

Universal Design for Learning: Its Application to English for Academic Purposes Classrooms in Canada

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Abstract

In a time when students around the globe continue to pursue their higher studies in English-speaking countries, educators also continue to explore innovative teaching methods and approaches in order to support learning. Universal design for learning (UDL) is an innovative teaching framework that has recently drawn considerable attention among educators and researchers alike in Canada. A UDL framework helps educators, including English-for-academic-purposes (EAP) and English-as-an-additional-language (EAL) instructors, consider learner variability, motivate and engage learners in multiple ways, provide instructional resources and materials in various forms, and offer learners opportunities to demonstrate learning in alternate pathways. This article presents three core UDL principles: *multiple means of engagement*, *multiple means of representation*, and *multiple means of action and expression* and establishes connections to teaching EAP. The purpose is to interpret these three UDL principles and respective guidelines in EAP contexts and discuss how these principles and guidelines can be applied to EAP classrooms in order to support language learning in Canada.

Introduction

There has been a surge in the number of international students in English-speaking countries, including Canada, where the number of international students has also increased at institutions of higher education (Allen et al., 2018; Khatri, 2018). Upon arrival in a foreign country where they plan to pursue their higher studies, these learners not only have to adapt to the different teaching methods and approaches of their instructors but also have to adjust to a new culture (Ortmeier-Hooper, 2008). While an increase in learners from around the world provides instructors with an opportunity to expand their teaching experience, this increase also contributes to the growing challenges instructors and learners face daily in the course of their teaching and learning activities (Ryan & Carroll, 2005). To provide these learners with necessary support in their academic pursuits, institutions of higher learning are offering English for academic purposes (EAP) courses that are crucial to learner success (Huang, 2018). In addition, instructors also continue to explore and implement innovative curriculum and teaching methods and approaches in their teaching (Boothe et al., 2018). As teaching is an “intentional and reasoned act” (Anderson & Krathwohl, 2001, p. 3), it is important for instructors to effectively engage in both the “intentional” and “reasoned” parts of teaching. While teaching as a reasoned act is associated with *what* learning objectives instructors include in their teaching, teaching as an intentional act points to *how* instructors support their learners in meeting those objectives. As a tool for EAP instructors to effectively and efficiently navigate both the “what” and “how” of teaching and to address the needs of their international students, universal design for learning (UDL) can be a powerful educational framework to draw on. As such, UDL principles and guidelines can enhance learner engagement and task performance (Kumar & Wideman, 2014).

UDL in Education

Universal design for learning was influenced by architecture's design concept that a building can be designed to be accessible by everyone, regardless of the level of ability (Hutchinson & Specht, 2020; Rose & Mayer, 2002; Story et al., 1998). When a building is designed with accessible features, such as wide doorways, level entrances, and ramps, there is no need for retrofitting it upon the arrival of a person with accessibility needs. Indeed, the accessibility features that are "essential for some," that is, people with disabilities, are almost always "good for all," that is, for everyone (Meyer et al., 2014, p. 90), whether that be an individual with rolling luggage bags or baby strollers. Initially the concept of UDL was applied to environments that served learners with disabilities. However, UDL principles and guidelines have now been found to work effectively among learners from diverse linguistic and cultural backgrounds as well as learners with varied language proficiencies (e.g., Allen et al., 2018; Tobin & Behling, 2018).

In the early 1990s, Meyer et al. (2014) developed an approach that addressed the "disabilities of schools rather than students," an approach that was later named UDL (p. 5). Their intention was to develop curriculum that helped promote interactions between the learners and the curriculum and to support all learners rather than simply address the needs of the hypothetical average student. UDL holds that the curriculum, learning goals, instructional methods and materials, and assessment tools are the problem—not the learners. UDL provides opportunities for learners to interact with the curriculum in a way that helps them engage in their learning outcomes, the methods and approaches used, the instructional materials and assessment tools, and the strategies applied for language development. Brown (2020) considered UDL a promising pedagogical philosophy. To use UDL is to assume that no learners are disabled or unable to learn but to acknowledge that the curriculum is disabled and interferes with learners accessing content and benefiting from the teaching methods and resources (Meier & Rossi, 2020).

UDL and Additional Language Learning

At the heart of the UDL framework is its support for learner variation. Individuals' characteristics and abilities are not uniform or static. Rather, traits regularly shift as individuals interact with their environment. As Meyer et al. (2014) argued, "Each individual varies over time, and responses across individuals to the same environment also vary...variability is the rule both within and between all individuals" (pp. 81–82). As these authors discussed, learner variability is systematic and predictable and learners' capacity to learn is context dependent. Therefore, this predictability supports instructors in planning their lessons based on UDL principles (Rose & Strangman, 2007). Because learner variability is systematic and predictable, educators can design their curriculum and lesson plans knowing learners in their classrooms will more likely be motivated to learn, engage in tasks, take in information, and demonstrate their learning in multiple ways.

In an additional language (L2) context, there is considerable learner variability among EAP learners when it comes to their personal experience and background, individuality, including their "shyness versus gregariousness," as well as their exceptionalities or disabilities

(Rao & Torres, 2016, p. 461). As learners vary in their interactions with their environment, so does their level of motivation to learn about and complete their tasks, their use of strategies, and their apprehension of information. Therefore, planning lessons based on the variability of learners and providing multiple avenues for learning is of paramount importance in their effort to learn and succeed in EAP and English as an additional language (EAL) programs. Meier and Rossi (2020) argued that instructors can proactively address learner needs and minimize the instructional barriers they face in the classroom by developing curriculum and lesson plans that capture learner variability in their classrooms. They can then provide support that caters to learner strengths, needs, and other traits and thus provide multiple, flexible pathways for learners to succeed in language learning.

UDL Principles and Guidelines

Studies in education and technology continue to shape the UDL framework. However, the development of UDL is mainly influenced by neuroscience research that involves studying interconnected networks for learning in the brain that affect individual learning (CAST, 2021), namely, learners' *affective*, *recognition*, and *strategic* networks (CAST, 2018; Meyer et al., 2014). These are the three major types of networks that constitute a large part of the human brain and contribute to learning. Affective networks, which are located in the central part of the brain, constitute the “why” of learning and are associated with learner motivation and engagement. Recognition networks are located at the back of the brain and are associated with the “what” of learning. They are used for apprehending information and processing it into knowledge. Strategic networks are located in the front part of the brain and dictate the “how” of learning. They involve executive functioning and make possible planning, organizing, and launching actions. It is important that a positive atmosphere be created for these three networks to be active among learners in classrooms and beyond. Based on this three-network model of learning, UDL is built on three core principles: *multiple means of engagement*, *multiple means of representation*, and *multiple means of action and expression*, which together provide a structured framework that supports educators in exploring avenues to address learner variability and help all learners succeed in their academic endeavours. Each of these UDL principles contributes to helping learners become experts (Meyer et al., 2014).

Studies have suggested that EAP educators acquaint themselves with and operationalize these three UDL principles in order to address the diverse linguistic and cultural contexts of their students as well as learner variability (Lopes-Murphy, 2012; Rao & Torres, 2016). They can also be used in designing curriculum and lessons when working with EAP learners in an academic language context (Rao & Torres, 2016). By designing curriculum and instructional materials according to learner variability, that is, presenting information in multiple ways and helping learners comprehend information and meet their outcomes using alternative methods, instructors can motivate learners and help them engage in and stay focused on their tasks throughout their learning process. For that to happen, instructors should engage in practices that respect and value diversity and inclusivity, which is possible via UDL. At the same time, it is also essential that the physical environment be safe for everyone and be conducive to learning. Instructional resources and materials as well as technological tools should be engaging, varied, and flexible and used in multiple ways for all learners to access these resources as well as engage in and demonstrate their learning in multiple ways.

Table 1 presents the three core UDL principles and their respective guidelines (CAST, 2021) that can be used in L2 classrooms to help enhance language learning. However, these guidelines are not prescriptive, and EAP instructors can choose certain guidelines to work with at particular times in their classrooms (Rao & Torres, 2016).

Table 1

Universal Design for Learning Principles and Guidelines

Multiple Means of Engagement Purposeful, motivated learners	Multiple Means of Representation Resourceful, knowledgeable learners	Multiple Means of Action and Expression Strategic, goal-directed learners
Provide options for Recruiting interest <ul style="list-style-type: none"> ✓ Optimize individual choice and autonomy ✓ Optimize relevance, value, and authenticity ✓ Minimize threats and distractions 	Provide options for Perception <ul style="list-style-type: none"> ✓ Offer ways of customizing the display of information ✓ Offer alternatives for auditory information ✓ Offer alternatives for visual information 	Provide options for Physical Action <ul style="list-style-type: none"> ✓ Vary the methods for response and navigation ✓ Optimize access to tools and assistive technologies
Provide options for Sustaining effort & persistence <ul style="list-style-type: none"> ✓ Heighten salience of goals and objectives ✓ Vary demands and resources to optimize challenge ✓ Foster collaboration and community ✓ Increase mastery-oriented feedback 	Provide options for Language & Symbols <ul style="list-style-type: none"> ✓ Clarify vocabulary and symbols ✓ Clarify syntax and structure ✓ Support decoding of text, mathematical notation, and symbols ✓ Promote understanding across languages ✓ Illustrate through multiple media 	Provide options for Expression & Communication <ul style="list-style-type: none"> ✓ Use multiple media for communication ✓ Use multiple tools for construction and composition ✓ Build fluencies with graduated levels of support for practice and performance
Provide options for Self-Regulation <ul style="list-style-type: none"> ✓ Promote expectations and beliefs that optimize motivation ✓ Facilitate personal coping and strategies ✓ Develop self-assessment and reflection 	Provide options for Comprehension <ul style="list-style-type: none"> ✓ Activate or supply background knowledge ✓ Highlight patterns, critical features, big ideas, and relationships ✓ Guide information processing and visualization ✓ Maximize transfer and generalization 	Provide options for Executive Functions <ul style="list-style-type: none"> ✓ Guide appropriate goal-setting ✓ Support planning and strategy development ✓ Facilitate managing information and resources ✓ Enhance capacity for monitoring progress

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Principle 1: Multiple Means of Engagement (Affective Networks)

UDL stresses helping learners become experts. For learners to engage in and stay motivated as they carry out their tasks, UDL Principle 1: *Multiple Means of Engagement* provides options for developing interest, purpose, and self-regulation among learners. Given the wide range of environments learners come from, they vary in the way they are motivated to learn and engage in their tasks. In addition to helping learners develop strong self-regulation, which is tied to their ability to find purpose and set goals, this principle recommends supporting learners in developing self-assessment and reflection skills as well as in sustaining their efforts to reach the goals they set at the beginning of the learning process.

This principle is aligned with the importance of motivation, which is often explored in L2 acquisition (Masgoret & Gardner, 2003; Ushioda, 2014). Krashen's (1982) affective filter, which conceptualizes language acquisition as a cognitive process in which negative feelings and emotions can block comprehensible input, is also relevant in that he recommended creating learning environments that help lower the affective filter, including learner anxiety, in order to motivate learners. Rao and Torres (2016) also recognized the importance of this lowering of emotional barriers when discussing the UDL framework in an L2 context. Similarly, this principle, which fosters collaborative work and a community of learners in teaching and learning, compliments Vygotsky's (1978) social constructivism that is crucial to L2 learners' meaning making in social interactions and cooperative learning. Therefore, providing learners with multiple means to engage in learning plays a critical role in language learning.

Using this principle, instructors in EAP and EAL programs can motivate learners and help them engage in their learning in multiple ways. While some learners may prefer to read a print book for their reading assignments, others may want to engage digitally because of the interactive features and augmented reality experience that e-books often provide. Still others may be interested in listening to an audio book. While some learners may find classroom time sufficient for interaction and may comprehend the materials, some others may require additional time. If necessary, learners can be provided with ways to connect with each other and the instructor in and outside of their classes (Tobin & Behling, 2018). At the same time, there might be a few learners who may not get anything from their reading until they have access to an appropriate amount of scaffolding or receive peer support, which may warrant the use of different group configurations for collaboration and cooperative learning. Regardless, it is important for instructors to pay attention to learners' enthusiasm and flexibility when it comes to group work. It may be possible that a learner is comfortable speaking in the target language in a one-on-one conversation with their peer or instructor, but at the same time, this learner may not use the target language effectively to communicate their message during a group discussion. Providing learners with varied opportunities to work on their tasks in ways that suit them diminishes learners' off-task or confused behaviour and helps them demonstrate their learning and meet their outcomes as articulated in their course. Types of resources or grouping patterns are not the only aspects that contribute to learner motivation or engagement. Among other factors, a variety of tasks (including real world ones), assessment tools (including rubrics), and context or environment also contribute to learner motivation in L2 classrooms. Therefore, it is important that learner variability be studied and multiple opportunities for engagement be provided in and outside of EAP classrooms.

EAP instructors can provide opportunities for learner engagement in a wide variety of ways, but considering UDL principles well in advance of their lesson planning and acting proactively is of utmost importance in this regard. Meier and Rossi (2020) recommended helping learners use a checklist in a multi-step assignment in order for them to identify the steps completed and those that still require the learner's attention. This process, as the authors indicated, helps learners stay motivated, self-regulate, and independently complete complex tasks. To sustain learner engagement, concepts can be repeatedly presented and discussed through classroom activities, homework, lab assignments, and fieldwork (Allen et al., 2018). Learners can regularly be provided with mastery-oriented feedback so that learners remain motivated and engaged in their tasks until their tasks are successfully completed.

UDL Principle 2: Multiple Means of Representation (Recognition Networks)

This principle is designed to support learning through recognition networks, and the use of multiple means for learning comprehension, vocabulary, syntax and structure, and perception in addition to options for developing expertise in content areas are recommended. Learners differ in the ways they comprehend information from discussions. In this regard, this principle focuses on activating background knowledge, highlighting critical features, clarifying vocabulary, syntax, and structure, customizing the display of information, and providing alternatives for auditory and visual information in order to provide input that is comprehensible and create a nuanced learning experience for learners. This principle is in line with Krashen (1982), who focused on the provision of comprehensible input as a critical factor in language acquisition. When the language input is challenging and is at a level above the learner's state of knowledge ($i+1$), then learning takes place progressively. Similarly, Vygotsky's (1978) zone of proximal development and the notion of scaffolding are also evident in this UDL principle. This UDL principle thus effectively includes both of these theories although one (Krashen's) operates from an innatist perspective and the other (Vygotsky's) from a sociocultural framework. In addition to comprehensible input and scaffolding, this principle also addresses focus on forms that plays a role in language learning through learner awareness, consciousness, or noticing of linguistic forms (Long, 1991; Schmidt, 1990, 1992), which was also pointed out in Rao & Torres (2016). Similarly, as mentioned above, activating background knowledge is one of the support criteria that is explicitly mentioned in Principle 2 and its guidelines. According to studies of cognitive processing, learner background or prior knowledge is crucial in supporting learners' understanding of new ideas/concepts and their construction of new knowledge. This knowledge is stored in networks in the brain known as schemata (Zadina, 2008); these schemata must be activated for learners to relate to and comprehend the content (Vogt, 2005). Therefore, by providing background information on concepts being studied, EAP instructors can support learner comprehension of the new concepts and demonstration of their understanding of the concepts.

Using this principle, EAP instructors can help their students learn through the use of a wide range of instructional methods and resources that include multimedia, demonstrations, audio-visuals, realia, hands-on manipulatives, adapted texts, graphic organizers, and outlines among other tools. Because learners vary in their ability to understand and learn information, which is dependent on the types of instructional resources and methods available to them (Meyer

et al., 2014), instructors should present information in a variety of ways that support learning (Meier & Rossi, 2020).

When learners are provided with multiple opportunities to comprehend information, they can choose the option they are most comfortable with. For teaching and learning, UDL recommends that course outcomes be created in a way that addresses learner variability and learning preferences and highlights critical information, that transcripts of audio/visual presentations be provided, that feedback be prompt and mastery-oriented, and that social media be used (Boothe et al., 2018). Depending on the context learners are associated with, some learners may need to access the same material repeatedly in order to identify the process involved and understand the content. In such circumstances, recording the lesson or providing screencast walkthroughs on the particular concept or process being discussed can be very helpful. For instance, screencasting a process that demonstrates how L2 learners can extract academic words out of their reading text using Cobb's (2021) *Compleat Lexical Tutor* can be extremely useful for both learners and instructors. Apprehending the process that involves multiple steps from a one-time demonstration of it can be daunting when there are 15 to 25 learners in class, especially in an online environment, and not all learners may promptly be able to grasp the process during the demonstration process. Therefore, if learners can access it multiple times following the initial demonstration, they can practise the process at their own pace, saving the instructor from having to demonstrate it several times. Allen et al. (2018) suggested the use of videos and screencasts as well as vocabulary/concepts augmented with hyperlinked glossaries and explanations as well as exposing learners to these vocabulary and concepts multiple times. The COVID-19 pandemic has "fundamentally reshaped many aspects of teaching and learning" (Yi & Jang, 2020, p. 1), and institutions have moved from their traditional face-to-face teaching to online facilitation of classes (Payne, 2020). During online classes that include both synchronous and asynchronous environments, EAP instructors can motivate and engage their learners through online interaction and provide their instructions and resources in multiple ways, using multiple tools and formats, and on multiple platforms, including Google Docs, MS Word, MS Sway, MS Forms, Socrative, Nearpod, Flipgrid, and H5P, in addition to different learning management systems, including Blackboard Collaborate, MS Teams, Adobe, and ZOOM among several viable options. This allows L2 learners to access instructional materials and content in multiple ways, which can positively contribute to their learning.

UDL Principle 3: Multiple Means of Action and Expression (Strategic Networks)

Learners vary in the ways they approach, interact with, and strategically navigate their learning environment. Therefore, as this principle makes clear, it is important that learners be provided with multiple opportunities or avenues to demonstrate their learning. This principle also underscores how strategic networks in the brain are vital for academic language and skill development. EAP instructors can support learners in their use of multiple media and technology for developing communication and writing skills as well as for demonstrating their learning. In addition, this principle also emphasizes the importance of having multiple options for executive functions directly related to learners engaging their cognition for planning, organizing, and monitoring their own task performance, which they strategically engage in during their learning process.

EAP learners can be supported in their learning by being encouraged to demonstrate their learning in multiple ways. While some learners may want to deliver an oral presentation to show their understanding of the task, others may want to demonstrate their learning through a written report. If the outcomes are UDL friendly and do not specify the methods learners are required to use, learners can choose to demonstrate their learning in different ways and still meet their outcomes. For instance, a learning outcome such as “Deliver an effective and engaging oral presentation on a researched topic for 7 to 10 minutes” instead of “Deliver an effective and engaging in-class oral presentation on a researched topic for 7 to 10 minutes” offers leeway for learners who experience speaking anxiety in front of their peers. Some learners may prefer to video record their presentation rather than give an in-class presentation, which would meet UDL-friendly learning outcomes. The intent is not to water down the content but to provide all learners with an equal opportunity to engage in their tasks. Given the learner variability in their classrooms, instructors should design a flexible curriculum and lesson plans with opportunities for learners to demonstrate their strengths (see Meyer et al., 2014). It is possible that instructors following this UDL process will have to create multiple rubrics for the same task to accommodate learners’ delivery modes. However, this allows EAP learners to reach competency and demonstrate their learning in alternate ways that include essays, oral presentations, and audio-video clips from among the many learning tools available. Singh and Wallace (2021) recommended that Jamboard be used for learner interaction, in place of breakout rooms that instructors may use as the only means of engagement. These authors emphasized that Jamboard, in this context, may also provide learners with opportunities to participate when they do not want to speak in breakout rooms. This process can help learners engage in their learning and gain confidence in their ability to perform challenging tasks (Meyer et al., 2014). Incorporating such flexibility would have a significant impact on student learning and also prevent the curriculum from being considered “disabled.”

When designing courses and lesson plans, learning objectives can be flexible, which leaves room for EAP instructors to personalize their teaching and assessment tools and strategies for their learners and provide their learners with multiple paths to meet their objectives and demonstrate their learning. For example, learners in an EAP class could be asked to read *Cry Freedom* (Briley, 2008) and demonstrate their comprehension of the novel by writing an essay. If the learning outcome is to “comprehend the text” and not explicitly to “write an essay or summary,” there is room for instructors to personalize their assessment tools for learners who may prefer to demonstrate their comprehension in alternate ways. Some may want to demonstrate their comprehension of the novel by giving an oral presentation or producing a video recording. Others may dramatize a scene with commentary as a group project. By allowing for interactive options, learners can demonstrate their learning through multiple paths and still meet their learning outcomes.

EAP instructors can also support their learners in the development of their executive functions, including using cognitive and metacognitive learning strategies. Inclusion of appropriate rubrics can contribute to learners self-monitoring and self-assessing their learning progress (Meyer et al., 2014). In other words, learners are not only able to monitor and adjust their learning but also be responsible for their own learning.

One of the approaches that recognizes learner diversity as per UDL principles and guidelines is differentiated instruction, which is a tool for instructors to help their learners work at a “moderately challenging, developmentally appropriate level” (Hutchinson & Specht, 2020, p. 227). Instructors can differentiate the content of the lesson, the delivery, and the product (Tomlinson, 2017). While instructors might include varied group configurations, they can also make groupings flexible. Providing tiered assignments and incorporating learning centres in classrooms contributes to the process of differentiating instruction (Chappuis, 2014). Hutchinson and Specht’s (2020) ADAPT framework can also be incorporated in differentiated learning:

Account for students’ strengths and needs:	Instructors gather information on learner strengths and their academic, physical, social, emotional, and behavioural needs.
Demands of the classroom on students:	Instructors study the social, emotional, and behavioural demands of the classroom.
Adaptations:	Instructors identify adaptations needed for differentiated instruction.
Perspectives and consequences:	Instructors critically reflect on adaptations and take into account perspectives on these adaptations from multiple angles.
Teach and assess the match:	Instructors teach and assess their adaptations.

Conclusion

The UDL framework recognizes the need for creating curriculum and classroom materials and resources that address the varied needs of learners from a wide range of linguistic and cultural backgrounds, including learners with disabilities and diverse language skills and proficiencies (King-Sears, 2008; Meyer & Rose 2000). When properly applied, UDL principles and guidelines can help EAP instructors examine learner variability and prepare their lessons in advance of their classroom instructions. This process can help reduce or eliminate barriers that impede learners in their learning so that they can access content and resources and demonstrate their learning. Flexible options support learner engagement (Dickinson, 2018). Instructors can thus make informed decisions in a timely manner about incorporating flexible options to enhance learning.

UDL is an important framework for EAP instructors to design curriculum and facilitate their instruction to meet the demands of the growing number of diverse learners at institutions of higher learning (Rao et al., 2014). Instructors should expect and plan for systematic variability even before they design their lesson plans or develop or re-develop their course. Optimal levels of challenge as well as scaffolds should be supplied as necessary in order to help learners develop their academic language and skills. Including UDL principles and guidelines in classrooms and curriculum, EAP instructors can ensure that their instructional resources and materials, teaching methods, assessment tools, and strategies cater to the “why,” “what,” and “how” of learning and that all learners have access to these resources and tools in multiple ways

and forms and can engage in and demonstrate their learning in alternate pathways. Doing so not only supports learners for whom specific adaptations are made but it also provides *all* learners in EAP classrooms with opportunities to engage, learn, act, and express in multiple ways and become expert learners.

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