

CAPTURING EXPERIENTIAL LEARNING IN A PROGRAM BY CURRICULUM MAPPING

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Like many higher education institutions, amplifying experiential learning (EL) is a priority for the University of Calgary. In order to capture the extent and complexity of EL that exists in an institution, it is crucial to have a common understanding of the concept. In 2018, the University of Calgary created the EL Working Group, tasked with creating a definition of EL and framework unique to our institutional context. One way to capture EL across a program of study is through curriculum mapping. By identifying where EL already exists, a group can determine current strengths as well as how to improve EL offerings in future. In the example provided in our paper, we show the results of one such mapping process and provide recommendations for others considering using this process for capturing EL across a program of study.

Experiential learning (EL) can be defined in many ways. Scholarship in this area frequently draws on David Kolb's (1984) definition, describing it as "the process whereby knowledge is created through the transformation of experience" (p. 41). More recently, EL scholars are applying Kolb's theory to various learning contexts, resulting in EL definitions unique to disciplines and postsecondary institutions. In the literature, there is debate whether a unified definition of EL is possible or desirable (Moon 2004; Beard & Wilson, 2013). Depending on which definition is used, EL includes activities ranging from work-integrated learning, to community-engaged learning and other high-impact practices such as undergraduate research (Schwartz, 2012; Braun, Kaipainen & Usman, 2018). In a recent study of faculty perceptions of EL in higher education, Wurdinger and Allison (2017) drew on the canonical writings of John Dewey to define EL as:

A cognitive process that incorporates Dewey's Pattern of Inquiry of planning, testing and reflecting, all in the same learning experience. The learning cycle is initiated when educators use teaching approaches such as problem-based learning, project-based learning, service-learning, and place-based learning. (p. 29)

A 2018 environmental scan of EL in North American postsecondary institutions (Braun et al., 2018, p.8) revealed that five Canadian universities drew on the Association for Experiential Education's EL definition, "Experiential education is a philosophy that informs many methodologies in which educators purposefully engage with learners in direct experience and focused reflection to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities" (Association for Experiential Education, n.d.). Across EL's diverse activities, scholars acknowledge that critical reflection must be built into the curriculum for students to make meaning of both their experiences and their disciplinary learning. In a 2009 study on applied learning pedagogies, Ash and Clayton (2009) drew on Dewey's critiques of the maxim that experience is the best teacher to argue that experience without critical reflection risks reinforcing assumptions, oversimplifying complex problems,

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generalizing data, and ultimately, denying students the opportunity to learn about their own learning processes. Designed well, critical reflection can promote development in problem-solving skills, higher order reasoning, and metacognition (Ash & Clayton, 2009).

DEFINING EL AT THE UNIVERSITY OF CALGARY

Knowledge about what makes higher education learning meaningful and transformative for students is evolving alongside shifts in our increasingly complex and interconnected world. National and provincial calls-to-action to reimagine higher education have identified EL as a strategy to address such issues as youth employment and skills development (Business and Higher Education Roundtable, 2018; Premier's Highly Skilled Workforce Expert Panel, 2016). In Fall 2018, the University of Calgary's EL Working Group was tasked with a definition and framework unique to the institution. Having a common language to talk about EL is critical to communicating its value within and beyond the institution, tracking student participation, and examining its impact on student learning. Although the definition continues to be refined via campus consultation, the most current definition of EL at the time of publication was:

Experiential Learning (EL) is learning-by-doing that bridges knowledge and experience through critical reflection. EL activities are intentionally designed and assessed. As such, they empower learners to enhance individual and collaborative skills such as complex problem solving, professional practice skills and teamwork. Reflecting critically on these activities helps individuals develop higher order thinking to challenge and advance their perspectives. The EL process prepares students to take on roles as active citizens and thrive in an increasingly complex world (EL Working Group, 2019, p.1).

Additionally, through the consultative process, the University of Calgary developed categories for EL, presented in Table 1.

Table 1

Categories of Experiential Learning and Activities

Categories of Experiential Learning				
Co-curricular EL	Community-engaged Learning	Curriculum-integrated EL	Research-integrated EL	Work-integrated EL
Accelerators	Co-curricular CEL	Case Studies	Course-Based Research Projects	Capstone Projects
Co-curricular internships	Community-Engaged Research	Creative Performance / Exhibits	Individual Research Projects / Studentships	Consulting Projects
Competitions	Curricular CEL Projects/ Placements	Design / Project-Based Learning	Research Assistantships	Cooperative Education
Hackathons	Knowledge-Keeper Guided Learning	Field Schools		Internships
Immersive Personal Development Programs	Land-Based Education	International / Cross-Cultural Learning		Professional / Clinical Practice / Field Experience / Practica
Paraprofessional Placements / On-campus Employment Supported Volunteer Experiences		Laboratories		
		Pitch Competitions		
		Simulations Studios		

The five categories of EL are: co-curricular EL, community-engaged learning, curriculum-integrated EL, research-based EL, and work-integrated learning. Within those categories, 29 activities support the student learning experience, capturing the diverse EL opportunities across campus. The categories are not distinct, and some activities are situated in multiple categories.

CAPTURING EL ACROSS A PROGRAM OF STUDY

Having an institutional definition of EL along with a shared understanding of how it is implemented in different faculties is essential to establishing a baseline of what EL activities are already happening in a program of study. In the example presented in this paper, we wanted to

know more about EL than where it can be found in the program, but also the category of EL as presented in the institutional framework and the primary purpose of the EL activity.

Curriculum Mapping

Curriculum mapping can be described as the process of associating course outcomes with program-level learning outcomes and aligning elements of courses within a program, to identify trends and patterns in aggregate data. The resulting maps and charts can form the basis of discussions about how well the program is structured in a strategic, thoughtful way to support student learning (Dyjur & Kalu, 2017). Analyzing these data can help to determine the strengths and gaps in a program, future directions, and next steps in the process of curriculum renewal.

In our example, curriculum mapping could be done as a part of a curriculum review process. Since instructors would already be mapping some of their course information such as course outcomes, it would take minimal additional effort to add more information about EL. In addition to course outcomes, instructors in this example would also be asked to indicate the category of EL as outlined by our institutional framework, and the primary purpose of the activity. We used the following classifications for primary purpose:

A: Apply concepts and/or theories

T: Develop technical skills, such as practical skills needed to perform tasks

C: Develop core skills, such as communication, collaboration, and/or professionalism

E: Employability skills

We have created an example of a general arts and science degree, showing only required courses in the program. Although it is not inclusive of the entire program, required courses are the only ones that students are certain to take and therefore indicate the minimum number and range of EL that a student in the program would experience. Instructors of required courses recorded their course outcomes, identified which ones related to EL, if any, and indicated the alignment with a category of EL as outlined in the University of Calgary Experiential Learning Framework (2019). Further, they identified the primary purpose of the EL activity using the ATCE classification.

Course Map

Table 2 shows the course outcomes for an analytical chemistry course mapped to categories of EL by primary purpose. By examining the map we can see that the instructor of the course has associated the third course outcome (create a communication plan based on a specific communications theory, for a group or event) with curriculum-integrated EL. Further, they have identified the primary purpose of the course outcome as T: technical skills. Additionally, the fourth course outcome is associated with curriculum-integrated EL (analyze written and visual communication information), and the primary purpose identified here is C: core skills such as communication.

Table 2

Course Map – Courses Outcomes Mapped to Categories of Experiential Learning by Primary Purpose

Course Outcomes	Categories of Experiential Learning				
	Community-engaged Learning	Co-curricular EL	Curriculum-integrated EL	Research-integrated EL	Work-integrated EL
1. Explain concepts relating to interpersonal communication					
2. Describe the role of mass media in society					
3. Create a communication plan based on a specific communications theory, for a group or event			T		
4. Analyze written and visual communication information			C		

Legend:

A: Apply concepts and/or theories

T: Develop technical skills, such as practical skills needed to perform tasks

C: Develop core skills, such as communication, collaboration, and/or professionalism

E: Employability skills

The chart indicates that curriculum-integrated EL is the only category identified in the course. Further, the primary purpose of each is different: one focuses more on technical skills while the other focuses on core skills. While this information would be interesting to an individual instructor, it can also be informative to others who want to see where EL is incorporated in the program's required courses, which categories are identified, and the primary purpose of the activities.

Courses Mapped to Categories of EL by Primary Purpose

Once instructors have mapped the required courses, aggregate program data can be generated. Table 3 shows how the seven required courses contribute to categories of EL across a program of study, including the primary purpose of the activities.

Table 3

Program Map – Courses in a Program Mapped to Categories of Experiential Learning by Primary Purpose

Courses	Categories of Experiential Learning				
	Community-engaged Learning	Co-curricular EL	Curriculum-integrated EL	Research-integrated EL	Work-integrated EL
UNIV 201					
UNIV 230					
UNIV 301			C		
UNIV 321			T		
UNIV 322					
UNIV 323					
UNIV 455				A	

Legend:

A: Apply concepts and/or theories

T: Develop technical skills, such as practical skills needed to perform tasks

C: Develop core skills, such as communication, collaboration, and/or professionalism

E: Employability skills

When examining the table, it is evident that students will participate in curriculum-integrated and research-integrated EL activities, but will not necessarily have opportunities for community-engaged learning, co-curricular EL, or work-integrated EL. Three required courses in the program contribute to EL while the other four required courses do not have substantial EL opportunities. The table also shows that students in the program are encouraged to develop core skills, technical skills, and apply concepts and/or theories.

Course Outcomes per Category of EL by Primary Purpose for Required Courses

To get a more detailed look at the categories of EL, Figure 1 shows the primary purpose of EL activities for each category, as they relate to course outcomes. Required courses are included in the figure.

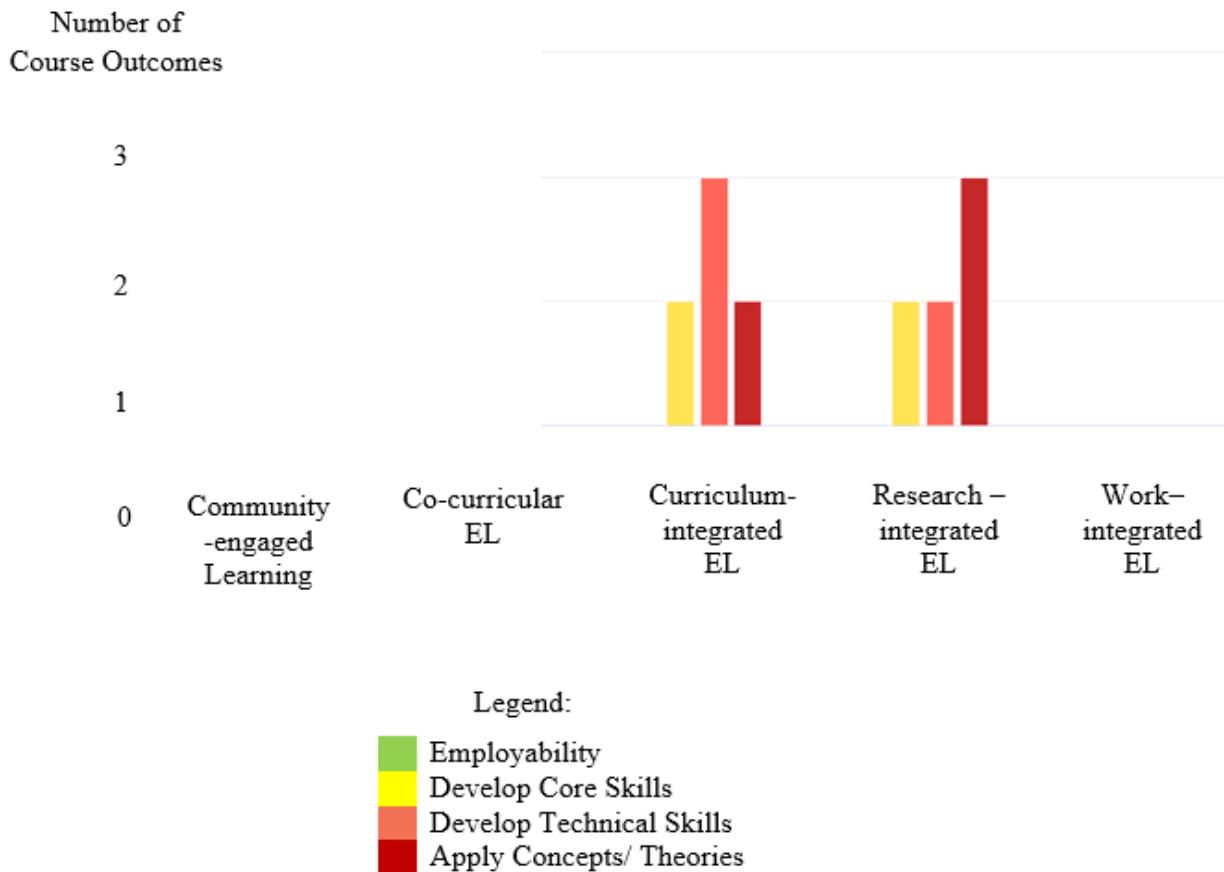


Figure 1. Number of Course Outcomes per Category of EL by Primary Purpose for Required Courses

The aggregate data are helpful in clarifying that students do not have the opportunity for community-engaged learning, co-curricular EL, or work-integrated learning as part of course requirements. While they will have curriculum-integrated EL and research-integrated EL opportunities, there are only four course outcomes within the seven required courses that relate to EL. None of the course outcomes have employability as the primary purpose for the EL activity.

DISCUSSION AND RECOMMENDATIONS

In our example, mapping EL opportunities across required courses has yielded some interesting results. The tables and figures show that the program includes curriculum-integrated EL and research-integrated EL, while community-engaged learning, co-curricular EL and work-integrated learning are not currently elements of the program. Further, the data show that only three of the seven required courses contribute to EL. Collectively, the primary purpose of EL activities included the application of concepts or theories, development of technical skills, and the development of core skills, but not employability skills. Now that a baseline has been established, instructors and other stakeholders in the program can have evidence-informed

discussions to determine if students need opportunities for more EL, and if so, the categories of EL and purpose of the activities.

There are several benefits of capturing EL across a program of study as described. Instructors who teach in the program will become familiar with the definition and categories of EL while mapping their courses. Therefore, it can be a learning opportunity to broaden their understanding of EL. It is suggested that they discuss how the different categories of EL might be enacted within their discipline prior to mapping their courses, which can add context to generic EL descriptions. The data gathered can then be used to align the program with institutional and faculty priorities, enhancing learning for students in the program. The process described in this paper can also be efficient if it leverages an existing process, curriculum review, to gather EL data at the same time.

However, there are also drawbacks to using the approach presented in this paper that should be considered before implementing a plan to gather data about EL across a program. First, since curriculum review is rarely conducted annually but more commonly on a five-year cycle, it may not be frequent enough if the goal is to gather annual information on EL across an institution. In that case an investigation of EL activities would have to be separated from CR. Additionally, the method described is lacking information on aspects of EL such as how student reflection is incorporated in a course and/or the program. This drawback could be mitigated by adding more questions to a survey. Another limitation to this method is that it does not capture the intensity or quality of the EL activities. To do so would require rethinking the process. Finally, this approach lacks the student voice. To overcome this issue, a student survey could be implemented to ask students about their perceptions of EL activities. The data would complement the curriculum maps, which present the instructors' perceptions of EL.

RECOMMENDATIONS

We offer the following recommendations for others who are capturing EL activities across a program of study using a similar process. First, we recommend that instructors map EL activities at the same time as they map other aspects of their course, such as course outcomes. If data on EL are needed more frequently than curriculum review is conducted, leveraging a different existing process could be considered. For example, instructors could indicate EL activities as part of preparing their course outlines, thereby capturing EL on a continuous basis. If EL data are required annually on an institutional level, consider using a survey that is part of instructors' annual administrative work. Second, to increase the validity of the data, we suggest that instructors discuss the meaning of EL, the categories used, and how they are enacted within their discipline prior to mapping their courses. Having a shared understanding of EL will increase the likelihood that people approach the task in a similar way, thereby increasing the validity of the data. Third, for those who want to capture all EL activities, not just the ones in required courses, optional courses should be included, and non-credit opportunities should be considered if feasible. Our example did not show any non-credit student learning opportunities or optional courses. Adding those components would give a more rounded picture of EL within a program. However, this will not be practical for programs that have hundreds of optional courses. If students have few required courses and wide latitude to structure their own program, the aggregate data may not be representative of a typical student learning experience. Lastly, a recommended extension of this work would be to develop experiential major maps that show suggested learning pathways to facilitate course selection for students navigating these meaningful experiences throughout their studies (EAB Global Inc, 2018).

SUMMARY

In this paper we have presented the definition and categories for EL used at the University of Calgary. The categories of EL and primary purpose of the activities were used as part of a curriculum mapping process to capture the extent and focus of EL for a sample program. The aggregate data showed the types of EL already incorporated and the emphasis of different categories of EL, which form a baseline to inform discussions about the strengths and opportunities for EL activities within a program. We have several recommendations for others who are capturing EL in a program of study. First, we suggest that groups leverage an existing process such as curriculum mapping. Second, discuss the definition of EL, especially in terms of disciplinary context, with those who are capturing course information. Third, consider which learning opportunities should be captured. Fourth, consider creating experiential major maps to guide students who are interested in taking courses that incorporate EL.

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