



McGill
UNIVERSITY

Graduate & Postdoctoral Studies

Individual Development Framework

Working Group Report

TABLE OF CONTENTS

Executive Summary.....	3
Introduction	4
Background and Objectives.....	4
Framework Working Group.....	4
Framework Content	5
Vitae Researcher Development Framework (2011).....	5
ADÉSAQ (2015).....	6
Adoc (2016)	6
ATC21S (2011)	7
NACE Career Readiness Competencies (2014) & CACEE Campus Recruitment Report (2013)	7
CGS Professional Development Report (2017)	8
Statistics Canada Report (2017)	9
Framework Structure	9
Foundation	9
Approach	13
Competencies & Skills	13
Themes & Categories.....	13
Final Version of the Individual Development Framework (IDF)	14
Implementation	16
Initial Phase	16
Next Phase.....	16
Conclusion.....	16
WORKS CITED	18
Appendix I – Framework Working Group.....	19
Appendix II – List of Frameworks and Reports Reviewed	20
APPENDIX III – Themes Table of Selected Frameworks and Reports.....	21

Executive Summary

Increased national and international focus on enhancing the graduate and postdoctoral experience at academic institutions, as well as providing support in their transition to a wide variety of careers, has led to a widespread interest in better articulating and serving the individual development needs of graduate students and postdoctoral researchers.

McGill University has significantly expanded the number and diversity of services and programs that provide individual (academic, professional, and personal) development opportunities for graduate students and postdocs. More recently, McGill has introduced myPath: a network of tools and programs to help students and postdocs create an annual Individual Development Plan (IDP) that reflects their academic, professional and personal goals.

The McGill Framework Working Group, comprised of experts in student services and development from a variety of McGill units, was established in order to create an individual development framework that will unify these tools and offerings across the university to provide guidance and recommendations to graduate students and postdocs, while also helping administrators to design, advertise, deliver, and evaluate programming.

The Framework Working Group analyzed well-researched frameworks and reports on individual development practices from Canadian and international research, education, government, and corporate organizations. With the goal of adapting this established content into a McGill-specific framework, attributes identified in these documents were compiled, re-defined, and assembled into a cohesive framework of seven themes divided into twenty-one categories of individual development. This became the McGill Individual Development Framework.

The themes included in the framework cover a wide range of topics applicable to academic, professional, and personal contexts. They are: Lead Projects, Work with Others, Communicate Ideas, Solve Problems, Expand Your Expertise, Be Well, and Plan Your Career. Within these seven themes, there are twenty-one categories that focus on diverse aspects of individual development, including skills development, self-care practices, and career planning.

This comprehensive, yet succinct, framework is intended to be a flexible model that students and postdocs can use to create a customized Individual Development Plan that reflects the areas they wish to cultivate, and that administrators can use to identify gaps in their offerings as they align their programming with the framework. The McGill Individual Development Framework does not cover measurable outcomes; instead, it provides a starting template that departments and units at McGill can build on to create relevant program-specific learning outcomes.

To provide support for implementation across McGill, the Framework Working Group created a set of twenty-one handouts (one per framework category) that provide more robust descriptions, useful individual development strategies, and resources at and outside of McGill. The Framework Working Group will share this report broadly with all relevant units, and interested administrators are encouraged to join our Community of Practice.

The McGill Individual Development Framework can help students to unify their experiences at McGill, including their research project, coursework, and co-curricular activities. By promoting a unified individual development framework for its students, McGill can complement world-class academic experiences with expertly designed co-curricular activities in order to provide graduates with a competitive edge in a continuously evolving job market.

Introduction

Background and Objectives

Over the past decade, educational institutions across North America have created and reshaped professional development programs for graduate students and postdoctoral researchers, underlining the need to identify targeted competencies and skills to better equip graduates for a wider range of careers (Denecke, 2017). As part of that process, universities and national organizations have attempted to unpack and rearticulate the broader aims of graduate studies by mapping those aims onto a framework (ADÉSAQ, 2015). Various frameworks have been put forward and, despite differences, these approaches have been unified in their final aim: to design, deliver, and evaluate programming, while also providing guidelines and recommendations to graduate students and postdocs.

During this timeframe, McGill has significantly broadened services and programs for graduate students and postdocs through various means (e.g., NSERC CREATE programming, SKILLSETS, Student Services offerings, myInvolvement, graduate department-specific training, etc.) (Crump, 2016). More recently, Graduate and Postdoctoral Studies initiated myPath, a project aiming to provide all graduate students and postdocs at McGill with the tools and programs to create an Individual Development Plan (IDP) that delineates their academic, professional, and personal goals.

As a result of the expansion of services and tools for graduate students and postdocs, it has become important to consider how these projects can be unified under a common individual development framework. The main goals of developing a unified framework are:

- to enhance user-friendliness by using common vocabulary and definitions at McGill, allowing graduate students and postdocs to identify co-curricular options and plan their goals more easily.
- to identify gaps in McGill's offerings and make appropriate design improvements.
- to increase graduate students' and postdocs' engagement with professional and personal development, as part of a larger culture shift that values diverse skillsets.
- to enable graduate students and postdocs to better articulate their skills and knowledge acquired through academic curriculum and co-curricular activities to prospective employers.
- to create opportunities to assess engagement and its impact on student development (e.g., by linking participation in professional development activities with career outcomes).

Framework Working Group

The Framework Working Group (FWG) was established to identify a streamlined individual development framework best suited to McGill's graduate community (see Appendix I for a full list of the FWG members).

Pooling knowledge and resources from diverse backgrounds, the FWG represented a variety of interrelated units and university-wide projects designed to help students identify their goals, engage in relevant activities both within and outside of McGill, track and assess their progress, and reflect on their individual development during the course of their graduate programs. A common framework allows graduate students and postdocs to more effectively navigate goal-setting and development opportunities, by uniting services across the university under a shared language and logic of student development.

Initially, the intention was to identify an existing framework with solid underpinnings that McGill could adopt. The FWG reviewed a total of seventeen national and international frameworks and reports (see Appendix II for a list of sources) and concluded that it would be more beneficial to consider how these could be woven together to establish one that is tailored to the McGill context. This report summarizes the approach to establishing the content and structure of a McGill-specific framework, concluding with the proposed Individual Development Framework along with a discussion on its implementation at McGill.

Framework Content

While the examined frameworks and reports (listed in Appendix II) differed in structure and targeted population, they shared more pronounced overlaps than differences among the areas of development (skills, competencies, attributes, domains and categories). Given their robust nature and/or relevance to graduate students and postdocs, the FWG elected to focus the analysis on five frameworks and three reports that emerged as particularly relevant for our intended purpose:

1. Vitae Researcher Development Framework (RDF)
2. The Association des Doyens des Études Supérieures au Québec (ADÉSAQ) Framework of Expected Competencies for Graduates of Master's or Doctoral Degree Programs
3. Adoc Competency Reference Framework
4. Assessment and Teaching of 21st Century Skills (ATC21S) Framework
5. National Association of Colleges and Employers (NACE) Career Readiness Competencies Framework
6. Canadian Association of Career Educators and Employers (CACEE) Campus Recruitment Report
7. Council of Graduate Schools (CGS) report: Professional development: Shaping Effective Programs for STEM Graduate Students
8. Statistics Canada report on the job-related skill requirements by degree level and field of study: Do Postsecondary Graduates Land high-skilled Jobs?

As described in the sections below, each of the selected frameworks and reports have particular strengths, but none emerged as an option that was ideally suited for adoption at McGill. As such, the FWG sought to identify common content across the frameworks and reports and mould it to fit McGill graduate students and postdocs.

In order to establish the similarities and differences, the areas identified in each of the selected frameworks and reports were mapped to one another in a table and ultimately grouped into seven common “themes” (see Appendix III). Although the definitions do not match exactly, they provide extensive material for more detailed descriptions of the selected areas, and form the basis of the twenty-one categories that have emerged in the McGill-specific framework.

Vitae Researcher Development Framework (2011)

This framework was developed by Vitae, a UK organization self-described as “the global leader in supporting the professional development of researchers, experienced in working with institutions as they strive for research excellence, innovation and impact” (Vitae, 2011). The Vitae model is very detailed and based on consultations with experienced researchers about the desired qualifications and characteristics of researchers at the doctoral level. The framework consists of four main areas, which Vitae refers to as “domains”, each with three subdomains each. The subdomains are then broken down into a total of sixty-three specific outcomes or “descriptors” with explicit expectations by level of performance or phase of development (Vitae, 2011). The domains and sub-domains are:

Knowledge and intellectual abilities

- A.1) Knowledge Base
- A.2) Cognitive Abilities
- A.3) Creativity

Personal effectiveness

- B.1) Personal Qualities
- B.2) Self-Management
- B.3) Professional and Career Development

Research governance and organization

- C.1) Professional Conduct

C.2) Research Management

C.3) Finances, Funding and Resources

Engagement, influence and impact

D.1) Engagement and Impact

D.2) Communication and Dissemination

D.3) Working with Others

Through this approach, the Vitae framework skillfully incorporates narrower abilities into broad domains of development, demonstrating the transferability and interrelatedness of qualities or skills over time. Additionally, this framework maps the domains and smaller descriptors onto an expected timeline, referred to as “phases” of researcher development.

While the Vitae phases communicate the gradations of development for students and professionals, the FWG found it to be overly prescriptive for the goals of this project. The Vitae framework was specifically designed to facilitate “planning, promoting and supporting the personal, professional and career development of researchers in higher education” (Vitae, 2011, p. 1). However, this aim takes away from the importance of non-research-related goals that may guide a student or postdoc’s individual development.

ADÉSAQ (2015)

The Association des doyens des études supérieures au Québec (ADÉSAQ) developed a Québec-specific framework comprising five competencies that can be applied to all disciplines (ADÉSAQ, 2015). The fact that ADÉSAQ’s competency framework was developed in Québec with a focus on graduate student outcomes means that it is particularly relevant in the development of a McGill-specific framework. While it was inspired by Vitae’s framework, it is much simpler. For each of the five main competencies (below), ADÉSAQ developed detailed descriptions of the knowledge, skills, and attributes expected according to degree level.

1. Professional and Scientific Production (essential)
2. Knowledge and Critical View (essential)
3. Communication (essential)
4. Normative Aspects and Integrity (essential)
5. Professional and Personal Development (complementary)

Although it provides relatively specific outcomes that can be used by graduate students to assess their progress, it is largely focused on outcomes for academic programs. The Professional and Personal Development competency is described broadly and viewed as complementary, rather than essential, in this framework.

Like the Vitae framework, the emphasis is on researcher development. While these outcomes can be transferable to non-research activities, the McGill framework is intended to provide a more comprehensive template that encompasses professional and personal development as integral, rather than complementary, elements of graduate student development.

Adoc (2016)

Adoc Talent Management firm conducted an outcome survey of PhD degree holders in France to assess competencies developed during doctoral studies (Durette, 2016). An extensive analysis of respondents’ answers to open-ended questions led to a list of commonly developed competencies that are irrespective of the following factors: discipline, date of graduation, co-curricular activities (e.g., teaching), and source of funding. The study resulted in the Competency Reference Framework of 111 competencies organized in six main categories:

- A. Knowledge and technical skills
- B. Transferable competencies that can be formalized
- C. Transferable competencies that cannot be formalized

- D. Dispositions
- E. Behaviours
- F. Meta-competencies

The Adoc framework is based on core competencies developed by PhD students, the main population that the McGill framework is intended to serve. Despite the differences in educational systems around the world, the Adoc PhD competency framework closely aligns with other international ones of the same nature, hence the FWG believed that this framework is relevant to McGill (Cryer, 1998; Durette, 2016; Mowbray, 2010). However, while comprehensive, the level of granularity of the Adoc exhaustive framework defies the FWG goal of simplifying the student development vocabulary and definitions at McGill.

ATC21S (2011)

Assessment and Teaching of 21st Century Skills (ATC21S) Framework, also referred to as the KSAVE (Knowledge, Skills, Attitudes, Values, and Ethics) framework, is a well-researched international framework that includes the skills determined for success in the twenty-first century (Binkley, 2011). Below is a list of the ATC21S Framework ten skills, grouped under four categories:

Ways of Thinking

1. Creativity and innovation
2. Critical thinking, problem solving, decision making
3. Learning to learn, metacognition

Ways of Working

4. Communication
5. Collaboration (teamwork)

Tools for Working

6. Information literacy
7. ICT (Information and Communication Technology) literacy

Living in the World

8. Citizenship – local and global
9. Life and career
10. Personal and social responsibility – including cultural awareness and competence

The strength of this framework is that it presents measurable outcomes and uses a straightforward language that is expected to be easily accessible to students and postdocs. However, the ATC21S framework was not designed for graduate students or postdocs but rather as a model to be used by educators “for assessing twenty-first century skills” (Binkley, 2011).

NACE Career Readiness Competencies (2014) & CACEE Campus Recruitment Report (2013)

In 2014, the US-based National Association of Colleges and Employers (NACE) established a taskforce of representatives from higher education and corporations to develop a framework of competency areas necessary for “career readiness, defined as “the attainment and demonstration of requisite competencies that broadly prepare college graduates for a successful transition into the workplace” (NACE, 2014).

Seven competency areas were selected based on several existing publications and combined with data from the annual NACE Job Outlook Survey that asks employers targeting new university graduates to identify the skills they are seeking. To verify the validity of their framework, NACE surveyed 606 representatives from organizations in twenty industry sectors. The current framework identifies eight areas described as necessary for career readiness:

1. Critical Thinking/Problem Solving

2. Oral/Written Communications
3. Teamwork/Collaboration
4. Digital Technology
5. Leadership
6. Professionalism/Work Ethic
7. Career Management
8. Global/Intercultural Fluency

These areas closely match the top five skills identified by Canadian employers in the Canadian Association of Career Educators and Employers CACEE Campus Recruitment Report (Smith, 2013) which surveyed 920 employers representing twenty-two industry sectors:

1. Communication Skills (verbal)
2. Teamwork Skills (works well with others)
3. Analytical Skills
4. Strong Work Ethic
5. Problem-Solving Skills

The strength of the NACE framework is its emphasis on the individual development needs of students as they relate to transitioning to the labour market, along with its support from employers targeting university graduates. McGill's Destination Survey (managed by Student Services) of undergraduates eighteen to twenty-four months after graduation is currently using this framework, with some minor modifications, to obtain feedback on skills developed at McGill and used in post-degree careers.

However, as this framework focuses on employer-identified areas of professional development, it lacks elements of student wellness. Moreover, research-focused areas, such as knowledge base and research management, are not emphasized (as in the ADÉSAQ and Vitae frameworks) but are of significant importance for research success of graduate students and postdocs and the goal of educating and training the researchers of tomorrow.

[CGS Professional Development Report \(2017\)](#)

The Council of Graduate Schools (CGS) conducted a survey of top North American institutions that produced a summary report on the current professional development practices targeting STEM graduate students (Denecke, 2017). The CGS report covers common challenges facing student development and presents recommendations towards improving existing offerings for STEM graduate students and postdoctoral scholars.

Through a series of in-depth interviews with nationwide leading employers, the CGS report uniquely illustrates employers' perspectives on the strengths and deficiencies of newly hired PhDs and Master's graduates (pp. 29-31). The list below highlights the main areas identified by employers in the CGS report:

- Writing, speaking, and presentation including effective PowerPoint
- Cross-disciplinary and cross-cultural communication and teamwork
- Effective science advocacy and science policy
- Time, personnel, and project management in an experiential context
- Job search and networking skills
- Statistics and computational ability
- Analytics and data science
- Entrepreneurship

Although this report does not present a specific framework, it provides valuable insight into the individual development needs identified by employers. Despite the focus on STEM graduates, the FWG successfully mapped non-discipline-specific areas from the CGS report to the aforementioned frameworks (see Appendix III).

Statistics Canada Report (2017)

The Social Analysis and Modelling Division of Statistics Canada released an analytical study report on the relationship between occupational skills requirements, degree-level, and field of study in a large sample of young Canadian employees between the ages of twenty-five and thirty-four, with focus on postsecondary graduates (Frenette, 2017). The study concludes that skills requirements increase with educational level and vary significantly between fields of study.

The study uses a factor analysis of skills from the Occupational Information Network (O*NET) data in which both the skill levels and importance are detailed for specific occupations (Frenette, 2017; O*NET, 2016). O*NET data are based on the occupational codes of the Standard Occupational Classification (SOC, 2010). Nine broad occupational skill areas emerged from the factor analysis of the thirty-five skills defined by O*NET; they are:

1. Reading comprehension
2. Writing
3. Mathematics
4. Science
5. Process, complex problem solving, and systems
6. Social
7. Technical operation and maintenance
8. Technical design and analysis
9. Resource management

While the CGS report highlights an employer's perspective of skills, the Statistics Canada report reflects an employee's view of the required job-specific skills. As with the CGS report, mapping the nine areas identified by Statistics Canada to the other frameworks examined was straightforward, highlighting that the individual development areas identified by the other frameworks closely mirror the reality of professional development needs in today's job market.

Framework Structure

In addition to determining the content of a McGill specific framework, the FWG explored framework structures that would make its content accessible to students and postdocs as well as to service providers who wish to use the framework for diverse programming and audiences.

In essence, the framework is a tool for mapping individual development goals onto activities and offerings. The aim is to enable McGill departments and units to define which development goals are addressed by each of its offerings, as well as help graduate students and postdocs to easily identify offerings that address their development goals.

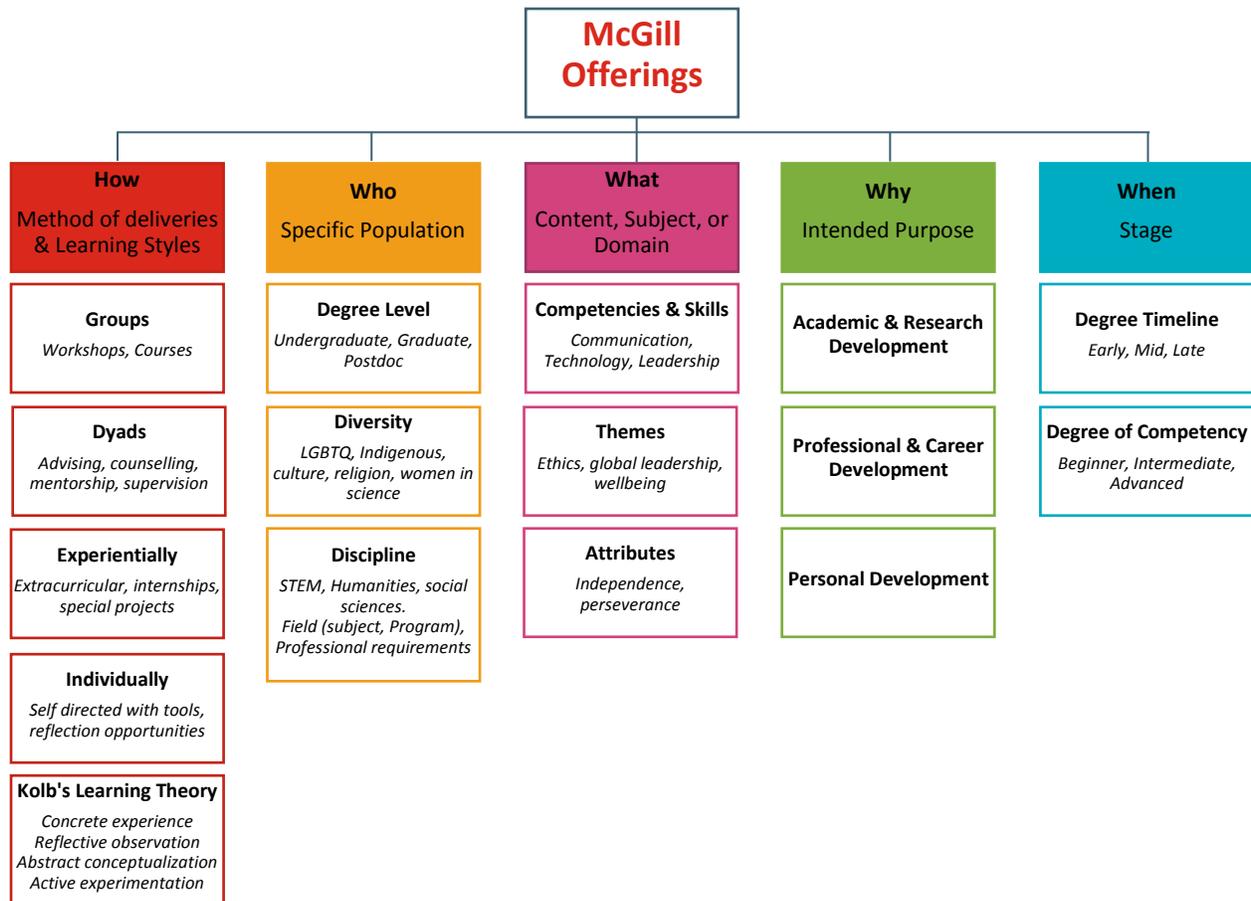
Foundation

Currently, McGill's student development offerings are grouped along a variety of orientations. Some are designed to serve specific populations (e.g., SKILLSETS), others are oriented towards content and specific issues (e.g., Career Planning Services), while others are concerned with the modality or method of delivery (e.g., Experiential Learning Network).

Because the offerings have such different orientations, there is an increased risk for duplication of services, and confusion often arises regarding the mandates of each service or program. As a result, students and postdocs (as

well as the McGill community at large) may struggle to map out development opportunities on campus and to identify a proper fit between individual needs and the resources available. Offerings at McGill can be broadly organized across five variables: HOW, WHAT, WHO, WHY, and WHEN (Figure 1).

Figure 1. The Five Organizing Variables for McGill University Offerings to Students



Creating a framework that encompasses all of these variables is challenging, as specific offerings or opportunities can be complex and multi-dimensional, and outcomes may vary widely among students. This intersection complicates efforts to map out the offerings and opportunities available at McGill, as most options will end up mapped onto multiple fields within each variable.

For instance, it would be difficult to determine where to place student leadership opportunities (e.g., PGSS roles) within a framework that attempted to encompass all of the variables listed above. Although it would neatly fit into “Experiential Learning” under the HOW variable; students from any discipline, degree level, or stage can become a student representative (WHO & WHEN), and their participation in this activity may lead to the development of a variety of competencies or skills including leadership, perseverance, and ethics (WHAT), that will serve a variety of purposes (WHY).

One possible way to address this confusion is to create a matrix of the more content-focused variables (WHAT and WHY) that are distributed across themes and fields, and to use a “tagging system” for the more process-oriented variables (WHO, WHEN, and HOW). See Table 1 (Framework Structure Version 1) for an example.

Table 1. Framework Structure Version 1.

WHAT	WHY		
Theme/Category/ Content	Academic & Research Development	Professional & Career Development	Personal Development
Project & Time Management	Research Management: Responsible conduct of research ¹ Would You Fund It ²	Project Management workshop ³	Personal Management Skills for Time Management ²
Communicate Ideas	Presenting/Knowledge Translation Teaching Assistant ³ Conference presentation ⁴	Presenting 3MT ⁴	Maintaining Healthy & Personal Relationships Skills for Social Confidence ²
Working with Others	Student Representative Hiring committee ⁵	Student Volunteer Peer mentor ⁴	Personal Advocacy Skills for Assertiveness ²

¹ Early, Doctoral, STEM, Group

² Early, Masters and Doctoral, All disciplines, Dyad

³ Mid, Doctoral, All disciplines, Experiential

⁴ Mid, Late, Doctoral, All disciplines, Experiential

⁵ Late, Doctoral, All disciplines, Experiential

However, this approach may make inaccurate assumptions about WHO (doctoral vs masters students, STEM vs HSS) will benefit from the offering or opportunity, and WHEN (early, mid, late) in their degree it would be most useful. Additionally, mapping the thematic WHAT components onto purpose-focused WHY groupings (Table 1) risks classifying broad and intersecting goals into narrow aims. For instance, does “overcome procrastination and obstacles” fit under Academic Development, Professional Development, or Personal Development? Viewed more holistically, this goal (theme) reveals a common language of student development, integrated along lines of personal, professional, and academic growth.

Consequently, an alternate structure was proposed, where the HOW, WHO, and WHEN variables were removed, and WHAT and WHY variables were combined into themes with definitions or outcomes of students’ individual development. The proposed “WHY” in Table 2 (Framework Structure Version 2) below focuses on core areas of overlap within specific themes (WHAT), eliminating direct distinctions by “purpose.” The purpose remains embedded within the definitions nonetheless.

By not binding themes (WHAT) to specific purposes (WHY—i.e., academic & research, professional & career, and personal development), the chosen foundation for the framework highlights the diversity—but also, the unity—of programmatic offerings at McGill. For instance, learning how to communicate ideas is tied into both academic and professional development, since both have complementary tools and resources to help students “articulate and communicate persuasively about strengths, knowledge, and experience” to diverse audiences. This illustrates another proposed goal of the McGill framework: to enhance user-friendliness using unified vocabulary and definitions at McGill, allowing graduate students and postdocs to identify options and plan their goals more easily. Ultimately, the definitions developed in version 2 were used to create the definitions for the twenty-one

categories that were identified in the final framework (see Table 3), with the understanding that specific opportunities and offerings at McGill may tap into multiple categories.

Additionally, by omitting the more process-oriented variables (HOW, WHO, WHEN), departments and units wishing to adopt this framework can take the lead in identifying or creating the specific outcomes or offerings that are relevant for their students and postdocs, ensuring that the framework can be easily customized across McGill.

Table 2. Framework Structure Version 2.

WHAT (Theme)
<ul style="list-style-type: none"> • WHY (Purpose is implicit and embedded in definitions)
<p>Project & Time Management</p> <ul style="list-style-type: none"> • Manage research projects: ensure ethical practices (e.g., authorship, data management, intellectual property), navigate the publication process, apply for funding and fellowships, and manage finances and risk. • Manage projects, including time, workload, and resources: develop and prioritize strategic and tactical goals, estimate costs and deliver projects on-budget. • Manage career: “Able to navigate and explore job options, understands and can take the steps necessary to pursue opportunities, and understands how to self-advocate for opportunities in the workplace.” (NACE, 2014). Understanding of the hiring cycle in different sectors. • Persevere: overcome procrastination and obstacles, deal with competing pressures, and self-manage (accept responsibility and uncertainty).
<p>Communicate ideas</p> <ul style="list-style-type: none"> • Clearly and effectively communicate field specific knowledge and research findings in various situations. • Present ideas clearly and persuasively to diverse audiences (e.g. funders, journals, conferences): communicate effectively in writing as appropriate for the audience, and adapt levels of technical detail to multiple audiences. • Articulate and communicate persuasively about strengths, knowledge, and experience to potential employers. Understand how to demonstrate fit, and adapt style and terminology for specific organizations. • Develop confidence in public speaking. • Develop strategies for dealing with “writer's block”.
<p>Working with others</p> <ul style="list-style-type: none"> • Manage the supervisory relationship, develop research collaborations, lead a research team, and display openness to international perspective and contact. • Work effectively in a team, collaborate successfully with cross disciplinary and intercultural groups, develop emotional intelligence, and influence others. • Develop your professional network, identify and reach out to potential collaborators, colleagues, and employers • “Participation in community/neighborhood activities.” “Interest in solving problems affecting the local and wider community.” “React against antisocial behavior.” (Binkley, 2011) • Keep an open mind to diverse values and cultures, develop emotional intelligence, and interact effectively with others.

Approach

Frameworks have generally followed one of two models to organize their content: 1) competencies and/or skills (ADÉSAQ, 2015; Durette, 2016) or 2) themes and/or categories (Binkley, 2011; Vitae, 2011). The terminology of each has distinct advantages, whether specifying technical capacities more clearly (i.e., competencies/skills) or providing leverage to chart out broader categories of individual development (i.e., themes/categories) that cannot necessarily be assessed along lines of skill or mastery. To give further context to these alternative approaches, each model is described below:

Competencies & Skills

While there is no single agreed-upon definition of the term “competency,” most scholarship describes it as a combination of knowledge, skills, abilities, and other attributes that enable one to accomplish a specific goal (McMullan et al., 2003; OECD, 2016, pp. 96-97). More specifically, the OECD (2016) defines competency as:

... the capacity to generate appropriate performance: to marshal the resources (tools, knowledge, techniques) in a social context (which involves interacting with others, understanding expectations) to realise a goal that is appropriate to the context. Commonly, competency is described in terms of the application and use of knowledge and skills in common life situations as opposed to the mastery of a body of knowledge or a repertoire of techniques. To this end, competencies are commonly conceived as encompassing three dimensions: knowledge, skills and attitudes (beliefs, dispositions, values). (p. 96)

The Conference Board of Canada’s Centre for Skills and Post-Secondary Education’s (SPSE) more narrowly defines a “skill” as:

...an ability acquired or developed through education, training, and/or experience, which provides a person with the potential to achieve life satisfaction by applying their abilities in the economy and in society. (Grant, 2016, p. 9)

Competencies are an important but specific component of individual development, often focused on the particular qualifications for job performance. For this reason, improving competencies rests mainly with skill development opportunities. Our proposed framework puts forward a more encompassing vision of student progress that identifies additional areas of potential growth.

Themes & Categories

Like the “Competencies and Skills” approach, there is no specific agreed-upon definition of “theme” as it pertains to individual development frameworks. In their analysis of the use of the term theme in qualitative research, DeSantis and Ugarriza (2000) found that it is frequently used interchangeably with “category, domain, unit of analysis, phase, process, consequence, and strategy” (p.358), and proposed the following definition:

A theme is an abstract entity that brings meaning and identity to a recurrent experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a meaningful whole. (p. 362)

Rather than being tethered to a measurable performance capacity, as with the “Competencies and Skills” approach, the “Themes and Categories” approach casts a wider net in charting out academic, personal, professional, and career development opportunities for graduate students and postdocs.

Adopting this approach for the McGill-specific framework provides more flexibility in designing the range and content of elements included in the framework. Additionally, this versatile approach permits the inclusion of areas such as wellness and career development, which cannot be strictly defined as competencies or skills.

Final Version of the Individual Development Framework (IDF)

The selected structural foundation of McGill’s Individual Development Framework (IDF) is largely focused on the content (WHAT) organized as Themes and Categories. In adapting the discussed approach and framework models to the FWG vision, a key challenge was how to balance comprehensiveness (Adoc, Vitae) with simplicity and accessibility (ADÉSAQ and ATC21s). Following a careful review and assessment of the different areas within each of the frameworks and reports (see Appendix III), the FWG identified seven themes broken down into a total of twenty-one categories, listed in Table 3 below, along with definitions for each of the categories. These definitions were deduced from the examined frameworks and refined based on feedback from on-campus experts (see Appendix I).

The final definitions are relatively short, providing a broad understanding of the categories that can be used to align existing student and postdoc development programs with the proposed content and to develop outcomes tailored by individual units, departments, and student groups at McGill. Framework users are encouraged to explicitly classify their offerings to their students into themes and categories.

To raise awareness of the diversity and richness of development opportunities, as well as help students and postdocs choose to engage in experiences that are meaningful to them, users may choose to provide additional information about their offerings including: specific targeted populations (WHO) and their study stage (WHEN), the addressed needs (WHAT), the used modalities (HOW), and the purposes (WHY) – as proposed in Figure 1 and Tables 1 and 2.

The fact that the IDF is mapped to a variety of established frameworks (see Appendix III) also ensures a smoother implementation for departments or units that may already be using one of the aforementioned frameworks for their programs.

Table 3. McGill Individual Development Framework -Final Version.

Lead Projects

Ethical & Professional Conduct: Ensure ethical practices in all aspects of research including intellectual property, data management, confidentiality, and collegiality. Demonstrate ethical behaviour: integrity, honesty, and accountability. Learn from mistakes. Practice sustainability and act responsibly with the interests of the larger community and its future in mind.

Finances & Funding: Identify opportunities and apply for funding (e.g., fellowships, grants, scholarships). Manage finances and risks. Estimate costs and deliver projects on-budget.

Project & Time Management: Plan projects and tasks, including time, workload, and resources. Develop and prioritize strategic and tactical goals. Persevere and deal with competing pressures.

Work With Others

Equity, Diversity & Inclusion: Value the benefits of diverse perspectives, lived experiences, and ways of thinking. Support and promote the voices of others during discussions. Collaborate successfully with cross-disciplinary and intercultural groups. Recognize discriminatory behavior and be an agent of change.

Global & Local Engagement: Advocate for and contribute to solving problems affecting the local and wider/global community. Participate in community, neighborhood, and international activities.

Leadership: Galvanize the strengths of others to achieve common goals. Use interpersonal skills to influence, mentor, coach, and develop others. Negotiate and manage conflict.

Teamwork & Interpersonal: Develop emotional intelligence, interact well with others, and build collaborative relationships for effective teamwork. Define roles and responsibilities of team members. Give and receive feedback and critical appraisals from team members.

Communicate Ideas

Public Speaking: Present ideas persuasively to diverse audiences both visually and orally. Develop skills and confidence in public speaking.

Teaching: Plan and deliver learning experiences using pre-determined learning outcomes. Facilitate discussions, organize interactive sessions, and provide constructive feedback to participants.

Writing: Articulate ideas and knowledge effectively in writing for specific audiences and purposes. Develop strategies for dealing with “writer’s block.”

Solve Problems

Analytical & Critical Reasoning: Analyze and synthesize complex information. Critically evaluate ideas and options. Develop and test hypotheses. Analyze and interpret findings.

Entrepreneurship: Initiate a non-profit or business venture by identifying and leveraging innovative ideas. Tolerate risk and uncertainty, demonstrate a positive attitude, and be achievement oriented.

Innovation & Creativity: Develop innovative and creative solutions. Recognize problems and opportunities, take initiative to generate and implement solutions that are effective and efficient. Demonstrate flexibility, tolerance for ambiguity or unpredictability, willingness to take appropriate risks, and interest in exploring the unknown.

Expand Your Expertise

Subject Knowledge: Demonstrate knowledge of and/or develop an original contribution to subject area and research methods. Develop a critical understanding of relevant literature. Be familiar with publishing practices and professional development opportunities in your field.

Tools & Technology: Select and use appropriate tools or technology to accomplish a given task, and develop solutions to problems. Examples: software, programming, technical devices, information management and databases, laboratory skills, statistical and qualitative methods/programs, etc.

Be Well

Healthy Living: Ensure personal wellbeing and work-life balance by establishing priorities (e.g., activities, exercise, sleep, nutrition, time with loved ones) that fulfill personal needs and enable feeling supported by others.

Resilience: Manage stress and anxiety. Develop the resilience and self-determination to overcome obstacles. Be empowered to take ownership and deal with uncertainty.

Self-Knowledge: Develop the self-awareness (strengths, weaknesses, interests, values, preferences) and the self-efficacy (confidence) to live a life that is more meaningful to you. Identify factors that contribute to your happiness.

Plan Your Career

Career Knowledge: Explore career options including academia, non-profits, government, and industry. Gain awareness of typical requirements and degree of competitiveness. Understand the hiring cycle in different sectors.

Applying & Interviewing: Articulate and communicate strengths, knowledge, and experience persuasively to potential employers. Demonstrate the transferability of your skills and knowledge to diverse employers. Adapt communication style and terminology for specific organizations to demonstrate fit.

Networking & Job Search: Create a professional network. Identify, reach out to, and maintain connections with potential collaborators, mentors, colleagues, and employers. Search for jobs in your target career area.

Implementation

Initial Phase

As a first step towards implementation, the IDF categories were imported into myInvolvement, McGill's online platform for co-curricular involvement and tracking. Since August 2017, administrators and students using the platform to promote their offerings can "tag" their events with the categories (this is a multi-select function, so they are not limited to a single category), and students looking for opportunities can search for events by category. It is worth noting that this platform is being used by undergraduate and graduate students alike. Currently over 240 organizations (student groups, units, and departments) at McGill are using myInvolvement and this number continues to grow. As a consequence, the IDF is already being used indirectly by a large number of service providers and programs at McGill.

Additionally, several key programs targeting graduate students have adopted the IDF more directly. In the fall of 2018, SKILLSETS implemented the IDF, replacing their existing model, which was based on the nine themes identified by CAGS (2008). Other early adopters include: the Desjardins Centre for Advanced Training of the Research Institute of the McGill University Health Centre, Healthy Brains for Healthy Lives (HBHL-SKILLSETS), and the Centre for Research on Brain, Language, and Music (CRBLM).

The categories are also being incorporated into myPath, a new McGill initiative to be launched in the fall of 2018. After committing to make an Individual Development Plans (IDP) a mandatory requirement for doctoral students, Graduate and Postdoctoral Studies established myPath as a network of tools and programs to help students create their IDP. The McGill Individual Development Framework will form the foundation for all of the activities and exercises developed to help students and postdocs identify, articulate, and attain their individual goals. Specifically, myPath will include an online web application, a workbook, and at least four different types of group programs related to goal-setting in which students can participate.

Next Phase

The FWG aims to publish and share the Individual Development Framework along with this report widely across campus. Our goal is to inspire additional units, departments, and groups to adopt the IDF and develop customized outcomes for their target populations. To facilitate implementation, the FWG created a set of twenty-one category-based handouts that provide more robust definitions, strategies to cultivate skills and abilities in all areas of the IDF, and a collection of relevant resources including professional development opportunities at and outside of McGill. These documents will serve as a guide for service providers to better categorize their offerings and for graduate students and postdocs to locate pertinent resources in the categories of their choice.

While every effort has been made to ensure that the IDF is underpinned by well-researched models, it is also important to verify whether the themes and categories identified are working in practice at McGill (e.g., Are all the categories being used? Are some always used in conjunction with one another? Are the short definitions sufficient?). As such, the FWG intends to establish a Community of Practice for administrators interested in implementing the IDF in their department or unit, so that service providers can meet and exchange ideas on best practices or troubleshoot challenges. In the spring of 2019, the FWG will gather feedback from students, the Community of Practice, as well as assess how the categories are being used in the myInvolvement and myPath online platforms.

Conclusion

After thorough examination of highly-regarded Canadian, American, and international frameworks and reports, the FWG has conceived an action-focused, comprehensive, McGill-specific Individual Development Framework. Unlike competency-based frameworks (e.g., ADÉSAQ), this framework does not cover measurable outcomes; instead, it provides a starting template that departments and units at McGill can build on to create program-

specific learning outcomes. Ultimately, the aim is to help graduate students and postdocs unify their experiences at McGill through the common backbone that is the McGill Individual Development Framework. As this framework aims to enhance individual development offerings for a smoother transition to a post-degree career, the proposed areas of development are sufficiently comprehensive and universal to support all students, regardless of their stage of education (e.g., undergraduates, graduates or postdocs), not only during studies, but also in their lifelong learning.

WORKS CITED

- ADÉSAQ. (2015). *Targeted Competencies in Graduate Programs* (Association des doyennes et des doyens des études supérieures au Québec). Retrieved from http://adesaq.ca/?page_id=761
- Binkley, M. (2011). Defining Twenty-First Century Skills. In P. Griffin, McGaw, B., Care E. (Ed.), *Assessment and Teaching of 21st Century Skills (ATC21s)*: Springer, Dordrecht. doi:https://doi.org/10.1007/978-94-007-2324-5_2
- Crump, A., Dhir, S., Nalbantoglu, J. . (2016). *Preparing Doctoral Students for Careers: McGill Programming and Initiatives* (Graduate and Postdoctoral Studies). Retrieved from https://www.mcgill.ca/gps/files/gps/future_of_phd_senatereport_nov2016_gps.pdf
- Cryer, P. (1998). Transferable skills, marketability and lifelong learning: The particular case of postgraduate research students. *Studies in Higher Education*, 23(2), 207-216. doi:10.1080/03075079812331380394
- Denecke, D., Feaster, K., & Stone, K. (2017). *Professional development: Shaping effective programs for STEM graduate students*. Washington, DC: Council of Graduate Schools.
- DeSantis, L., & Ugarriza, D. N. (2000). The concept of theme as used in qualitative nursing research. *West J Nurs Res*, 22(3), 351-372. doi:10.1177/019394590002200308
- Durette, B., Fournier, M., Lafon, M. (2016). The core competencies of PhDs. *Studies in Higher Education*, 41(8), 1355-1370. doi:10.1080/03075079.2014.968540
- Frenette, M., Frank, K. . (2017). *Do Postsecondary Graduates Land High -skilled Jobs?* (Statistics Canada). Retrieved from <http://www.statcan.gc.ca/pub/11f0019m/11f0019m2017388-eng.htm>
- Grant, M. (2016). *Aligning Skills Development With Labour Market Need*. (Ottawa: The Conference Board of Canada, 2016). Retrieved from <http://www.conferenceboard.ca/e-library/abstract.aspx?did=7926>
- McMullan, M., Endacott, R., Gray, M. A., Jasper, M., Miller, C. M., Scholes, J., & Webb, C. (2003). Portfolios and assessment of competence: a review of the literature. *J Adv Nurs*, 41(3), 283-294.
- Mowbray, S., Halse, C. (2010). The purpose of the PhD: theorising the skills acquired by students. *Higher Education Research & Development*, 29(6), 653-664. doi:10.1080/07294360.2010.487199
- NACE. (2014). *Career Readiness Defined*. Retrieved from <http://www.nacweb.org/career-readiness/competencies/career-readiness-defined/>
- O*NET. (2016). *O*NET Skills Questionnaire*. Retrieved from http://www.onetcenter.org/dl_files/MS_Word/Skills.pdf
- OECD. (2016). *The Survey of Adult Skills: Reader's Companion, Second Edition*. OECD Skills Studies: OECD Publishing, Paris. Retrieved from <http://dx.doi.org/10.1787/9789264258075-en>.
- Smith, P. (2013). *2013 Campus Recruitment Report, Educator Summary*. (The Canadian Association of Career Educators and Employers (CACEE)). Retrieved from http://www.cacee.com/Library/Campus_Recruitment_Docs/2013_CACEE_Campus_Recruitment_Report_-_Career_Educator_Summary.pdf
- SOC. (2010). *Standard Occupational Classification (SOC) System*. Office of Management and Budget. . Retrieved from
- Vitae. (2011). *Vitae Researcher Development Framework*. Retrieved from <https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/developing-the-vitae-researcher-development-framework>

Appendix I – Framework Working Group

Members of the framework working group:

- Lorna MacEachern (Chair), Graduate and Postdoctoral Studies (GPS), myPath
- Alison Crump, GPS, Academic Learning Outcomes
- Sabine Dhir, GPS, Interdisciplinary Programs
- Emily Bell, RI-MUHC, Desjardins Centre for Advanced Training
- Lina Di Genova, Student Services, Assessment, Learning, and Evaluation
- Tim Wilfong, Student Services, myInvolvement / Co-Curricular Records
- David Syncox, Teaching and Learning Services (TLS), Skills Development
- Alastair Hibberd (replacing Tom Fullerton), TLS, SKILLSETS
- Alex Liepins (replacing Sophia Kapchinsky), TLS, SKILLS21
- Cindy Mancuso, Student Services, Career Planning Service (CaPS)
- Darlene Hnatchuk, Student Services, CaPS; and Experiential Learning Network
- Jessica Malz (left McGill spring 2018), Student Services, Campus Life & Engagement

Ad-hoc members & experts consulted

- Yvonne Hung, McGill Writing Centre
- Laura Winer, TLS
- Norman O'Brien, Student Services, Counselling Services
- Nancy Heath, Faculty of Education, Department of Educational and Counselling Psychology
- France Bouthillier, Faculty of Arts, School of Information Studies
- Cara Piperni, Student Services, Scholarships and Student Aid Office
- Giuseppe Alfonsi, Student Services, Office for Students with Disabilities (OSD)
- Timothy Swiffen, Student Services, OSD
- Rachel Desjourdy, Student Services, OSD
- Veronica Amberg, Social Equity & Diversity Education (SEDE)
- Meryem Benslimane, SEDE
- Sydney Sheedy, SEDE
- Giovanna Badia, McGill Libraries
- Mitchell Miller, Office of Student Life and Learning
- Falisha Karpati, Healthy Brains for Healthy Lives
- Inbal Itzhak, Centre for Research on Brain, Language and Music
- Eduardo Ganem Cuenca, Faculty of Science
- Mark Weber, Office of Innovation and Partnership
- Shona Watt, McGill Office of Sustainability
- Lisa Lin, Student Services, CaPS
- Emily Ayoub, GPS, myPath Resource Developer
- Katharine Elder, GPS, myPath Project Assistant

Appendix II – List of Frameworks and Reports Reviewed

1. ATC21S Framework 2011
 - http://link.springer.com/chapter/10.1007%2F978-94-007-2324-5_2
2. ADESAQ Framework 2015
 - [http://www.adesaq.ca/ENG_Rapport_Comite_de_travail_competences%20\(FINALE\).pdf](http://www.adesaq.ca/ENG_Rapport_Comite_de_travail_competences%20(FINALE).pdf)
3. Adoc Framework 2016
 - <https://www.tandfonline.com/doi/full/10.1080/03075079.2014.968540>
4. CACEE (Canadian Association of Career Educators and Employers) report 2013
 - http://www.cacee.com/_Library/Campus_Recruitment_Docs/2013_CACEE_Campus_Recruitment_Report_-_Career_Educator_Summary.pdf
5. CAGS (Canadian Association of Graduate Schools) report 2009
 - <http://cags.ca/documents/publications/working/Prof%20Skills%20Dev%20for%20Grad%20Stud%20%20Final%2008%2011%2005.pdf>
6. CAS (The Council for the Advancement of Standards in Higher Education)
 - Frameworks for Assessing Learning and Development Outcomes (Strayhorn, 2006).
7. Conference Board of Canada 2016
 - <http://www.conferenceboard.ca/e-library/abstract.aspx?did=7926>
8. CERIC (Canadian Education and Research Institute for Counselling) 2013
 - <http://ceric.ca/career-development-in-the-canadian-workplace-national-business-survey/>
9. CGS (2017) Professional Development, Shaping Effective Programs for STEM Graduate Students
 - http://cgsnet.org/ckfinder/userfiles/files/CGS_ProfDev_STEMGrads16_web.pdf
10. Deloitte/APEC 2010
 - https://recruteurs.apec.fr/files/live/mounts/media/medias_delia/documents_a_telecharger/etudes_apec/skills_and_competencies_needed_in_the_research_field_objectives_2020_summary/35a1d7bdbbb937b6e4ba96cb412468f5.pdf
11. ESDC 2015
 - http://www.esdc.gc.ca/en/essential_skills/definitions.page
12. ETS (2013 synthesis)2013
 - <http://www.ets.org/Media/Research/pdf/RR-13-22.pdf>
13. NACE (National Association of Colleges and Employers) 2014
 - <http://www.naceweb.org/knowledge/career-readiness-competencies.aspx>
14. NPA (National Postdoctoral Association) 2009
 - <http://www.nationalpostdoc.org/?CoreCompetencies>
15. OECD Adult Competencies 2016
 - http://www.oecd.org/skills/piaac/The_Survey%20_of_Adult_Skills_Reader's_companion_Second_Edition.pdf
16. Stats Can (2017): Do Postsecondary Graduates Land High-skilled Jobs?
 - <http://www.statcan.gc.ca/pub/11f0019m/11f0019m2017388-eng.htm>
17. Vitae 2011
 - <https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/developing-the-vitae-researcher-development-framework>

APPENDIX III – Themes Table of Selected Frameworks and Reports.

McGill Individual Development Framework <i>Learn how to...</i>	Vitae Sub-Domains	ADÉSAQ Competencies	Adoc Core Competencies	ATC21S Skills
Expand your expertise <ul style="list-style-type: none"> • Conceptual Knowledge • Tools & Technology 	A.1) Knowledge Base	2. Knowledge and Critical View (essential)	A. Knowledge and technical Skills	6. Information literacy 7. ICT literacy
Solve problems <ul style="list-style-type: none"> • Analytical & Critical Reasoning • Innovation & Creativity • Entrepreneurship 	A.2) Cognitive Abilities A.3) Creativity	1. Professional and Scientific Production	B.5 Innovation management C.3 Cognitive abilities C.4 Ability to work with complex problems D.16 Creativity	1. Creativity and innovation 2. Critical thinking, problem solving, decision making 3. Learning to learn, Metacognition
Lead projects <ul style="list-style-type: none"> • Project & Time Management • Ethical & Professional Conduct • Finances & Funding 	C.1) Professional Conduct C.2) Research Management C.3) Finances, Funding and Resources	4. Normative Aspects and Integrity (essential)	B.6 Project management	
Communicate Ideas <ul style="list-style-type: none"> • Teaching • Writing • Presenting 	D.1) Engagement and Impact D.2) Communication and Dissemination	3. Communication (essential)	B.3 Communication	4. Communication
Work with others <ul style="list-style-type: none"> • Leadership • Teamwork & Interpersonal • Global & Local Engagement • Equity, Diversity & Inclusion 	D.3) Working with Others	5. Professional and Personal Development (complementary)	C.5 Ability to work in a team	5. Collaboration (teamwork) 8. Citizenship – local and global 10. Personal and social responsibility – including cultural awareness and competence
Be well <ul style="list-style-type: none"> • Self-knowledge • Resilience • Healthy Living 	B.1) Personal qualities B.2) Self-Management		D.2 Rigor D.24 Autonomy E.8 Perseverance F.1 Capacity for adaptation	9. Life and career
Plan your career <ul style="list-style-type: none"> • Career Knowledge • Networking & Job Search • Applying & Interviewing 	B.3) Professional and Career Development			

NACE Career Readiness Competencies	CACEE Report	CGS Report	Stats Can Report
<ul style="list-style-type: none"> Digital Technology 		<ul style="list-style-type: none"> Statistics and computational ability Analytics and data science 	3. Mathematics 4. Science 7. Technical operation and maintenance 8. Technical design and analysis
<ul style="list-style-type: none"> Critical Thinking/Problem Solving 	3. Analytical Skills 5. Problem-Solving Skills	<ul style="list-style-type: none"> Entrepreneurship 	5. Process, complex problem solving, and systems
<ul style="list-style-type: none"> Professionalism/Work Ethic 	4. Strong Work Ethic	<ul style="list-style-type: none"> Time, personnel, and project management in an experiential context 	9. Resource management
<ul style="list-style-type: none"> Oral/Written Communications 	1. Communication Skills (verbal)	<ul style="list-style-type: none"> Writing, speaking, and presentation including effective PowerPoint Effective science advocacy and science policy 	1. Reading comprehension 2. Writing
<ul style="list-style-type: none"> Teamwork/Collaboration Leadership Global/Intercultural Fluency 	2. Teamwork Skills (works well with others)	<ul style="list-style-type: none"> Cross-disciplinary and cross-cultural communication and teamwork 	6. Social
<ul style="list-style-type: none"> Career Management 		<ul style="list-style-type: none"> Job search and networking skills 	