teamwork, and interpersonal skills sought by employers and documented as essential for career success. While both equity and fairness and procrastination issues have long impeded the realization of the full potential benefits for all students of team projects, the development and refinement of new strategies which aid in maximizing the benefits of teams continues. This article, by no means intended as a cure-all, presents peer feedback and assessment as a developmental, rather than punitive, tool and introduces personal activity reports as a means of promoting both individual accountability for timely learning and responsibility for performance as a team member. Combining their use has resulted in student reports of higher levels of learning and skill development as well as satisfaction with and associated learning from team projects.

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APPENDIX A

Sample Peer Feedback Form

Assessment Form

Team Member _____

Check the appropriate box for each assessment and provide (mandatory) supporting comments.

	Deficient	Acceptable	Excellent
Participation	Absent or unavailable for meetings and/or when present, distracted with unrelated tasks	Attends meetings and participates or ensures contribution when not in attendance	Coordinates meetings and agenda and initiates activities toward project completion
Dependability	Fails to complete work in a timely manner according to deadline and /or of sufficient quality	Delivers work on time and to acceptable quality standards	Completes work on time or in advance for review by teammates and/or of exceptional quality
Leadership	Shows little concern for team members or in completing work to acceptable quality standards	Expresses opinions and takes initiative in bringing up important points for discussion	Involves others in decision making; coordinates team efforts; monitors progress; helps to resolves differences

Participation

Comments:_____

_____

Dependability

Comments:_____

_____

Leadership

Comments:_____

_____

APPENDIX B

Sample Personal Activity Reports

From: Student
Sent: Sunday, November 28, 2021 8:08 PM
To: My Professor
Subject: Week 14 PAR
 Dear Professor,
1) I have researched the KSF's of the industry and Nintendo's position in accordance with them, Nintendo's vulnerabilities which coincide with its weaknesses, how the company should measure itself, the organization's mission and its appropriateness, Nintendo's positioning relative to competitors, how Nintendo acquires customers and Nintendo's key strategic partners. I have begun to implement the information I've found into my presentation.
2) I have continued to look at Nintendo's website and have found a good amount of information on Statista as well as a few other articles.
3) An interesting bit of information I've found is that the key success factors of the video game industry differ from those of the entertainment industry in general. Another piece of interesting information is that key strategic partners work differently in the gaming industry than in other industries as they often consist of collaborations between game developers and even between competitors.
4) For the coming week I plan to continue my current research of Nintendo and continue finding information on COVID's impact and begin to research Nintendo's competencies, use of resources and factors that may affect the company in the future. I will also continue to create my presentation.
5) I have no questions for this week's PAR.

From: Student
Sent: Sunday, November 21, 2021 11:36 PM
To: My Professor
Subject: Week 13 PAR
Hi Professor,
Below is my Weekly Personal Activity Report.
1) This week I worked on my Company Strategic Analysis. I began doing an in-depth analysis of JetBlue. I started looking at their history, major achievements and what differentiates the company. I worked on the outline for the presentation.
2) These are the sources I used:
https://simpleflying.com/jetblue-history/
https://www.aa.com/i18n/travel-info/partner-airlines/jetblue.jsp
3) Useful information I found:

- JetBlue Airways has been flying for over two decades, transforming from a disruptor in the United States aviation space to an International player.
- New York-based airline was founded by David Neeleman in the late 1900s
- Low-Cost alternative
- JetBlue and American have started a recent and controversial partnership
4) My plan for next week is to continue to work on the Company Strategic Analysis.
5) I have one question. How long will we have for our individual presentations and how do we decide the order of who goes first, etc.?

ORGANIZATIONAL RESILIENCY: HOW A MIDWEST COMMUNITY COLLEGE MANAGED STUDENT SUCCESS DURING THE COVID-19 PANDEMIC

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ABSTRACT

This case study investigated how the organizational resiliency of a Midwest community college impacted student success during the COVID-19 pandemic. The college's static resiliency components of solid planning and infrastructural preparation for probable events, a longstanding collaborative commitment to achieving key elements of student success, and effective internal communication processes produced the robust capacity for flexibility and innovation that distinguishes dynamic resiliency. Interviews with ten senior staff members validated actions which accelerated decision processes, encouraged innovative solutions to issues, and mitigated non-academic stresses leading to positive impacts on student success during the COVID-19 pandemic.

INTRODUCTION

The COVID-19 pandemic has caused previous ways of how education and day to day life occurs in the United States to change (Chakraborty, 2020, Marshall et al., 2020; Gurr & Drysdale, 2020). More specifically, Brock and Diwa (2021) argue that the COVID-19 pandemic changed the complexion of the community college mission and education. This case study approaches the study of that complex challenge by investigating the actions the leaders of a purposely selected Midwest community college took in their efforts to mitigate the impact of the COVID-19 pandemic on student success.

The COVID-19 pandemic has introduced issues with student success. Ronkowitz and Ronkowitz (2021) state that educational organizations failed to anticipate pandemic stresses. Aucejo et al. (2020) found, among other issues, the following indicate a negative impact of the COVID-19 pandemic on student success: (a) decreased enrollment(s), (b) delayed graduation and (c) detriments/disadvantages to students on the lower socioeconomic spectrum. Graduation delays adversely impact a student's chance to complete their program, especially for students on the lower end of the socioeconomic spectrum. By failing to complete their programs, students are less likely to compete in the workforce, pay their school debts successfully, and the community suffers due to a lack of a trained, critical skills workforce. This situation indicates a gap in the response of colleges to the impact of the COVID-19 pandemic on student success. This study addresses these issues and assertions by applying the experience of one Midwest community college during the COVID-19 pandemic.

The purpose of this qualitative case study is to examine whether and how the organizational resilience of a selected Midwest community college impacted student success during the COVID-19 pandemic. Its specific focus is on what the college's leaders did, how they modified processes, and seized opportunities to absorb the shock of the COVID-19 pandemic and maintain or enhance student success under conditions of ongoing disruption. The intent is to identify what the college did well and what it did less well. To that end, the case study examines the contributions of static and dynamic resilience to sustaining student success in times of uncertainty, disruption, and complexity (Annarelli et al., 2020; Annarelli & Nonino, 2016; Rose, 2004, 2007). The following definitions of these key terms guide analysis:

- Static resilience: "Mostly based on preparedness and preventive measures to minimize threats in terms of probability of occurrence and potential impact" (Annarelli et al., 2020. pp. 1-2; Rose, 2004, 2007).
- Dynamic resilience: "More focused on the effective management of accidents and unforeseen events to shorten unfavorable aftermaths and maximize the organization's speed of recovery" (Annarelli et al., 2020, p. 3; Rose, 2004, 2007).

LITERATURE REVIEW

The COVID-19 pandemic reality is falling enrollment and grade point averages, delayed graduations, and heavily burdened students on the lower end of socioeconomic spectrum (Aucejo et al., 2020; Marshall et al., 2020). The literature establishes a need for non-linear thinking and significant resiliency practices to meet the challenges and negative impact of the COVID-19

pandemic on student success (Drysdale & Gurr, 2017, Gurr & Drysdale, 2020; Marshall et al., 2020). Inequality of access, the maturity of distance and blended learning modalities, instructor proficiency, and the pros and cons of online learning—whether asynchronous, synchronous, or blended— are all common issues challenging every region in the world (Akinwumi & Itobore, 2020; Hanif et al., 2020; Dogar et al., 2020; Pedro & Kumar, 2020; Salceanu, 2020).

The COVID19 pandemic has exacerbated these challenges in the context of the complexity and uncertainty evident in the global economy. It is clear that there is no going back to the static, classical educational infrastructure of bricks and mortar supplemented by some distance learning (Mindzak, 2020).   In fact, to plan with that past in mind is a mistake (Archambault & McDermott, 2020). Distance education is the new "disruptive innovation" in higher education (Beaudoin, 2016, p. 140). It would seem that a new educational paradigm is under development (Archambault & McDermott, 2020; Beaudoin, 2016; Mindzak, 2020).

The literature discussed above concerning the key dimensions of student success—learning modalities, student engagement, and socioeconomic issues—permits some generalizations. It certainly identifies numerous challenges brought to light by the new normal for higher education under COVID-19 pandemic conditions. The general consensus on response to the COVID-19 pandemic is that regardless of learning modality, all teachers, students, and support staff required new tools and training on how best to make learning possible and achievable and how to address the particular pitfalls of asynchronous learning. And, in general, the literature suggests that the technical, pedagogical aspects of enabling student success must occur within a process sustaining a people-first culture, promoting a caring environment for college faculty, staff and students, and realizing that students need to be guided and mentored around the life obstacles they face. In all three areas, researchers identify problems, and some recommend solutions in specific areas, but none is yet able to offer a working plan for transforming a higher education organization into a more resilient state, prepared to meet challenges to student success under changing conditions.

During the onset of the COVID-19 pandemic, success was initially measured by getting the students back in class by whatever means. As the COVID-19 pandemic progressed and the infection curve was not flattened in a few weeks, thinking shifted to how to deal with the "new normal" of higher education and how to sustain not only student success but the institutions of higher learning as well. The literature offers varied opinions and measures of student success. That not all states apply Performance Based Funding (PBF) success standards and, in some cases, use countervailing measures has been discussed above. Student success may very well vary from institution to institution, especially in community colleges as state and local conditions vary, and this is possibly how and where success should be clearly defined.

Neither organizational resilience nor systems thinking have uniformly accepted measures. An essence of systems thinking, as Skarzauskiene (2008) observes, is the premise that some linear aspects of the system can be quantified (e.g., costs); however, there have been no accepted empirical studies to substantiate a universal measurement protocol for system thinking. Despite this, some see the Dimensions of the Learning Organization Questionnaire (DLOQ) results as valid measures of organizational resilience maturity and the effective use of systems thinking to engender a learning organization (Moran, 2016; Watkins & Kim, 2018). But the case can also be made that the DLOQ is based on a subjective, opinion-based Likert scale ratings subject to individual bias. What the literature strongly suggests is that non-linear thinking is required to meet the challenges that a crisis event such as the COVID-19 pandemic poses to the most basic

capabilities for educating students (Drysdale & Gurr, 2017; Gurr & Drysdale , 2020; Marshall et al., 2020). While some emphasize static (planned) resiliency and others dynamic (adaptive) resiliency, supple organizations are likely to exhibit both capacities (Annarelli et al., 2020). When institutions face the unknowns produced by a complex system under stress, both static and dynamic resiliency are absolute necessities in any organization's toolkit.

METHODOLOGY

This case study sought to identify how a community college's organizational resiliency during times of complexity, disruption, and uncertainty was called into play in efforts to positively influence student success. The following methodology guided the gathering of data and evidence in support of this inquiry.

Research Rationale and Design

This study's design as a qualitative case study meets the required criteria for a case study in that the COVID-19 pandemic is an unusual public interest situation that is also nationally important (Yin, 2018). The literature reviewed makes it clear that traditional ways of defining student success fitted to quantitative measures—e.g., graduation and curriculum completion rates—are questionable in general and almost meaningless under ongoing crisis conditions. That is what shapes this research design. The research focuses on identifying practices of static and dynamic resiliency, the two core components of organizational resiliency (Annarelli et al., 2020; Annarelli & Nonino, 2016; Rose, 2004, 2007), as adopted by the sampled population during the COVID-19 pandemic. Resiliency is challenging to measure (Ruiz-Martin, 2018), a fact that limits the benefit of quantitative and mixed-method approaches (Roberts, 2010) and points to a qualitative research design. This qualitative research framework follows the dimensions developed by Annarelli et al. (2020) to assess static and dynamic resiliency characteristics: (a) adaptability, (b) reliability, (c) agility, (d) effectiveness, (e) flexibility, (f) recovery level, and (g) recovery time. Creswell and Poth (2018) suggest that a social constructivist perspective is consistent with the researcher's goal of drawing conclusions from interviews and the expressed views of community college leaders, faculty, students, and staff. The social constructivist philosophy of "reality being socially constructed" depends on the observations of the investigator and participants in the activity being observed (Merriam & Tisdell, 2016). Further, Yin's (2018) process of using corroboration to uncover confirming or contradictory interview data (opinion) supports the social constructivist approach of rigorously scrutinizing perceived knowledge.

This study is bounded by the demographics, economics, political structure, and culture of the Midwest region. Insofar as one of the traditional roles of community colleges is in workforce development (D'Amico et al., 2015), available opportunities in local labor markets would be expected to impact student perseverance and success (Reyes et al., 2019). But they will do so in fluctuating and long-term ways this study cannot address due to its limited duration, March 2020 to the present, and the dynamic character of the COVID-19 pandemic effects on economic conditions. The research relied on available information about the selected community college and putting that information in perspective given the interview responses and data from student, faculty, and staff surveys. The success of the researcher's project was also dependent on the

willingness of the college's leaders to participate and for participants to answer research questions candidly.

Interviewee responses were limited by their memory of the events and possibly in what they are permitted to share. Literature on the impact of the COVID-19 pandemic on community colleges is limited and emerging as the COVID-19 pandemic ages. The same is true for institutional experiences in student success. For example, state-defined or college-defined student success measures may change based on ongoing COVID-19 pandemic experience. Additionally, some may question the transferability or generalizability of the research since the examination methodology used was a single, regionally focused, case study. However, the same COVID-19 pandemic issues that challenged student success at the researched college occurred throughout the Midwest, the US, and other colleges worldwide, so its experiences and responses identified in this single case study may provide insights relevant within that broader context.

Participants, Data Sources, and Sampling Plan

The researcher purposely selected one Midwest community college from the population of Midwest community colleges due to its prominence in the community. The college was also willing to make sufficient numbers of senior-level faculty and staff available for the study to arrive at saturation. The researcher interviewed ten leaders—the college president, seven senior executives, and two deans—using the Interview Protocol summarized below and included as Appendix A. Additional data come from student, faculty and staff responses to the college's surveys; public statements and documents; strategic plans; federal/state policy documents; and other available internal documents; and scholarly and professional literature and expert analysis of current events. These data sources provide the best opportunity for a high-quality case study (Fusch et al., 2018; Yin, 2018). The researcher excluded a review of social media of the sampled college community, agreeing with Yin (2018) that relying on data from social media sources introduces questionable reliability and validity issues.

Research Questions

Barnard (as cited in Fusch & Ness, 2015) suggests that although defining saturation in qualitative data collection is difficult, the researcher should ask multiple interviewees the same questions, the goal being for researchers to "take what they can get" while maintaining consistency among themes (as cited in Fusch & Ness 2015, p. 1409). This suggests that different perspectives from differently positioned interviewees and the potential vagaries of memory also argue for repeating the same questions. Interview questions were crafted around the general question, "How did the organizational resilience of a Midwest community college impact student success during the COVID-19 pandemic?" The questions follow Creswell and Poth's (2018) recommendation of segmenting the general research question into sub-questions. The sub-questions examine the college's actions within the static and dynamic resilience framework by querying student success measures and the key, success-related elements of learning modalities, student engagement, and socioeconomic concerns. Further, interviews were structured to ask participants to talk about their actions on all these matters first before and then during the COVID-19 pandemic. Semistructured, open-ended questions enabled interviewees to provide the detailed answers necessary to obtain richness of data (Creswell & Poth, 2018: Fusch & Ness, 2015; Rubin & Rubin, 2012).

Context and Description of the Sample

The Region

There are approximately 213 two-year community colleges in the Midwest region of the US. Fall 2019 session enrollment was 1.14 million students. This number fell to approximately 1.04 million enrolled for fall 2020 (NCES, 2022), a decrease of almost 9 percent. The immediate geographical area around the researched college has seen a population decrease of three percent over the last ten years (United States Census Bureau, 2021). The following tables summarize demographic data for the local region and the college's students.

The College

This case examined a single, large size community college in the Midwest with approximately 1,900 full- and part-time employees serving over 14,000 full-time-equivalent students enrolled in fall 2019 (NCES, 2022). Enrollment for the 2020 to 2021 academic year fell by approximately 1,000 full-time-equivalent students (NCES, 2022). Over ten years, the college had already reduced non-value added curriculum in its associate degrees and reduced the total hours required to graduate from 84 to 71. Retention, credentials received, and course success rates went up over seven years. Withdrawal rates were down, and credit hours received met timed-phase gates at a higher percentage over the same period. IPEDS graduation rates saw five-fold growth from 2005 to 2019. As the COVID-19 pandemic loomed, the college was on solid footing financially, academically, and organizationally. Its leaders had established good relations with community stakeholders and maintained these relationships through interpersonal communication, feedback, and publicly available college literature. And the school had recently invested in a new student support facility, robust IT capacity with room to grow, an expandable instruction systems design capability, and a professional development program that included adjunct faculty. The ability of the leaders of any college to respond to a crisis depends on the institution's financial health. The researched college receives state performance funding, public tax levies, and charitable contributions and grants. During the course of this research, the federal government provided COVID-19 pandemic special funding under the Coronavirus Aid, Relief, and Economic Security Act (CARES), the American Rescue Plan, and Higher Education Emergency Relief Funds legislation. Already on solid financial ground, the researched college received an emergency COVID-19 funding supplement of approximately 50 percent of its FY2022 operating budget.

The Interviewees

The four female and six male interview participants are senior administration and faculty members, each of whose tenure began prior to the COVID-19 pandemic and continues into the present. One is the college president, seven are senior executives, and two are senior faculty. The researcher did not ask any of the interviewees their ages as the interviewees were all selected on the basis of their position in the college. Interviews were conducted via Zoom teleconferencing from mid-December 2021 to early March 2022. Each interview lasted approximately one hour. In addition to the interviews, publicly available statistics and college provided strategic plans,

educational standards, and faculty, employee, and student surveys served as secondary data to triangulate the findings of the thematic interview analysis. Among these, the researcher relied heavily on public documents and the student survey. A third-party, professional business with specialized skills performed the student survey, so there is inherent reliability in survey methodology, questions, and response collection. The same is true of the public documents.

Reliability, Validity, and Researcher Bias

Multiple accepted practices help to ensure reliability and validity and to mitigate the risk of researcher bias. First, this researcher followed the accepted practice of using a standard Interview Protocol to conduct each interview (Creswell & Poth, 2018; Merriam & Tisdell, 2016; Roberts, 2010; Yin, 2018). See Appendix A. Besides using the Interview Protocol, the researcher maintained a case study database, multiple sources of evidence, and a chain of evidence, which included the Zoom transcripts and recordings. Those practices encompassed: (a) researcher's notes, (b) tabular materials such as internal reports and documents, and (c) semi-structured, open-ended research questions aimed at evoking rich and detailed interviewee responses (Yin, 2018). As to validity two strategies designed to ensure the accuracy of interview transcripts while at the same time helping to reduce researcher bias (Creswell, 2014; Roberts, 2010; Yin, 2018). First, after using purposeful sampling of interviews to yield recurring themes that facilitate generalizability the researcher (a) filtered interpretations that might result from personal bias and (b) used detailed category descriptions, which help discover evidence to the contrary or question the validity of data already presented (Creswell, 2014; Creswell & Poth, 2018; Merriam & Tisdell, 2016). This researcher then used a data corroboration strategy of triangulating interviews, literature, and document content. (Creswell, 2014; Creswell & Poth, 2018; Golafshani, 2003; Yin, 2018). Each interviewee was offered the opportunity to check their transcript for accuracy.

The researcher offered this to interviewees as a method of identifying interview findings the researcher might misconstrue (Yin, 2018). The researcher used three perspectives in reviewing data, one from the researcher's perspective, one from the interviewees' perspectives and one from a reader's or reviewer's perspective (Creswell & Poth, 2018). The researcher's committee chair and committee members filled the reader's role. From the researcher's vantage point, this strategy is perhaps the most important in validating multiple sources of data committee members are in the best position due to their familiarity with the research to be authoritative "devil's advocates who keep the researcher honest" (Creswell & Poth, 2018, p. 263). The discovery of themes was reviewed throughout the study for validity as "points of intrigue," which are simply "disconfirming evidence" (Creswell & Poth, 2018, p. 261). In addition to seeking these points of intrigue and finding none, the researcher was transparent about past experiences and their potential effect on data analysis (Creswell & Poth, 2018).
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Themes and Patterns

The 10 selected college leaders commented on the same 11 semi-structured, open-ended questions (See Appendix A), which together covered the topics of:
- Student success
- Instructional modalities
- Instructor-Student engagement

- Socioeconomic issues
- Enrollment, GPA, graduation, and socioeconomic impact trends during the pandemic
- Individual assessments of what went well or not so well during the transition to initial and continuing operations under pandemic conditions

Grouping the research questions into pre- COVID-19 pandemic and ongoing COVID-19 pandemic inquiries to provide a basis for comparison, the researcher used deductive and inductive methods to examine thematic patterns. The auto-code function of NVivo (Windows) software identified deductive themes in the interview transcripts. The deductive themes were often numerous because they were very focused and sometimes repetitive in overall content.

Summary of Interviewees

Early on, the college realized the COVID-19 pandemic had created a "new normal" for the conditions of student success. Led by the president's frequent and timely communication, faculty and staff adopted his recommended 80/20 decision process to improvise agile and flexible courses of action—and course corrections—to address emergent and persistent threats to student success generated by the realities of the COVID-19 pandemic. The president's delegation of 80/20 decision authority liberated the improvisational capabilities of faculty and staff. The staff and faculty were instructed to implement solutions with the goal of getting the solution 80% correct and refining the solution afterward based on the outcome lessons learned. One interviewee commented "many organizations…let great be the enemy of good and… try to get everything perfect before they act, resulting in paralysis and slow-moving. Conversely, giving people the latitude to take measured risks helps the group's responsiveness."

Staff and faculty used the college's existing strengths, available funding (state, local, and tuition-based funding), social programs, and charitable support to mitigate the impacts of the COVID-19 pandemic. The college effectively supplemented its pre-established external Key Performance Indicators (KPIs) with additional internal KPIs. They used these ad hoc KPIs to initiate and monitor mitigating courses of action, which employed innovative solutions to deal with challenges to student success. Robust communication practices, including town halls, webinars, staff, and faculty informal communication, and no fewer than 12 employee surveys accelerated the implementation of solutions to meet emergent issues. One interviewee noted "I think our communication with key stakeholders was very good, and key stakeholders would be students, faculty, staff, and the broader community." Hundreds of the college's employee and student survey responses validated this finding. The college's leadership chose which critical subjects to convert to hybrid modality based on faculty, industry, and student feedback.

Both the 2021 student survey and in-class, specific feedback students gave instructors enabled the school to monitor student instructional or learning modality preferences. The college addressed rising food insecurity by expanding food pantry operations to include off-campus distribution. They also took steps to expedite financial aid and grants including adapting systems to allow for remote processing of aid requests. Perhaps the greatest financial aid success is the tenfold increase in the magnitude of funds disbursed to date. Rejecting the staff furloughs some institutions implemented for financial reasons (Lederman, 2021), college leaders trusted employees to do what needed to be done while working within a relatively loosely structured,

remote framework. These decisions solidified the staff and faculty's dedication to promoting student success despite the stress and strains of the COVID-19 pandemic's onslaught.

Interviewees returned often to the role of dynamic communication practices and the liberating 80/20 idea in their comments about mitigating adverse impacts of the COVID-19 pandemic. Communication in conjunction with both the willingness and the ability to learn through mistakes led to innovation, responsiveness, and continuous improvement. By balanced scorecard (BSC) measures, the college was financially sound and had the resources to weather the initial COVID-19 disruption without failing. Those BSC measures use lagging indicators, of course, but today the college is in good financial shape, providing three million dollars in student aid annually, supplemented by federal CARES ACT and private COVID-19 emergency funding. The college set out to mitigate the impact of the COVID-19 pandemic on its students' ability to succeed. The college was able to establish sound static resilience processes in place which enabled a capacity for dynamic resilience. One interviewee offered "I think one of the big things that changed was a very granular focus on keeping students enrolled…it became a much more personalized pursuit of helping students remain engaged in their classrooms."

College Documents

The most notable theme discovered in the examination of college documents was foresight: approximately three months before the March 2020 state-directed school closures, the college's leaders anticipated the disruption of face-to-face classes and the need for 100 percent online learning and began planning for contingencies. The second most notable theme was a corollary to the first: ongoing leader-directed planning efforts to establish a sound basis for the college to effectively mitigate the impact of the COVID-19 pandemic on student success. Before and during the move to 100 percent remote learning, the staff and faculty conducted recurring planning meetings to brainstorm solutions to potential barriers to an effective transition and to reduce negative impacts on students. In many ways, the two themes above rest on an earlier initiative: over the last decade, the college president led a staff and faculty committed to building a shared vision of student success. Ten years later, through the efforts of over 1,200 faculty and staff joining into collaborative work teams and project groups, as well as professional development events, the college has experienced a nearly continuous upward success rate in most of its strategic priorities.

RESULTS

The research was guided by the general question, "How did the organizational resilience of a Midwest community colleges impact student success during the COVID-19 pandemic?" The researcher's literature review yielded five interrelated themes for investigation: student success, learning modality, instructor-student engagement, socioeconomic issues, and resilience. The research examined senior leadership decisions to ground a qualitative analysis of the college's organizational resilience. The examination reviewed the college's leaders' actions, practices, and perceptions before and during the COVID-19 pandemic in each of the first four thematic areas as they related to static or dynamic resilience. These divisions are not rigid: some themes and actions have both static and dynamic dimensions. The examination reviewed the college's leaders' actions, practices, and perceptions before and during the COVID-19 pandemic in each of the first

four thematic areas as they related to static or dynamic resilience. These divisions are not rigid: some themes and actions have both static and dynamic dimensions.

An organization's ability to absorb and effectively respond to a disruptive event and seize opportunities to grow during the interruption is critical to its mission success and survival (Fiksel, 2006; Kamalahmadi & Parast, 2016; Shaked & Schechter, 2017). Kovoor-Misra (2020) adds that the need for change in today's environment mandates building organizational resiliency. Examining response to economic disaster, Rose (2004) proposes that (linear-thinking based) static and (non-linear-thinking-based) dynamic resilience are "not mutually exclusive" (p. 308). Mithani (2020) suggests that dynamic resilience is best suited to mitigate the impact of persistent threats. The qualitative data analysis of this study supports their views, as well as those of Annarelli et al. (2020), who opine that sustained organizational resilience in today's environment of uncertainty requires complementary use of both static and dynamic organizational resilience characteristics. The researched community college is not an exception. Its leaders demonstrated complementary actions of both static and dynamic resilience in dealing with disruptions caused by the COVID-19 pandemic.

While static resilience relies on known, probable, statistically predictable events and real-time monitoring, dynamic resilience shines a light on an organization's effectiveness and reaction speed to the unknown, the unpredictable. This study examines the critical role of both static and dynamic resilience under the umbrella of organizational resiliency. Taleb (2012) summarizes two recurring organizational resiliency themes: resiliency is critical to either returning to normal operations or improving competitive advantage in the marketplace; these themes are also seen as equilibrium or advancement. One thing the literature establishes is that measuring organizational resilience is an elusive endeavor (Fiksel, 2006, 2015; Hillmann & Guenther, 2021; Morales-Allende et al., 2017; Ruiz-Martin et al., 2018; Serfilippi & Ramnath, 2018). Annarelli at al. (2020), however, offer a qualitative approach to describing an organization's resiliency relating characteristics and dimensions of resilience to an organization's policies, practices, and actions. This research works with those concepts to delve into college leaders' activities in the areas of student success, instructional modality, instructor-student engagement, and socioeconomic issues. Overview Interviews and additional data show that the researched community college possessed the necessary leadership, professional skill sets, and culture to make static resilience characteristics the foundation for dynamic resiliency actions during the COVID-19 pandemic. The college had been diligent over many years in perceptive planning and operations to be in a position to provide some insulation from a disruptive event. The college operated with flexibility and agility, leveraging the additional capacity of its IT infrastructure, a robust, well-staffed institutional systems development (ISD) program, an academic contingency planning process with prescribed implementation protocols, and an ability and willingness to redeploy staff as needed. On these foundations, the college leaders engaged in constant and precise internal communication that enabled faculty and staff to implement or initiate timely and innovative solutions to address new exigencies the COVID-19 pandemic presented (Annarelli et al., 2020; Annarelli & Nonino, 2016; Senge, 2006). In addition, they built on their collaborative culture, accelerating the organizational learning cycle through the college's president's decision to streamline the time-to-action process by instituting a free-to-fail, 80/20 framework for decisions/actions. External financial resources kept the college/students going during a time of unprecedented expenses for both the institution and the students.

Student Success

In 2012 the college president took steps to foster a culture committed to a shared vision of student success and a collaborative work ethic. The college's strategic plan has embodied that vision, and, by the onset of the COVID-19 pandemic, the vision was deep-rooted; executives, faculty, and staff were totally committed to the success of their student charges. This was the core of their static resilience infrastructure. A can-do attitude, identification with mission, and habits of collaboration from the top-down then engendered innovation in the face of new educational challenges for the college and new life challenges for students. One interviewee characterized the state's PBF model as the core of the college's pre-COVID-19 pandemic student success measures while other socioeconomic factors were internally monitored. "We have a portfolio of student success measures like course completion rates, in fact, we follow," an interviewee explained, "not exclusively following the state's performance based on the model. There's a lot of data tracking going on with the college, we're–we're generally a pretty data-driven place. I would say, … we're tracking lots of different kinds of student success metrics," said an interviewee, citing specific trends such as, "how many students are being tutored and the success [of those interactions]." Another interviewee summarized the college's perspective on student success: "I think there's a consistent theme across the board…and retention is the biggest consistent–are you retaining students, making sure they're able to stay in class, of course…to help them deal with any barriers that are coming your way."

Communication practices including regular feedback and data-driven analysis were two additional elements of the college culture that contributed to resilient responses to the COVID-19 pandemic. An interviewee commented: "We started putting out videos as town halls…we did college-wide webinars, students and employees would hear from the President and from the Provost "…here's what we think we're doing right now here's what we're looking at [doing]." Another interviewee stressed the importance of communication, citing feedback loops in the continuous improvement process: "We did do an okay job ahead of it to get instructor buy-in...during the initial planning stages.... once we actually got there, we did do a lot of asking people how it was going." The college "tried to keep open lines of communication with the faculty, provide … support so they can keep going," reported another interviewee. Critical to this effort was acting on feedback from experienced online instructors, as another interviewee commented: "We asked…. how did the instructors who have effectively used the technology and had good outcomes, how did they teach the younger faculty colleagues?"

Prudent fiscal and operational management gave the college a robust static resiliency posture. The researched college secures its fair share of state PBF funding. Its PBF allocation was the third highest in its state among community colleges and the college also received its regular funding from local taxes, student tuition, state grants, and private donations. In addition to the healthy financial position fed by these revenue streams, government COVID-19 pandemic relief financial resources provided the college with a sustainable base to weather the COVID-19 pandemic's impacts on student persistence. Unlike the 40 percent of higher education institutions already struggling financially at the onset of the COVID-19 pandemic as Zemsky et al. (2020) estimated, the college was in a good position and thus did not consider reduced staffing, even when faced with a potential 10 percent state funding cut. In its role of workforce development, however, in an area where wages are low, the college continues to be challenged to articulate the value-added aspect of education for their students' future economic opportunities and career development, especially if many students do not wish to move away. It is worth repeating here the

COVID-19 pandemic-era stresses on college students Marshall et al. (2020) cited: (a) issues of socioeconomic equity; (b) technology access and infrastructure; (c) instructor teaching proficiency in the online environment; (d) state and local contributions to revenues; and (e) the student, staff, and faculty health and safety. The researched college entered 2020 with a sound basis in those areas. That set the enabling conditions for the college's staff and faculty to exercise agility and flexibility in applying innovative solutions to the challenges of the COVID-19 pandemic.

Upon the advent of the pandemic in March 2020, college leaders took a new direction. By October 2020, they had amended the 2018-2022 strategic plan for student completion to provide avenues for faster student degree completion; and the incomplete grade process was amended to allow extended deadlines for course completion. Incentive scholarships and tuition waivers were extended to students who were close to graduation. Relying on best practices and conclusions they drew from scholarly literature, the college bundled developmental math and English application assessment into credit courses to increase student persistence markers. Cullinan and MDRC (2020) discovered that placing students in developmental math and English often inhibits their continued participation in college During the pandemic, none value-added credit hours required to graduate were reduced without undermining academic standards of quality. The problem of graduation requirement creep has been a concern for educators since the mid-nineties. Graduation from a four-year college used to take 120 credits, community colleges, as a rule, required 60 credit hours (Johnson, 2011). Across the country, educators have been addressing this issue of credit creep. For example, the University of Florida reviewed its programs from 1995 to 2010 and was able to eliminate, on average, six hours form their graduation requirements without impacting academic quality (Johnson, 2011).The bundling of development courses into credit courses is an example of this continuing effort to eliminate extraneous curriculum which is not linked to the degree program map (now called guided pathways), or application of the gained knowledge itself in the workforce.(Jenkins et al. 2021; Johnson, 2011). The college's strategic priorities, set in 2012, have consistently improved, in some cases substantially. For that period, graduation rates are up fivefold. Minority graduation rates are up 22-fold, and the African American male graduation rate is up ten-fold. The number of students who complete a degree or certificate program within five years is up 19 percent. For students with a declared major, first year completion of nine hours is up 19 percent and completion of 30 hours is up 8 percent. Retention from fall to fall for all students is also up. Four out of five measures of engagement the college employs are superior in comparison to large community colleges; the only substandard area was student effort.

There were some marginal setbacks during the COVID-19 pandemic. Overall, credentials awarded dipped in FY20. For African American males, retention and time-phased hours completed decreased in FY20 and FY21, however their graduation rates improved. Overall, median years to degree completion dropped by 1.2 years. Average one year after graduation earnings also fell. There was one significant, unanticipated challenge to student success: the enormous mental health impact of the COVID-19 pandemic on faculty, staff, and students. This is discussed below in the third of the three themes pertinent to impacts on student success: instructional modality, instructor-student engagement, and socioeconomic influences. The COVID-19 pandemic required all colleges to address the challenge of how best to deliver education through distance learning.

The researched college went to 100 percent distance education after a 10-day hiatus following the state shutdown mandate. When the college re-opened, the staff had realigned over 3,000 sections to online-ready instruction course shells. The feat was made possible by the college's preplanning for an expanded number of online offerings based on existing student

participation in online classes and anticipated growth in student demand for education online. This forethought had contributed to the college's decision to procure and maintain surplus IT infrastructure capacity, a robust instructional systems development (ISD) department, and a library stocked with prepared, certified course shells. In March 2022, face-to-face and distance or blended classes were approaching a 50-50 mix, which school officials expected to remain constant for the time being.

After two years of the COVID-19 pandemic, the college found that its students had a more favorable opinion on the advisability of taking online classes than they had in the past. From early on in 2020, the college had also been able to maintain several degree programs, such as health sciences and automotive technology, best suited for learning in either a face-to-face or, at the very least, a blended modality. As early as 2012, Mackey et al. (2012, p. 122) had advocated mainstreaming blended learning to enhance "academic resilience in times of natural disaster, civil emergency, and crisis." The researched college had not planned for such an eventuality. One senior staff member felt the college would be inclined to invest in more blended options in the future, given the success of health sciences and automotive technology blended classes during the COVID-19 pandemic. During the transition to full online instructional experience, college leadership focused on redeploying personnel to activate or enhance various student support areas. This solution filled a void in the organization's static resiliency while simultaneously demonstrating dynamic resiliency characteristics of communication and innovation. It addressed student skepticism about the ability of online learning to deliver timely Q&A interaction, additional help, and meaningful engagement. Many of these coaches and tutors took a proactive approach, directly addressing individual student issues with the appropriate college department. In turn, the departments reached out to offer assistance or guidance without the student having to ask first.

Socioeconomic Issues

An important insight of this study is that socioeconomic issues are interwoven into all the other COVID-19 pandemic concerns: student success, learning modality, and instructor-student engagement. As found in studies, COVID-19 impact on student success was the most severe on students of lower socioeconomic status (SES) (Cruz, 2021; Dua et al., 2020). The literature correctly identified issues around online connectivity, comfort with online learning platforms, and attending school from a home environment. In fact, the biggest challenges the COVID-19 pandemic presented to faculty and staff had root causes in students' lives outside the classroom. The college had pre-COVID-19 pandemic student support services in the form of a campus food pantry, emergency grants and financial aid processes, and counseling services. The emergent issues were financial, food, shelter insecurities, and mental health strain. In response, the college used emergency aid funds to purchase hundreds of laptops and Wi-Fi hotspots, loaning them to students in need, a quick response made possible by the flexibility of the school's IT infrastructure. As needed, students were able to park close to college buildings in order to use the college Wi-Fi signal. Diligence in preplanning and preparedness to combat a disruptive event were the foundation for these unique and agile solutions. In addition, the college expanded and expedited emergency financial grants so students could continue their studies, expanded food pantry operations across multiple locations (including regional distribution of fruit, vegetables, food staples, diapers, etc.), and provided academic and mental health counseling. They hired a full-time social worker and arranged for around-the-clock access to student mental health services.

Additionally, as emergent issues arose as a result of lessons leaders learned during the ongoing pandemic, the college added to their list of internal success measures. Reacting to a drop in enrollment by students of color in fall 2020, the college instituted scholarships for recent minority high school graduates to boost the students of color population. An interviewee described the situation. "We saw a drop-off– pretty significant drop-off and students who are coming right out of high school...so we put in place a scholarship... with the school district... to incentivize students for this fall, to kind of recover."

Although student feedback identified mental health services as a critical need, the services were underutilized. The college expanded mental health services with funds initially set aside to deal with a 10 percent budget cut, which turned out to be only 4 percent. While the initial set-aside was preplanning (static resilience), applying the emergent surplus was an adaptable (dynamic resilience) solution to previously unknown but widespread mental health effects on students.

CONCLUSIONS AND FINDINGS ON ORGANIZATIONAL RESILIENCE

The work of Annarelli et al. (2020) and Rose (2004; 2007), firmly support the idea that organizational resiliency is an ongoing, iterative process comprised of static and dynamic actions in a continuous learning loop. Without a strong foundation of static resiliency, dynamic resiliency capabilities will not thrive. Building an organization possessing a solid base in both static and dynamic resiliency and having the capacity to effectively apply those organizational strengths during a crisis is a team effort. This research has shown that the subject college began 2020 with an established and mature static resiliency foundation in communicative processes, collaborative work traditions, data-grounded planning, and technological capacities it had in place. It is true that mature organizational resilience may be a transitory state, subject to ebbs and flows from continued strain, changes in leadership, new processes, or external forces beyond an organization's control. The lagging KPIs of classical financial planning may have value as data for planning for "known, probable, statistically predictable events and real-time monitoring" (Annarelli et al., 2020, p. 1-2), especially if the static-dynamic resiliency action loop is not quick or wise enough to extend the length of time an organization can endure stress before failing. For example, the college successfully and quickly shifted to exclusive distance learning. But it is an open question as to how long this could be sustained given faculty resources, students' desire to continue or to not continue in a full distance modality, and economic considerations. As noted, significant federal funds augmented COVID-19 pandemic finances of both institutions and enrolled students. The researched college's federal emergency funding was about 50 percent of its FY2022 operating budget. That certainly helped the college's foundational static resiliency pay off in dynamic action.

Despite the practical inability to guarantee the future, the core of an organization's resilience capacity is its static resiliency processes and characteristics. These give the organization the freedom to exercise dynamic resilience. Static and dynamic resiliencies are not discrete conditions; one impacts the other. As in the process of double-loop learning, dynamic actions become part of static characteristics in a never-ending process. The organization's agility and flexibility may influence the speed of the learning and requisite actions to mitigate problems or improve practices. Either way, without diligence in maintaining static resiliency, dynamic resiliency characteristics may not possess sufficient depth for ongoing success.

Leadership and the Dimensions and Characteristics of Resilience

Leadership and organizational culture are inexplicably intertwined. Organizational culture is largely the product of its leadership, and its leadership is often the product of what the organization will accept (Schein, 2010). In the case of the researched college, its president established a vision prioritizing student success a decade ago and operationalized it through engaging faculty and staff in collaborative work and professional development. The result was a thorough ongoing commitment to a mission of ascertaining the needs of students and stakeholders and meeting them. Interviews with leaders revealed that they relied heavily on statistical analysis to make data-driven decisions on actions that might aid student success. Tracking and acting to mitigate the negative impacts of the COVID-19 pandemic on student success might not have occurred at all without the college's use of static analytic and computational techniques already in place to guide dynamic resiliency practices. The college generally did well on PBF success indicators— including a 6 percent 2020 enrollment decline compared to the 9 percent estimated average— and its own indicators by promoting the win-win situations they identified for students and the college. Perhaps the best examples of the latter are the college's report of achieving its highest number of degreed graduates and African American male graduates for FY 2021-2022 and 99 percent of students rating the quality of their education as good to excellent at the end of that year.

Before the COVID-19 pandemic, the college's senior leaders had already demonstrated commitment to enabling "preparedness and preventive measures to minimize threats in terms of probability occurrence and potential impacts" for student persistence, demographic group success, and support for student life challenges (Annarelli et al., 2016, p. 1). Shifting into the COVID-19 pandemic environment in March 2020, they applied "effective management of accidents and unforeseen events to shorten unfavorable aftermaths and maximize the organization's speed of recovery" (Annarelli & Nonino, 2016, p. 2; Rose, 2004, 2007). The characteristic of internal communication, established in the pre-COVID-19 pandemic static phase planning, continued into the dynamic phase of executing innovative solutions to mitigate COVID-19 pandemic impacts. As noted throughout the interviews, college leaders relied on frequent two-way feedback on many topics with students, staff, and faculty. The college's static characteristic of continuous monitoring and learning from mistakes were the basis for dynamic agility and flexibility in making short-term decisions on actionable solutions; and the loop effect of solutions becoming established and refined over time. A central example is the college president's 80/20 decision initiative to expedite solutions to pressing problems brought on by the COVID-19 pandemic.

This free-to-fail approach allowed faculty and staff to use their judgment without waiting for higher approval. Leaders showed the static characteristic of redundancy when they assigned academic and non-academic specialist assistants to each online class to help instructors; these embedded mentors and advisors continued with dynamic actions by working for and with students on academic and non-academic issues. This practice proved very successful and became a lesson learned and applied to enhance instructional modality and student engagement experiences. This appears to be driving increased student demand for at least some form of distance learning. The college's established practices and trial-and-error innovations at many key points in the COVID-19 pandemic encompassed a number of characteristics and dimensions of both static and dynamic resilience.

RECOMMENDATIONS FOR FURTHER RESEARCH

While there is significant literature on student success, it could use more work integrating pedagogical, financial, human resource management, culture, and leadership factors related to success in times of uncertainty and crisis. Major research questions might be: Is it necessary to integrate all these factors for an organization to maintain or enhance mature organizational resiliency that results in student success? Are there one or two central factors that form the basis for student success? Another useful area of research is on the questions: Is there a need for individual resiliency training in organizations? Is individual resiliency linked to organizational resiliency as leadership and organizational culture are linked? The researcher notes here that The Ohio State University is engaged in an effort to conduct classes on student resiliency.

Practical Implications

This research may be of value to colleges by providing a concrete exploration of the ability of one institution to absorb and effectively respond to a disruptive event and use it to seize opportunities to innovate in areas that foster opportunities for student success. In particular, it shows that silo-based thinking tends to preclude realizing that factors driving student success are not isolated but interrelated, and that solutions must attempt to address them simultaneously. To meet critical challenges, college leaders must depend on non-linear thinking (Drysdale & Gurr, 2017; Gurr & Drysdale, 2020; Marshall et al., 2020). That is the key to achieving dynamic resiliency (Annarelli & Nonino, 2016; Rose, 2004, 2007). In particular, this research shows that sustained organizational resilience requires complementary application of both static and dynamic resiliency mindsets across a number of fields of action by pinpointing practices through which the subject community college operated as a learning organization embracing the challenges of uncertainty and complexity. In view of the "hierarchical organizational structure and decentralized nature of higher education," this is no small challenge (Weiss & Norris, 2019, p. 90).

Theoretical Implications

The literature review suggests that a useful area for additional theoretical insight would be considering more closely the linear and non-linear thinking landscapes—highly predictable (linear), complex (non-linear), and chaos (low predictability, low consensus for courses of action—characterized by Cavanagh and Lane (2012) and Kovacs and Corrie (2017). Cavanaugh and Lane posit that today "linear thinking has little value" (p. 75). As noted earlier, Kovacs and Corrie downplay the value of the control facet of the management imperatives of planning, organizing, directing, and controlling (PODC). Both authors appear to have made a faulty assumption based on the insights of Annarelli and Nonino (2016), Annarelli et al. (2020), Mithani (2020), and Rose's (2004, 2007) as validated in this case study. Perhaps that gap in understanding organizational resilience and the application of two of its core tenets, static and dynamic resilience, merits further research.

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USING TIERED ASSESSMENT FOR A
BUSINESS CAPSTONE COURSE

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ABSTRACT

Heterogeneity of student knowledge, skill, and motivation makes it difficult to optimize course design and assess student development. A traditional one-size-fits-all approach that targets students in the middle of the distribution may underserve students on the tails. Tiered assessment is a potential approach to improve discrimination of course offering components. Tiered assessment provides each student some agency in self-selecting a differentiated learning experience while maintaining minimum standards for the entire class. This exploratory work illustrates an application of tiered assessment in a business capstone course, evaluates limited data, and suggests further opportunities for improving student evaluation and learning efficiency and efficacy.

INTRODUCTION

A common challenge in course design is that any given cohort of students will have disparate knowledge, skills, and motivation. These differences can result in individual students among a cohort having very different learning experiences in a standardized course design that targets the "middle of the distribution". One solution to this problem is to "tier" requirements, or allow students to select different requirements based upon their existing individual knowledge, skill, or motivation level.

Business capstone courses are an effective method of helping students integrate their learnings and apply critical thinking across a spectrum of business functions (Bruhn, 2004; Kiener, 2013; Robinson, 2009; Schwering, 2015). By combining a capstone course with a tiered assessment approach, the instructional designer can improve the granular matching of course design components with individual student state.

This paper offers a model of tiered learning pathways that provides students agency in their learning experience based upon how they differ from the rest of the cohort. Base tier requirements align with undergraduate level conceptual ideas from each of the major functional areas of business practice, which in turn correspond to the curriculum learning outcomes. Higher tier requirements offer students more challenge by offering more advanced/unstructured problems.

Students that are more advanced in knowledge or skill, or more motivated than their peers, can choose to experience a course that better suits their idiosyncratic development status, while all students still enjoy the integrative benefits of a capstone course. All students, regardless of tier choice, must exhibit competency in *all* the minimum curriculum requirements. This approach better matches each student's learning experience to their individual development and motivation level while still ensuring rigor in achievement of learning outcomes.

RELEVANT LITERATURE

The major literature and theoretical foundations for the tiered assessment approach draw from concepts such as assessment/grading methods and student motivation, and the effects of these elements on student learning, behavior, and performance.

Assessment

The existing university evaluation structure of students is often tied to using letter grades, percentages, and grade point averages as assessment tools (Iamarino, 2014). Few notable efforts have been undertaken to venture beyond these existing assessment routines to change the scoring and feedback process for students (Elliott, 2008; Hiller & Hietapelto 2001; Peters & Peterson, 2016). This offers academia an opportunity to revisit existing grading approaches in university education and improve them (Franz, 2010; Millet, 2016;). In this context, tiered assessment is not new and has been researched by various scholars (see Buckmiller et al., 2017; Dobrow et al., 2011; Rylaarsdam & Heinz, 2016). These studies on tiered assessment have shown that grouping tasks into different tiers that proffer different competence and knowledge categories lets students select and, to a certain extent, control what effort they want to put into their studies and learning.

The traditional grading system (usually based on letter grades and percentages) can neglect to truly show whether a student has really completed and mastered the required skills (Millet, 2016). With closer examination of the method, it can be seen that students can master only *part* of the required competencies (learning outcomes) and still pass a course and advance to higher-level courses (e.g., passing accounting and operations management classes with Cs, and, then, not being able to perform satisfactorily in a business capstone course). In addition, many letter- or percentage-graded courses fail to provide outcomes (Nilson, 2015). This can be improved by employing tiered assessment (Nilson, 2015) that requires the learning of all necessary tasks.

Motivation

Tiered assessment gives students agency in selecting their learning pathway, improving their deficiencies (learn from their failures), controlling (to certain extent) their own grade, and motivating themselves to achieve their own goals (specific requirements) (Nilson, 2015; Nilson, 2016; Schimmer et al., 2018). This illustrates that tiered assessment can introduce a leveled approach to assessing a class: all students complete the minimum required competencies and some might complete competencies above the minimum level. This is similar to a pass/fail course system only at different levels (Murphy, 2020).

Student motivation is a significant factor in the context of tiered assessment (Dobrow et al., 2011; Elliott, 2008; Hiller & Hietapelto, 2001). This motivation depends on student interest in the subject, time commitment, and, in general, having control over their course outcome (Bandura, 1997). The traditional system of assessment utilizes reward and punishment rather than student-authority over learning as students receive rewards for exhibiting the expected behavior and are punished for misbehaving. These dynamics are on display in the principles of behaviorism which reinforce expected behavior (Moore, 2013; Skinner, 1938). However, punishing misbehavior (non-achievement of required skills) does not necessarily eliminate the negative behavior but frequently allows it to recur (McLead, 2018). This suggests that traditional grading and course design can fail to motivate (at least some) students to develop (Metcalf, 2017).

This is the point where tiered assessment can help make the learning and assessment more meaningful and motivate students to perform. For instance, when students can determine which activities they want to finish, work at their own pace, and select the desired level of difficulty of the task, then they will be more motivated to complete the activity versus when they are forced to complete a task (Deci & Ryan, 2000; Deci & Ryan, 2012; Reeve, 2002).

In this context, students can be motivated by goals that are defined by the tiered assessment framework used. Students are likely to work harder, which leads to better outcomes, when they have goals which are set by the specifics of an assignment (Locke & Latham, 1990). It is generally understood that the more precisely a goal is defined, the more likely it is to have a better performance (Locke & Latham, 1990).

Summary

Combining clear goals, clear evaluation rules, and student agency seems likely to improve motivation. Changing assessment to a more nuanced, tiered approach may enhance motivation by moving away from a punishment/reward system. By focusing on individualized development tastes and needs, tiered assessment places more emphasis on developing rather

than rating students. When paired with minimum competency requirements it can minimize or eliminate incompleteness of the competency set required for a degree or certification.

COURSE DESIGN

Overview

The course for which the tiered assessment design is applied is a business plan development capstone course, which is the final course in our business curriculum. Students refresh their knowledge and skills through the first part of the semester using case studies, and then move to writing a business plan.

Preparing a complete business plan requires students to integrate key business skills across the spectrum of business functional areas, which facilitates the students' view of a business as an integrated whole rather than a collection of functional parts. In addition to integrating their conceptual knowledge and developing their critical thinking skills, students are required to polish their business writing and time management skills through individual preparation of case studies and business plan sections. The course intentionally mixes structured and unstructured problems, multi-modal experiential learning, and avoidance of proscribed problem-solving approaches or procedural steps.

Tiered Assignment Design

"Tiered" refers to assignments with more than one "tier" of requirements (Figure 1). The current course design employs two tiers (Tier 1, the easier, and Tier 3, the harder). The numbering gap between Tier 1 and Tier 3 allows for the future insertion of a middle tier, Tier 2, without the instructor rewriting all of the existing developed course materials.

All students must complete the basic (Tier 1) requirements, which are mapped to key learning outcomes of the accredited curriculum. If students successfully complete these basic requirements, they earn a maximum B+ grade on the assignment. Students that seek higher challenge and human capital development complete the Tier 3 requirements, for which they earn a maximum A grade. The higher tier (Tier 3) is more challenging undergraduate or basic graduate work. Each week, students choose their own difficulty level. For additional extrinsic motivation to complete all Tier 3 requirements, a student who satisfactorily completes all Tier 3 assignments is exempted from the final exam.

The semester-long course begins with an initial 6-week program of quizzes, case studies, and proposal writing/polishing that revisits and reviews core business topic areas, sharpens students' writing skills, and establishes the framework for the chapters and sections of the business plan that they will eventually write. After the initial program, students build up each element of the business plan over seven weeks, with a section due each week, receiving comprehensive feedback each week on tool/topic application, analysis, and writing skills. In the last two weeks, students submit a final draft for review and feedback, prepare a final business plan using the review and feedback, and record a one minute "elevator pitch" video for their business.

Figure 1: Table of Assignment Major Topics by Tier

Topic	Base tier (Tier 1) Topics	Tier 3 Topics
Proposal	Value proposition, competitive environment analysis, TAM, production technology, supply chain, HR, investors	
Marketing	Value proposition, environment, TAM,	Channels, messaging, 4-square
Accounting	Financial statement prep from trial balance, common size financial statements	Common size analysis & benchmarking, share buybacks
Operations	Production technology, cost curve function determination, factors of production	Optimization, switching costs, scenario analysis
Finance	Capital budgeting, financial statement forecast for investment effects, financial statement preparation	Business valuation using variety of techniques, proceeds distribution, qualitative investor analysis
BP1: Sales (outputs)	Value prop, competitive environment analysis, TAM, 4-square, subscheduling	Market/competitive SWOT, sensitivity analysis & visualization
BP2: Resources (inputs)	Zero base budgeting, production cost curve, asset/liability forecasting, common size analysis	Sensitivity analysis by input factor, critical analysis & communication
BP3: P&L	Ten year profit and loss statement, integrating BP1 and BP2	Degree of operating leverage
BP4: Financial Statements	Full set of ten year financial statements, benchmark analysis, common size statements/ratios/metrics	
BP5: Strategy	Full SWOT(s), competitive landscape analysis looking forward and integrating SWOT, statement of strategic approach given SWOT and environment analysis	
BP6: Risk	Sensitivity analysis using SWOT factors from BP5, unit economics	
BP7: Full BP	Final business plan that combines and polishes BP1-BP6.	

Course Components

      A complete breakdown of current course components is provided in Figure 2. In addition to weekly written assignments, students complete short quizzes each week, due two days after lecture. These quizzes are intended to reinforce the key topics from the lecture as they begin work on their weekly assignment. There is a comprehensive final exam that covers all topics from the cases and business plan. Students that satisfactorily complete Tier 3 are exempted from the final exam and receive a 100% mark.

Figure 2: Summary of Grading Components

Category	Weight	Comments
Quizzes	10%	10 quizzes
Cases	20%	Marketing, Accounting, Operations, Finance
BP Assignments	20%	6 weeks of step-by-step business plan "chapter" writing
Business Plan Final Report	20%	Students submit a draft for feedback and then the final report the following week
Final exam	15%	Comprehensive
Participation & Professionalism	10%	Qualitative evaluation by instructor
Assessment	5%	Completion (binary) of assessment exams and video

Universal Core Competency Requirements

All students must demonstrate competency, as assessed by rubrics, for the following areas:
- Key business concepts and application of those concepts (base tier topics)
- Business writing (assessed by rubric, examples include structure, grammar, polish, etc)
- Critical thinking (assessed by rubric, through unstructured elements of assignment design)
- Verbal communication (video assessment submission, assessed by rubric)

The key business concepts are determined jointly by the faculty and represent the "core" requirements of the degree, as defined in the business core curriculum. Rubric and qualitative grading assessment is established such that if a student cannot demonstrate an acceptable level of competency of all key competencies through their written work, the student cannot pass the course.

Writing, thinking, and verbal communication skills are evaluated according to standard department rubrics, established jointly by the faculty. Written submissions (cases and business plan assignments) must meet minimum standards across multiple dimensions to receive a passing grade. Standards are set (and rubrics written) such that early assignments that do not meet minimum standards receive detailed feedback on how to meet standards, and the opportunity for rework of submissions that do not meet standard is offered to students willing to take feedback and incorporate continuous improvement.

By establishing minimum standards for a set of core competencies, the course moves away from the problem of purely grade-based assessment – the case when a student can "learn" some fraction of the competencies and "pass" the course. This is not to say mastery is required nor is mastery not rewarded - higher levels of demonstrated competency do receive higher grades, but even a C student must demonstrate minimum competency level across all key competencies.

Idiosyncratic Differences Across Multiple Dimensions

All students in a given cohort differ from each other across multiple dimensions. They all come into a capstone course with different levels of knowledge, skills, and motivation. Differentiating the course into multiple conceptual tiers, that differ primarily in the complexity and structuredness of problem solving, does not address all of the dimensions of difference.

Some students may have knowledge deficits, but good critical thinking skills and high motivation. Some may have high knowledge, but developing critical thinking skills. Others might have learning impairments but high motivation and seek a challenge, and others may have high knowledge, high critical thinking, but low motivation to tackle more work than the minimum.

Recognizing that tiers of conceptual material do not fully address these differences, the course is designed with additional "soft" modifiers. These modifiers are flexibly and dynamically applied as the instructor comes to understand each particular set of student needs across the conceptual framework and across time.

These soft modifications are described in the following three sections, and for simplicity the exposition is provided using a model of "middle of the distribution" and the "left" and "right" tails. In practice the course becomes very personalized for the "left" and "right" tail students, where the "middle" students experience a more homogenous learning experience.

The net result is that most of the instructor's time outside of lecture is spent serving the individual needs of these "left" and "right" tail students, where the term "left" tail refers to students that exhibit less development than others in their cohort. Motivated "right" tail students have the opportunity to grow far beyond what a one-size-fits-all design offers, while "left" tail students are given the conceptual support and/or the motivation they need in order to achieve the minimum competency level. Unmotivated (but otherwise "right" tail) students typically self-select into the basic tier, and achieve their own individual objective of doing the minimum to earn their degree.

By letting students self-select into tiers, the instructor spends less time trying to motivate those that don't want to be motivated, and less time trying to challenge those that don't want challenge. This allocation of instructor time investment likely results in a improved *total* student development across a cohort, as instructor time and effort is weighted to those students most likely to benefit from that time and effort.

Learning Pathway for the Middle of the Distribution

As a capstone course, the course is intended to provide students the opportunity to integrate knowledge and skills from the major functional areas of business so that they may synthesize into a cohesive and integrated whole. For this course, the major functional areas are marketing, operations, accounting, and finance. These are the subject matter areas for the "review" cases that are prepared in the first six weeks. In each case, students address an instructor-prepared case that covers what they need to apply to their business plan as well as additional skills/topics/techniques curated by the instructor.

Grade assessment rubrics are established for each assignment and made available to students. Major rubric items correspond with major learning objectives. For example, the marketing case revisits the core topics that students will need, at minimum, in the business plan process: value proposition, competitive landscape analysis, and total addressable market. In addition to these core topics, all students are asked to analyze additional basic marketing topics such as market segmentation, customer segmentation, product segmentation, and to conduct a 4P (product, price, promotion, place) framework analysis.

These topics then carry over into the initial business plan assignments, with students now applying these same topics to their particular business. This provides a one-to-one match with the work they do in the case to the work they do in the business plan, but applied to a different business. This time-delayed, multi-modal, cross-application of concepts to different circumstances deepens the student's understanding of concept application and inter-relatedness.

During this business plan development phase of the course, each weekly assignment corresponds to a preparatory case (marketing, operations, accounting, finance), with two additional weekly topical areas of strategic planning and risk assessment/analysis. Each week's assignment again has a core set of requirements that all students must complete, as well as optional Tier 3 requirements that students may elect to complete.

Students that choose Tier 1, and are middle of the distribution on knowledge and skills, generally do not need much coaching in order to demonstrate minimum conceptual and critical thinking competency. Any gaps tend to be minor and easily closed with questions during lecture or a quick coaching session.

It is not uncommon that some minority portion of the "middle" group still experience some degree of struggle in a particular area. The most common seem to be writing, time management, and accounting. These students are offered one-on-one coaching and feedback in order to bring these skills up to standard.

Providing the Right Tail with Challenge and Development

When considering the "right tail" from a course design perspective, it is not just knowledge/skill level that is important in course design. It is also individual student interest in challenge and personal growth (i.e., motivation). What has been seen so far in the application of this design is that entry knowledge/skill level varies for the students choosing Tier 3 just as for students choosing Tier 1 (see Figure 3, below). Some students choose Tier 3 because they start the course at a higher knowledge/skill level, and some students choose Tier 3 because of their intrinsic motivation for growth and development. In any case, "right-tail" students seek a more challenging learning experience.

Students that elect to pursue the more difficult Tier 3 requirements work on additional analyses and additional topics in each assignment. They must still meet the core requirements for the assignment, like all other students, but to meet the higher tier requirements they must do additional and more difficult work that is still related to the base case or assignment.

The design of Tier 3 problems not only contains more challenging material, but the challenges are even less structured and require development of critical thinking, problem solving, and information gathering/self-learning. Given that it also takes significantly more time to complete these requirements (than Tier 1), it also requires significant maturation of time management skills in order to meet deadlines.

To illustrate, in the marketing case, Tier 3 students are required to analyze, critique, and offer improvement suggestions for a local business's marketing efforts, using 4P and communication channel frameworks, in the context of their segmentation analyses. They are required to make connections between the customer's perceptions of a business's value proposition, the business's perceptions of their own value proposition, and whether or not the business's marketing efforts are consistent with either. They also practice more advanced communication skills by preparing a perceptual positioning (four-square) map of the competitive landscape using dimensions of customer choice that must be shown to be related to the value proposition of all players in the competitive environment. This requires the student to determine, analyze, and evaluate the connections of value between customer, business, and competitors while communicating these ideas in a compact yet densely packed modality.

Tier 3 provides additional development on several dimensions. Performing unstructured analyses, making connections and noting contradictions among these analyses all contribute to

conceptual mastery learning and development. Combining and presenting the information in multi-modal communication vectors contribute to communication skill development. Finally, ensuring logical coherence of Tier 3 work with Tier 1 work connects advanced skills development to basic skills development.

Students that elect to pursue the more difficult Tier 3 requirements encounter topics or modes of analysis that they have not received training for in prerequisite courses, in some cases master's level topics. While some Tier 3 students are able to learn how to teach themselves these advanced topics, more often Tier 3 students need additional one-on-one coaching.

Coaching for this group of students begins with helping students with self-teaching, discovery, and growth on their own (as opposed to being told the answer). These students are typically ready to move to self-learning modes and often just need a little inspiration or encouragement to find the path themselves.

Providing the Left Tail With Sufficient Support

Students in the lower tail of the distribution must still meet minimum requirements in order to earn their degree. "Left-tail", in this context, again is not just lower knowledge/skill level, but also lower self-motivation level. Making a lower "tier" for these students would lower the overall requirements to a level below minimum standard, and so multiple techniques are employed in order to help these students meet minimum standards of demonstrated competency. For these students, one-on-one interventions and coaching give them a "different" tier in that they receive far more attention from the instructor, while still requiring demonstration of competence in the required standards.

In the absence of an explicit lower requirement tier, students that struggle with the core competencies, motivation, or time management are provided direct one-on-one coaching, additional instructional time, and/or additional work to further develop. Most students are able to navigate each week's requirements using the materials and lecture time presented to all students, but there is a proportion of students that struggle with core competencies, such as financial statements, and they need more application time with particular problems than their peers.

Depending upon the situation, more basic problems or cases may be assigned to these students as scaffolding to help them catch up. This additional work is another method, in addition to one-on-one coaching and instruction, which helps the lower tier students meet minimum competency requirements.

To identify these students early in the process and respond with instructional intervention, the first six weeks of the course also serve an important monitoring and intervention function. Those students that are struggling with, for example, basic accounting, can receive early intervention so that later in the semester, when they are building financial statement projections for their business, any skill gaps can be narrowed before the final project work is begun.

Students that struggle with time management, or the writing process, or self-learning, are also all identified early, and intervention is made via one-on-one sessions. These sessions may end up being more structured and/or providing modeled examples rather than the more open-ended, Socratic sessions with other students – but each one-on-one session is customized to that particular student's needs.

By monitoring these students closely, intervening early, and asking them to meet frequently with the instructor, the course can be designed without an *explicit* lower tier, but ends up with an

implicit lower tier as these students complete additional preparatory work and receive more instructional support.

DATA AND ANALYSIS

The tiered assessment method attempts to address multiple perceived issues with traditional approaches to course design and assessment. Two of these issues, highlighted in the literature review section of this paper, are assessment and motivation, and it must be recognized that assessment can affect motivation and vice versa. This fundamental entanglement of causation does not preclude evaluation of the design with data, but it is important to understand the limitations of using data (such as assessment scores) to evaluate a particular pedagogy.

For this particular tiered assessment course design, collecting data on motivation was not feasible, but data is routinely collected on student learning via assessment exams. These data can be used to try to shed light on a limited scope question regarding tiered assessment and course design; to wit, "do students that elect to pursue the more difficult tier achieve higher knowledge/skill levels".

This work does not claim that assessment exams are an exact measurement of student knowledge/skill (Simkin & Kuechler, 2004), but rather that they are the best proxy available in this instance, to-date, to quantitatively evaluate the learning outcomes associated with the tiered assessment method described in this paper. Arguably assessment scores are a better proxy than letter grades (Wentzel, 1989), and so this work offers assessment scores as data in an effort to provide the reader with some limited data and analysis of efficacy as a supplement to the design description.

To be clear, this work is principally concerned with the exposition of a particular instantiation of tiered assessment rather than attempting to rigorously evaluate the effect of tiered assessment on student learning. However, rather than offer the description without any data, it seems useful to include some limited analysis of data.

Description of Data

The raw data are the assessment results for 51 students over 4 semesters. The time period covered is Fall 2020 semester through Spring 2022 semester. The data set employed includes assessment scores for 11 subject matter areas and an overall assessment score, which is calculated as the average for all scores. The 11 subject matter areas include a) fundamental business functions such as operations, accounting, finance, management, and marketing, b) general skill assessments such as communication, critical thinking, business math, and business software, and c) supplemental areas of knowledge such as economics, law, and the regulatory environment. The use of the term "Assessment Score" or the variable "AssessScore" in this paper refers to the overall assessment score (average of all subject matter areas).

Descriptive statistics for Assessment Scores are in Table 1, below.

Table 1: Overall Exit Assessment Scores

Grouping	Tier 3 (challenging) students						Tier 1 (standard) students				
	n	Mean	Median	Range	Var		n	Mean	Median	Range	Var
2020-2021	10	7.8	7.8	2.8	0.4		16	6.8	6.7	4.6	2.0
2021-2022	7	6.7	6.2	4.1	1.2		18	6.6	6.7	5.1	2.1
Both years	17	7.4	7.4	4.1	1.0		34	6.7	6.4	5.1	2.0

A visualization of these data is presented in Figure 3, including a median indicator and first and third quartile bars. Each point represents a single student, with the Boolean flag value of 1 indicating a Tier 3 (challenging tier) student.

Figure 3: Assessment Score vs Tier, with median plus 1st and 3rd quartile bars
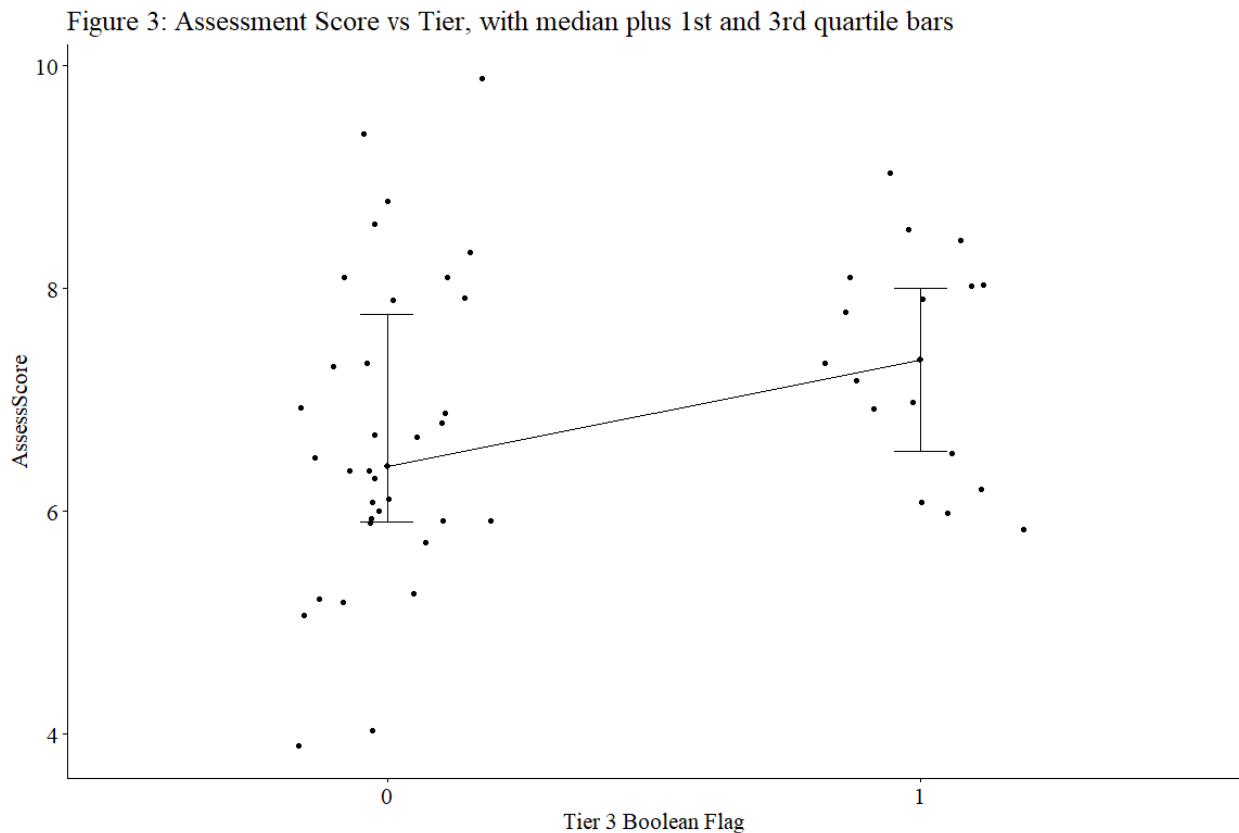
Analysis of Data

A one-way between groups analysis of variance was conducted to explore the impact of tier choice on overall assessment outcome. Students were divided into two groups according to tier choice (independent variable, Boolean Flag in Figure 3) with outcome measured using each

student's overall results on endpoint assessment exams (dependent variable, AssessScore in Figure 3). There was a statistically significant effect of tier choice observed (F = 3.03, p-value = 0.088) on AssessScore, however the effect was relatively small (η^2 of 0.058).

Standard ANOVA is a common statistical technique employed to evaluate the hypothesis of differing means between two groups. However, in the presence of small sample size, non-normality, and differing variances, the non-parametric Kruskal-Wallis test is suggested (Kruskal 1952).

A Shapiro-Wilks test was performed on the data (W = 0.98, p-value = 0.63), indicating that the AssessScore variable is not normally distributed. Table 1 descriptive statistics indicate differing variances and a small sample size for the Tier 3 group. Therefore, a Kruskal-Wallis test was also performed on the grouped data. The result was a statistically significant effect of tier choice (χ^2 = 3.42, p-value = 0.064) on AssessScore, again with a small effect (ε^2 of 0.068).

RESEARCH LIMITATIONS

Caution should be used in interpreting the Data and Analysis results. There could be other reasons for the difference in AssessScore between groups, including unmeasured idiosyncratic differences in those students that choose Tier 3 versus those students that do not. The direction of causation with motivation and assessment methods is also a potential issue with interpretation.

Examples of potential idiosyncratic differences that could explain the results observed independent of the student's experience with Tier 3 work include prior student knowledge and/or skills and inherent motivation differences among students. There could also be very simple differences exogenous to the student's internal state, such as work or college athletics time constraints, that affect tier choice and AssessScore. Measuring such idiosyncratic differences was beyond the scope of this work.

Individual GPA was evaluated as a potential explanatory variable to isolate prior knowledge/skill as a predictive variable of AssessScore, but the analysis did not result in a statistically significant relationship between GPA and AssessScore. The hypothesis that grades are the best evaluation of actual knowledge and skill is also subject to criticism (Wentzel 1989), and for both of these reasons results of that analysis are not included in this paper.

This paper does not attempt to disentangle intrinsic vs extrinsic motivation. Extrinsic rewards are offered in the design presented herein (grades and final exam skip), and that may be the primary factor for choice for some students. Other students may choose Tier 3 out of an intrinsic desire to improve their human capital, or pride, or some other intrinsic reward. Such considerations were not empirically studied for their potential impact on the causative factors of Tier 3 choice or AssessScore outcomes.

For some students, motivation may lead to improved scores, and for other students, the score result may affect motivation. Some students may work hard in order to score well, while other students may be either discouraged or encouraged by the result of a score they receive. The direction of causation with respect to motivation and scores is not addressed in this study, yet may be an important factor that could affect both score and tier choice.

Finally, the data and analysis provided in this paper were not a consequence of an experimental design, and as such, measurement was not designed to examine a hypothesis. This work does not offer these data and analyses to answer a central research question; rather, they are

offered as an entry point for further research and for context in the primary thrust of the paper, which is the exposition of a particular design of a tiered assessment capstone course.

OPPORTUNITIES FOR FURTHER RESEARCH

There are alternative study designs that future researchers could pursue to evaluate outcomes associated with tiered assessment course design. Disentangling intrinsic and extrinsic motivation, designing randomized experiments, and following students longitudinally (temporally) across multiple assessment points are all potential approaches to study this topic.

Alternative Study Design Examples:
- Intrinsic versus extrinsic motivation: a researcher could employ a cohort randomization study to try to isolate intrinsic vs extrinsic motivation effects on assessment scores. By eliminating extrinsic rewards for some cohorts and including them for others, the AssessScore effect due to extrinsic versus intrinsic could potentially be isolated.
- Idiosyncratic motivation: if motivation evaluation scores were established, across time, for individual students, motivation level (and stimulus) could possibly be controlled for. This may be a difficult area to establish control variables, as motivation may not be static for an individual over time.
- Idiosyncratic knowledge/skills: future research could use time-series panel data for student assessment scores to the extent that there are multiple checkpoints of assessment scores that can be compared at the individual level across time. By comparing an individual's change in assessment across time to the same metric for the group, individual idiosyncratic differences could potentially be controlled for using panel analysis techniques.
- Pre / post assessment testing: conducting standardized testing of individuals for particular subject matter areas both at the beginning of the capstone course and the end has the potential to allow further discrimination of the effect of a student engaging with the Tier 3 work, but this may require clever test design. Giving the same test in the same semester is likely to see a bias in pre/post score simply from student familiarity with the subject matter questions. While this effect could be isolated with a large enough sample size, the reliability of such analysis likely requires differences in the pre / post test, which then may raise the question of student heterogeneity in language processing.
- Randomized experiments: letting the subject choose the tier is the root cause of potential idiosyncratic difference bias. By randomizing which students complete Tier 1 and which students complete Tier 1 and Tier 3, with sufficient sample size the average effect of student engagement with Tier 3 on AssessScore could be isolated, independent of extraneous variables. If combined with a method that assesses individual prior knowledge, skill, and motivation, a researcher could isolate and potentially measure the strength of effect of these extraneous variables on AssessScore.

CONCLUSIONS

Tiered assessment, learning pathways, spaced repetition, and providing students agency are instructional design methods that have all been shown to improve motivation and student learning outcomes (Klahr & Nigam, 2004; Nilson, 2016; Reeve, 2002; Thalheimer, 2006). This paper illustrates an application of the integration of these four strategies using a tiered assessment approach for an undergraduate business capstone course.

- The use of tiered assessment, integrated with learning pathways and minimum requirements, allows students to self-select into pathway elements that makes sense for them, without sacrificing rigor and without frustration affecting student motivation. This agency effect increases student motivation, resulting in improved learning.
- While some students may choose to engage with the entire scope of Tier 3 work, students may also choose to engage with some subset. Tapping the motivational effect of the design (agency, extrinsic, and intrinsic) is therefore not limited to a binary effect (as measured in the Data and Analysis section), but has granular increased learning effects, by conceptual area, for those students that only dip their toes into a subset of the advanced work.
- Structuring the course with strategic conceptual repetition, with variable intensity across structured versus unstructured work and multiple conceptual applications, leverages the learning benefits of learning pathways, spaced repetition, and variable learning modes.
- Finally, by further customizing instructional support (coaching), tailored to the individual student's needs, student learning outcomes are further optimized by individual.
Initial data suggest that students who self-select into (and complete the full course of) the higher difficulty tier tend to score higher on endpoint assessment exams. More research is needed to validate these observations and further understand the effect on learning outcomes.

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