Article

HEIs and workforce development: Helping undergraduates acquire career-readiness attributes

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Abstract

The transition from college to careers has remained relatively consistent for decades. This is no longer the case, as many factors are at play. It is essential that undergraduate students gain career-relevant skills to be successful in the complex, global workforce. Yet employers raise concerns about students' career-readiness. Simultaneously, higher education institutions (HEIs) are facing numerous challenges, such as unprecedented access to a college education, funding allocations and students working while attending college. All these factors lead to an arduous situation. Since learning is not merely relegated to the classroom, this qualitative multisite case study focuses on experiential learning opportunities offered through university-affiliated business incubators to gain a better understanding of how they may assist undergraduate students prepare for the workforce. This research contributes to the literature by showing how HEIs can help students develop career-readiness attributes to prepare for their transition from college to careers.

The world has embarked upon unprecedented times. The Fourth Industrial Revolution, rapid technological advancements and societal change are just a few of the driving forces behind the seismic shifts (Bandura, 2002; Seibert et al., 1999) that are dramatically affecting industries, employers and the global labour market. The educational landscape is being influenced and shaped by these forces, especially since baccalaureate degrees are key drivers for obtaining higher-paying jobs and aiding social mobility (Arum and Roska, 2014; Symonds et al., 2011). This notion strengthens efforts towards ensuring that anyone who desires a college education has both access and the relevant tools to accomplish their goal. In the United States, significant strides and progress in these areas have increased the quantity and diversity of college students (Renn and Reason, 2013).

Students cite career preparation as a primary reason for attending college (Levine and Dean, 2012), especially given the abundance of jobs requiring post-secondary credentials (Carnevale et al., 2015). Students are entering a complex, global workforce so it not surprising that stakeholders view higher education institutions (HEIs) as workforce training providers (Arum et al., 2016). Despite these developments, employers and industry leaders are concerned about students' level of career preparation (Arum and Roska, 2014; Mourshed et al., 2012). As questions surrounding the value of a college degree and workforce development continue to mount (Arum and Roska, 2014; Seifert et al., 2014), the above factors become key aspects warranting further discussion.

The purpose of this multisite case study was to gain a deeper understanding of the nexus between HEIs, undergraduate students and microbusinesses. The important intersections highlighted in this article may provide a link towards new workforce development practices involving transferable skills, cross-functionality and interdisciplinary knowledge. Specifically, this article seeks to gain an understanding of how HEIs help students develop career-readiness attributes to prepare for the workforce and the role that business incubators can play in that process. Ensuring that a broader array of businesses is connected

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to HEIs may help college students develop the career-readiness attributes needed to be successful in the next-generation workforce and the 'efficacious adaptability' (Bandura, 2002: 6) that will probably be needed as they begin their professional careers. HEIs can play an important role in validating competencies and working with students to ensure they have obtained the career-readiness attributes necessary for post-graduation employment (Knouse and Fontenot, 2008).

Literature review

Some stakeholders believe that helping students secure post-graduation employment (Arum et al., 2016; Levine and Dean, 2012) should be a contemporary aim of HEIs. Below are pertinent constructs for this discussion.

Student learning and intellectual growth

Traditional classroom-based learning environments may provide students with limited opportunities to think through situations, draw their own conclusions (Elias and Merriam, 2005) or engage in 'complex, non-linear thinking' (Kassean et al., 2015: 692). Alternatively, co-curricular learning allows students to have multiple touchpoints with material, which may aid in the development of skills (Pascarella and Terenzini, 2005) and intellectual growth. This is beneficial since everyone learns and processes information differently (Duffy and Cunningham, 1996). Therefore, it is not surprising that the literature suggests that students learn best when they are active participants in their education (Astin, 1984). Since individuals base decisions on knowledge, it is important for students to learn how to handle the decision-making process confidently. Direct experience in this area helps students develop their critical thinking skills and apply their knowledge to contextualized situations, while self-directing their own learning (Arum and Roska, 2014; Vogel-Walcutt et al., 2010).

High-impact practices (HIPs) are forms of experiential or action-based, learner-centred activities (Kuh, 2008). Several HIPs are structured as co-curricular learning programs (Terenzini et al., 1993) that can help expose students to the critical thinking and problem-solving skills employers desire (Arum and Roska, 2014; Roberson and Franchini, 2014). Students may engage differently in a co-curricular setting, thus leading them towards deeper learning (Berland et al., 2014). Ideally, HIPs and other forms of engaged learning atmospheres will encourage students to work through thought processes and use complex reasoning skills, while challenging them to think through specific scenarios to provide concrete solutions for a particular problem (Arum et al., 2016; Vogel-Walcutt et al., 2010).

Workforce development and business incubators

The rapid evolution of advanced technologies is challenging industries and companies alike to become innovative, fast-paced and agile (Lobler, 2006). As a result, employers are placing additional emphasis on college graduates' soft skills, such as critical thinking, problem solving, team collaboration and communication (Arum and Roska, 2014). Since HEIs help students integrate into the workforce, it is disconcerting that some employers express dissatisfaction with the skill sets of recent college graduates (Manyika et al., 2012; Symonds et al., 2011). For some entry-level positions, it may be acceptable for students to have topical familiarity but, as employers increase layers of complexity, their inelasticity will become apparent (Vogel-Walcutt et al., 2010).

Business incubators are organizations that help with the preliminary phases of starting and launching a business (Davidsson, 2017). Entrepreneurs who have a promising product or service idea with a potential for high growth (Henton and Oettinger, 2015) are typically targeted by incubators. These individuals may be on the cusp of marketplace disruption or advancing an industry, causing them to navigate unchartered territories. Innovative entrepreneurs routinely question assumptions (Lobler, 2006) because a clear directional route or roadmap is seldom available. Therefore, entrepreneurial environments are ambiguous and commonly involve quick decisions (Balan and Metcalfe, 2012) as experimental tactics are used to reach conclusions. Immersions in this active learning environment, along with exposure to various thought processes, can help students develop workforce-relevant skills regardless of what major or discipline they are studying.

Entrepreneurial mindsets are not relegated merely to the field of business. Therefore, students' acquisition and even mastery of these traits will have applicability in a broad range of career fields. Many colleges collaborate with business incubators, so it is an ideal time for broader arrays of students to be involved. This experience heightens entrepreneurial awareness, which may lead students to consider an alternative career pathway (Fretschner and Weber, 2013; Sandercok, 2004; Segal et al., 2007) such as entrepreneurship.

This article is part of a larger data set exploring how business incubators provide undergraduate experiential learning opportunities to promote the development of entrepreneurial skills. The research question pertaining to this article is how do HEIs help students develop career-readiness attributes in preparation for the workforce? It is significant because it illustrates the importance of co-curricular learning and shows concrete ways in which active learning helps students prepare for the labour market. The focus of the article is on microbusinesses (10 or fewer employees) because there are roughly 3.8 million (United States Census, 2018) in the United States and the

millions of net new jobs created (Headd, 2015). Despite this significance, minimal bridges connect this segment to HEIs. Stronger alliances between HEIs and small business communities would strengthen economic and workforce development efforts.

Social cognitive career theory

Social cognitive career theory (SCCT) centres on self-efficacy and is useful in understanding educational selections, vocational aspirations and goals (Lent and Brown, 2013). In the entrepreneurship context, SCCT has been associated with an individual's thought processes, reasoning and behaviour (Kassean et al., 2015). Indeed, self-efficacy can be a powerful determinant and source of judgement for individuals (Dahling et al., 2013).

Lent et al. (2002) discuss efficacy levels and how individuals perceive situations. When encountering something new, experiences often form a baseline for inward comparisons or reflections about whether something is achievable. Individuals with lower efficacy levels may underestimate their abilities. As a result, they may set lower goals or avoid challenging situations – actions that can hinder them from reaching their full potential. The alternative is also problematic. If people have excessively high levels of efficacy, they may become overly optimistic about their ability levels, which could lead them to feel unsuccessful and discouraged. It is helpful for individuals to have higher efficacy levels when navigating unfamiliar surroundings (Bandura and Locke, 2003) or setting goals (Dahling et al., 2013). The best circumstance is for students to have moderate efficacy levels, allowing them to view their capabilities realistically while tackling sensible challenges. Efficacy is not considered static and this has saliency for the present topic: it fluctuates and can be affected by an individual's level of confidence, experience and situations.

A previous limitation of SCCT was understanding transitional aspects, such as from college to careers (Lent and Brown, 2013). Theories focused on destinations but not on the journey leading to the destination. Thus, individual adaptability in varying circumstances could be a missing element. As students develop career-related skills, competencies and professional attributes, they may be better able to navigate or adapt to various surroundings (Lent and Brown, 2013). Therefore, SCCT is useful in understanding phenomena involving 'developmental tasks or conceptual challenges' (Lent and Brown, 2013: 559). Based on the literature, SCCT provides a relevant grounding for this study.

Research design, methodology and methods

A constructivist epistemology concentrates on how individuals interpret or make meaning of their surroundings (Crotty, 1998). This is valuable for the present study given that everyone develops and processes information differently (Lent and Brown, 2013). Student centrality (Pascarella and Terenzini, 2005) has prominence within the constructivist's paradigmatic view as it is believed that students keep knowledge and do well when they are actively taking part in their learning (Duffy and Cunningham, 1996). This approach is helpful throughout the entire learning process. Therefore, using a constructivist underpinning to the framework aids an understanding of individual experiences within the parameters of business incubators (Lobler, 2006). Individuals have varied backgrounds, so their encounters within surroundings can lead to unique perspectives. The theoretical perspective guiding this study (Crotty, 1998) is SCCT as it provides understandings within educational and vocational contexts, such as adaptive career behaviours (Lent and Brown, 2013: 567).

Qualitative research methodologies are primarily descriptive analyses exploring multiple realities of a phenomenon (Creswell, 2007). Emphasis is placed on the study's participants to understand their perspectives on and interactions with the phenomenon and how meaning is made through their experiences (Merriam, 2002). Case study research is the method selected for this inquiry because it is useful for gaining deeper understandings of complex phenomena, especially relating to 'how' and 'why' something occurs (Luck et al., 2006). Multisite case studies involve an exploration of the same research question at each site (Boblin et al, 2013; Herriott and Firestone, 1983), which can inform whether the findings are isolated to a particular occurrence or common among the various sites (Creswell, 2007). This research helps to provide fresh perspectives or different angles ultimately leading to theory generation (Eisenhardt, 1989).

Research sites

This study involved five incubators, thus providing vast arrays of insights, patterns of heterogeneity, contrasts and diversities (Schofield, 2002). The Midwest portion of the United States was selected for the study because it houses well-respected HEIs (US News and World Reports, 2016) and has vibrant entrepreneurial ecosystems. The selection criteria included incubators with HEI affiliations, established entrepreneurial ecosystems within 50 miles of one another and HEI personnel actively involved with the incubator. Eight incubators were contacted and five agreed to take part in the study (see Table 1).

Variances among the sites included the time the business incubator had existed, urban versus suburban locations, personnel oversight of student involvement, connections to alumni and connections to the local entrepreneurial ecosystem. Two of the HEIs (numbers 1 and 3) had an incubator on campus, while the other three had off-campus incubator affiliations (numbers 2, 4 and 5).

Table 1. University-affiliated business incubators that participated in the study.

Site	University's Carnegie classification	Student enrolment	Type	Business incubator in existence (years)	Hours/available access
1	Master's colleges and universities	3000+	Private	2	8:30 am–5 pm
2	Doctoral universities	20,000+	Public	5	7 am–10 pm
3	Doctoral universities	15,000+	Private	3	Anytime
4	Doctoral universities	20,000+	Private	7	Anytime
5	Doctoral universities	23,000+	Public	5	Anytime

Table 2. Participants in the study: Site, roles and student majors.

Site	Number of participants	Role at incubator	Student majors
1	4	Director, faculty, students	Business, marketing, sales
2	6	Director, faculty, students	Business, communications, marketing
3	4	Director, students	Business, marketing
4	8	Director, students	Business, economics, marketing, sociology, visual communications
5	10	Director, faculty, students	Art, business, finance, visual communications, psychology

Another contrast is the incubator's focus. Two sites (numbers 3 and 4) emphasized helping students plan their business idea, whereas the other three (numbers 1, 2 and 5) focused on assisting community members or alumni working on launching a business. One commonality was a dedicated full-time director who oversaw the incubator's operations. At four sites (numbers 1, 3, 4 and 5), a university employee was the director and at one site (number 2), the local economic development entity paid the director's salary. Students could complete an internship at all five sites.

Data collection

As indicated, the data included in this article are part of a larger study exploring undergraduate transitions from college to careers. The various forms of data collection used in this study (Eisenhardt, 1989) included perspectives from 24 undergraduate students, 5 directors and 3 faculty members (see Table 2), gathered through semi-structured interviews and focus groups (Creswell and Miller, 2000).

The directors of incubators were the first point of contact. Connections were made via an email, soliciting participation in the study. After the initial semi-structured interviews with the directors, snowball sampling (Creswell and Miller, 2000) was used to seek student participation in the study. The directors arranged introductions to various faculty members and three agreed to participate. The five incubators were visited three times in 2-h increments for 30 h of observational data. Field notes were taken throughout the observational process, allowing for further analysis and to corroborate other data (Stake, 2006). The researcher adopted a covert role during the observations to blend in with other entrepreneurs (Bollingtoft, 2007; Crotty, 1998).

The interviews and focus groups were all semi-structured, consisting of questions developed prior to the meetings. This provided guidance for focused conversations, yet provided the flexibility to ask follow-up questions. The directors and faculty members took part in interviews lasting approximately 60 min. The students took part in seven focus groups lasting roughly 90 min. The semi-structured format (Angrosino, 2007) allowed the same questions to be asked at each incubator, aiding the identification of commonalities or variances taking place with the phenomenon. The interviews and focus groups were held in private rooms at each of the incubator sites. The interviews were recorded and transcribed later that day. The transcripts were emailed to every participant with a request for their verification of the conversation (Creswell and Miller, 2000). Artefacts (promotional materials, newsletters and websites) were analysed. The data collection process aided both in triangulation and lessened concerns about retrospective bias (Boblin et al., 2013; Mathias et al., 2015).

Data analysis

The first step was standardizing data gathered from all the research sites (Herriott and Firestone, 1983). This enabled general pattern identification (Eisenhardt, 1989) and determined whether a finding was unique or common among all sites. The analysis followed Saldana's (2013) coding process. Verbal exchange coding involved analysing transcript data, which generated 295 codes. The codes were each written on a coloured paper for additional analysis. Pattern coding guided the identification of key themes and helped narrow the codes down to 30 (Miles and Huberman, 1994). The data analysis process provided a clearer understanding of 'why' something occurred (Eisenhardt, 1989).

Trustworthiness

Certain processes help to ensure trustworthiness and goodness in qualitative studies (Merriam, 2002). Eisenhardt (1989: 538) stated that 'the triangulation made possible by data collection methods provides stronger substantiation of constructs and hypotheses'. In this study, triangulation was achieved through the utilization of various data sources (directors, students, faculty members) and methods (interviews, focus groups, observations, artefacts) to ensure credibility and to authenticate the research (Creswell and Miller, 2000).

Findings

The findings from the study support the literature on the benefits of HIPs and how students can acquire career-readiness skills (Kuh, 2008; Levine and Dean, 2012; Pascarella and Terenzini, 2005) through experiential learning at business incubators. The three key themes of the findings are transferable skills, active learning and intellectual maturity. Overall, students felt that the skills gained through their incubator experiences would be beneficial throughout their careers but, most importantly, as they entered the labour market.

Transferable skills

Transferable skills are those having applicability in many jobs or industries. Often, these types of skills live under the umbrella term 'soft skills' and include areas such as critical thinking, problem-solving, analysis and reasoning, team collaboration and communication. The directors noted that students seldom had soft skills when they started working at the incubator. Connor, a director, said:

> Founders [entrepreneurs] are interested in students who can think on their feet, work well with others, can articulate their thoughts, and handle themselves in a professional manner. People think students have already acquired these skills, but that's not the case. Students seem to have minimal exposure to soft skills. In the start-up culture, students work on a broad range of projects for which there are no easy solutions. I have found that only a small number of students have encountered this type of thought process before working here.

Connor's thoughts convey the importance of co-curricular learning. He has noticed that students are not initially proficient with their soft skills, but they can strengthen their skills by working with entrepreneurs on a variety of projects. Another director, Dave, said that 'students need to learn soft skills no matter what field or industry they plan on going into. They are essential skills that will be used throughout their lives'. These comments suggest that it is not merely business students who benefit from working at a business incubator.

Students also feel that this form of co-curricular learning is beneficial. John discussed the variety of projects he worked on at the business incubator and said:

> These types of opportunities have helped me grow personally. I used to have trouble asking for help. Through my experience working on teams, and on juggling multiple projects, I've overcome that. If I am stuck on something, now I ask for help. Everything here is fast paced. At the incubator I have been involved with rapid prototypes. You have to move forward very quickly to come up with an answer. If that doesn't work, you try something else until you get it right. There are many times the entire team is stuck, and we [would] just keep plugging away until we had a breakthrough.

John said that at almost every career-related interview he attended he was asked for specific examples of team-based experiences or working through uncertainty. By experiencing a variety of situational circumstances, he could overcome personal barriers and persevere. This provided him with tangible experiences to share with potential employers. John's statement shows how HEIs can help students develop career-readiness skills that are desired in the labour market. It shows the importance of self-efficacy. Initially, John was timid about asking for help. Working through realistic scenarios helped him gain confidence, which likely simultaneously increased his efficacy level.

Transferable skills can be determinants for success not only in college but also in students' professional careers. Commonly, course assignments consist of structured parameters resulting in limited exposure for students to explore and define resolutions for broader problems. For instance, Savannah said:

> In classes, every week or two we are working on a new topic or chapter. The professor gives us an outline and the assignment ties into that chapter. It's the exact opposite at the incubator. Information is not right at your fingertips which makes everything a lot more difficult. We all use Google, but you still need a baseline to guide your research and that's not always available. It feels as though I can take what I've learned here and use it in almost anything. It's much easier now for me to start figuring things out.

This form of ambiguous work helps to spur intellectual development as students work through a variety of higher-order thinking and active learning processes. Since current and future jobs are based far less on routine tasks, it is encouraging that students are provided with opportunities to stretch their intellectual capabilities.

In traditional courses, students commonly work on class assignments and complete a culminating project towards the end of the semester. Evelyn, a student, explained her experience working simultaneously on three projects with quick turnaround times. This is how she compares her coursework to working at the incubator:

I'm not gonna lie – students always wait until the last minute to work on an assignment. You can't pull that off here [at the incubator]. This is the real deal. One of the first projects I worked on had a five-week turnaround time from start to finish. A founder was preparing for a bank loan and there was a lot of stuff to do. We had to do a lot of industry research and help him justify why he was choosing a certain location for the business. Our team helped prepare things the bank needed like financial projections and a competitive analysis. It was a lot of work, but we completed it about two days before it was due. It was hectic, but totally real. I loved it.

According to Evelyn, this was one of the first times she had encountered a project requiring a quick turnaround. At first, she was hesitant about her capabilities, but her confidence grew as the project progressed. The team worked effectively as a group to complete an entire project in a timely fashion, just as is required in the workforce.

These examples illustrate ways students are building a valuable repertoire of transferable skills which are broadly relevant to many career paths. These statements from students emphasize the importance of co-curricular learning and how it helps them to think critically, work through ambiguity, collaborate with others on a team and develop further their analytical and reasoning skills.

Active learning

Incubators may be a student's first opportunity to apply classroom-based knowledge to realistic scenarios. Students may find that answers to problems are not immediately clear, causing them to work through multiple scenarios before reaching a suitable solution. As Aiden said:

I am more comfortable working without a ton of information. There's lots of times here that I'm doing something for the first time. It's also the first time for the founder too. There isn't always a process that you have to follow. You kind of have to figure it out. I wasn't comfortable doing that before but now I am. Now I know how to take a thought or idea and figure out how to move forward. I think the most important thing I've learned is that it doesn't have to be perfect the first time. Sometimes it takes a couple of tries before it works.

Aiden's experience showed the type of heterogenic thinking involved with start-up communities. Creating something with minimal guidelines or established protocol would likely cause students to be apprehensive. Yet students working at business incubators are regularly involved in action-learning scenarios such as this.

Business incubators and the entire entrepreneurial culture can differ vastly from what students are accustomed to. For instance, start-up communities are vibrant, energetic and demanding. Erin, a director, describes it this way:

It's a messy, dynamic environment. Students get to do many different things. They are curious and innovative, but they need opportunities to help discover themselves. We have found that naturally curious people do better in this type of environment than others. Students need to start taking control of their career and really move forward in that direction. Change is a constant now and I envision that will be the case for a long time. The most important skills are being able to learn quickly. If you fail, you try again. If you fail a second time, then you try yet again. Sometimes you may fail multiple times before getting it right. That's okay as long as you are making progress.

Erin emphasized the importance of students having an ability to learn things quickly. These types of active learning environments can help them in many ways. Students are directly involved with a variety of tasks, so they have opportunities to explore and even solidify their career intentions. They experience failure and trying alternative approaches.

Ambiguity is synonymous with business incubators. Initially, students are hesitant in this type of environment. Perhaps, part of the hesitancy results from limited involvement with real-world scenarios. It can also be attributed to students who underestimate their abilities and experience lower self-efficacy. However, incubator-based learning can be rewarding and an influential source for increasing efficacy levels. A student, Emma, says:

This type of experience really makes you think differently. It seems like you have the right approach and then someone brings up something you had not thought about. I have found working for start-ups is a totally different experience than anything else I have been involved with. My mind is constantly challenged. I look at something now and think through all of the possibilities.

Emma's statement highlights the critical thinking, reasoning and analysing involved in active learning through a business incubator. These skills are part of the transferable or soft skills categorization, which can be enhanced through authentic learning experiences, such as these. Helping students gain these skills constitutes an important contribution by HEIs to local economic development initiatives and workforce integration.

Intellectual maturity

In this instance, 'intellectual maturity' reflects students' use of higher-order thinking skills to evaluate a situation, apply relevant knowledge and solve the task at hand. Students often have limited opportunities to integrate their learning and cumulatively apply it to various situations. These experiences engage higher-order thought processes as students apply their knowledge to authentic, real-world scenarios, a process that helps them strive towards

intellectual maturity. Patrick, a college senior, reflected on his secondary and post-secondary education. He stated:

> I think many students have difficulty solving or working through real-world situations because we have always been taught what's needed for ACTs or other testing, especially if we planned on going to college. We really aren't taught how to think. So, when we actually encounter this [problem solving], it's a difficult task. In the beginning, it was hard to know where to even start. I'm grateful for this experience because I'm sure it will help me after graduation.

Patrick's insight provided a glimpse of why students experience trouble in thinking critically and solving real-world problems. It also validates employers' concerns about levels of student preparedness and reinforces the need for HEIs to help better equip students for workforce transitions. Patrick mentioned during the focus group that he had not formalized his career intentions but felt this experience would have broad applicability.

Other students made similar comments about intellectual challenges encountered at incubators. Hence, viewing situations or problems through an entrepreneurial lens may help students weigh various perspectives, evaluate the merit of an opportunity and determine applicable solutions. For instance, Amanda said:

> Whenever I am at the incubator, I feel challenged. This type of experience makes me think in a different way than the classroom. It's cool because you are always learning here – always improving – always enhancing your skills. It's hard to explain, but when I wake up in the morning, I have to mentally prepare for working at the incubator because I know my mind is going to work hard! I enjoy that feeling.

This example illustrates the value of active learning and how it contributes to intellectual growth. Students work through vigorous experimentation and cognitive sequencing. In this instance, cognitive sequencing is viewed as a critical thinking process allowing students to sift through their cumulative knowledge, while determining which additional information they need to reach an acceptable solution for the identified problem.

Students realized it was okay to struggle sometimes. In these situations, self-efficacy plays a role. The process of successfully working through a challenging situation will serve as future reference points for students. As Kayleigh said:

> I thought I was doing well in college until I started at the incubator. Almost immediately I realized I still had a lot to learn. The type of challenges you face in a work environment are totally different than in class. One of the biggest challenges is that there are no easy answers. You really have to think through everything.

When students feel challenged, self-efficacy plays a pivotal role in determining their abilities and accomplishments. Active learning scenarios involving real-world situations intellectually challenge students and help them to develop pertinent workforce-related skills.

A director, Erin, teaches at the university. She shared her insight about traditional classroom-style learning and incubator-based learning. She said:

> I have taught college courses before and the learning that takes place at the incubator is different than traditional classes. Students become immersed in a project and must figure things out in a way that they seldom encounter in a classroom. Most of the entrepreneurs we work with are pushing innovation forward, so the students are at the cutting edge of various industries. That's just plain cool! But a lot of responsibility comes with it, meaning that students have to really think through various ideas. Sometimes it's trial and error. It's thinking about things differently. It's deep learning [and] students are continually challenged.

Erin's thoughts convey ambiguous learning environments. Founders commonly work on innovations to determine effective solutions for the problem at hand. Answers are not readily available at incubators, so students working alongside the entrepreneur gain valuable insight involving complex thought processes. Those with minimal exposure to this type of learning may initially experience apprehension about their abilities, but efficacy can play an important role in their perception and persistence.

Overall, the findings revealed that, despite the complex and intellectually challenging nature of working at a business incubator, students felt more competent in their abilities and better prepared for a career. The incubators involved in this study illustrate ways to effectively bridge gaps between academic courses and workforce needs.

Discussion

This study explored the question of how HEIs can help students develop career-readiness attributes in preparation for the workforce. The findings suggest that business incubators provided students with unique and concrete career-related experiences that appeared to strengthen their levels of self-efficacy, aid the development of career-readiness attributes and helped them to strive to reach their full potential (Lent et al., 2002). At the incubators, students are immersed in authentic, situational learning involving real-world scenarios that entrepreneurs are actively unravelling. This environment provided students with opportunities to work through active learning scenarios, build transferable skills and experience cognitive complexities. Working through ambiguous, real-world circumstances and determining appropriate solutions is helpful to students as they prepare for the workforce (Arum and Roska, 2014).

Incubator-based learning contributes to their education in a different yet positive way. Overall, the findings demonstrate ways that HEIs can help students develop career-readiness attributes as they approach the transition from college to the workforce.

The findings suggest that students struggled with the overall thought, contextualization and knowledge application process. This aligns with the literature surrounding SCCT and individual thought processes (Kassean et al., 2015) as self-efficacy influences adaptability to varying circumstances. Perhaps, incubator-based learning can be viewed as an indirect learning mechanism since students do not receive a course syllabus outlining the course content or what the learning outcomes and/or objectives are. Therefore, there is no predisposition towards what will be covered in their co-curricular experience nor to what will be the takeaways. Instead, the learning method is active. It consists of continual experimentation in solving problems and determining solutions. Viewing incubator-based learning through the lens of SCCT, these environments encourage students to develop their thought processes and competencies and manage their career intentions (Kassean et al., 2015; Lent and Brown, 2013). Students are continually provided with opportunities to work on projects and solve problems: thus, they are helped to become proficient at working in realistic, work-based environments. However, to achieve this, it is essential that students have appropriate efficacy levels and confidently believe in their abilities (Lent et al., 2002).

The existing knowledge on SCCT notes the importance of individual perceptions regarding the navigation of unfamiliar surroundings (Bandura and Locke, 2003). Since efficacy levels are not static, opportunities aimed at helping students to successfully navigate challenging scenarios (Pascarella and Terenzini, 2005) may positively contribute towards increased self-efficacy levels (Lent et al., 2002). A trait such as 'performance efficacy' (referring to an individual's ability to accomplish a task successfully) comes to the forefront as students navigate contextualizing and integrating their learning. Realistic settings involving multiple touchpoints, such as business incubators, may be an impartial source for determining a student's competence and ability to tackle challenges. This may lead to a mechanism for validating competency. This study helps extend SCCT by providing research on a student's journey as opposed to focusing on specific destinations. In addition, it also contributes to the literature on HIPs by showing that incubator-based learning can provide students with an active learning environment to help them gain workforce-related skills.

Conclusion

The study explored how HEIs can help students develop the type of career-related skills which are necessary in the workforce. Indeed, HEIs have enormous opportunities to become catalysts in helping prepare college graduates for well-paying careers. As such, it is critical that stakeholders work together in assisting students with successful integration into the workforce.

As this article illustrates, the monumental shifts occurring in the workforce will probably continue (Bandura, 2002). Therefore, it is imperative that HEIs provide the learning environments necessary to help individuals prepare for a workforce filled with jobs that are not even imaginable today. Obviously, there will not be one all-encompassing answer to the challenges that lie ahead for HEIs and workforce development initiatives. This enormous task will involve putting differences aside and looking at concrete ways to overcome the obstacles awaiting the global marketplace.

Implications for policy and practice

There is a need for innovative approaches in education to help students develop stronger learning and thinking skills (Arum and Roska, 2014; Kuh, 1993; Kuh et al., 2006). A variety of dynamic, authentic learning experiences encouraging students to use their existing knowledge to help integrate topics and form new knowledge is imperative (Corbett, 2005; Holcomb et al., 2009). A key is providing variations in learning experiences to ensure diversity and breadth for knowledge assimilation (Holcomb et al., 2009) and intellectual maturity.

Most educational opportunities are segmented by various programs or colleges within a university and do not require students to compile all their coursework and apply it to work-based or career-related scenarios. For instance, capstone projects (a HIP) are usually program- and/or discipline-specific (Bass, 2012), which may hinder the lateral thinking process or the development of holistic viewpoints which are necessary skills in many careers (Arum and Roska, 2014). Some students need additional time to comprehend and process information before it resonates with them (Bergsteiner et al., 2010), so designing career-focused HIPs that are filled with ambiguous situations and embedded with self-efficacy supports can help students successfully prepare for transitions to the rapidly evolving workforce (Seibert et al., 1999).

This study demonstrates that challenging environments can inspire students to reach their potential by actively experimenting with various solutions until they have identified the correct one (Lent and Brown, 2013). SCCT shows us that students benefit from learning environments that strengthen their self-efficacy (Lent et al., 2002). Additionally, intervention-based aspects can be implemented to help struggling individuals who underestimate their abilities (Lent et al., 2002). Undoubtedly, imparting proper efficacy levels in students is important. It takes multiple attempts to develop skills (Pascarella and Terenzini, 2005), so it is critical that students are provided with

opportunities to explore, experience failure and learn to persevere despite setbacks.

Business incubators appear to provide an impartial non-collegiate setting in which to determine a student's ability to tackle challenges. If college students are provided with a specific scenario, they should be able to extrapolate relevant information, contextualize the situation and ultimately arrive at a reasonable solution (Bandura, 1997). Students are accustomed to the familiarity of academic settings. However, the findings suggest that academic settings can be drastically different from those of the workplace (Bergsteiner et al., 2010). Students may need encouragement to work outside of environments to which they are accustomed, expand their horizon and embrace different surroundings. Perceived barriers may cause those with lower self-efficacy to hesitate about working in incubators but, as their confidence and self-efficacy increases, their initial perceptions or apprehensions may be diminished (Lent et al., 2002).

Microbusinesses make meaningful contributions to their local communities. Obviously, it is important to provide resources for potentially high-growth start-ups, but it is essential to incorporate support mechanisms for the everyday owner who has a stable, albeit much slower growth trajectory. Microbusinesses are likely to have meaningful projects that can help with students' career preparation. It is recommended that HEIs look towards local economic development efforts to engage directly with microbusinesses.

Study limitations and future research opportunities

This article brings awareness about a multidisciplinary form of career-related experiential learning. A key finding from this study was the identification of business incubators as catalysts for active learning environments. As the Fourth Industrial Revolution gains traction, it is beneficial to dig deeper into these specific types of learning environment to determine whether an optimal number or specific project has the strongest effect on helping students prepare for various career paths. Specifically, future research opportunities might include

- *Active and applied learning opportunities.* A study could expand the literature by investigating various types of activities to determine whether there is a difference in learning or growth of the student. Another view would be whether incubator-based learning affects classroom learning.
- *Self-efficacy levels.* A study measuring a student's self-efficacy before and after participation in a business incubator could provide insight into whether the experience influences perceived barriers or alters a predetermined career pathway.

- *First-generation college students.* A study might explore whether working in career-related active and applied learning opportunities provides tangible experiences that help students gain a better understanding about unfamiliar career paths.

There were limitations to the present study. Even though triangulation of data was achieved through the data collection process, self-reflections and interpretations constituted much of the findings, which could lead to retrospective bias. Second, snowball sampling (Creswell and Miller, 2000) was used to identify students who were interested in taking part in the study. Gaining access to students at each of the HEIs was difficult, which is why the snowball sampling technique was used. This was a multisite case study involving 5 incubators, 24 students, 5 directors and 3 faculty members within a 50-mile radius of one another. Thus, different findings might emerge in another location, and studies examining other regional areas or larger studies involving quantitative inquiries are warranted. Finally, the study lacked perspectives or insights from entrepreneurs and employers; future research could explore these additional perspectives to determine whether there is alignment with the findings of this study.

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