Embedding Informational Interviews into Postsecondary Curriculum

Abdullah Al-Ani, Terryn Bourhill, & Derrick E. Rancourt
Cumming School of Medicine, University of Calgary

Abstract

The informational interview (II) is a career exploration technique typically used to seek advice and gain insight about a specific industry and career paths. IIs can be used broadly to support students' exploration of careers and beyond. While IIs are classically used by job seekers to identify potential positions to be filled, they can also be used to enhance postsecondary education (Decarie, 2010). In its simplest form, IIs present opportunities for students to have conversations with professionals who can serve as models for students' futures. Although this approach has been used in business school curricula (Mulvaney, 2003; Sheppard, 1989), it has not been used in other academic disciplines or faculties to any significant extent. As a form of experiential learning associated with superior educational outcomes, IIs activate both sides of the brain, create episodic memory and appeal to multiple intelligences. By pushing students out of their comfort zone to talk to working professionals, IIs promote the acquisition of tacit knowledge where they visualize their future selves. Beyond being used to promote effective career exploration, IIs can be used to facilitate institutional change towards more community engagement in inquiry-based learning and research theses in any discipline.

Background

An informational interview is a traditional career exploration technique. Students have a conversation with professionals where they seek advice on their career (Fiske, 2016). They can also be used to find information on industry and specific workplaces. A form of rapid prototype testing (Burnett & Evans, 2016), after each interview, the interviewer makes changes to their career vision and plan – refining it through additional interviews. These interviews help students build a network of contacts in a specific professional area. They can also benefit the interviewees by helping them to build a candidate pool for future hires. Although it is taboo for interviewers to ask for employment, IIs often lead to employment via planned happenstance (Mitchell, Al Levin, & Krumboltz, 1999). This makes it a more effective job search strategy than conventional applications because there is a significant hidden job market (Burnett & Evans, 2016).

We have been using IIs in our biomedical teaching, as a platform to promote career exploration (Rancourt, 2017). Students are assigned a career path to research and are required to perform an interview with someone in the field. They then present their findings to the class in a distributed learning approach (Table 1). Students typically are only focused on technical positions inside life science companies namely scientists. Since these jobs are often limited in number, we show students there are many other career paths they can consider, which leverage their science expertise. Such careers can be in the regulatory, business, and/or financial area. Students teach their peers how their technical knowledge and their transferable skills (communication, leadership, teamwork, etc.) are used within a career. Having researched their assigned career before their interview, students present the credentials and competencies necessary to fulfill the position.

While some instructors may view our assignment as a distraction from the "important" discipline-specific material that must be taught, most of the student's work is independent and outside class time. Of course, other approaches may be used to share students' research with peers. For instructors who do not want to devote important class time to student presentations, we suggest two approaches. The first is to have students submit written work. This can be devel-

oped into a compendium or reference guide that can be an excellent resource for the department and faculty. Although we previously considered this approach, we were recently waylaid by the development of an excellent series of resources (The Cheeky Scientist Association, 2016). Instead, last year, we held our first alternative career symposium, where graduate students presented their assigned career and II experience to interested students and faculty in parallel sessions (Table 1).

Another approach we have considered is to have students choose their own career to explore rather be assigned one. The value is that students can be focused on a career that may be meaningful to them and this is some of the feedback that we have received from students. One of the downsides of this approach is that students may not be cognizant of the vista of ca-

reer opportunities that are in front of them. Therefore, a compendium of careers developed in previous years can be valuable. New research from Gallup suggests that one of the most productive things that an instructor can do for their students is to display an interest in them as people and to discuss their career interests (Gallup-Purdue Index 2017). As of late, we have met with undergraduate and graduate students individually after they reviewed our career compendium (mentioned above) to help them focus on a career path to explore. We took care to make sure that the student is truly interested in this career path and not short cutting the process (i.e. simply interviewing a family friend). Due diligence will include having the student report the networking that they did to arrange their interview(s).

Part of the students' research includes identifying indi-

viduals who work in their assigned career. To assist with their networking, we introduce them to LinkedIn and networking theory. We remind them to leverage the network of their parents, family, and friends. Students are encouraged to "play the student card" and to leverage the kindness of strangers who are asked to help (Stanbury, 2010a). We find that students are very resourceful. Rarely, if ever, do we need to intercede to help students with finding an interviewee.

Students ask interviewee(s) questions in four areas that are typical of an II: Personal, Qualifications, Landscape, and Leads (Fig. 1). Since people like to talk about themselves, personal questions represent an ice breaker but often get to an interviewee's personal story and how they got to the position. Typically, the interviewee will then ask the student

Table 1.

Science and Non-Science Careers in Biotechnology		
Science	Administration	Business
Clinical Trials Manager	Communications	Business Development
Data Analyst	Ethics	Competitive Intelligence
Medical Liaison	Grants Facilitator	Market Analyst
Project Manager	Human Resources	Financial Analyst
Quality Control	Information Management	Investor Relations
Technical Support	Policy	Management Consulting
IP Manager	Regulatory Affairs	Stock Analyst
Patent Agent	Writer	Venture Capital Analyst
Scientist	Logistics	Sales
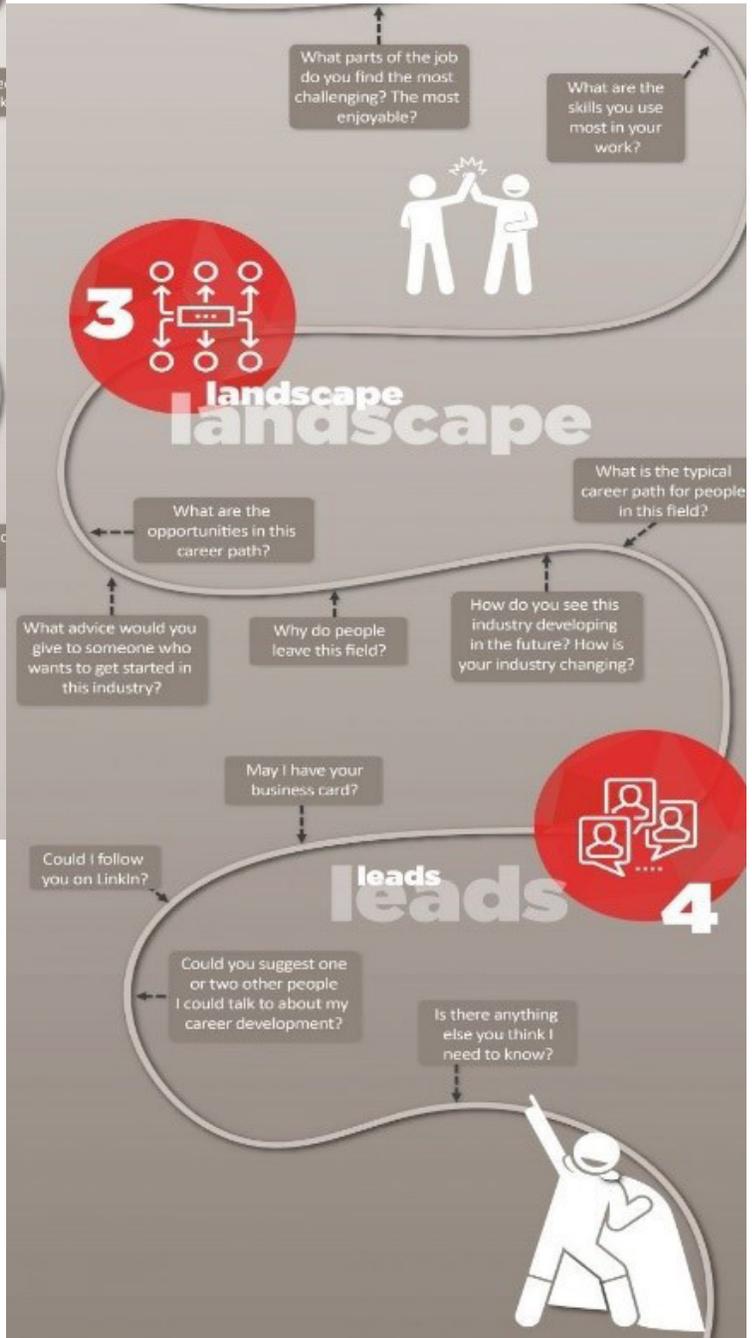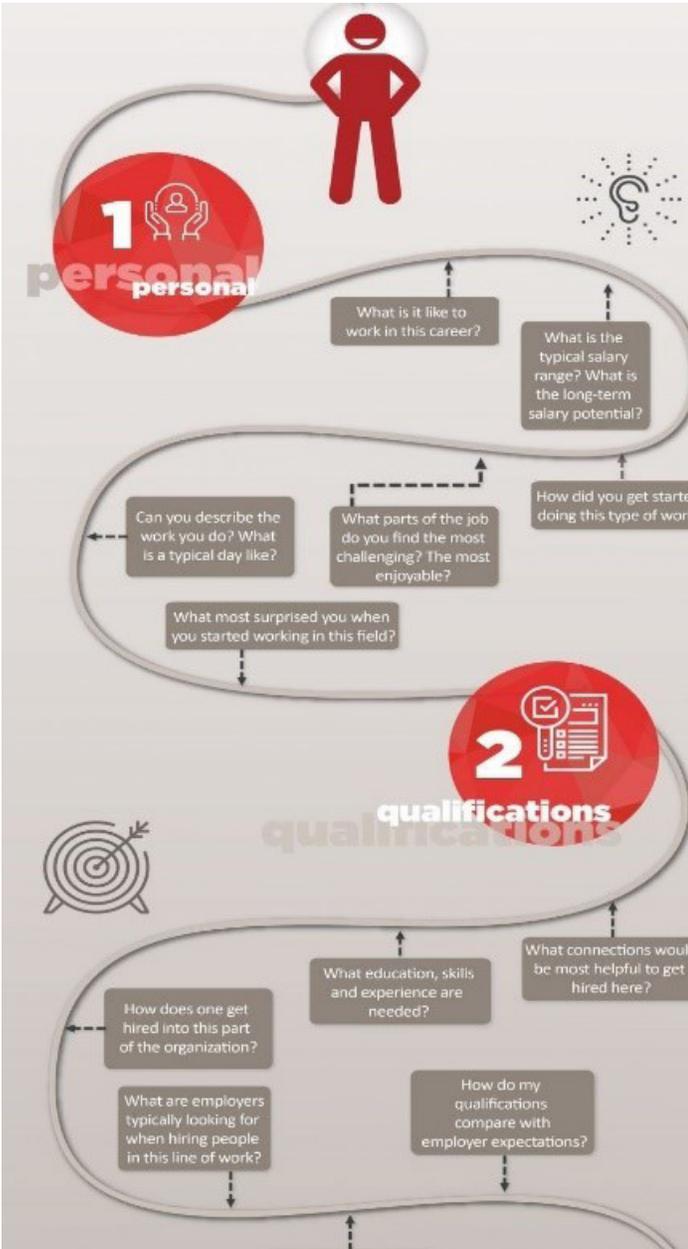
about themselves. This is a perfect opportunity for students to move to the next segment, asking what qualifications they might require to transition into the interviewee's position. Students can also ask about what transferable skills are important and how to develop these whilst completing their degree. Here it is important not to interview someone who isn't too senior, so that a realistic transition plan can be identified. Landscape is also important to discuss, because this may or may not threaten to change the plan. For example, it might be good to know if artificial intelligence will disrupt a career path of interest, so that students might take the opportunity to become better equipped for the position while still in school. Finally, we suggest that students might ask for leads to interview other people. Although this is not a requirement, many students do interview more than one work professional because of leads and because they have casted a wide net to find their interviewee. By interviewing more than one professional in a role, students have the advantage of presenting different perspectives of the career, reinforcing the need to interview multiple people in career exploration.

Feedback from this assignment has been overwhelmingly positive. While most students were initially fearful of the interview, they learned that most (but not all) working professionals are generous with their time, especially when it comes to students. Through this exercise, students seem to enjoy meeting new professionals and appreciate the value of networking (Teller, 2017). Through class discussions, presentations and workshops, students recognize that interviews can lead to non-academic mentors, internships and even job offers (Jablonski, 2015). Many of the interviewees indicate to their student interviewers that they appreciated the value of this exercise. In some cases, even bystanders sitting next to the interview commend students on the activity.

Learning Theory

Experts suggest that because of the significant hidden job market, it is far more effective to perform IIs than to apply for jobs (O'Brien, 2015). Despite this, most students are reluctant to pursue them when recommended by university career counselors. Students are busy. Drive theory suggests that most students will not be motivated to pursue an uncomfortable task such as an II. Students will procrastinate career exploration according to the future time theory (Taber, 2013). However, when making it an in course assignment, IIs suddenly become part of students' hierarchy of needs (Maslow, 1943)

As an experiential learning process, IIs are meaningful because they are motivating (D. Kolb, 1984). Students pay more attention while participating. Experiential learning activates both sides of the brain. It appeals to multiple intelligences and creates episodic memory (A. Y. Kolb & Kolb, 2005). Students' personal associations form the basis for remembering and understanding.

The Yerkes-Dodson law (Dodson & Yerkes, 1908) suggesting that anxiety improves performance has been extended to learning theory (Senninger, 2000) and is loosely based upon Karl Rohnke's Comfort, Stretch, Panic model of learning. According to Rohnke, spending too much time in the Comfort Zone can lead to a shrinking of capabilities. Students need to step into the stretch zone where activities challenge but do not overwhelm them.

In alignment with Kolb's observations about experiential learning, there is a positive correlation between Yerkes-Dodson performance and mild stress hormone (i.e. glucocorticoid) production, which plays a role in the process of forming long-term memories (Lupien, Maheu, Tu, Fiocco, & Schramek, 2007). In order for such a mild stress response to be triggered, the event has to be interpreted by the student as being novel, unpredictable, uncontrollable and/or a socio-evaluative threat (Lupien et al., 2007).

In our experience, a student's first II is quite stressful. Most students are reluctant to seek advice for fear of looking incompetent. However, once students get over the fear, they learn that most working professionals are giving of their time and are interested in helping students. Based on this first experience, students see the value of IIs and adopt it as part of their personal and professional growth.

Many students are still developing their communicative and self knowledge. Experiences such as IIs can be extremely rigorous and arguably more valuable in the long term because little discipline-specific knowledge may be used in students's future career (Abel & Deitz, 2014).

IIs are also a form of transformational learning (Cranton & Roy, 2003). Most of our students are in the life sciences. From an adult learning perspective, they are exposed to both technical and communicative knowledge (Mezirow, 1991). However, by encouraging them to reflect on and to share their II experience, students encounter emancipatory knowledge (Habermas, 2015), which forms the basis of change. Most students continue the II process outside of class. Many develop working relationships with their interviewees, be it as protégés, short-term projects, and/or internships. Some students are offered jobs by their interviewees, which reinforces to students and their peers that jobs are often procured through networking.

Although students are reticent to seek advice for fear of looking incompetent, research suggests that those who seek advice on complex problems (such as career development) are viewed to be more competent (Brooks, Gino, & Schweitzer, 2015). Advice seeking is an effective strategy for students to exercise influence when lacking authority (Liljenquist & Galinsky, 2007; Yukl & Tracey, 1992). This explains why we observe that some interviewees invest themselves into the career aspirations of their interviewers.

Our II assignment gives students the opportunity to imagine themselves in a professional role which motivates them to focus on their personal career development (Cabras & Mondo, 2017; Casey Ozaki, 2016; Stevenson & Clegg, 2011; Strauss, Griffin, & Parker, 2012). At the undergraduate level, we expose third year life sciences students to careers via our "Biotechnology Business and Profession" course. The beginning of third year is a perfect time to plant the career exploration seed. At this time, many students are confused as to whether they are even qualified to procure a job straight out of their bachelors. By showing them a vista of potential careers, students learn that there are many potential entry-level positions (i.e. sales, market analyst, patent agent) that they are qualified to pursue. The onus is on them to position themselves to be competitive. Others require higher education, such as the pursuit of graduate school. However, rather than simply telling them that graduate school will increase the number of opportunities they can pursue in the future, through our distributed II process, students show each other how graduate school, or some other form of higher education can better qualify them for certain careers.

We are also exposing first year biomedical engineering (BME) graduate students to IIs via their first semester core course focused on communication and career development. Much like the situation above, this timing is perfect for master's students who have a two-year runway to explore careers while pursuing their research projects. For PhDs, our career development course would be better served post candidacy, as is done at other institutions (Van Houten, 2016). Despite the long lead time for PhDs, we emphasize to PhD students that because the PhD job market is hyper-competitive, the onus is on students to develop a network where they become professionally know and to pursue side projects (i.e. gigs, side hustles) to help develop their work portfolio.

Discussion

A significant amount of concern about the mission and future of higher education has been mounting over the last 30 years (Etzkowitz, Webster, & Healey, 1998). Some argue that our current higher education system is lagging and failing to respond to the rapid changes and needs in our society making higher education less relevant to our daily societal demands (Newman, Couturier, & Scurry, 2004). Many leading companies no longer require a four-year undergraduate degree to be hired (Akhtar, 2019). The gap between our society and the higher education is partially attributed to the lag in curriculum re-evaluation and renewal by academic institutions (Desha, Hargroves, & Smith, 2009). Indeed, universities in North America are too slow to respond to changes in the market. This is partially because academic

institutions are removed from day-to-day life outside the university. Some argue that universities and colleges are now suffering from a decrease in public confidence, particularly in their mission to serve society (Boyer, 1989, 1996). For this reason, academic institutions in North America have identified community engagement as a new strategic priority (Weerts & Sandmann, 2010).

Community engagement can be defined as a collaboration or partnership between academic institutions and their communities to exchange knowledge and resources (Weerts & Sandmann, 2010). It is important that community engagement is not confused with community services and outreach. While community outreach is perceived as a one-way approach to deliver services and educate the public, community engagement can be thought of as a two-way approach where academic institutions and key community entities collaborate on how to best attend to public needs (Barker, 2004; Boyer, 1996; Weerts & Sandmann, 2010). We believe that IIs have the potential to serve as a platform to harbor a 'two-way' approach of engagement between academic institutions and various communities. This comprehensive level of engagement between university students and various communities can attract support from many sources, enhancing the prospects of higher education (Fitzgerald, Bruns, Sonka, Furco, & Swanson, 2012). We propose that implementing IIs into the curriculum of these academic

programs can establish yet another channel of collaboration with these stakeholders. Through IIs, students and trainees can learn about the societal demand and plan to actively utilize and supplement their education to meet these demands.

To address these societal demands, academic institutions can use various strategies to engage stakeholders. These strategies are not only employed as a moral duty to the community but also to enhance student engagement and learning outcomes (DeClou, Peters, & Sattler, 2013). The Higher Education Quality Council of Ontario has suggested several experiential learning programs to help in community engagement including: community service learning (CSL), community-based learning (CBL) and in-course learning activities (ICLA) (Lenton et al., 2014). We believe that supplementing current curricula with IIs will further enhance student engagement and educational outcomes by giving them license to create their own experiential learning opportunities by leveraging their community.

While being a full-time student can be isolating from the trends and demands of the workforce, IIs can help students stay current with these trends. Learning about the ever-changing demands of the market can help students customize their education to address expectations (Watson & Watson, 2013). This is especially important for graduate students conducting research at the university. Conducing IIs with the stakeholders is vital to understand-

ing the multi-dimensionality of the conducted research and how it affects society (Ahmed & Palermo, 2010). This can potentially inform the experimental design of these research projects to make them more applicable and competitive (Ahmed & Palermo, 2010). Students can leverage II to further their careers in academia itself. From scouting out summer internships to connecting with principal investigators and investigating potential post-doctoral positions students can create an expansive network throughout their academic careers that will be critical once they graduate and decide to pursue research as a full-time career.

IIs also present a great opportunity for students to showcase their expertise and become visible beyond academia (Orr, Sherony, & Steinhaus, 2011). Indeed, IIs represent a great opportunity for students to enhance their network beyond their classmates and professors. While academia and research are often isolating for students, leveraging the community through IIs can be thought of as a tool to stay connected with the outside world.

While institutions feel satisfied with their student career preparation (Bok, 2017), employers gave students low grades in a multitude of learning outcomes, including those deemed most important for career success (Hart Research Association, 2015). A similar tenor was noted by recent graduates, who also suggested that "unpreparedness" was a real problem for graduates (Bentley University, 2014; Public Agenda,

2014). The recognized "skills gap" that exists between institutions and the workplace may be in part due to poor employer effort to train new hires (Cappelli, 2012; Smith & LaVelle, 2013).

Many institutions have responded to the so-called skills gap by introducing work-integrated learning (WIL) opportunities, such as co-ops, practicum and internships into curriculum (Sattler, 2011). While suitable for professional programs (i.e. engineering, nursing, business, and education), universities are not prepared to implement this approach in all of its programs (Peters, 2012). This is because co-op programs are resource intensive, requiring coordinators who help students to arrange these opportunities. Moreover, it can be argued that there may not be enough WIL experiences to go around.

Recently, it has been argued that the skills gap is actually a "skills awareness gap" (Craig & Markowitz, 2017). This is because employers do not see the skills that students have acquired through their coursework and co-curricular activities. In order to address this problem, colleges and universities need to develop systems that help students to recognize their achievements and communicate the underlying skills (teamwork, leadership, communication, problem-solving, grit) to employers (Stanbury, 2010a).

Curriculum mapping and syllabuses should communicate, and students should be encouraged to reflect on the underlying competencies that are being learned in specific courses. Students should maintain a co-curricular record demonstrating that their learning is not restricted to the classroom. Moreover, online tools such as ePortfolio can be used to help students to inventory and reflect on the competencies they've developed in university. For instance, in Great Britain post-secondary students must prepare and update a mandatory professional development plan. This not only promotes competency self-reflection but also encourages goal orientation, which can be communicated to mentors and employers (Quality Assurance Agency for Higher Education, 2001).

Currently 73% of workers are employed in positions unrelated to their area of study (Abel & Deitz, 2014), which reinforces the argument that universities do not teach a vocation. If many future careers have yet to be imagined, students must be encouraged to pursue career exploration as part of their education. IIs provide an avenue for students to learn how to explore potential career paths by leveraging the community. For example, in the life sciences we encourage students to explore careers that are pertinent but peripheral to science including regulatory, business development, market and finance. In these careers a strong understanding of science may be required, yet students are taught to think flexibly about their careers. This flexibility is especially important when considering a career in a smaller city, where careers specific to a major may not be available or difficult to procure (Abel & Deitz, 2014).

Poor connection between work and interest is partly responsible for the significant economic burden of mental health (Faragher, 2005). Arguably most students pick specific disciplines in University based upon previous positive exposure in high school. However, attitude towards said discipline can change, especially when viewed as being replete of career opportunity. We have observed that students are motivated when exposed to a vista of careers via IIs, even when their pursuit requires stretching or pivoting. By cycling through different IIs, students build resilience by pivoting to careers that match their interests. By combining career exploration with continuous learning, students are taught to be nimble and to pursue a career of their own design.

To make higher education more relevant and sustainable, academic institutions must prepare their graduates to the world beyond academia. We believe that introducing IIs into curriculum will address some of the mentioned problems and allow students to stay in touch with the real world and its professional demands. Traditionally universities have outsourced this job to career counselling offices in hopes to fill this gap. However, career counselling offices are typically unable to provide support multiple disciplines beyond the traditional workshops and organization of career fairs. Since these offices provide campus wide services, they struggle to provide discipline specific advice and support. For

Embedding Informational Interviews into Curricula

40

CANADIAN
JOURNAL OF
**CAREER
DEVELOPMENT**

REVUE
CANADIENNE DE
**DÉVELOPPEMENT
DE CARRIÈRE**

this reason, we believe that career mapping should be introduced at the departmental level. A practical way to achieve this goal would be through the implementation of the II assignment. This would allow departments to deliver discipline specific career development training.

Recommendations

Many universities have approached the problem of workplace transition through the introduction of workplace experiences (Peters, 2012; Sattler, 2011). While this approach can be applied to professional programs, it is only sustainable because there is a receptor market for students. In Canada, for example, many undergraduate life science programs have established co-ops where students have the option to pursue work terms. Unfortunately, since the biotech sector is small in Canada, many students do not work inside companies. Rather, they find research positions inside universities (how is this any different from a summer research internship?), which helps to promote a revolving door where students transition to graduate school instead of industry, thus kicking the problem of career transition down the road.

One problem with co-ops from our perspective is that it tends to suppress career exploration when work experiences are handed to students on a silver platter. This, plus the sunk-cost fallacy (Arkes & Blumer, 1985) of discipline-specific education is what promotes the current herd

approach to career. However, just like we encourage students to choose a discipline, we should be encouraging them to pursue a career that interests them. This is especially poignant when we consider that only 27% of graduates work in jobs directly related to their degree (Abel & Deitz, 2014).

For students to pursue career exploration, it must be grounded. It's not good enough that universities establish career centers that help students to explore careers. Wayfinding must have a starting point, which is the discipline. Just as we do in our life science courses, individual disciplines need to go beyond the obvious careers (i.e. the technical), moving into the less obvious careers (i.e. regulatory, business, finance, etc.), where discipline-specific knowledge is leveraged.

Once students' minds are opened, they begin to see that it is also possible to abandon the sunk-cost fallacy and recognize that many of the competencies that they have practiced during their university education, such as critical thinking, enables them to pursue other careers that may be completely away from their discipline. For example, we have a strong energy sector in Calgary, so we encourage life science students to think creatively about mapping themselves to the energy sector.

We believe that IIs can be more broadly applied in university and have begun to work with other faculties at the University of Calgary to apply our approach. This assignment is best performed in smaller classes, namely disci-

pline-specific, senior undergraduate or graduate level core courses. The first step is to develop a list of 20 to 30 careers. It is simply a matter of having instructors develop a list of careers for students to draw from. While it may be challenging for an instructor to develop the list in isolation, colleagues can help, especially when they reflect on where some of their former trainees and peers have landed career wise. The careers are not important. Rather, it's the scope that is central, as it pushes students to think about careers beyond the standard opportunities offered to them.

Finally, as stated above, we believe that IIs can be more than a career mapping tool and can be to strengthen inquiry-based-learning and research theses in any discipline. Currently we are planning to develop a new graduate training program where IIs are used to recruit outside stakeholders and mentors early in the research design process.

References

Abel, J., & Deitz, R. (2014). Agglomeration and job matching among college graduates. Retrieved from https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr587.pdf

Ahmed, S. M., & Palermo, A.-G. S. (2010). Community Engagement in Research: Frameworks for Education and Peer Review. American Journal of Public Health, 100(8), 1380–1387. https://doi.org/10.2105/

AJPH.2009.178137

Akhtar, A. (2019). Top companies are hiring more candidates without 4-year degrees - Business Insider. Retrieved October 7, 2019, from Business Insider website: https://www.businessinsider.com/top-companies-are-hiring-more-candidates-without-a-4-year-degree-2019-4

Arkes, H. R., & Blumer, C. (1985). The psychology of sunk cost. Organizational Behavior and Human Decision Processes, 35(1), 124–140. https://doi.org/10.1016/0749-5978(85)90049-4

Barker, D. (2004). The Scholarship of Engagement: A Taxonomy of Five Emerging Practice. Journal of Higher Education Outreach and Engagement, 9(2), 123–137.

Bentley University. (2014). The prepared U project: An in-depth look at millennial preparedness for today's workforce. Retrieved July 30, 2018, from https://www.bentley.edu/files/prepared/1.29.2013_BentleyU_Whitepaper_Shareable.pdf

Bok, D. (2017). The struggle to reform our colleges (Vol. 105). Princeton University Press.

Boyer, E. L. (1989). Scholarship reconsidered: priorities of the professioriate (1st ed.). New Jersey: The Carnegie Foundation for the Advancement of Teaching.

Boyer, E. L. (1996). The Scholarship of Engagement. Bulletin of the American Academy of Arts and Sciences, 49(7), 18. https://doi.org/10.2307/3824459

Brooks, A. W., Gino, F., & Schweitzer, M. E. (2015). Smart People Ask for (My) Advice: Seeking Advice Boosts Perceptions of Competence. Management Science, 61(6), 1421–1435. https://doi.org/10.1287/mnsc.2014.2054

Burnett, B., & Evans, D. (2016). Designing your life: How to build a well-lived, joyful life (1st ed.). New York: Alfred A. Knopf.

Cabras, C., & Mondo, M. (2017). Future Orientation as a Mediator Between Career Adaptability and Life Satisfaction in University Students. Journal of Career Development, 89484531772761. https://doi.org/10.1177/0894845317727616

Cappelli, P. (2012). Why good people can't get good jobs: the Skills gap and what people can do. Wharton Digital Press.

Casey Ozaki, C. (2016). Possible Selves, Possible Futures. Journal of College Student Retention: Research, Theory & Practice, 17(4), 413–436. https://doi.org.10.1177/152102511557 9248

Craig, R., & Markowitz, T. (2017). The Skills Gap Is Actually An Awareness Gap -- And It's Easier To Fix. Retrieved from Forbes Magazine website: https://www.forbes.com/sites/ryancraig/2017/03/17/the-skills-gap-is-actually-an-awareness-gap-and-its-easier-to-fix/#4daa50883ff4

Cranton, P., & Roy, M. (2003). When the Bottom Falls Out of the Bucket. Journal of Transformative Education, 1(2), 86–98. https://doi.org/10.1177/1541344603253928

Decarie, C. (2010). Literacy and Informational Interviews. Business Communication Quarterly, 73(3), 306–317. https://doi.org/10.1177/108056991037 6533

DeClou, L., Peters, J., & Sattler, P. (2013). The University of Waterloo and Work-Integrated Learning : Three Perspectives The Higher Education Quality Council of Ontario. Toronto.

Desha, C. J., Hargroves, K., & Smith, M. H. (2009). Addressing the time lag dilemma in curriculum renewal towards engineering education for sustainable development. International Journal of Sustainability in Higher Education, 10(2), 184–199. https://doi.org/10.1108/146763709 10949356

Dodson, J. D., & Yerkes, R. (1908). The relation of strength of stimulus to rapidity of habit-formation in the kitten. Journal of Animal Behavior, 5(4), 330–336. https://doi.org/10.1037/h0073415

Etzkowitz, H., Webster, A., & Healey, P. (1998). apitalizing knowledge: New intersections of industry and academia (1st ed.). New York: Suny Press.

Faragher, E. B. (2005). The relationship between job

satisfaction and health: a meta-analysis. Occupational and Environmental Medicine, 62(2), 105–112. https://doi.org/10.1136/oem.2002.006734

Fiske, P. (2016). For your information. Nature, 538(7625), 417–418. https://doi.org/10.1038/nj7625-417a

Fitzgerald, H. E., Bruns, K., Sonka, S. T., Furco, A., & Swanson, L. (2012). The centrality of engagement in higher education. Journal of Higher Education Outreach and Engagement, 16(3), 7–28. https://doi.org/10.1080/0022250X.1999.9990219

Habermas, J. (2015). Knowledge and human interests. ohn Wiley & Sons.

Hart Research Association. (2015). Falling Short? College Learning and Career Success. Retrieved July 30, 2018, from Association of American Colleges & Universities website: https://www.aacu.org/leap/public-opinion-research/2015-survey-falling-short

Jablonski, C. (2015). Informational Interview Delivers a Lucky Break. Retrieved from Cumming School of Medicine - Graduate Science Education website: https://cumming.ucalgary.ca/gse/professional-development/informational-interview-delivers-lucky-break

Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. Academy of Management Learning & Education, 4(2), 193–212. https://doi.org/10.5465/amle.2005.17268566

Kolb, D. (1984). The Process of Experiential Learning. In Strategic Learning in a Knowledge Economy (pp. 313–331). https://doi.org/10.1016/B978-0-7506-7223-8.50017-4

Lenton, R., Sidhu, R., Kaur, S., Conrad, M., Kennedy, B., Munro, Y., & Smith, R. (2014). Community Service Learning and Community-Based Learning as Approaches to Enhancing University Service Learning. Toronto.

Liljenquist, K., & Galinsky, A. (2007). Turn your adversary into your advocate. Negotiation, 10(5), 1–3.

Lupien, S. J., Maheu, F., Tu, M., Fiocco, A., & Schramek, T. E. (2007). The effects of stress and stress hormones on human cognition: Implications for the field of brain and cognition. Brain and Cognition, 65(3), 209–237. https://doi.org/10.1016/j.bandc.2007.02.007

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50(4), 370–396. https://doi.org/10.1037/h0054346

Mezirow, J. (1991). Transformative dimensions of adult learning. San Francisco, CA: Jossey-Bass.

Mitchell, K. E., Al Levin, S., & Krumboltz, J. D. (1999). Planned Happenstance: Constructing Unexpected Career Opportunities. Journal of Counseling & Development, 77(2), 115–124. https://doi.org/10.1002/j.1556-6676.1999.tb02431.x

Mulvaney, M. K. (2003). The Information Interview: Bridging College and Beyond. Business Communication Quarterly, 66(3), 66–70. https://doi.org/10.1177/108056990306600307

Newman, F., Couturier, L., & Scurry, J. (2004). The Future of Higher Education : Rhetoric, Reality, and the Risks of the Market (1st ed.). Jossey-Bass.

O'Brien, B. (2015). Market, The hidden job. Retrieved from Nature jobs website: http://blogs.nature.com/nature-jobs/2015/03/19/the-hidden-job-market/

Orr, C., Sherony, B., & Steinhaus, C. (2011). Employer perceptions of student informational interviewing skills and behaviors. American Journal of Business Education, 4(12), 23–32.

Peters, J. (2012). Faculty experienes with and perception of work-Integrated Learning in Ontario's Postsecondary Sector. Retrieved from Higher Education Quality Council of Ontario website: http://www.heqco.ca/SiteCollectionDocuments/WILFacultyENG.pdf

Public Agenda. (2014). Profiting higher education: What students, alumni, and employers think about for-profit colleges. Retrieved from https://www.publicagenda.org/files/Profit-

ingHigherEducation_PublicAgenda_2014.pdf

Quality Assurance Agency for Higher Education. (2001). Guidelines for HE progress files. Retrieved from http://dera.ioe.ac.uk/8480/1/profile2001.pdf

Rancourt, D. (2017). Informational Interviews: More Than a Career Mapping Tool. Retrieved from Taylor Institute for Teaching and Learning website: http://connections.ucalgaryblogs.ca/2017/04/06/informational-interviews-more-than-a-career-mapping-tool/

Sattler, P. (2011). Work-Integrated Learning in Ontario's Postsecondary Sector. Toronto.

Senninger, T. (2000). The Learning Zone Model. Retrieved from ThemPra Social Pedagogy website: http://www.thempra.org.uk/social-pedagogy/key-concepts-in-social-pedagogy/the-learning-zone-model/

Sheppard, S. (1989). II The Informational Inter- Ii View as a Tool for Sharp Ening Oral, Written, and Interviewing Skills. The Bulletin of the Association for Business Communication, 52(2), 19–20. https://doi.org/10.1177/108056998905200208

Smith, D., & LaVelle, K. (2013). The new skills imperative: Reconnecting work with the workforce. Retrieved from Accenture website: https://www.accenture.com/ca-en/insight-outlook-new-skills-imperative-reconnecting-work-with-workforce

Stanbury, D. (2010a). The kindness of strangers. Education + Training, 52(2), 100–116. https://doi.org/10.1108/00400911011027707

Stanbury, D. (2010b). The kindness of strangers: How careers educators and the wider academic community can help each other. Education + Training, 52(2), 100–116. https://doi.org/10.1108/00400911011027707

Stevenson, J., & Clegg, S. (2011). Possible selves: students orientating themselves towards the future through extracurricular activity. British Educational Research Journal, 37(2), 231–246. https://doi.org/10.1080/01411920903540672

Strada-Gallup 2017 College Student Survey. (2017). In Gallup & Strada Education Network. Retrieved from http://stradaeducation.gallup.com/reports/225161/2017-strada-gallup-college-student-survey.aspx

Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: How salient hoped-for identities motivate proactive career behaviors. Journal of Applied Psychology, 97(3), 580–598. https://doi.org/10.1037/a0026423

Taber, B. J. (2013). Time Perspective and Career Decision-Making Difficulties in Adults. Journal of Career Assessment, 21(2), 200–209. https://doi.org/10.1177/1069072712466722

Teller, E. (2017). Teaching the Importance of Networking by Conducting Informational Interviews. Journal of the Academy of Business Education, 18, 417. Retrieved from http://mendeley.csuc.cat/fitxers/e226cad27fc6506eb9afac16fe26c9d3

The Cheeky Scientist Association. (2016). Top 20 Industry Positions for PhDs. Retrieved from https://cheekyscientist.com/guidebook/

Van Houten, A. (2016). Professional development program teaches valuable soft skills to science PhDs. Retrieved from University Affairs website: https://www.universityaffairs.ca/career-advice/career-advice-article/professional-development-program-teaches-valuable-soft-skills-science-phds/

Watson, W. R., & Watson, S. L. (2013). Exploding the Ivory Tower: Systemic Change for Higher Education. TechTrends, 57(5), 42–46. https://doi.org/10.1007/s11528-013-0690-9

Weerts, D. J., & Sandmann, L. R. (2010). Community Engagement and Boundary-Spanning Roles at Research Universities. The Journal of Higher Education, 81(6), 632–657. https://doi.org/10.1080/00221546.2010.11779075

Yukl, G., & Tracey, J. B. (1992). Consequences of influence

tactics used with subordinates, peers, and the boss. Journal of Applied Psychology, 77(4), 525–535. https://doi.org/10.1037/0021-9010.77.4.525