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# Beyond the Afterglow: Effective Transfer of Learning Through Instructional Design

## ABSTRACT

This article examines the experiences of students after completing an online postgraduate learning technologies applications course with respect to the transfer of learning of skills, knowledges, and perspectives to their professional educational practice. Transfer of learning was perceived to have occurred with respect to overall course design and specific learning activities. Transfer of learning from the course to educational practice was seen as effective for most study participants; however, the strong community of practice inculcated within the course eroded after the course ended.

## KEYWORDS

transfer of learning, elearning, reflective practice, scenario-based learning, adult education

## INTRODUCTION

In the flush of a recently (or soon to be) completed course, student evaluations of teaching can be positively or negatively skewed. For some students, the value of a specific course does not become evident until long after the course is completed; similarly, an initially well-received course may not prove to have an impact over time. What happens after any afterglow, after the flush of excitement and novelty from a highly positive course experience have passed? In particular, what sort of impact can one course have on practice?

The focus of this article is one unique course within one specific postgraduate program. Unlike some other courses in the program, this course on learning technologies applications has been purposefully designed to give learners a range of competencies transferable to their professional practice. In other words, this course has transfer of learning at the core of its design in terms of learning activities, assessment, and pedagogy. With multiple cohorts having completed the course between 2009 and 2012, I had access to a population whose members had between a few months to several years to try to transfer what they have learned from the course to their educational practice—in and beyond the afterglow.

To what extent, then, can the purposeful integration of learning activities to foment transfer of learning increase learners' ability to apply what has been learned in their work? Are some sorts of learning activities better suited to this goal? Are there aspects of how a course is taught—inclusive of, but in a much broader sense than merely the specific learning activities—that can have an impact on transfer of learning?

This article reports findings about the transfer of learning experience related to an elective, wholly online, postgraduate applications course in educational technology. Specific data related to the course's learning community (Anderson, 2008) and community of practice (Lave & Wenger, 1991) are contextualized through an articulation of the design process behind these aspects of this course.

## ABOUT THE PROGRAM, ABOUT THE COURSE

The program in educational technology is a coursework-based magistral program offered since 2002 and was one of the first wholly online postgraduate degree programs offered by a major, globally ranked, research-intensive Canadian university. Since its inception, over 600 students have completed the program, studying on either a full- or part-time basis. A truly global program, students include those based in Canada, the United States, Latin America, Asia, Europe, the Caribbean, and Australasia.

From its inception, the program has focused on scholarly informed critical analysis of the implementation of technology in learning environments. In addition to core courses in research methods, instructional design, educational technology foundations, and learning theory, students choose from a range of elective courses focused on subject areas such as math and science or liberal arts education, Indigeneity, and entrepreneurship.

As the design team began to develop this course, one key question informed our learning design work: what sorts of core competencies would we expect from an early career learning designer who had completed a postgraduate qualification in educational technology? For this course, the core competencies identified were as follows:

- A solid understanding of key literatures related to tool selection, learning theory, and learning technology deployment best practices
- Familiarity with professional standards related to educational technology
- Ability to create a learning management system course site with a customized (“cracked”) graphical user interface
- Creation of a sophisticated assessment object (quiz or exam), using a range of question types and assessment strategies
- Development and delivery of a pedagogically purposeful digital story
- Use of weblogs or wikis for site design, as learning objects or as an e-portfolio platform
- Mindfulness of issues related to intellectual property, confidentiality, and data ownership
- Online learning object design for accessibility
- An ongoing practice of substantive, productive self-reflection

## TRANSFER OF LEARNING

One might assume that educational professionals should be particularly adept at applying what they learn in postgraduate studies to their practice; however, for various reasons many find this challenging. While some might argue that all curriculum development (or program planning, to use the language of adult education) ensures skill and knowledge transfer, there is an emerging consensus that challenges this presumption.

Transfer of learning, prominently an adult education concept, has found currency in a range of contexts. Perkins and Salomon (1988) were pioneers in the scholarship of transfer of learning. They were among the first to delineate, for example, how “transfer does not take care of itself” (p. 22). However, many of the terms they coined (including low- or high-road transfer, bridging versus hugging the high road) are perhaps better suited to a primary or secondary school context rather than higher education (pp. 23-28).

Caffarella’s definition of transfer of learning as “the effective application by program participants of what they learn as a result of attending an education or training program” (2002, p. 204) is better aligned with our work here. Caffarella further notes that transfer of learning has “often been thought of in behavioural terms—that is, what is to be transferred can be clearly specified in terms of observable changes in knowledge, skills and attitudes” (2002, p. 205). Sork identifies “devising transfer of learning plans” as important in the program planning (or curriculum) process and credits Caffarella with bringing the concept of transfer of learning to the fore, since “most (curriculum) models are silent on this important aspect of planning, or just assume that this will be taken care of when designing instruction” (2011, p. 162). Among numerous transfer of learning techniques identified by Caffarella (p. 217), individualized learning plans, mentoring, portfolios, and reflective practice feature prominently in the design for this course.

Merriam and Leahy (2005) have described different sorts of learning transfer, including specific versus general skills or principles, and related deep versus surface learning (p. 4). Macaulay (2000) identifies several specific pedagogical techniques to facilitate transfer, including “problem-based learning . . . role-playing, critical incident analysis, video simulations and vignettes . . . case-studies or examples may be devised with the intent of helping students to overcome common misconceptions” (pp. 18-19), several of which we also used in our course design.

Green (2013) offers an interesting theoretical analysis of transfer of learning’s potential negative consequences in higher education policy. His particular concern that “a concomitant rationalization process has become dominant” in higher education (p. 365) is valid: there can be a tension between an increased focus on transfer to the workplace and the goals of academic autonomy, often at the expense of the former (p. 367). Further, his query “what kind of learner would possess the characteristics required for its success?” is an important question to answer (p. 369). However, his analysis does not substantively engage in differences between the sort of purposeful, precise transfer characteristic in (health) professional education programs in comparison with more generic skill development and transfer in other, less vocationally focused, university programs. Transfer of learning’s being a norm in professional disciplines and programs, in other words, is not universally problematic.

In fact, transfer of learning has been the focus of a varied range of higher education scholarship. Driscoll’s study of general education degree requirements and transfer of learning critiques how many students’ “vocationalism creates a single-minded focus on students’ career preparation and major coursework and invites disregard for the value of general education courses” (2014, p. 21). In the context of my study, where all participants were enrolled in health profession programs, concurrent foci on vocational skills, clinical knowledges, and basic science were not in conflict. Similarly, Scharff, Draeger, Verpoorten, Devlin, Dvorakova, Lodge, and Smith explore how “metacognition might enhance

learning transfer and its development” (2017, p. 1). They identify two factors that impede transfer: a “lack of explicit communication to promote awareness and shared expectations” and “development/maturation influences” that were variable within and between groups (p. 12). But there is no detailed information about the disciplines or programs within which their study’s participants were enrolled.

In a medical education context, skill transfer often focuses on the explicit and precise rendering of procedures, as well as the clinical reasoning required to ascertain what procedures are appropriate. Norman, Dore, and Grierson found no significant advantage of high-fidelity simulation over low fidelity simulation (2012, p. 636), in terms of transfer of learning of clinical skills. Dalgaty, Guthrie, Walker, and Stirling (2017) examined how a medical student mentorship program proved to be “an effective conduit for supporting the transfer of learning needed to address performance gaps in [medical] students” (p. 124). Lock, Rainsbury, Clancy, Rosenau, and Ferreira (2018) examined transfer of learning as part of a wider study of undergraduate nursing students’ learning influence. Their findings showed that “the experience being co-taught in an interactive learning environment provided opportunities to develop their competence and confidence,” including transfer of learning (p. 46)

More broadly, Goldstone and Day highlight several elements key to transfer of learning success. First, an “active learning stance of the learner makes a critical difference for transfer” (2012, p. 150). Second, a need to “reconcile the cognitive basis for transfer with motivational considerations” is important (p. 151). Third, to maximize effectiveness, “efforts to teach students with an eye toward transfer will incorporate a diverse set of methods aimed at training flexible thinking” (p. 151). Finally, “speed should not be viewed as the only measure of efficiency” (p. 151). All of these proved cogent to our course design process.

The question of measurement and reliability is an important one when there is a focus on specific skill transfer. For this study, we did not ask students to measure or quantify the impact of the course on their practice: such self-reporting is known to be imprecise. Yet education professionals are adept at assessing impacts on their practice from learning opportunities like this course, when given an opportunity to reflect upon this: in fact, much of professional development and scholarship of teaching and learning literature relies on this to be true. As Macaulay (2000) has highlighted, “reflection has a fundamental place in transfer of learning.” (p. 19). We therefore asked participants to reflect precisely and broadly upon their course experience and post-course practice.

### **Community design**

Early in the course design process, we identified inculcating a learning community, one that formed the basis of an ongoing community of practice (Lave & Wenger, 1991) during and after the course (and the program) as a goal. While many focus on Lave and Wenger’s notion of “legitimate peripheral participation” (p. 29), we think a larger message from their work is too often lost. Peripheral participation demarcates one phase along a broader, more complex continuum of community membership for skilled practitioners. To move beyond the rudiments of nascent practice requires a shift toward the center—away from the periphery—of a community of practice. In fact, Lave and Wenger specifically warn that “Rather than learning by replicating the performances of others or by acquiring

knowledge transmitted in instruction, we suggest that learning occurs through centripetal participation in the learning curriculum of the ambient community” (p. 100).

Further, Anderson’s characterization of a learning community as a space where members “both support and challenge each other, leading to effective and relevant knowledge construction” (2008, p. 39) also informed our course design. We sought to create a course where a vibrant community enriched each student’s learning during the course, where engagement was both interpersonally and academically productive work. We hoped that, subsequent to their completion of the course (and program), a community of practice would persist for course participants as they sought to apply—transfer—what they had learned in this course to their own context of practice.

Our learning community course design provided learning activities that fomented, supported, and leveraged the course learning community through its concomitant interactions. Endeavoring to garner a richer understand of these centripetal, ambient, cyclical aspects of community of practice dynamics was therefore also a focus of this study.

## METHOD

This exploratory study sought to rigorously examine aspects of student experiences both during the course and subsequent to having completed the course.

The research questions for this study were as follows:

- ***What are the perspectives of students who have completed the course with respect to the course and its subsequent value?***
- ***To what extent did specific components of the course design transfer to their practice, if any?***
- ***To what extent has this course had an impact on their overall practice as educators, if at all?***

The study was largely quantitative, with data collected via a self-administered online questionnaire. Five-item Likert-scale questions were often used (e.g., strongly disagree, disagree, not sure, agree, strongly agree), which were in most instances collapsed to three-item scales (e.g. disagree, not sure, agree) for analytic purposes. A few specific qualitative questions were also included. Data collection ran between May 2012 and February 2013.

The questionnaire included the following nine domains:

1. Professional experience
2. Program experience
3. Active learning course component
4. Self-directed eLearning toolkit course component
5. Formative assessment course component
6. Summative assessment course component
7. Learning communities and communities of practice
8. Overall impact on practice
9. Demographic information for classification purposes

The questionnaire was developed based on a review of the current literature, the documentation from the design team that developed the course, and in consultation with colleagues knowledgeable about learning technologies, transfer of learning, and scholarship of teaching and learning methodology.

Questionnaire invitations were sent via the university's student information service, as were two reminders: this system blinds the email addresses of respondents. Out of 269 students invited to participate in the study, three had invalid email addresses "bounce back," making an adjusted recruitment population of 266. A total of 86 completed the survey, for a response rate of 32 percent. The survey was delivered via VoVici, an online survey tool. Statistical analyses were done using SPSS 22 for Mac OS X. The university's behavioral research ethics board approval for the study was granted prior to data collection (UBC BREB Number H12-00986).

Our analyses focused on whether the transfer of learning experiences of study participant was mitigated by specific aspects of participants' experiences: the length of time from when the course was completed (in relation to the survey completion date), subject matter taught, context of work, educational attainment of participants, gender identity, and other classification variables. Chi-square calculations were used to determine whether what appeared to be important differences were statistically significant ones.

While many of the alumni of the course work as public school teachers at the primary, intermediate, or secondary level, others work in different contexts as educational professionals, not always as teachers, instructors, or facilitators. These include program managers, instructional designers, and school leaders. Thus, the study design (and language) needed to be inclusive, in order to allow this breadth of professional educational practice to be captured. Hence the use of the term *educational professionals* rather than *teachers*.

## Respondents

Both mean and median age for respondents was 42 years at the time of survey completion. Sixty-two percent of respondents were female, 30 percent male (2 percent preferred not to answer; 6 percent skipped the question). Most had trained to be either a primary or secondary school teacher: fully 74 percent had completed a Bachelor of Education program. Educational attainment levels were skewed toward having completed one or more master's degrees (73 percent), in many instances the program itself: 3 percent had completed a doctoral degree. Most respondents—68 percent—worked full-time (defined as 35 hours per week or more), viewed themselves as "early adopters" of new technologies (84 percent) and "learning technologies leaders" (83 percent). A somewhat smaller majority considered themselves "learning technologies innovators" (67 percent).

Respondents worked in a range of contexts. Almost half (43 percent) worked in primary or secondary education, with others distributed across higher education, adult education, or workplace learning. Of the 26 percent who selected "Other," named roles included educational technologist, instructional designer, school district administrator or coordinator, project manager, school principal, and consultant. Eighty-seven percent had been an educational professional for five or more years: only 1 percent were in the first year of their education career. Just under half (49 percent) have worked five or more years in their current role: 6 percent were in their current role for less than one year.

Of their reasons for enrolling in the program, “an interest in learning technologies” was the most common response: eight out of ten survey respondents indicated this. Career advancement, being a lifelong learner, and the program being offered wholly online were also commonly cited. Conversely, only 1 in 10 cited the absence of any face-to-face graduate program available near their home community as a reason. Eighty-seven percent had enrolled in the program since 2008, with roughly equal numbers starting in September or January. At the time of survey completion, 44 percent had completed the program (most by 2011); another 24 percent had completed between seven and nine (out of 10) program courses.

## FINDINGS

Nearly all respondent found the learning community design employed in the course to be broadly relevant, with two-thirds finding it very or highly relevant. Table 1 outlines these results:

**Table 1: Relevance of learning community aspect of course**

LEARNING COMMUNITY ASPECT WAS:	PERCENT
Highly relevant	43
Very relevant	24
Significantly relevant	25
Marginally or not relevant	8
Prefer not to answer	1

In total, 93 percent of the respondents saw the learning community aspect significantly, very, or highly relevant.

One aspiration for the program is that the learning community persists post-program as a community of practice; this was also goal for this course in particular. In fact, almost half of respondents—47 percent—felt there was a program-level community of practice. However, only 36 percent felt this course’s community of practice persisted after the course.

### Course design elements

Two specific elements of the course design seemed to have facilitated transfer of learning in relation to the course’s core competencies: scenario-based learning and the eLearning Toolkit.

#### *Scenario-based learning*

Throughout the course, a series of learning activities were facilitated via the course’s learning management system discussion forums. These inquiry-, case-, and problem-based scenarios were designed to allow students to link the relevant readings to practice, reflect upon their own experiences, and to communicate as an educational professional with their peers. With the program’s students working across a disparate range of educational contexts, we created scenarios that reflected, in broad terms, this range of contexts. As well, the trigger question for each had the scenario protagonist inquire of the reader (as an educational professional) their opinion on an idea or strategy in the protagonist’s

context. This allows the students to draw upon their own form of educational expertise in their response, even if the scenario itself was not one they would encounter in their own practice.

This strategy had an impact: 64 percent of respondents agreed that the scenarios improved their practice. An even higher percentage—81 percent—agreed that the scenarios helped them link theory to practice. As indicated in Table 2, this correlated positively with one variable: enrolling in the program because of an interest in learning technologies ( $X^2(3, N = 87) = 20.11, p = .000$ ).

**Table 2. An interest in learning technologies and scenarios having improved practice**

	NEVER/ RARELY (n)	SOMETIMES (n)	OFTEN/ALWAYS (n)	DON'T RECALL (n)
They did not improve my practice	3	2	2	0
They improved my practice (Yes)	2	20	56	2

#### *Elearning toolkit wiki*

The course's elearning toolkit is a wiki-based, self-directed repository of various eLearning design elements. Students were encouraged to choose elements upon which to focus their time, based on their extant skill level and design decisions for their course assignments. We made the toolkit forward facing on the web in the hope that students would find the resource useful subsequent to having completed the course. We also used it to model ways in which free social media tools can be leveraged to facilitate learning—sometimes in ways other than the tool's more obvious affordances.

Seventy-one percent of respondents reported subsequently using the toolkit since completing the course. As well, 38 percent have found the toolkit useful; 36 percent said it had an impact on their practice. Twenty-six percent had developed a similar resource in their own context. Thus, significant transfer of learning related to the toolkit—its contents and its pedagogical approach—seems to have occurred. However, there were no statistically significant correlations with respect to the toolkit's impact on practice: the impact was important, just not differentially so with respect to any other variables.

#### **Overall transfer**

Writ large, nearly all respondents (over 90 percent) felt somewhat or very successful in applying what they learned in the course to their practice. Fifty-eight percent felt highly successful; 35 percent felt somewhat successful; only 4 percent felt unsuccessful. Of those who felt somewhat or unsuccessful, a range of (non-mutually exclusive) reasons were identified, as outlined in Table 3.

**Table 3. Barriers to transfer**

BARRIER	PERCENT
Onerous assessment and prep time	19
Lack of support from my leadership	13
Lack of support at the district level	12
Lack of access to hardware	11
Lack of access to software	9
My priorities have changed	1



Of these reasons, the only intrinsic one is the last one: “my priorities have changed,” which was selected by only 1 percent of respondents. All the others are structural barriers, with workload, resourcing, and various lacks of support more frequently cited reasons.

### Value versus impact

Respondents overall ranked the course as having great value (72 percent), with 35 percent described it as the most valuable program course they have taken. Another 37 percent described it as highly valuable: only 6 percent characterized it as having limited or no value. In terms of impact on their practice, nearly half—47 percent—saw its impact as very significant, with another third seeing it as having had significant impact. Again, only 6 percent characterized it as having limited or no impact.

In terms of statistical significance, students’ perspectives on three elements of the course design predicted those who found the course impactful with respect their educational practice, the extent to which

- they saw value in the final synthesis reflection assignment;
- the scenario-based learning activities were valuable; or
- they felt there was a community of practice in the course.

This also aligns precisely with the course design. As part of the synthesis reflection assignment, students were asked to reflect across a range of activities throughout the course, then to retrospectively review all their work—and earlier in-course reflections on their individual eportfolio—to prepare their summative synthesis reflection. This combination of iterative, concise reflections “in” practice and subsequent reflection “on” practice (Schön, 1983) was designed to have students “connect the dots” between discrete learning actions and over learning from the whole of the course.

The effect of the final synthesis reflection assignment in relation to overall course impact is indicated in Table 4: ( $X^2(18, N = 83) = 43.81, p = .000$ ).

**Table 4. Value of final synthesis reflection assignment versus overall impact on practice of the course**

	COURSE LIMITED/NO IMPACT (n)	COURSE SIGNIFICANT IMPACT (n)	COURSE VERY/HIGHLY IMPACTFUL (n)
Synthesis limited/no value	4	2	2
Synthesis significant value	1	3	8
Synthesis very/highly valuable	0	5	56
Synthesis don’t recall	0	0	1
Synthesis prefer not to answer	0	1	0

These data show that respondents who found the synthesis reflection assignment very or highly valuable were more likely to find the course very or highly impactful on their practice.

The effect of the scenario-based learning in relation to overall course impact is indicated in Table 5: ( $X^2(6, N = 86) = 66.11, p = .000$ ).

**Table 5. Overall impact on practice of course versus value of final synthesis reflection assignment**

	COURSE LIMITED/NO IMPACT (n)	COURSE SIGNIFICANT IMPACT (n)	COURSE VERY/HIGHLY IMPACTFUL (n)
Scenarios never/rarely improved my practice	4	1	0
Scenarios sometimes improved my practice	1	6	14
Scenarios often/always improved my practice	0	3	55
Synthesis don't recall	0	1	1

These data show that respondents who thought the scenario-based learning activities often or always improved their practice were much more likely to find the overall course very or highly impactful on their practice.

The effect of the community of practice element of the course design in relation to overall course impact is indicated in Table 6: ( $X^2 (12, N = 83) = 29.24, p = .004$ ).

**Table 6. Community of practice element versus overall impact on practice of the course**

	COURSE LIMITED/NO IMPACT (n)	COURSE SIGNIFICANT IMPACT (n)	COURSE VERY/HIGHLY IMPACTFUL (n)
There was a community of practice:			
Disagree	3	0	0
Neutral/not sure	0	2	5
Agree	2	8	66
Prefer not to answer	0	1	0

These data show those who agreed that the course operated as a community of practice were much more likely to find the course very or highly impactful.

### Value versus impact

As well, two specific elements of the course design predicted which respondents who found the course to be more valuable: the final synthesis reflection assignment and the scenario-based learning activities.

The value found in the final synthesis reflection is indicated in Table 7: ( $X^2 (12, N = 83) = 29.24, p = .004$ ).

**Table 7. Overall value of course versus value of final synthesis reflection assignment**

	COURSE LIMITED/NO VALUE (n)	COURSE SIGNIFICANT VALUE (n)	COURSE VERY/HIGHLY VALUABLE (n)	MOST VALUABLE COURSE (n)
Synthesis reflection was:				
Limited/no value	3	2	1	2
Significant value	1	2	7	2

Very/highly valuable	1	6	31	23
Don't recall	0	0	0	1
Prefer not to answer	0	1	0	0

These data show that those who found the synthesis reflection assignment very or highly valuable (or this course as the most valuable course in the program), were more likely to view the overall course as very or highly valuable. Anecdotally, this also seems to be reflected in academic performance data (which are excluded here for privacy reasons): students who did not substantively engage with reflection, either formatively or summatively, tended to be those who struggled.

Similarly, those who found the scenario-based learning impactful on their practice also viewed overall course value higher, as indicated in Table 8: ( $\chi^2(9, N = 86) = 67.44, p = .000$ ).

**Table 8. Overall course value versus impact on practice of scenario-based learning activities**

	COURSE LIMITED/NO VALUE (n)	COURSE SIGNIFICANT VALUE (n)	COURSE VERY/HIGHLY VALUABLE (n)	MOST VALUABLE COURSE (n)
Scenarios				
Never/rarely improved my practice	4	1	0	0
Sometimes improved my practice	0	6	12	4
Often/always improved my practice	1	3	28	25
Don't recall	0	1	0	1

These data show that those who reported the course as very valuable, highly valuable, or as the most valuable Program X course were more likely to report the scenario-based learning had often or always improved their practice.

### Qualitative data

When asked a qualitative question to address anything not covered in the questionnaire, several respondents spoke to the course's transfer of learning element unprompted: the data below represent all the qualitative data that spoke to transfer of learning. (Note: each paragraph represents a different person's response to the question.)

*I felt the most inspired by [this course] to advance my tech expertise. I was keen to initiate a community of practice in my chemistry classes immediately. I learned to use tools I had no idea I was capable of.*

*Incredibly practical course. The constructivist nature was frustrating at times, but very valuable. This course has had the biggest daily impact on my teaching career because I use what I learned—the digital story, a blog, and an asynchronous discussion forum in a Moodle shell. Without this course, I would not have had experience with any of these tools and it would have taken me much longer to find the time on my own to learn them, let alone implement them.*

*The community of practice in this course should be an example for all [program] courses. If so, the community of practice will be strong all the way along the program and will probably continue after in some ways. The collaboration with others in that course is something I will remember . . . I am still in touch with some of the people I met in that course. That aspect alone means a lot to me. Within other things, the teacher had facilitated that aspect all along the course which I applaud. As an online teacher myself I know exactly how much energy it takes from the facilitator. BRAVO!!!*

*Thank you for teaching me how to learn.*

There has been significant transfer of learning for these respondents with respect to the course's impact on their practices as educational professionals, as well as their subsequent membership in a post-course community of practice.

## CONCLUSION

According to Merriam and Leahy (2005), "the opportunity to apply learning, supervisory and peer support, organizational culture and congruency of trainee and organization goals have some bearing on learning transfer" (p. 13). Both the learning community/community of practice element of the course design, as well as the structural barriers encountered by a number of respondents post-course, both seem to validate this statement.

To a significant extent, participants perceived transfer of learning to have occurred subsequent to their completion of the course. The perspectives of the respondents found significant value in precise elements of the learning design of the course, as well as the holistic experience in the course. Further, to a significant extent, specific components of the course design had an impact on some respondents' practice, albeit on a limited basis: the constraints on doing so were often structural and context-specific, rather than a reflection of the course design itself. Finally, the course had an impact on most respondents' practice as educators, writ large.

Most respondents agreed that the learning community aspect of the course was an important element. What is less clear from the data is the extent to which the learning community element contributed to transfer of learning. Similarly, while a significant number of respondents have found a course- or program-specific community of practice persisted afterwards, most did not. To what extent this is indicative of the course design, or (perhaps) representative of the challenges education professionals face in maintaining membership in a community of practice—particularly one that is digital in nature—once the educational context from which the community developed has been left behind, is unclear.

## IMPLICATIONS

According to Caffarella (2002), transfer of learning is, on a fundamental level, about assisting people to make changes, "in themselves, other people, practices, organization and/or society" (p. 206).

The richer understanding from this study of the extent to which transfer of learning occurs, what facilitates transfer, and what impedes it, serves this aim.

This study shows how purposeful course design can be effectively leveraged for transfer of learning to occur—and, often, persist. When transfer of learning is considered concurrently with respect to the overall course design and specific learning activities, the likelihood of transfer seems to increase. Embedded within this ethos is an orientation towards applied learning activities through mechanisms like the elearning toolkit, scenario-based learning, and the final synthesis reflection.

This study was conducted in the context of a faculty of education in a large, research-led, Canadian university: however, the students were drawn from around the world. The design used here has been adapted for courses and programs in other disciplines and at other universities. Thus, some of what is described here should be transferable and adaptable to other courses, institutions, and student bodies.

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