

## Theories of Individual and Collective Learning



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# Introduction

Welcome to **Theories of Individual and Collective Learning**, a comprehensive, online, open education resource available for students, educators, and learning thinkers who would like to learn more about how learning theory plays out within contemporary learning organizations.

From a classical to a contemporary understanding of learning, learning theory and how it is applied in school and work settings will be examined. Important issues, such as learning about, and from differences, learning for citizenship and moral development, knowing and learning, interdisciplinarity, and Indigenous pedagogy will also be discussed. We conclude with a discussion of measuring and assessing learning, along with the use of metaphors and images for organizational learning. **Theories of Individual and Collective Learning** will provide a concise framework to allow reflection on these timely educational topics.

The philosophy presented here incorporates the idea of providing thoughtful educational content, without the financial burden of a for-profit textbook. The content provided in this resource will engage, enhance, and construct new and deep learning in cognitive skills and academic knowledge within the readers, forging a connection between learning theories and their application in modern learning organizations.

Enjoy your journey through **Theories of Individual and Collective Learning!**

-Clayton Smith and Carson Babich

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# CHAPTER I

## WHAT IS LEARNING?



MIT's Building 10 and Great Dome overlooking Killian Court. Photo by John Phelan. Creative Commons Attribution 3.0 Unported (CC BY 3.0).

What is learning? It is a simple, but loaded question that has been asked for millennia that has challenged philosophers, psychiatrists, politicians, and educational theorists. The concept of learning could be found in Plato's Academy in ancient Greece which led to the founding of universities a millennium later[1]. This leads to these questions: Is learning a process? Does it happen at a location? Does it use the brain, body, or soul? Perhaps all these could apply in this circumstance. The Organisation for Economic Cooperation and Development (OECD) suggests that learning begins at birth, and continues until death, between people and their environment[2], therefore, learning is just as much a part of our life as eating or breathing.

In this chapter, the concepts of learning will be outlined that are

commonly used inside educational institutions. In addition, some of the most common learning theories, approaches to learning, and learning processes will be discussed.

The learning outcomes in this chapter are as follows:

1. Compare, contrast, and critique the three different concepts of learning.
2. Describe the similarities and differences between the learning theories presented in this chapter.
3. Critique some of the concepts related to the approaches to learning.
4. Design and formulate an understanding of a process of learning.

# 1.1 Concepts of Learning

Concepts of learning can be found through a reflection on the mechanisms of how knowledge relates to realities in society. Within an educational framework, there tends to be three core concepts of learning: Constructivism, Bloom's Taxonomy, and Epistemology. Throughout these concepts, the roots of the understanding of learning are present in the field of education, but also in other disciplines, including psychology, ethics, philosophy, and science.

**Constructivism**, in some cases, goes as far back as the German philosopher, Immanuel Kant; however, it is Carl Rogers who explains constructivism or constructive learning this way: "Every individual exists in a continually changing world of experience in which he [she] is the center[3]." Basic conceptualization is that knowledge, in the beginning, is subjective and constructed from perceptions about our society leading to mutually agreed-upon conventions. Constructivism attempts to strive for meaning, is social, and attempts to develop a personal understanding through reflection, analysis, and a gradual building of layers or depths of knowledge.

The role of constructivism in the framework of the teacher and students is for the teacher to allow the students to reflect on their subjective experiences toward some form of objective learning outcome. Through experience and reflection, students could then obtain a type of significant, or new knowledge that is quantifiably better than previously. Glasersfeld suggests the notion of radical constructivism in which all learning is constructed, and empirically, all humans organize learning[4]. Glasersfeld's analysis of this notion suggests that the way learning can be acquired is subjective, but the concept of constructive learning and organization is objective.

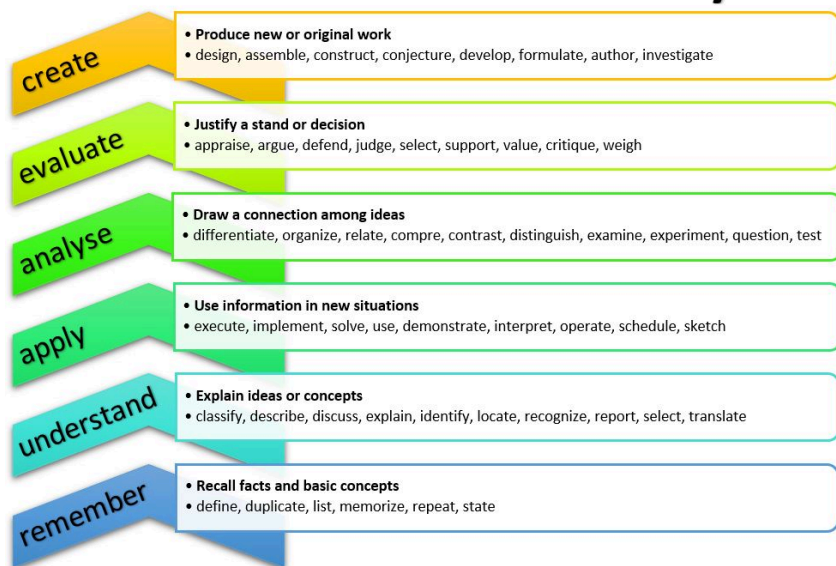
Moving forward from construction, how might people organize their knowledge through a constructive model? Consider the cognitive tool of **Bloom's Taxonomy**, which uses a set of three hierarchical levels of cognitive, affective, and psychomotor domains, and is one of the most recognized learning theories in the field of education. Bloom, Engelhart, Furst, Hill, and Krathwohl outline their goal of achieving these models through a biological lens of creating a taxonomy:

"...the use of the taxonomy as an aid in developing a precise definition

and classification of such vaguely defined terms of ‘thinking’ and ‘problem solving’ would enable a group of schools to discern the similarities and differences among the goals of their different instructional programs.”[5]

The organization of the hierarchy is developed through a needs-based model and outlines baseline needs for baseline learning, eventually graduating to more focused and succinct objectives of analysis and creation.

## Bloom’s Taxonomy



*Long description.*

For the third concept of learning, a foundation, or origin story needs to be understood regarding cognition and constructivism in order to comprehend the nation of knowledge. **Epistemology** is the rationalization and justification of knowledge, considering all factors of education, life, and society. This could also be traced back to Plato and his academy, but a more contemporary example would be from the ideas of John Locke, who suggests that knowledge is founded on the grounds of ideas and actions, which provide the innate ability of the human being to understand[6].

Smith, Babich, and Lubrick state that the **scientific method of teaching** creates an epistemological consensus through a level of empiricism and

rationality[7]. Conceptualizing how people learn considers the epistemology and rational implications of a learning theory, or concept, that determines where the learning is coming from, and what the objective would be for the future.

With regard to learning, one factor that stands out is the behaviour of learning. Alexander, Schallert, and Reynolds conceptualize ‘questioning’ as being a constant dimension of the learning cycle[8]. De Houwer, Barnes-Holmes, and Moors define learning behaviour through changes on the scale of genetic adaptation and environmental changes[9]. Ultimately, learning is engaging and challenging. In order to understand learning theories and how they can be shaped in the classroom, these ideas need to be combined. Further, understanding how learning can be shaped requires cognizance of these concepts in order to develop a philosophy of teaching and learning.

## New Way of Conceptualizing Learning

Different concepts of learning relate to the way it is being implemented in schools. Emily Boudreau, from the Harvard Graduate School of Education, proposed new modes of learning through experiential methods, such as gamifying education, storytelling, and moving the classroom outside of the walls of the school building[10]. Along with the different concepts, they need to be connected with effective modes of learning. This connects to the organizational hierarchy of Bloom’s Taxonomy which is described below in an interactive video. Use this video to compare your own learning, to the examples presented.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://ecampusontario.pressbooks.pub/ticl/?p=27#h5p-2>

## 1.2 Learning Theories

There are many learning theories. These describe how learners absorb and retain knowledge during learning activities in an educational environment. Figure 2 shows the web of learning theories and these ideas will be addressed in this section of the chapter.

**Experiential learning** is a theory developed by John Dewey[11] and later built upon by David Kolb[12], that creates concepts of knowledge through real-world experiences and reflects on them. Experiential learning incorporates pragmatism through a constructive method of action and reflection. What this provides students with is the ability to develop an understanding of the systems that work in the real world. Experiential learning is an especially beneficial pedagogical technique in trade colleges and professional schools given their focus on hands-on and apprenticeship teaching. It is also, however, widely used in university settings.

**Genetic epistemology** comes from psychologist Jean Piaget where learning is found in the young through actions and assimilations which shape learning throughout life[13]. With this framework, learning is built through life experiences, environmental interactions, and innate behaviours of the child which influences the actions of the adult. In a way, lifelong learning draws similarities to another theory, called **mastery learning**, which Benjamin Bloom developed in 1968. This incorporates an empirical scale through achieving knowledge by conditioning within a normal distribution[14]. Environmental, life-long learning, combined with a sense of mastery may sound contradictory, considering, if learning is lifelong, how can mastery be achieved? As educators, there has to be a sense of achievement towards knowledge, even though knowledge of 100% is unobtainable. To avoid this paradox of learning, the mastery model needs to be combined with genetic epistemology to ensure that clear objectives are being met in real-world and experiential lenses.

Teaching and learning theories, especially in the 20th century, also take on a postmodernist view. **Critical pedagogy** was developed by Paolo Freire who indicated a centrality-in-politics view of teaching and learning through the lenses of power, oppression, social justice, and democracy[15]. This concept follows a Marxist approach to teaching and learning by challenging class structures through a straight conceptualization of oppressor and oppressed.

The continual critical accounting of education theory is a form of asking questions and questioning the control and power within learning. The attempt of critical pedagogy focuses on developing an understanding of learning with the goal of social justice and democracy.

**Liberal and scientific epistemology** relate to learning theories connected to Enlightenment-era thinkers, empiricism, and naturalism. Thinkers, like Francis Bacon, who suggested the advancement of learning is through a sense of actions to create merit, and through that merit creates more action[16]. John Locke connected learning to freedom and broad education to create rational thinking[6]. The liberal-scientific model accepts empirical and liberalized concepts that allow the freedom to pursue the merits of knowledge and obtain learning with no constraints. In many ways, that learning should be broad and expansive, while at the same time being meritorious with logic. Taken together, they can be united to develop a concept of how learning is conceived and viewed. Critical pedagogy can challenge the power structures inside a liberal-scientific epistemology, while a liberal-scientific epistemology can challenge contradictions in a critical pedagogy to develop a reasonable middle ground. Experiential learning is related to mastery and genetic epistemology and creates a clear web between environmental factors that influence learning.

## Learning Theories Activity

Drag the learning theory to the corresponding definition. This will help you to understand the characteristics of each learning theory and its aims towards students.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

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## 1.3 Approaches to Learning

One of the key approaches to learning is what it can do to change behaviour. On the one hand, learning refers to a relatively permanent change in behaviour as a result of practice or experience. However, learning may not include a change in behaviour. It is important not to confuse the natural approach of learning with the product of obtaining tangible learning. What is suggested here is that 'permanent' may be a strong word, and that practice is necessary for learning in the course of repetition. One of the most common phrases this relates to is a reinforcement of learning in order to achieve learning objectives or outcomes.

There are three issues that are common within the approaches to learning:

1. Educators seek a middle-level description of mental organization
2. Matters of the heart are the influence of school learning
3. Teachers use differentiation teaching practices matched to the strengths of each student

What these issues suggest is that educators seek to find the middle ground between biological constraints and intellectual achievements in the natural environment. Furthermore, the discipline of psychology focuses on the motivation and uniting forces of cognition in the child to ensure learning is taking place effectively.

Approaches to learning can take on a topical approach to understanding its role inside of a school system. Alexander, Schallert, and Reynolds outline the nine principles of a topical perspective of learning[8]:

1. Learning is change
2. Learning is inevitable, essential, and ubiquitous
3. Learning can be resisted
4. Learning may be disadvantageous
5. Learning can be tacit and incidental as well as conscious and intentional
6. Learning is framed by our humanness
7. Learning refers to both a process and a product
8. Learning is different at different points in time

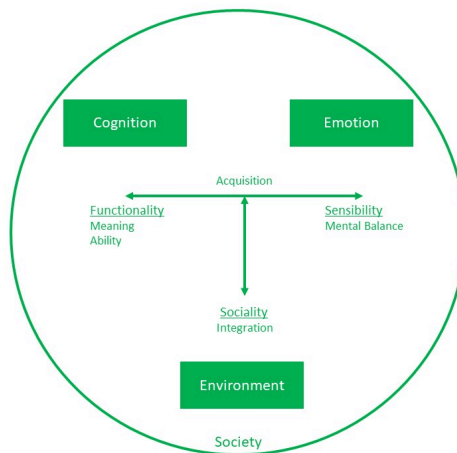


## 9. Learning is interactional

What is reflected here through this approach is the who, where, what, and when of learning. The who is related to the biophysical characteristics and motives of the learner in relation to psychological traits. The what pertains to acquired and spontaneous conditions of learning in which scientific concepts are generalized from human interactions. The where relates to an ecological concept, whereas the when refers to the sociological and developmental, psychological characteristics of changes through maturation and experience[8].

Specific elements can be found when discussing learning in a modern framework. Illeris described a comprehensive and contemporary theory through an external interaction process and an internal psychological process that outlines three different dimensions of learning through[17]:

- Cognition
- Psychodynamic
- Social



**Figure 2:** The Process and Dimensions of Learning. In Illeris, K. (2003). *Towards a contemporary and comprehensive theory of learning*, p. 400. Long description.

In the activities below, feel free to use the slide show and the drag and

drop activity to help you remember, analyze, and interpret the different approaches to learning. Use these to develop your own theories on how these different approaches can be applied in the classroom, workplace, or any other area learning might be applicable.



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*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

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## 1.4 Process of Learning

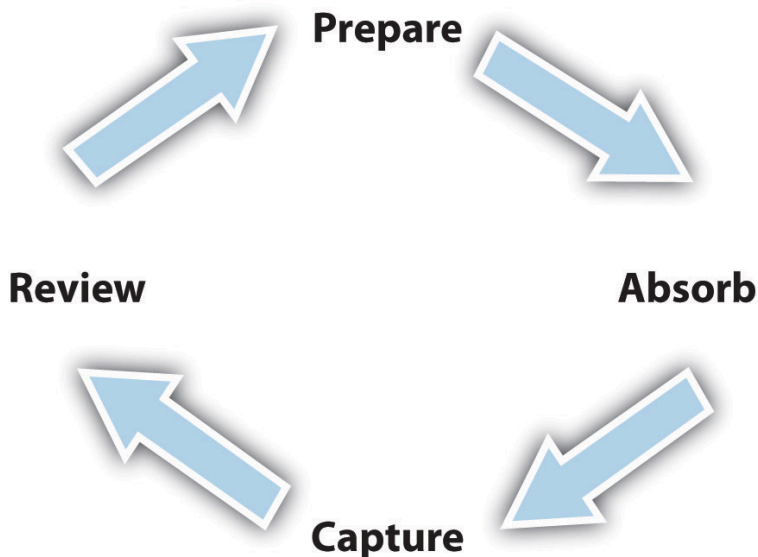
There are many facets of learning that can lead to its comprehensive and working definition. **Learning** is defined as a multi-faceted, interdisciplinary process of change within a person. It imports critical, scientific, and experiential factors to achieve outcomes for someone through learning approaches by an educator and engagement by the participant.

Lachman contended that learning is a change or a stable modification to the stimulus-response of events and interactions within a natural environment that identifies the process of learning within the environment and that the learning process is natural and effective in human cognizance[18]. Throughout this book, the attempt will be to focus on learning that relates to the concepts of constructivism, experiences, and classical liberal tendencies of learning. There will also be an opportunity to experiment with your learning style.

A practical approach can create the process of learning through four steps:

1. Prepare: Readiness to pursue knowledge
2. Absorb: Obtaining the ideas from a teachable moment
3. Capture: Re-interpreting the knowledge for better understanding
4. Review: Use the captured information to prepare for new information[19]

The four steps of learning are cyclical in nature and follow a continual pattern of learning by reviewing and preparing for new knowledge to pursue. Below is a graphical representation.



**Figure 3:** Four-Step Cycle of Academic Learning. (Source: College Success, University of Minnesota, 2015, CC BY-NC-SA). Long description.

## Questioning Procedures of Learning

Even with a practical approach, the process of learning can be complex at times. The inclination may be to look beyond this analysis of the natural environment and attempt to find meaning in learning. Mezirow stated that meaning within learning comes from critical reflection, causing perspective transformations in epistemology. Furthermore, the area of adult education imperatively focuses on the area of connecting a meaningful learning experience with the transitional and transactional nature of life[20]. Moving forward, it is important to keep this critical notion intact as it will provide the opportunity to assess different processes of learning. Fill in the blanks below to better develop your understanding of the procedures of learning.



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*<https://ecampusontario.pressbooks.pub/ticl/?p=33#h5p-5>*

# Conclusion

This chapter outlined the concepts of learning and introduced its theories and processes. This text will go on to explore how learning fits within educational structures, organizations, public institutions, and social settings. Furthermore, these concepts, processes, and theories will serve as a guide toward other chapters in the book.

These are the learning objectives of this chapter:

1. Constructivism is building on the learning through the individual experience and Bloom's Taxonomy takes that individual experience and attempts to build it to a higher level. Epistemology is the scientific knowledge base that guides cognitive learning through constructing and expanding.
2. Experiential learning is forming knowledge through lived experiences in the environment, where genetic epistemology follows an inherent psychological learning trait of how cognizance is gained. Mastery learning introduces an empirical understanding through a sense of learning achievement. Critical pedagogy and liberal pedagogy develop an understanding of teaching and learning through the lenses of power and oppression or through naturalism and empiricism.
3. The approach is to balance the areas of cognition, psychodynamic, and social processes in relation to an ecological formation of change.
4. One way to describe learning is a multi-faceted, interdisciplinary process of change within a person. It imports critical, scientific, and experiential factors to achieve outcomes through learning approaches by an educator, and engagement through the participant.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

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## CHAPTER II

# LEARNING AND EDUCATION



*Students in the class of the Architecture department, the University of Texas at Arlington; from left, Danny Richardson, Scot Rasmussen, Brad Johnson, and Suzanne Underwood, no date. This file is licensed under the Creative Commons Attribution 4.0 International license.*

The discipline of education is broad and diverse. Education in relation to learning encompasses ways to achieve outcomes through learning paradigms, be it through traditional methods of lecturing and testing, or contemporary methods of collaboration and holistic approaches. Furthermore, the concept that learning and education can happen in other institutions outside of schooling, such as the family, the workplace, in relationships, and in society, are salient to understanding the importance of learning. In another sense, the discipline of education is actually an interdisciplinary practice in some respects. In this chapter, the tradition of the educational system within North America and changes to it over time

until now will be explained. In addition, the impact that science has on education and on areas such as educational policy will be examined. This chapter will address the role of critical thinking and writing to enhance education and learning for individuals.

The learning outcomes in this chapter are as follows:

1. Compare and contrast the educational system in North America from past to present.
2. Analyze the changes in education and their foundational concepts by exploring various theories.
3. Describe the impact that science has had on education and its policies.
4. Create your own conceptualization through critical thinking about education and learning.

## 2.1 The Education System in North America



*Chicago in 1910 from Michigan Ave. This media file is in the public domain in the United States. This applies to U.S. works where the copyright has expired, often because its first publication occurred prior to January 1, 1925, and if not then due to lack of notice or renewal.*

In order to understand the educational system in North America, it helps to know its history. With the growth of industrialization in nineteenth-century America, new cities started forming around the areas outside of the Atlantic North East. Cities such as Kansas City, Detroit, St. Louis, Cleveland, and Chicago were all growing. Higgs cites that Kansas City and St. Louis saw spectacular growth due to the rise of urbanization for industrialized work[1]. According to Lyons, Chicago saw exponential industrialized growth making it the second-largest city in the country next to New York. With that, came more families with more children. Given that most men worked in factories, and anti-child labour laws were passed along with compulsory education laws, Chicago became one of the first cities to enhance public education, given the massive influx of people[2]. Then, the concept of a child's education as a cornerstone of growth came into play. With this came the creation of educational laws. This could be seen as a reactionary method born out of labour and human rights' laws related to getting children out of the harmful conditions of factory work.

Although the children were now removed from the workplace, this environment still had an impact on the educational system. Management education or industrialized education became commonplace in public schools, forming from the managerial systems in England and in Germany[3].

This became a common theme within schools, similar to how contemporary students experienced schools during recent times in public education. Rows of seats focused on the front of a classroom, bells signifying when to change stations and have a lunch break; all of these methods were born from the industrialized model of education.



*Classroom in the 1920s. This UK artistic or literary work, of which the author is unknown and cannot be ascertained by reasonable inquiry, is in the public domain because it is one of the following:*

*A photograph, which has never been previously made available to the public (e.g. by publication or display at an exhibition) and which was taken more than 70 years ago (before 1 January 1950).*

Even after laws and regulations, the concept of public education was that schooling was preparing students to enter back into the factory, given the cognitive training of the public-school system during these years. However, looking at this critically, an argument can be made about productivity in schooling in this period, such as the need and demand for educators. According to Blinder, the growth of education and learning was massive, given the growth of the industry, regarding the United States educational system as one of the best in the world at the time[4]. This would lead to the

growth of the higher-educational system within the United States, such as the land-grant universities promoting vocational research initiatives.

The key argument with the public-educational system is that the theory around education could have an industrial precedent, but in the end, the individuals in the classroom are not widgets; they are humans and need to be treated as such. John Dewey and his work of *Democracy and Education* provide answers to the human side of education, especially in the early twentieth century. Dewey outlined the democratic conception of education, bringing in the human aspect towards learning and the entanglement between humanism and learning:

“Society is conceived as one by its very nature. The qualities which accompany this unity, praiseworthy community of purpose and welfare, loyal to public ends, mutuality of sympathy, are empathized...Any education given by a group tends to socialize its members but the quality and value of the socialization depends on the habits and aims of the group.”[5]

Gordon and English analyze Dewey's work through the perspective of challenging neoliberal globalization. They find contention with Dewey's pragmatic work of being difficult to comprehend, considering that Dewey offered an unclear framework. However, the authors also find positives in Dewey's approach to connect societies and promote new ways of learning and education[6]. The authors take a neo-Marxist stance to Dewey's understanding of democracy with regard to the nature of a capitalist economic system of educational theory. However, it can be said that democracy in relation to freedom of thinking presupposes the ability to think and pursue any form of education outside of an industrialized or collective nature, whatever may fit for the individual. In turn, this supports a classical liberal approach as the individual guiding her or his education in a way that is deemed fit outside of an economic understanding of capitalism or Marxism. The logical and pragmatic design of Dewey transcends theoretical structures of economics and can be beneficial to reforming education in our current state, using the past as a lever. Click on the information tabs below to learn more about the industrialization of learning in North America during the twentieth century.



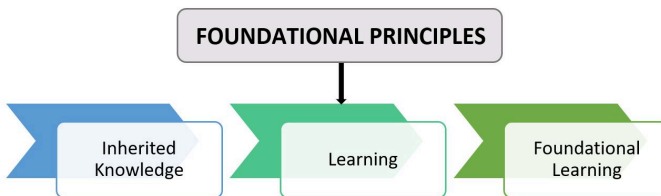
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## 2.2 Changes in Education

Throughout history, there have been changes in how students are educated. Commonly, the focus is on the best pedagogical practices that are based on the best combination for the student and the educator. Perhaps that is not enough. Nel Noddings discussed educating the whole child by recognizing the uniqueness of each individual. He understood familial relationships, and went beyond the boundaries of school, and combined standardized methods with holistic methods[7]. Noddings also made a philosophical connection to education and schooling, by showing that there is a moral and ethical impact on society through fundamental democratized participation[7]. The objectives of this method are to apply positive reinforcement, reflection, and connection, as well as to develop a stronger sense of community. However, these ideas present challenges in the differentiation of teaching methods, acquiring resources, and active cooperation.

Learning that should be founded in practice. **Foundational learning** is an understanding of the basic concepts required to fully participate in society in such things as relationships and employment. The Calgary Learns organization describes foundational learning as skills and competencies for participation and “the ability to participate as neighbours and citizens, have satisfying employment and prepare to pursue further learning”[8]. Recognizing uniqueness through individual learners is fundamental for developing policies and pedagogy around individualities. Of course, it goes without saying that policies need to be uniform in order to maintain and enhance a collective goal-oriented approach to education. However, the interventions of foundational uniqueness, as well as relational aspects, need to be taken into account.



**Figure 1:**  
Foundational  
Implementation  
in the  
Learning  
Process.

As previously mentioned, constructivism is based on experiences and reflections of an individual or group. Larry Lesser, from the University of Northern Colorado, reviewed Ernst Von Glaserfeld's 1995 book on radical constructivism. According to this, radical constructivism follows the two principles that knowledge is constructed, and that cognition is adaptive and organizational[9]. This is a radical idea, as it goes against the concepts of foundationalism and the ability to form foundational knowledge. However, it could be argued that the concept of a foundation outside of education allows the egocentricity concept for which Von Glaserfeld via Lesser argues. This leads to a concept of community learning in relation to educational practice. Farnsworth, Kleanthous, and Wenger-Traynor outlined a social theory of learning, citing that boundaries within power structures are inherent and that thinking differently outside of foundational understandings is essential[10]. If that is true, that means the egocentric concept of power is outside of the construction and cannot be changed, or that foundational principles of knowledge and epistemology create the social and constructivist paradigms for analysis. In many ways, Von Glaserfeld's radical constructivist theory and Farnsworth et al. theories about social construction are not possible without a foundational principle.

To unpack foundational principles even further, Clarence Irving Lewis and his formulation of rationalization through a foundational principle need to be considered:

“There are no other sources of knowledge than: on one hand data of sense and on the other hand our own intended meanings. Empirical knowledge constitutes the one class; all that is knowable independently of sense experience – the *a priori* and the analytic – constitutes the other, and is determinable as true by reference to our meanings.”[11]

What Lewis states here is that sense and understanding create an experience. For example, if you are in a room with three other people, what is the *a priori* (independent from experience) response? Sure, many of you have had different experiences before entering the room, but the sense of time and intention are all the same. What are some examples of this sense of intention? Well, the first thing might be that you are all being managed by gravity. That is a foundational truth, even if some senses are damaged, such as sight and sound. The sense that you are existing in a gravitational domain is foundational.

This may be difficult to digest, but it is important to critically look at



theories presented either in a constructivist or social paradigm and scrutinize the topic based on certain universal principles.

## 2.3 The Science of Education



*Can we understand education through the lens of science? Pictured is Cynthia Hall in 1949: Former atomic scientist at the Argonne Lab in Chicago, Illinois. This work is in the public domain because it was published in the United States between 1926 and 1963 and although there may or may not have been a copyright notice, the copyright was not renewed.*

Delving deeper into the science of education, an attempt can be made to focus on who shapes this view. Kalantzis describes this paradigm in the science of education through three approaches[12]:

1. Didactic
2. Authentic
3. Transformative

**Didactic education** is what the teacher does, in terms of learning, as opposed to what the student does, and focuses on explicit meaning in explanation[12]. This could form narrow frameworks of ideology as autonomy shifts the balance more towards the teacher rather than the student. However, its foundational concept in mimesis or imitation is a traditional and almost inherent learning structure for humans. The concept of observing, seeing, and doing is an innate structure that humans have used for millennia. **Authentic education** is an experiential form of inquiry beyond the scope of traditional learning advocating an individualized pace for the student and interdisciplinary learning[12]. Although *authentic* would suggest this is the original form of learning, that is still to be determined, and not fully articulated by progressives in the field. This relies on a critical focus towards the method to ensure that proper learning is taking place creating autonomy with the learner. **Transformative education** is didactic and authentic methods that place the teacher as the designer of learning, and the learner as the co-designer of knowledge-creating and *epistemological induction* or a building of knowledge[12]. The aims for a transformative education paradigm are to make reflections of modern society, that relate to many social, political, and economic areas.

Although these approaches focus on how learning is presented to students, the styles of didactic, authentic, and transformative education start with the teacher, and how he or she embraces learning through his or her perspective. Ultimately, it is the educator who decides, based on the characteristics of the class, what educational styles are pursued. Furthermore, the type of educational sector that fits any type of approach is also a factor. For example:

- *Didactic Education*: The explicit meaning and explanation that follows the set curriculum outlined. This is the foundation for public education, based on uniform procedures of teaching and learning.

- *Authentic Education*: This approach can be used within didactic education, but has to be balanced based on classroom characteristics. Authentic education is more relatable inside of organizational learning, such as in a company or business.
- *Transformative Education*: When the teacher is the designer of the learning. This leads to more freedom and access to guide the teaching style. This is commonly found in colleges and universities, where the educator is able to create, form, and guide the syllabus and learning outcomes for students toward knowledge attainment.

It would be remiss not to mention the great scientist, Karl Popper, and his views on all science, no matter how strict. This requires a deal of critical analysis[13]. At the heart of learning is the ability to critically question epistemological aspects within a foundational structure. This involves continuously questioning the foundational structure itself, as it provides the enhancement of scientific discovery. This is especially important when understanding educational policy moving forward. The policy of education, both pedagogically, through teaching methods, and curriculum is to structure class sizes and budgeting needs that embrace deep, critical thinking in order to find the best suitable option for educators and learning. Of course, the downside is that it is more time-consuming, however, the argument could be made that the time lost is equal, or more, when inconsistent and lacking policy measures are implemented. In the activity below, compare and contrast the different concepts related to didactic and authentic education.

## A Note on Educational Policy

Policy studies in education are common within higher-educational research and are important for understanding how educational ideas from curriculum, teaching, and administration are used to impact the organization of learning. The three approaches toward learning and education can have an impact on shaping the policy. Inversely, the policy can set a precedent on what approach emerges. The science of education

is truly interdisciplinary, given the implicative nature of policy, practice, and philosophy that impact each other.

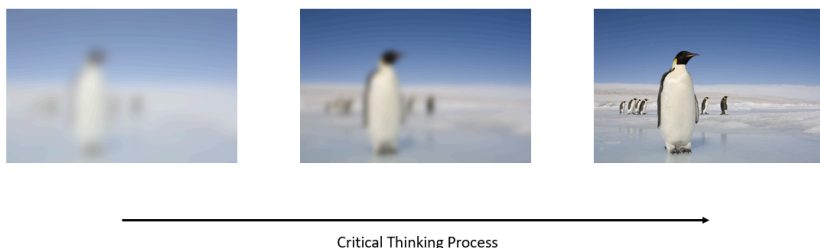


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## 2.4 Critical Thinking and Writing

What is done with the obtained information? It is processed and guides an opinion based on the evidence presented. This is a form of **critical thinking**, which is the ability to construct a skeptical and unbiased analysis by providing factual and empirical evidence to advance knowledge and learning. The proficiency to critically think means to look at a problem or situation that is made known, think through the issues that are related to it by identifying, reasoning, and evaluating. Then, provide a solution that actively addresses the problem or issue. Use the 'clear image analogy' when attempting to describe critical thinking. At the beginning of identifying the problem, the image is blurry, after working through the problem with critical thinking, the image becomes clearer.



**Figure 2:** *The more you know, the clearer the image*

Within scholarly work, the concept of critical thinking is important for producing effective research. This means the difference between critical writing and descriptive writing. **Critical writing** analyzes a topic or a potential issue, observes its strengths and weaknesses, and finds potential solutions and alternatives for additional analysis. **Descriptive writing**, on the other hand, uses the dates, locations, minor statistics, and a summary of events of the issue. Descriptive writing can also be used as a dramatic tool for prose and poetry, describing events with clear detail. It is most commonly found in certain publications, such as news articles. This is not to say that descriptive writing has no place within academia, however, common academic writing relies on the usage of critical writing.

Descriptive writing, like the news example, follows the subjective details given by individuals who are willing to talk to reporters as sources of information. Most material comes from these sources, and descriptive writing is a second-hand account from another individual. Critical writing employs the concept of **critical literacy**, which focuses on finding reliable sources, trustworthy data, and creating sound arguments. For example, when writing an academic paper, using one news source might not be enough to effectively critique the subject. At the very least, observing three to five peer-reviewed research articles is the most effective way to garner a general consensus on a topic or issue. News media would be a secondary source to reflect the evidence provided in peer-reviewed research. This uses the forms of logic and analysis within academic writing as an important aspect of learning and education.

- Logic: The acceptance of rationality or preposition, based on reasonable ground
- Analysis: Critically assessing with the five W's and one H
  - Who are the researchers? Is it sponsored by public or private interests?
  - What kind of source is it? Is it a book, news report, or peer-reviewed journal article?
  - Where was this information published (e.g., CNN vs. Canadian Journal of Higher Education)?
  - When was this information published? Is it current?
  - Why was this research published? What were the researchers looking to answer?
  - How was it published? Was it a peer-review process or self-published?

## Critical Thinking's Impact on Learning

The impact that critical thinking can have on learning is to expand the horizons of people with different knowledge streams. Critical thinking is an important factor towards interdisciplinary learning, as it provides an individual with the tools to develop new knowledge in different areas. In a



study of Malaysian medical students, the implementation of critical thinking in the development of research protocols was beneficial to applying new concepts towards higher-order thinking[14]. When all of the factors of critical thinking and critical literacy are taken into account, it can provide a framework for more enhanced learning towards finding new and divergent ways of thinking.

# Conclusion

Throughout this chapter, the focus was on key aspects of learning and education through its history, important changes, foundational concepts, the science behind it, and critical thinking. What this serves as is a primer towards future chapters, and developing a baseline for learning and education. Moving forward, these concepts can be reviewed from the history of education to critical thinking in order to build a broader understanding of learning and education.

These are the learning objectives for this chapter:

1. The Chicago and industrialized education system was compared.
2. The basic concepts required to fully participate in society and the innate senses of learning are the cores of foundational learning.
3. Science is behind critically asking questions and challenging notions about education to provide clear answers.
4. Critical thinking can be wide-ranging, depending on the topic.



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## CHAPTER III

# LIFE IN SCHOOLS AND ELSEWHERE



*Tamka Island in Wrocław, Poland, with the Wrocław University and Ossolineum in the background. This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Poland license.*

Schools can be a catalyst for change, not only inside of the classroom, but outside, within our society, economy, and how we engage in personal relationships. Powerful learning can take place with reverse engineering of preconceptions about how a physical classroom should look, or reframing the notion of what colleges and universities can become in the future. Throughout this chapter, these conditions and how they can be a catalyst for change inside teaching and learning will be explored.

The learning outcomes in this chapter are as follows:

1. Describe some characteristics of schooling in other nations.
2. Define conditions of powerful learning.
3. Critique the concepts of reverse-engineering the classroom, and its

impact on learning.

4. Compare and contrast the critical notion of higher education and the future of colleges and universities.

## 3.1 Schools in Other Nations

Schools in other nations have different pedagogical styles. How are they viewed here? Are educational institutions in North America influenced by these differences? The following video: *Schooling the World: The White Man's Last Burden*, offers a critical view on pedagogy throughout the world. The title would suggest a negative lens towards Western education, however, a critical look towards the other factors that influence education such as society, economy, and politics will be addressed.



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Some questions from the video:

1. Are there issues like these within North-American schools?
2. Do the English-speaking experts in the film have a right to speak on

these issues?

3. Does this video present ideological undertones?
4. Are there some benefits of a Western ideology?
5. Is there a middle ground for pedagogy that enhances culture and economies?

It is important, as educators and members within a political-economy, that a wide array of discussion topics are examined in order to have the clearest and most concise points without the burden of a particular ideology.

The film showed some of the pedagogical forms that took place in other areas of the world. What are some other impacts that geography can have on education? A localized approach found that education may suffer, depending on the socioeconomic status of a township or city, while at the same time, provides a deeper sense of community[1]. Furthermore, a study in the Netherlands reflects that mobility could be a factor for graduates in obtaining desired jobs related to their field. This correlates to a better workplace fit, leading to better wages[2].

A lot can be learned from this information. For instance, there are significant gaps in educational attainment on some local levels because of socioeconomic status. At the same time, mobilized individuals tend to find better work. Would it be prudent to say, for example, that someone wanting to be a doctor who lives in Churchill, Manitoba could find work there, but greener pastures would be found in a place like Winnipeg or in another province like Ontario? This example would hurt the local Churchill economy because it removes a graduate from the community, potentially leading to the cycle of socio-economic hardship. However, the individual is free to mobilize in order to find the best career location. Ultimately, the need for a middle ground is apparent to find answers to the complex questions of how to address the locations that fall behind in socioeconomic status, and to best accommodate the mobility of individuals and their job prospects. First, it is important to acknowledge the economic challenges, then use this to address these problems so that the tide of the location is lifted. Second, incorporating an industry that accommodates an economic driver of a geographic community should be established. This is just one option, of many, that can help to bridge the gap of this issue.

In order to address these situations, it is imperative to get a worldly understanding of how education happens in different geographic locations. Education can have many impacts, such as economic, political, and societal,



so the connection between location and education helps to provide a conceptualization of teaching and learning so that the meaningful outcomes of learning can be developed.

Below is a map of the world. Click on the hotspots to learn about education in different areas across the globe.



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## 3.2 Powerful Learning



The concept of powerful teaching is not necessarily about exceeding the limit, rather about using being effective. The concept of powerful teaching is not necessarily about exceeding the limit, but rather about being effective.

What is the best way for learning to have an impact on students? How do we make learning impactful for learners? One way is to go beyond the structure of the classroom to find this impact through what is called powerful learning. **Powerful learning** comes from Will Richardson and relates to deep learning that requires a personal interest, and free learning with no limits. Furthermore, it provides passion, personal investment, and a connection to real-world applications[3]. This opens up a dialogue on how educators should engage with learning in schools and elsewhere. The autonomy of the educator to craft learning, align practices, and attempt to take learning beyond classroom walls is key to its implementation. Inside the classroom, the divergent methods of experiential learning bring a powerful presence into the classroom.

Powerful learning delves deeper into people's epistemological boundaries which are tested and expanded. Similarly, the role of experiential education relates closely to powerful learning. Philip Jackson outlines the relationship between powerful learning and experiential education by describing the day-to-day process of learning as it is connected to the life of the student. Furthermore, outlining the classroom as more than a physical environment, rather an educational social atmosphere allows students to connect and engage in learning, rather than just take part in the process of classwork[4]. Similarities can be found between the concept of powerful learning and

experiential learning when attempting to expand learning beyond the classroom walls, both literally and theoretically.

Powerful Learning	Experiential Learning
<ul style="list-style-type: none"><li>• Free and autonomous</li><li>• Personal investment</li><li>• Connection to real-world</li></ul>	<ul style="list-style-type: none"><li>• Democratized learning</li><li>• Pragmatic and constructive</li><li>• Reflect real-world experiences</li></ul>

There are also interdisciplinary implications towards powerful learning, given its ability to push the boundaries of disciplinary knowledge. Where powerful learning can grow is through educational policy on sustainable development through instructional design from teachers and administrators. Researchers in Belgium integrate the interdisciplinary model of sustainable education to guide pedagogy towards a **Holism-Pluralism-Action Orientation (HPAO)**, which moves towards a coherent vision for students' competency with actionable and integrated teaching to enhance learning[5]. The HPAO method bridges the gap between logical understanding and holistic integration to expand learning further than schools allow. This is done by introducing meaningful pedagogical concepts, like experiential or interdisciplinary learning, that connects to life and society.

There are several ways powerful learning is practical and relatable. Examples can be found in teachers' expectations of content compared to student realities of content. Ambrose et al. chronicle the use of teaching towards students who may, or may not, have experience with content. Connecting prior knowledge (i.e., experiential learning) with the freedom and autonomy to pursue their learning effectively suggests that students make better connections when activating prior knowledge[6]. With this understanding, powerful learning can be more than just a phenomenon in the classroom. Rather, it can be a measurable tool used within teaching and learning frameworks. Below, select the characteristics that lead to powerful learning.



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## 3.3 Reverse Engineering the Classroom

Reverse-engineering in the classroom is the physical and pedagogical components of teaching and learning. With respect to design inside the classroom, there are some educational implications that should be considered when reverse-engineering the physical space:

- Plan instruction based on social and physical characteristics.
- Focus on student safety and security.
- Organize and monitor access to the required material and supplies.

How is the classroom physically changed? Santrock, Woloshyn, Gallagher, DiPetta, and Marini provide some models relating to the physical characteristics of open concept and multilevel learning[7].

<p><b>Auditorium Style</b></p>	<ul style="list-style-type: none"> <li>• classical teaching design, similar to many higher-educational classrooms</li> <li>• can accommodate large numbers of students</li> <li>• design focused on top-notch acoustics</li> </ul>
<p><b>Face-to-Face Style</b></p>	<ul style="list-style-type: none"> <li>• collaborative style</li> <li>• promotes student-teacher discussions</li> </ul>
<p><b>Offset Style</b></p>	<ul style="list-style-type: none"> <li>• collaborative style</li> <li>• enables student groups and projects</li> </ul>

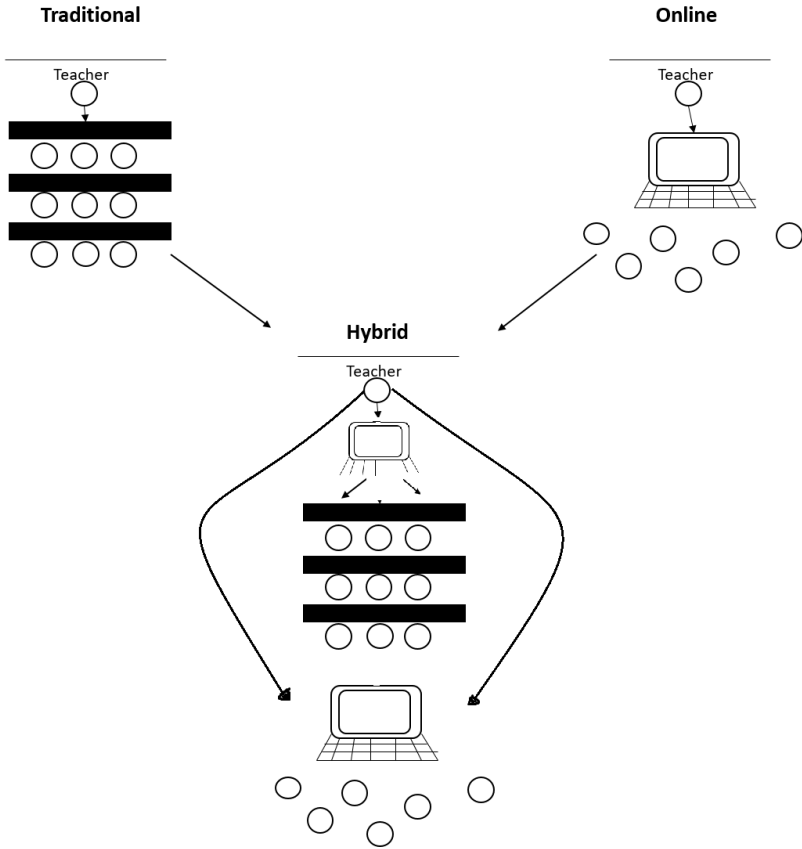
**Figure 1:** Three classroom layouts, modified from Santrock et al. (2010). Long description.

Along with the physical environment, the pedagogical details come into focus within reverse engineering. **Flipped teaching**, or the flipped classroom, is a theory from Jonathan Bergmann and Aaron Sams who set the groundwork for teaching and assessment where homework is done in class, and classwork is done at home. They suggest that the roles are reversed in terms of teaching, such as watching a video for homework the night before class, then coming in to share a discussion about the video[8]. It flips the classical model of watching a video in class and doing an assignment at home, to watching the video at home and discussing the video in class the next day. This sets a precedent for learning that can probe deeper into the student's competency. For example, students can prepare for discussion, after watching the video the night before and engage with other students in the class. Furthermore, with reverse engineering to the physical classroom (like with an offset style), the video assignment can be the discussion within divergent groups of individuals. This can enhance further conversations on other topics.

Some implications for flipped teaching relate to concepts of powerful, experiential, and interdisciplinary learning through wide-ranging engagement with the content:

- *Powerful*: Students are free to craft their own learning.
- *Experiential*: Pragmatic experience connected to the real-world.
- *Interdisciplinary*: Finding connections in other learning streams.

The enhancement of educational technology opens new doors for reverse-engineering the classroom. Reverse engineering introduces a new model of **hybrid learning** that uses the mix of in-person and technology-based education to accommodate learners with more flexibility[9]. Hybrid learning can incorporate these models of the reverse-engineered classroom to accommodate a wider scope of students integrating online education and collaboration through assessment and discussion.



*Traditional, Online, and Hybrid Teaching. Smith, Babich, & Lubrick (2020). Long description.*

One of the issues regarding technological education is the growing digital divide with technology. Online access is still an issue for many families or adults who want to pursue education, but do not have the technical means. Atif and Chou outline the current digital divide within education and suggest the need for digital citizenship through hybrid educational models toward inclusion within education[10]. If it is examined through an experiential lens, the freedom provided to students is expanded with a hybrid model, given the choice to choose online or in-person education. Someone who lives close to the school or does not have online access can still benefit from learning

through an in-person form. At the same time, the online format can be used to enhance access to more individuals. This is a theme that will be more salient as we head into the middle part of the 21st Century, particularly because of the social-distancing measures of the Covid-19 pandemic that began in 2020. Observe the slides below to develop a deeper understanding of tools for knowledge, cognition, and symbolism in learning.



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## 3.4 Thinking Critically About Colleges and Universities



*Pictured is Johns Hopkins University in Baltimore, Maryland, one of the most prestigious medical universities in the world. This work is in the public domain in the United States because it was published (or registered with the U.S. Copyright Office) before January 1, 1925.*

Most ideas of college and university are through physical characteristics. A town or city nearby may have a college or university with modern or classical facades, complete with buildings that hold classrooms, professors' offices, libraries, and laboratories. Thinking critically, however, what is the role of a college or university? First, colleges, universities, and other professional schools are referred to as **post-secondary institutions** or tertiary education and are learning organizations that offer diploma, certificate, and degree

programs through theoretical and applied foundations. Their roles are commonly to teach theory and practical application for use in the workforce which benefits the economy and mold the universal person for society.

Through this role, post-secondary institutions have experts in a diverse set of fields who teach theories to students. They attempt to carry that lineage into the future and pass it on to the next generation. Robert Florida describes universities as the drivers of innovation, not only producing graduates but also producing new ideas that can translate into society and be used for further innovation[11]. This leads to the question of what the post-secondary institution is supposed to do on a macro level.

To critically assess the post-secondary institution and its macro aims, note that it is a **learning organization** that fosters growth through learning and expanding that growth into the future. Peter Senge, a leading researcher on the topic, describes learning organizations as the continual expansion of knowledge capacity for desirable results[12]. Departmentalization, be it mechanistic or organic, is the key to the success of a learning organization, along with having a clear mission and vision toward organizational goals. For example, if a university is looking to create leaders of society, resources need to be applied in those areas to ensure that vision and mission are met. One key example of this is Johns Hopkins University (pictured at the beginning of this section), which sets the precedent for medical schools because of the amount of resources applied to their medical programs, to which they lead the world through their mission and vision.

However, looking at a university, like Johns Hopkins, an unattainable goal might be seen with a proverbial gate dividing the academic elite and others. In the case of Johns Hopkins, meritorious accolades are more important, given the importance of medicine on society. Even with this precedent, universities have become more accessible in the twenty-first century. Here are some statistics relating to Canadian universities:

- In 2017, 1.7 million students enrolled in Canadian universities, and 728,000 in Canadian colleges.
- There is about a 50-50 split between males and females.
- A wide array of academic programs, including many professional programs are available.
- Increases in Indigenous, first-generation, international, and students with disabilities were noted.

What are the implications of this? Unfortunately, degrees have taken a slight decline in job placement over the past two years[13], commonly referred to as a mix of the enrolment boom and multi-generational effects on employment[14]. This could be a lack of baby-boomers not wanting to retire and work longer, or the inability to retire during the financial crisis and great recession[15]. This is a macro issue that needs to be addressed on a socio-economic level. Post-secondary education can work to be more reactionary in its policies to accommodate a modern workforce and a modern economy. It would need to take a complete reframing of the educational system, with its new accessibility to address this challenge moving forward.

# Conclusion

This chapter looked at learning in schools, and elsewhere, to show the impact of learning inside and outside the school building, in relationships, and in society. Discussion of the various ways learning happens in other nations around the world, concepts of powerful learning, reverse engineering in the classroom, and the future impact of the post-secondary institution were also mentioned. Moving forward, these concepts will enhance the understanding of learning for work, citizenship, and moral development.

These are the learning objectives for this chapter:

1. Learning can take on characteristics of geographical location and societal determinants.
2. Powerful learning incorporates freedom, passion, and personal investment that is closely related to experiential learning through the incorporation of real-world and pragmatic applications.
3. Flipped teaching and hybrid learning can have an impact through powerful, experiential, and interdisciplinary characteristics to enhance the capabilities of learners within a broader scope.
4. Post-secondary education has grown in tuition and enrolment in the past years, therefore, it needs to address the macro challenges that are showing within the socio-economic landscape.



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## CHAPTER IV

# LEARNING FOR WORK



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The company, Morneau Shepell, is Canada's leading workplace learning firm specializing in professional facilitation, coaching, and mediators to achieve organizational goals[1]. Learning for work focuses on the combination of learning theories and achieving goals toward a specific mission or vision. The objective is to focus on what is best for the individual learner and how her or his individual competencies fit within a larger organizational structure. Furthermore, it addresses how certain learning styles can accommodate individuals to achieve the best results. Throughout this chapter, the learning curriculum, in relation to organizational objectives, as well as a view of the learning organization, and the role of experiential education with learning to work will be discussed.

The learning outcomes in this chapter are as follows:

1. Describe authentic education as a model of workplace learning.
2. Analyze the perspectives of skills assessment for work, and how they relate to decision making.
3. Describe the learning organization, along with the concepts of leadership and management.
4. Compare and contrast experiential education and coaching to foster teamwork in learning to work.



## 4.1 The Learning Curriculum



**Plato and Aristotle – School of Athens.** (Source: Raphael 1509, This work is in the public domain in its country of origin and other countries, as well as in areas where the copyright term is the author's life plus 100 years or fewer. Retrieved from [https://commons.wikimedia.org/wiki/File:Sanzio\\_01\\_Plato\\_Aristotle.jpg](https://commons.wikimedia.org/wiki/File:Sanzio_01_Plato_Aristotle.jpg))

What does it mean to be authentic? Similar words related to authentic or authenticity are: genuine, original, veritable, and rightful. One might say to be authentic means to be genuine or rightful in a context. What does this mean for authentic education? As previously discussed, authentic education, or authentic learning, allows learners to traverse and meaningfully discuss concepts and relationships connected to the world around them at an individualized pace with an interdisciplinary approach. Could it be said that authentic education is a return back to genuine and original learning? This could be the case, as Lodge suggests, that learning through action in an authentic practice has long been enacted in workplaces, even tracing as far back as Plato in *The Academy*[2].

Authentic education provides an emphasis on action and experience which is of growing interest to students given their keenness and enthusiasm to garner workplace learning for job preparedness, especially in colleges and universities. The learning curriculum in a modern educational framework strives to achieve this authentic action as a return to true learning. Marsh and Willis identify *currere*, or the autobiographical reflection on educational experiences[3], as an actionable approach for the learning curriculum.

How does this relate to the model of workplace learning? Stephen Billett asserts that the focus of a curriculum towards workplace learning and guided participation in learning every day should be paramount within a workplace curriculum model[4]. There are a couple of ways to combine authentic education with a workplace-learning curriculum. First, start with the pedagogical structure from previous chapters, such as organizing physical spaces and creating authentic activities for learners to be integrated into these models. Second, use **authentic assessments**, which are tailored accomplishments that are significant and relatable to the learning curriculum. This assessment goes beyond multiple-choice tests and focuses on development through a logistical and pragmatic structure.

It is Lauren Resnick who, as president of the American Educational Research Association in 1987, outlined the process of learning inside and outside of schools. She described the relationship between schooling and economic participation this way:

“Ever since the Smith-Hughes Act of 1917, schools have been expected to provide certain students with experience with the same kinds of machines and the same kinds of tasks that they will encounter in the workplace.”[5] (p. 16).

In addition, these are her comments on skills for authentic learning outside of schools:

“Beyond reorganized job-specific training, modern economic conditions also call for education aimed at helping people develop skills for learning even when optimal instruction is not available.”[5] (p. 17).

Ultimately, it is through this concept of authentic action within curricula that will help students achieve goals to be successful in their endeavours once they leave school and enter the workforce, be it through a coaching model of pedagogy or an apprenticeship model. The learning curriculum needs to provide actionable teaching and resources to meet the needs of students entering the workforce. Test your knowledge by selecting all the characteristics of authentic assessment in the activity below.



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# 4.2 Learning in the Workplace

Looking specifically at the job market, the question is: Do competencies inside the classroom effectively translate into the workplace? The OECD outlines this through a strategy of embracing hard and soft skills attainment and implementing it in a real-world context[6]. The question then becomes: How is the gap bridged when assessing skills for work? Stasz proposes that there are two perspectives about how to assess skills for the workplace in an academic sense. She focuses on the differences between *academic skills* and *formal skills* as the bridge between obtaining skills in school and correlating them in a job or economic setting[7]. Academic skills tend to take on formal characteristics, such as testing for competency but also allow room for more probing questions and analysis of the formal characteristics. Ultimately, most workplaces rely less on the theoretical and more on the formal aspects of the job, given the structure of growth in an economic system.

Academic Skills	Formal Skills
<ul style="list-style-type: none"><li>• Theory-based</li><li>• Some application</li><li>• Critical questioning</li></ul>	<ul style="list-style-type: none"><li>• Practically-based</li><li>• Heavy application</li><li>• Complimentary questioning</li></ul>

Does this effectively bridge the gap between academia and the workforce? It may inform our individual decisions about how academics and work are perceived, along with the competencies needed for a specific field. However, academics are of relative importance in the occupation of a historian, as opposed to a financial manager, considering historians are constantly reading text, whereas a financial manager mostly deals with quantitative information. This is not to say financial managers have not used their academic training in mathematics and economics to be successful at their job, or those historians can get by without some grounded aspect of how an economy works. Rather, it depends on the balance in a particular situation.

The concept of academic and formal skills also plays a role in teaching vocational roles at community colleges and colleges of applied arts and technologies. For example, a collaboration of academic and formal skills can

be beneficial for graduates from college, not just in their discipline, but also for obtaining jobs in the field through the interview process, or when communicating with co-workers. Ahmad indicates the skills that employers find most important for candidates to possess. These are the top three[8]:

1. Honesty and integrity
2. Communication (verbal and written)
3. Strong work ethic

What this reflects is a need to enhance the soft skills needed in an interpersonal workplace. Hard skills found in the formal areas are important for completing the tasks demanded on the job. In addition, the importance of soft skills can be obtained through academic and theory-based processes.

In *Theories of Learning for the Workplace: Building Blocks for Training and Professional Development Programs*, Dochy et al. impart the different theories of learning in relation to the workplace. They attempt to focus on inter-organizational learning by expanding past the academic, or organizational walls, for a cohesive learning structure[9]. This is important for the understanding of academic and formal job skills working in tandem with societal implications.

What this comes down to, for educators, is effective decision-making within teaching to enhance academic and formal skills for the workplace. As educators, it is important to understand all the people who can be affected by these skills who are commonly referred to as stakeholders. **Stakeholders** are individuals who are affected by the actions of a group or organization[10]. As educators, it is essential that the decisions made for teaching benefit the students, the members of the community, and the larger society as a whole. The skills being taught should have an even balance between academic and formal skills, in order to enhance all future job requirements.

## Skills for the Workplace Activities

Professional development is an important aspect of learning to work. Use the activities below to understand and differentiate between the different skills that are relatable for learning to work.



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## 4.3 The Learning Organization



One area of focus, when discussing learning for work is the educational organization. As previously discussed, it fosters growth and learning. The interplay of the learning organization and its organizational culture will now be considered. **Organizational culture** is comprised of the philosophical, administrative, and stylistic characteristics of a learning organization. According to Smith, Babich, and Lubrick, there are five components of organizational culture in a learning organization[10]:

1. *Hiring philosophy*: leaders aligning philosophies with hiring individuals
2. *Institutional policies*: directives of government and society influencing organizations
3. *Budgeting process*: budgeting specific programs within the organization
4. *Rewards*: tailoring learning towards competency through goal attainment
5. *Decision-making style*: sharing important ideas to make effective decisions

Through these culture-changing markers, learning organizations set the tone for their cultures. What comes next is the competency of an individual or group to enhance learning through these factors relating to the concept of leadership and management.

Within a learning-organizational framework, **leadership** is defined as a social relationship with the express consent of reaching and attaining certain goals within an organization. **Management** is defined as the planning,

organizing, and directing of activities within an organization, with resources to obtain goals[10]. Both leadership and management are different from each other, but they are inextricably connected at the heart of the learning organization. With a strong culture guiding the ship of the organization, leadership and management are the workers on the ship ensuring that the boat is guided away from danger. Therefore, the connection between leadership and management within a learning organization is that organizational culture is nothing without effective and competent individuals who are both good leaders and managers.

The following video is a TedTalk in Wilmington, Delaware with a speaker, Benjamin Riley. He defines the learning culture and goes deeper into an understanding of an experiential relationship to teaching and learning.



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## Developing Mastery Towards Learning

When referring to learning organizations, the organizational culture around developing mastery in learning moves towards obtaining goals and objectives for the organization. This was first instituted by Senge, and his theory of mastery that shares the characteristics of tangible and abstract aims and goals toward learning; essentially, building an ethos around learning[11]. Taking a more pragmatic approach, Ambrose et al. describe the principle of learning that involves a complex connection of skills to be used so that goals and objectives are achieved in the classroom through a balance of expertise and knowledge when to apply certain skills in certain situations[12].

A real-world example would be a nurse with the skills required for this profession. A nurse needs to be adept with practical skills, such as drawing blood, administering shots, reading EKG's, and in the areas of formal skills, completing clerical work. In addition, nurses need to be proficient in the skills of ethics, compassion, communication, and stress management in order to offer service to people in need. Developing mastery for learning, either inside of the learning organization or a corporation, requires the abstract and practical components of skills to be used effectively in various situations. The interdisciplinary factors that combine the many skills to many situations within the organizational structure crystalize the understanding of developing mastery towards learning.

# Conclusion

In this chapter, the learning curriculum and a shift towards an authentic style of education were discussed. In addition, the need for workplace learning, what the learning organization is, and the need for coaching and experiential learning for work were examined. Throughout this chapter, the focus on preparation for the future of students helps to create a viable pathway for individuals to prepare themselves after their careers in academia are concluded, and they enter into the working world.

These are the learning objectives of this chapter:

1. Authentic education is meaningful activities for the real world, all while preparing students to enter the workforce with pragmatic concepts.
2. Academic skills and formal skills are important to keep in balance, given that they are imperative for learning to work. In addition, both should be emphasized for understanding the needs of stakeholders within learning organizations.
3. The learning organization is essentially reflected by organizational culture. A strong organizational culture of learning creates competent leaders and managers who can attain goals.
4. Learning through experience is beneficial to a team, especially when experiences from the past and coaching new learners in a scaffolded way fosters desired outcomes.



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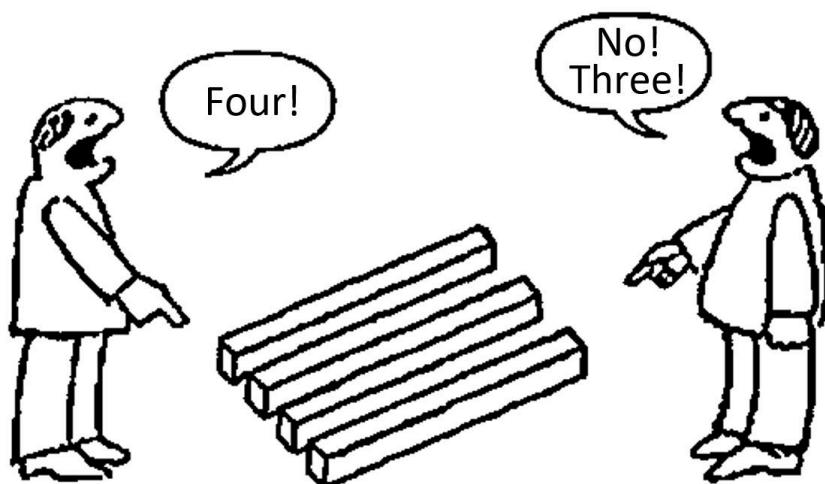
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## CHAPTER V

# LEARNING ABOUT AND FROM DIFFERENCES



Different views with similar goals are at the heart of learning about, and from, differences. Up to this point, it can be said that learning does not happen in a vacuum; therefore different perspectives in learning must be understood to make sense of the entire paradigm. It is important to learn how to enhance the best practices for educators and students. Furthermore, attempting to understand diverse perspectives in education for broader, more democratic ideas that reach more learners and educators is a worthwhile ambition. This chapter will look at these topics from a localized level to an international level so that an understanding of the differences in education is realized.

The learning outcomes in this chapter are as follows:

1. Create a framework for best or promising practices in teaching through a method of situated cognition.
2. Understand diverse perspectives in education.
3. Analyze internationalization in education through common questions surrounding international students.
4. Develop an understanding of democratic education and synthesize

other areas of the chapter surrounding it.

## 5.1 Connecting Best Practices for Teaching

How are best practices and teaching aligned? What are the best or most promising teaching practices? Within education's modern framework of education, new procedures of best procedures need to be merged with traditional conventions to meet the needs of stakeholders in schools. This will be examined with regard to international students later in this chapter. The best practices in teaching are those diverse strategies that ultimately lead to student satisfaction and achievement. **Diverse strategies** in teaching are pedagogical concepts that embrace a wide-ranging system for a broad set of individuals with different competencies. **Student satisfaction** helps to ensure that a broad range of individuals is provided for and engaged in these diverse practices. The goal of these strategies is to attempt to balance diversity and satisfaction for students when embracing the best practices for teaching.



Connecting the best practices means situating cognition through a structural framework and a level of apprenticeship. Brown, Collins, and Duguid indicate that **structuring cognition** has to structure knowledge outcomes towards a meaning that enhances the personal competency of the student. This is done through a structured practice in teaching, effective assessment, and follow-up with students. In addition, **cognitive apprenticeship** attempts to bring coaching and embedding authentic teaching practices through authentic activities[1].

In order to structure learning that is in the best interests of students, structuring cognition, cognitive apprenticeship, diverse strategies, and student satisfaction all need to be taken into consideration. These must also be guided by an ethical motive to enhance learning for students and that balance the four different areas.



There are three considerations for teaching practices that need to be addressed. These include academic support, class preparation, and creating positive learning environments.

1. Provide increased contextual information.
2. Engage in responsive teaching.
3. Use differentiated instruction.

Some ways that teachers can implement best practices are by providing effective strategies on how to learn, perhaps even personal strategies of learning and cognition. In addition, they could have more discussions in class, as opposed to staring at a chalkboard or slideshow. Educators should also make use of debates and collective activities to promote teamwork. By balancing pedagogy, satisfaction, cognition, and apprenticeship, teaching practices will be more effective.



## 5.2 Diverse Perspectives in Education

There are ways to navigate diverse perspectives in education. First, the institutional interactions of a university model can be molded to meet the needs of students with diverse perspectives. This starts by accepting academic freedom that allows all types of speech, scholarship, and perspectives to be brought forward and scrutinized for critique. This should also be continuous. It is important that all sides are met with acceptance in conversations and critiqued from all sides.

An example was when the Ontario government mandated a free speech policy on college and university campuses[2]. This shows a policy initiative from the government level that was reflected in public institutions to allow discourse to take place inside the walls of academia.

Some diverse perspectives are the four views of pedagogical design which make sense of diverse perspectives within education, and how they might relate to one another. Furthermore, institutional initiatives can be enhanced through:

1. Rational Pedagogy
2. Postmodern Pedagogy
3. Feminist Pedagogy
4. Theologian Pedagogy

Focusing on learning that is grounded, centred, or pragmatic in nature tends to align with rationalized thinking. **Rational pedagogy** aims to theorize learning through experiential and logic-based forms of understanding. This is borne out of the concept of aesthetic knowledge when educating through cognitive resonance and technical competence[3]. The logical nature of a rational pedagogy allows learning to closely relate to the naturalistic tendencies or people to obtain knowledge through the senses of thinking and doing. Of course, a critical reflection on rational pedagogy is that it may not account for effective learning, given that naturalistic tendencies are perceived differently among individuals. However, approaching a liberalized,

natural tendency towards pedagogy and aesthetic knowledge can produce meaningful, efficient, and practical learning.

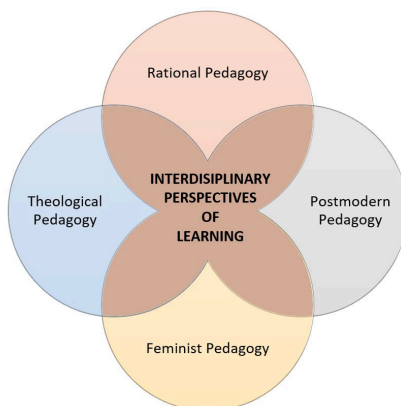
A thwart to rational pedagogy would be **postmodern pedagogy**, which focuses on a rejection of classical and societal pedagogical norms and moves toward a collective way of knowing through the diffusion of power relations[4]. The aim of this approach is a move away from naturalistic tendencies, by allowing learning to be more collaborative, and dismantling power constraints to allow for deeper understanding through social and cultural indicators. The challenge with this form is that learning is more than social and cultural power structures, so and a move away from naturalistic learning tendencies can be harmful to the learning objectives of a student. Ultimately, the postmodern pedagogy is to be used as a critical tool of understanding power within teaching and learning, rather than a guide, or a framework.

In relation to postmodern pedagogy is **feminist pedagogy**, which focuses on teaching and learning through a lens of equality and collective relationships and addresses power imbalances[5]. Feminist pedagogy is eclectic and provides equalization of power in the tradition of feminism. It allows students and teachers to be on an equal footing to enhance a collective depth of learning. The challenge with this pedagogy, as with postmodernism, is that there is more to learning than the gender-based differences between the teacher and the student. However, it can be a useful way to enrich speech through its equality measures.

**Theological pedagogy** commonly refers to divine pedagogy, as teaching from a higher being or force that guides the learning of both the teacher and student[6]. Although the definition is often based on Christian teachings, it can apply to any higher force of governance or any type of religion. The aim of this pedagogical concept is to channel learning through the omnipotent force that governs people towards knowledge attainment. The criticism of this is that it moves away from a collective ethos, and constrains it within a divine context that can be cloudy when cultural differences intertwine with the governing force. However, it also creates a connection that promotes an ethical guide for teaching and learning to strengthen social and emotional factors.

Regardless of the perspectives on pedagogy, it is important to know, understand, and ultimately acknowledge its different forms that can be used within the classroom. This means that teaching and learning that can be broad and interdisciplinary, which meet the needs of many different

learners. The goal is to be less fractionated and more integrative in the different perspectives to embrace the whole and deep learning objectives.



One key factor to consider is the different learning disabilities within the classroom. No perspective can be effective if learning is not achieved by a student. Dudley-Marling concludes that observing the social contexts and deficit perspectives of students learning disabilities is to address the problem in the classroom and being accountable for it[7]. Ultimately, issues with learning need to be addressed first, in order to continue with perspectives on learning. Otherwise, the risk that learning objectives are not being met will hurt both the educator and the student. To understand this further, use the activities below to critique and examine the interdisciplinary perspectives of learning.



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*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://ecampusontario.pressbooks.pub/ticl/?p=235#h5p-18>

## 5.3 Internationalization in Education



Image from the University of Cambridge: [https://www.cisl.cam.ac.uk/resources/network/images/connected-globe.png/image\\_view\\_fullscreen](https://www.cisl.cam.ac.uk/resources/network/images/connected-globe.png/image_view_fullscreen)

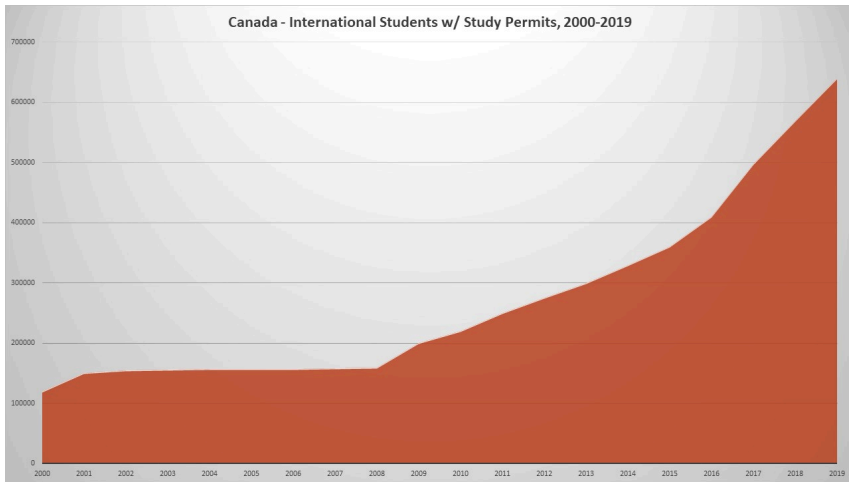
In the modern era of education, people are more connected globally than ever before, rendering the need to discuss internationalization.

Commonly used within economic circles, internationalization relates to the increasing involvement by a company or educational institution within international markets, akin to globalization. **Educational internationalization** is the ability for teaching and learning to be increasingly involved with international cultures in order to enhance globalized learning. Jonas Stier refers to three ideologies of internationalization within higher education: idealism, instrumentalism, and educationalism[8].

Idealism	Instrumentalism	Educationalism
<ul style="list-style-type: none"> <li>• creates a more democratic, fair, and equal world</li> <li>• intention or ambition to create a 'world order' at a global scale</li> <li>• increases awareness of global life-conditions and social injustices</li> <li>• induce tolerance, respect, democratic values, and a personal commitment to helping less fortunate people</li> <li>• more widespread among teachers than administrators</li> <li>• conceived as a one-way flow of knowledge</li> <li>• aim at an increased level or international or global convergence</li> </ul>	<ul style="list-style-type: none"> <li>• inherent pragmatic and economic goals</li> <li>• the goal is to create a more flexible labour force and competitiveness</li> <li>• stress the value of life-long learning, inclusive education, social competencies, critical thinking, and intercultural understanding</li> <li>• internationalizing higher education will meet the demands of the capitalist, global and multicultural world</li> </ul>	<ul style="list-style-type: none"> <li>• a wider and deeper view on education</li> <li>• purposes extend beyond mere idealistic and professional aspirations of policy-makers</li> <li>• being exposed to and having to adapt to an unfamiliar academic setting enriches the overall academic experiences of students and teaching staff alike</li> <li>• fosters exposure to new, perhaps unknown, national culture exposures</li> <li>• contributes to personal growth and self-actualization</li> </ul>

This is a broad concept in terms of the theory of educational internationalization. However, these concepts apply to international students, as can be seen in the research data that compares the experiences of international students inside Canadian higher-educational institutions.

Since 2006, the number of international students inside Canada has grown steadily, according to Immigration, Refugees and Citizenship Canada data via the CIC[9] (see below). What this reflects is the development of an internationalized educational system within Canada. What are the motives for this? For better viewing of the graph, right click on the image and “Open Image in New Tab”.



**Figure 1:** Study Permit Holders in Canada 2000-2019. In El-Assal, K. (2020, February 20). Canada now ranks 3rd globally in foreign student attraction. CIC News. <https://www.cicnews.com/2020/02/642000-international-students-canada-now-ranks-3rd-globally-in-foreign-student-attraction-0213763.html#gs.rvpph9>

One motive could be the goals of internationalization to enhance a globalized framework of education through the methods of idealism, instrumentalism, and educationalism. A critical look may suggest that the economic benefits of higher-educational institutions are levied due to the high tuition rates of international students, compared to those of domestic students[10]. Additional questions arise about the goals pertaining to internationalization, because it may be creating an instrumental sector for university administrations. However, does all this contribute to the workforce? What about the retention of internationalized students in the workforce? One view stipulates that due to immigration policy, or language barriers, students are unable to stay in Canada with their talents, and eventually return home[11]. Another theory could be that international students obtain an education in North America, and bring it back home to their home countries, which is also initiated by Canadians travelling abroad[12]. This would initiate a sunk-cost exemplar regarding the process of internationalization with a view of protectionism.

Many questions that critique internationalization can be raised. However, for the time being, educators have an ethical responsibility to teach their

students to enhance the experience of all students. This is reflected in the 2016 International Student Barometer which suggests[13]:

- Nearly 9 out of 10 students are satisfied with their learning in Canadian and US colleges and universities
- Satisfaction with teaching strategies
- Availability for work experience while a student

Some room for improvement comes in the form of retention, employment, and career advice, which reflects that some international students are willing to work in Canada. However, it depends on the process and availability of jobs.

An important factor in how internationalization works within education is the impact of teaching practices in a diverse setting. Research reflects that effective teaching practices along with preferences toward different learning styles rendered a positive effect on perceptions of learning[14] [15]. Furthermore, in a comparison between STEM and Non-STEM students, Smith et al. discovered that both cohorts experienced positive teaching experiences with no discernable adoption towards teaching practices[16].

What we can take from this research is that respondents inside of the classroom depend on the diversity of teaching practices meeting the needs of a diverse cohort, be it diversity through culture, or through academics. One can look at this to address the ethical responsibility of educators to enhance the learning atmosphere for all students in the classroom. What this works towards is an effective internationalization model for institutional policy inside schools.





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## Canadian Stance on Internationalization in Education

Kris Magnusson, of Simon Fraser University, in conjunction with the Association of Canadian Deans of Education, in 2016, developed an accord on internationalization within higher education in a Canadian context. The aims of this accord are to provide preparation for teachers, offer programs and research, and increase international mobility due to the rapid globalization of higher education. The accord outlines a Canadian conceptualization of educational internationalization through five processes[17]:

1. International mobility experience
2. International teaching partnerships

3. International research partnerships
4. Internationalization of the Canadian curriculum
5. Preparation of educators and leaders for schools and educational systems

The accord stipulates the role of Canada within internationalization through partnerships with other countries, and expands the Canadian curriculum to meet the needs of rapid globalization. Criticism can be seen, though, as partnerships need to be multi-lateral, and the epistemological consensus is hard to come by between nations. Perhaps a more interdisciplinary approach would be needed to make internationalization feasible for the future of the educational sector.

## 5.4 Democratic Education

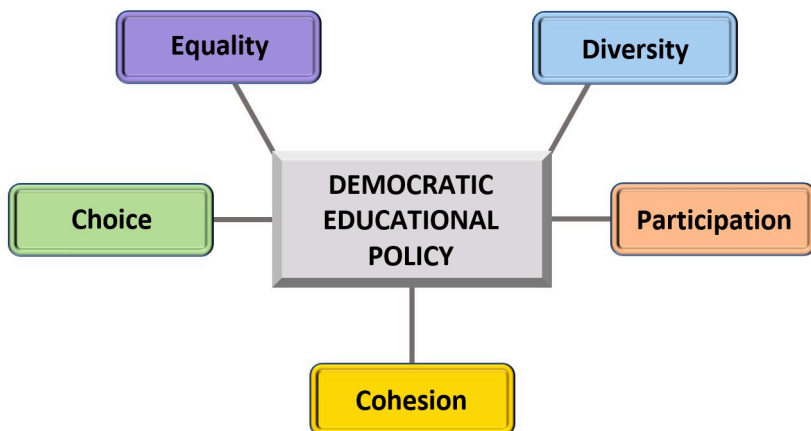


The democratic process is to engage in free actions of selections and choices. **Democratic education** reflects the pedagogical aims and learning objectives that are rooted in freedom, values, and trust. These characteristics of democracy are all about civility, and all stem from the ancient Greek philosopher, Plato[18]. Civility is a common theme, and it can be observed in this sense of democracy and civility in education.

Berkowitz, Althof, and Jones cite educating the civic persona, which supports pedagogical performance, while adhering to moral pillars of character[19]. To make sense of civility and democratic education, connect the best practices by merging diverse teaching, student satisfaction, structuring of cognition, and cognitive apprenticeship. These can be enhanced by adopting divergent philosophies on education, such as rational pedagogy, feminist pedagogy, postmodern pedagogy, and theologian

pedagogy. All these branches of learning come from the tree of freedom and democracy to develop a broad range of concepts for civility in education. It is Perry who put forward five key concepts[20] for democratic education to combine the divergent areas that are expected for freedom in education.

### **The Five Key Concepts for Democratic Education**



*Long description.*

Democratic education can be proliferated to accept learning from and with differences. Pykett visualizes “the social conditions of freedom which comprise the cultural and governmental environment in which pedagogical subjects are produced – that is, the making and shaping of a people who are governable but not unproblematically governed”[21]. What can be deduced here is that democratization of education can be a powerful motive for enhancing different pedagogical designs and different forms of learning. From a multi-disciplinary approach, learning can take a whole new shape by moving forward to an ever-expansive society.

## **Perry’s 5 Key Concepts of Democratic Education**

Below use the presentation of Perry’s five key concepts of democratic

education for a more robust understanding of how democracy works with freedom and autonomy for both student and educator.



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# Conclusion

Throughout this chapter, the balance of best practices for teaching, diverse pedagogical practices, educational internationalization, and democratic philosophies surrounding pedagogy have been presented. By incorporating a classical, liberal approach, individual freedoms and merging them freedoms together to learn about, and from, our individual differences the best practices for teaching can be identified.

These are the learning objectives of this chapter:

1. It is important to maintain an ethical motivation between diverse strategies, student satisfaction, structuring cognition, and cognitive apprenticeship.
2. Diverse perspectives are how teaching and learning are viewed. They can be understood through the application of rational, postmodern, feminist, or theological lenses, just to name a few.
3. Internationalization is an ever-growing trend within Canadian institutions. Although challenges arise from providing quality experiences for students and maintaining academic and economic integrity, international students are satisfied with the education they receive in Canada.
4. Democratic education is civility, diverse perspectives, and ethical motivations for pedagogy. Democratization can be a powerful tool to improve pedagogy outside of the school and into society.



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## CHAPTER VI

# LEARNING FOR CITIZENSHIP AND MORAL DEVELOPMENT



Pictured are Chief Justice of the United States Supreme Court, **John Roberts** (left), and fellow Supreme Court Justice, **Neil Gorsuch** (right), who are charged to uphold the law of the United States Constitution. In our society, judges are considered some of the greatest moral actors. Image from: [https://commons.wikimedia.org/wiki/File:Chief\\_Justice\\_Roberts\\_and\\_Judge\\_Gorsuch.jpg](https://commons.wikimedia.org/wiki/File:Chief_Justice_Roberts_and_Judge_Gorsuch.jpg)

In chapter five, the democratized learning in a civil framework was the focus. In this chapter, a look at the ethical and moral development of learning and its connection to citizenship will be the topic. In addition, the framework of moral development will be critiqued, along with the challenges that schools face.

The learning outcomes in this chapter are as follows:

1. Describe how democratic conceptions in education relate to the role of ethical frameworks in schools.
2. Describe and analyze the ethical practice in schools, along with the role of developing educational programs.
3. Develop a conceptualization of moral development and how it should be taught.
4. Critique the ways that moral development could present certain problems in schools.

## 6.1 Educational Ethics



Pictured is the Greek philosopher, **Epictetus**, known for his moral philosophy of stoicism. Image from: <https://commons.wikimedia.org/wiki/File:Epictetus.jpg>

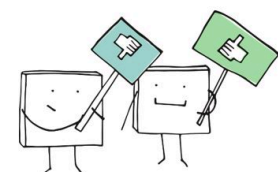
The term, “ethics,” is a branch of philosophy that involves analyzing and conceptualizing moral behaviour and determining right from wrong. **Educational ethics**, in this sense, is analyzing and conceptualizing moral

behaviour through pedagogical determinants. This means observing right or wrong actions. Ethical frameworks, regarding learning and epistemology, follow a set of **normative ethics**, which are morals of how one ought and should act on the ethical principles of justice, utilitarianism, deontology, and human rights[1].

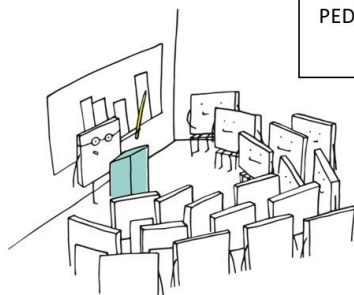
1. *Justice*: fair according to societal standards
2. *Utilitarianism*: the greatest good for the greatest number
3. *Deontology*: meeting duties obligated by society
4. *Human Rights*: the rights of humans to live, be free, and pursue happiness

Throughout this chapter, learning for citizenship and moral development will be reviewed in terms of normative ethics.

This can be looked at through educational democratization. It was Dewey who introduced the democratic conception of education as freeing for the individual and applying new methodological ideas of teaching and learning[2]. What the democratic conception achieves is a pathway towards a moral framework for teaching and learning. Content can be at the discretion of the educator, however, the process of learning is democratized through fairness, obligation, majority, and humanistic actions. Thus, democratic education, through an ethical framework, can be achieved. Effective pedagogy relies on these building blocks.

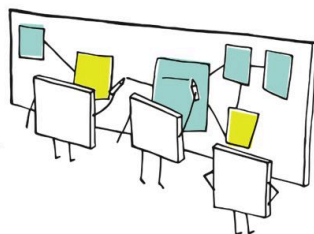


Democratic Conception Framework



Teaching and Learning Response

EFFECTIVE  
PEDAGOGICAL  
RELAY



*Long description.*

The role of schools within this ethical paradigm can be seen by where they are on their journey. Venezia, Venezia, Cavico, and Mujtaba conclude that age, formal education, and “ethics” education have no significant impact on ethics and morality[3]. This brings up questions about the value of ethics education, and whether schools are failing in normative ethics of justice, utilitarianism, deontology, and human rights? These findings suggest that marginalization in schools is a failure of justice and human rights. On the other hand, the growth of epistemology and pedagogy may have resulted in more rights and fairness for people. This ultimately adds to the conceptual ambiguity of ethics and moral developments in relation to schools.

## Application of Ethics and Education

An analysis by Sergei Nizhnikov infers that the role of transcendentalism will become the dominant philosophy, as it incorporates the cross-cultural

and mutual understanding of ethical actions in a modern and globalized world[4]. On a practical level, transcendentalism co-mingles, critiques, and reasons with the many normative ethics structures of justice, utilitarianism, deontology, and human rights. This is beneficial as it helps to develop a meta-cognitive conception of the different ethical structures and how to apply them in teaching and learning. As an example, a teacher may apply a justice framework, by using fairness, when marking papers. This is opposed to applying a utilitarian framework for deciding what activity the class wants to engage in through a vote. Combining and moving beyond ethics is an important factor, especially in a modern education framework. Use the accordion folder below for a more concise understanding of educational ethics.



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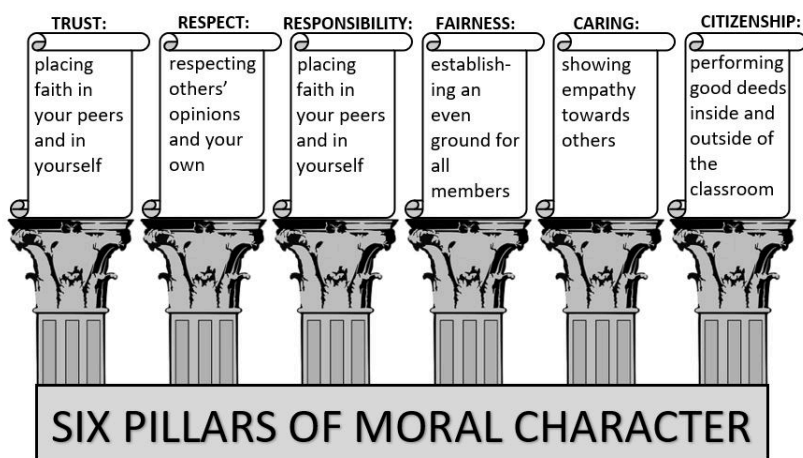
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## 6.2 Democratic Intent and Practice in Schools

The democratic intent of schooling is development within educational programs for moral enhancement. Citizenship education closely relates to democratic education, as discussed in chapter five, but more succinctly it recognizes education as a form of social governance creating a space where all can learn[5]. American-Canadian scholar, Henry Giroux, describes the need for democratic participation in schools in order for students to develop a sense of collegiality and collectiveness with peers. This is something he asserts as being subverted through the hidden curriculum[6]. What is seen in this instance is a push towards freedom in education, not only for teachers to teach, but also for students to learn. Although contentious arguments can be made whether a hidden curriculum exists or not, any barrier to freedom within education can be seen as an issue, and should be addressed within administrative circles.

Freedom can be conceptualized within schools by creating a plan of ethical practices for developing educational programs. The first thing that needs to be done is to create a guiding ethos of moral objectives that are uniform in all areas. One strategy would be to use the six pillars of moral character to manage ethical dilemmas[1].



*Long description.*

Through these six pillars, core dimensions can be formed based on moral objectives. Some examples of core dimensions are as follow.

Key Competencies and Skills	Key Values	Ethical Pillar
<ul style="list-style-type: none"><li>▪ Political literacy</li><li>▪ Critical thinking</li><li>▪ Conflict-free problem solving</li><li>▪ Public discourse and communication</li></ul>	<ul style="list-style-type: none"><li>▪ Democracy and human rights</li><li>▪ Tolerance and equality</li><li>▪ Independence</li><li>▪ Participation in community</li></ul>	<ul style="list-style-type: none"><li>▪ Respect</li><li>▪ Fairness</li><li>▪ Responsibility</li><li>▪ Citizenship</li></ul>

For contemporary citizenship, achieving moral goals always comes with a plan to self-assess moral objectives and ensure the implementation of democratization. Keating conveys how citizenship should be grounded in a way where the macro-scale of global citizenship has a local mindset at its heart[7]. This concept of embracing a democratic intent ultimately starts with the willingness to plan and implement moral objectives inside of the classroom, institution, and society. Use the activity below to better conceptualize the six pillars of moral character.



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## 6.3 Moral Development

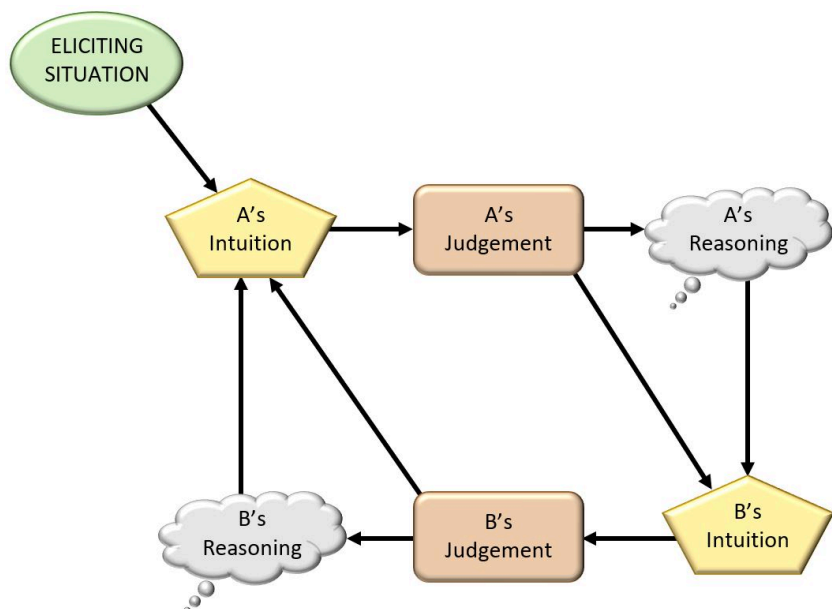


Mesopotamian god (with thunderbolts) battles Gryphon ; often associated with battle of Marduk vs Tiamat – story from Enuma Elish. This work is in the public domain in its country of origin and other countries and areas where the copyright term is the author's life plus 100 years or fewer. [https://commons.wikimedia.org/wiki/File:Chaos\\_Monster\\_and\\_Sun\\_God.png](https://commons.wikimedia.org/wiki/File:Chaos_Monster_and_Sun_God.png)

An ongoing debate is whether morality is inherent or developed as a result of experiences. **Moral development**, according to the psychologist, Lawrence Kohlberg, develops as a structure of reasoning throughout life from punishment and obedience at the early stages, to conventional morality and authority in the later stages, following a divergent design[8].

Kohlberg's Levels of Moral Development		
Level	Stage	Characteristics of Stage/Level
Preconventional	1	Punishment-Obedience Orientation
	2	Instrumental Relativist Orientation
Conventional	3	Interpersonal Concordance Orientation
	4	Authority and Social-Order Maintaining Orientation
Postconventional, Autonomous, or Principled	5	Social-Contract Legalistic Orientation
	6	Universal Ethical Principle Orientation

Proper criticism is displayed about the theory, most notably from New York University psychologist, Jonathan Haidt, who challenges Kohlberg's notion of early-stage moral development when good deeds are rewarded and bad ones are punished. Haidt argues good and bad actions are only perceptions, and not based on a priori response. For example, a child may be taught that an action for a cause is justifiable in the immediate circle, but is widely condemned by the general public[8]. This can be regarded as **interconnected moral development**. Haidt further points out that a more interdisciplinary approach of connected social systems needs to be introduced for moral reasoning, given the new knowledge, since the 1960s and 1970s [9].



**Figure 1:** Theory of Social Moral Development. In Haidt, J. (2001). *The emotional dog and its rational tail: A social intuitionist approach to moral judgment*. *Psychological Review*, 108(4), 814–834, p. 815. Long description.

Another area of moral development is the work of Reischl, Cavico, Mujtaba, and Pellet where cognitive moral development should progressively increase[10]. However, no correlation has been shown in the research reflecting this, with results being mixed or ineffective. Further conceptualization needs to continue in order to understand moral development, especially within an education setting.

The different theories of moral development have implications for teaching it. With what we now know about different concepts of moral development, how should it be taught? Kohlberg's theory that moral development can be a structured approach that is life-long or Haidt's theory of interconnected nodes offers a balance between tested and divergent methods for teaching. **Democratic moral development** is an individual's moral learning throughout life from different sets of inferences toward freedom and autonomy. However, this is merely one definition in a field that has produced many differing conclusions.

In the activity below, analyze, interpret, and design your understanding of moral development by using the Kohlberg method.



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<https://ecampusontario.pressbooks.pub/ticl/?p=279#h5p-24>

## 6.4 Challenges of Moral Development in Schools



*Balancing ambiguous morals of many different individuals can be an uphill battle. "Uphill Battle in a M2A2 Bradley" by Phil's 1stPix is licensed with CC BY-NC-SA 2.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc-sa/2.0/>*

Given that there is a current divide between moral development and teaching in the research literature, there must be alternative methods to include democracy in schools. There are some key challenges for this to occur.

First, there is conceptual ambiguity around moral development in schools, and also the implications around the dominant views of citizenship. Most people have strong ideals with regard to economics, politics, and society. The goal, therefore, is to encompass as many versatile discussions about all of these concepts. Bringing in different ideas is important to facilitate

further discussions toward solutions (e.g., Republican and Democrat, Liberal and Conservative, Capitalist and Socialist, Patriotism and Communism).

Second, contextual pressures are found when a standard organizational tendency conflicts with the existing 'citizenship education curriculum.' The major role of schooling is to educate the masses and produce knowledgeable people to enter society. However, the changing tides of society do not necessarily follow the practices of education and learning. Society changes, regardless of any institution, so the institution is consistently playing catch-up to society. Educators find that it is a difficult endeavour to consistently keep up with social, cultural, and political norms.

Third, there seems to be a significant disparity between democratic values of freedom, autonomy, and natural law within the current classroom and school-wide practices of post-social constructions and multiplicity of knowledge and identity. Considering this gap, awareness and understanding need to be addressed first, before moral engagement can happen in schools. This needs to start at the top of the administration and work its way into the classroom. The problem with most ethical frameworks, in any field, is there is no winning or losing with ethics, just acceptance of the conclusion, whatever that conclusion may be.

In the activity below, test yourself on the challenges of moral development.



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# Conclusion

The aim of this chapter was to foster insight into the importance that ethics can have on teaching and learning. Throughout this chapter, we discussed the importance that ethics can have in education along with teaching and learning.

These are the learning outcomes for this chapter:

1. The democratic concept comes from understanding the normative ethics of justice, utilitarianism, deontology, and human rights in order to create a framework for democratic education.
2. Developing educational programs by conceptualizing freedom through a guide, such as the six ethical pillars, and continually self-assessing moral objectives supports the achievement of moral development in schools.
3. Moral development takes on many different forms, from divergent methods to interdisciplinary methods. Although these are many, one size does not fit all and brings into question how to teach it.
4. Problems can develop through conceptual ambiguity, contextual pressures, and disparities between values and procedures of schooling. The important takeaway with ethics is there are no winners or losers, just conclusions from the conversations.



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## CHAPTER VII

# KNOWING AND LEARNING



Image: [https://commons.wikimedia.org/wiki/File:Student%27s\\_Song.png](https://commons.wikimedia.org/wiki/File:Student%27s_Song.png)

As professionals pursuing educational careers, it is wise to effectively assess knowledge, teaching, and learning in the modern educational setting. This chapter will broaden perceptions of these three components, along with the scientific understanding of cognition. In addition, the practice of teaching will be examined with respect to pedagogy, andragogy, and curriculum.

The learning outcomes in this chapter are as follows:

1. Describe the importance of threshold concepts and the SOLO taxonomy in epistemology.
2. Outline the differences between traditional and student-centred teaching and how they connect to other types of knowledge.
3. Analyze how the role of neuroscience in education can be an important catalyst for the future growth of educational systems.

4. Describe the role of self-engaged learning and the need to improve teaching methodology within the curriculum.

## 7.1 Types of Knowledge

The typology of knowledge is a convoluted topic because knowledge can be disputed from many individual viewpoints. However, it can be explained with a methodological approach by using different theories. Epistemology was described generally in earlier chapters. Types of epistemology, according to the Business Research Methodology (BRM) Institute, include many different threads, some of which are listed below[1]:

- *Empiricism*: the knowledge that comes from sensory experiences
- *Essentialism*: the knowledge that is linear and has set characteristics
- *Rationalism*: the knowledge that is based on reason, rather than emotions
- *Progressivism*: the knowledge that is based on advocacy and change reform
- *Constructivism*: the knowledge that is built from shared experience

Theories of knowledge reflect the thinking related to research methodology. The BRM shows practical ways to look at how knowledge is obtained, as well as possible motivations for its attainment. As an example, pragmatism is related to observable and practical research relating to a rational epistemology. Furthermore, an interpretivist approach may work with progressive epistemology, which focuses on subjectivism and motivation.

**Threshold concepts**, as defined by Biggs and Tang, stem from two types of knowledge: declarative and functioning. Threshold concepts are core concepts in a subject where understanding these concepts is key to transforming the way students understand a whole subject, thus allowing them to move on in their learning. One example is the opportunity cost, which once students grasp it, leads to a more thorough understanding of the discipline of economics. There are seven possible levels of threshold concepts[2]:

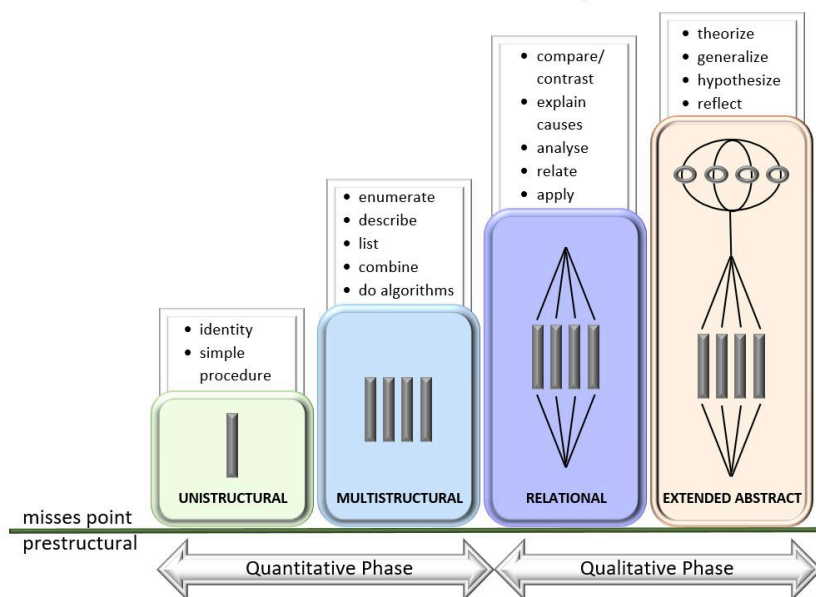
1. Transformative
2. Troublesome
3. Irreversible
4. Bounded

5. Discursive
6. Reconstructive
7. Liminality

The connection of knowledge to threshold concepts focuses on how learners engage with certain outcomes. Transformative and reconstructive concepts relate to progressive and constructivist theories of knowledge. Discursive methods may relate to empiricism and essentialism, but knowledge can be built through threshold concepts.

Biggs and Tang have laid out the framework for the construction of learning objectives. The **Structure of Observed Learning Outcomes (SOLO) Taxonomy** is a set of objectives for student learning. They show that learning increases over time in structural complexity, from a strict quantitative explanation to a broader qualitative explanation, as visualized below[2].

## The SOLO Taxonomy



**Figure 1:** The SOLO Taxonomy. From Biggs, J., & Tang, C. (2011). *Knowledge and understanding*. In J. Biggs, & C. Tang (Eds.), *Teaching for quality learning at university*. McGraw-Hill. (p. 91). Long description.



The constructive and essential framework within the SOLO Taxonomy is relevant to empiricism and progressivism. In one way, learning happens through sensory experiences. At the same time, reform and change within learning happen over time, given the shift in knowledge acquisition and complexity. The SOLO Taxonomy allows individuals to structure competencies of learning and achieve higher orders of thinking. To increase understanding of the SOLO Taxonomy, use the activity below to conceptualize its levels.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://ecampusontario.pressbooks.pub/ticl/?p=317#h5p-26>

## 7.2 Types of Learning



*Learning happens in many ways, and across many different species. Much like these baby swans using experiential learning from their mother. Image: [https://commons.wikimedia.org/wiki/File:Mute\\_swan\\_cygnets\\_learning\\_in\\_Prospect\\_Park\\_\(80222\).jpg](https://commons.wikimedia.org/wiki/File:Mute_swan_cygnets_learning_in_Prospect_Park_(80222).jpg)*

There are different types of learning in schools. Barr and Tagg provide an understanding of education through instructional and learning paradigms. **Instructional paradigms** of learning are the traditional methods of one teacher in one classroom, where the process is cumulative and linear. **Learning paradigms** approach learning through the use of holistic environments, where the learning process is active and interactive[3].

Instructional Paradigm	Learning Paradigm
<ul style="list-style-type: none"> <li>• Provide instruction</li> <li>• Curriculum focused</li> <li>• Specific allotment of time</li> <li>• One teacher, one classroom</li> <li>• Faculty and students are independent</li> <li>• Faculty are deliverers of learning</li> </ul>	<ul style="list-style-type: none"> <li>• Produce learning</li> <li>• Student-success focused</li> <li>• Teachers develop every student's competencies and talents</li> <li>• Cross-discipline collaboration</li> <li>• Faculty and students are a team</li> <li>• Faculty are designers of learning</li> </ul>

The instructional approach is traditional because it focuses solely on knowledge acquisition in the form of obtaining information and applying it effectively. This is still a functional model in many fields; however, the learner-centred paradigm offers a new conceptualization of learning that must not be overlooked. One example of this is the use of **VARK learning** through four sensory concepts:

- Visual
- Audio
- Read/Write
- Kinesthetic

Developed by Fleming and Mills from New Zealand, the VARK method aims to provide instruction for learning through many different modes, with various suggestions for learning to achieve outcomes[4]. Traditional approaches employ predominantly reading and writing assignments, with some visual activities pertaining to science, whereas the new procedure considers listening to a podcast or being active in an experiential learning task. One way to learn is by teaching with games in groups, especially since they can provide a robust level of VARK styles to increase educational outcomes.

These learning styles can be combined. VARK processes and traditional methods can be used in tandem. For example, in a nursing program, there are traditional lectures, but also experiential training which is needed for observation like how patients are reacting to medication, administering vaccines effectively, and listening to the needs of patients. A general sense of VARK learning is necessary to achieve student learning outcomes in many academic disciplines.

## VARK and Adult Learning

VARK models are commonly found in primary/secondary education, however, they can also be used in classrooms for adult learning. Marcy describes their use by incorporating sensory modalities and reflecting on the experience. Students were generally receptive to the VARK model, with many of them falling into multi-modal streams of learning[5]. What this reflects is that the use of VARK modalities can be beneficial outside of the primary/secondary sphere and are effective for learning and teaching in an adult education framework. Further discussion of VARK models for higher education should be expanded upon and tested. For a deeper understanding of VARK learning, use the interactive slides below.



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## 7.3 The Science of Knowledge and Learning



*This Photo by Unknown Author is licensed under CC BY*

It is important to gain insight into cognition, and how the brain works scientifically so that learning and knowing can be better understood. In 2006, Usha Goswami focused on the role of neuroscience and education by moving outside of the lab and into the real world. The results reflected differences in stimulus onset between children and adults, with children being more reactionary to stimulating circumstances, and adults having quicker reaction times to stimuli[6]. This shows a dichotomy between child and adult education, emphasizing processes that work best for certain individuals based on their ages. This means that low stimuli and emphasis can be used with university students, whereas high stimuli and a hands-on approach should be applied to children, based on the neuroscientific data.

With regard to higher education, neuroscientist, Sam Harris, questions the notion of moving away from home and garnering the classic ‘college experience’[7]. The relationship between the neurosis of the student and the sensory characteristics identified by Goswami show that the college

experience is an overload of events triggering multiple stimuli that would not be relatable to the neurological needs of adult education, where such encounters and responsibilities might hurt student success.

Moving forward, the relationship between neuroscience and education goes beyond the classroom and looks at the emotional aspects of schooling. Knowledge and learning for all ages transcend traditional modes of learning and takes on a more holistic approach to the overall cognition of the students, and how they learn on an emotional and social level. Further, understanding still needs to be explored in neuroscience and education, along with the role of science in future educational systems. The interactive activity below will help you to explore further declarative and functional knowledge.

## Government Policy and Initiatives Towards Educational Neuroscience

There have been criticisms regarding educational neuroscience, predominantly on its relevance inside the classroom. It is suggested, by Colvin, that lab-based neuroscience is far from pragmatic and does not relate to classroom teaching. A neuroscience methodology can be applied to educational theory[8]. However, educational theory can be used to develop an understanding of educational neuroscience for government policies and initiatives.

Colvin also implies that educational neuroscience works best when the methodology merges and builds on existing educational research[8]. Learning objectives for students are the goals that educational policies should work to achieve. Thomas, Ansari, and Knowland point out that the United Kingdom is working on integrating educational neuroscience within early-year brain development[9]. What this means is that by incorporating educational neuroscience into the teaching and learning pedagogy, governments can create effective policies that would benefit stakeholders, administrators, teachers, students, and the public.



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## 7.4 Pedagogy, Adult Education, and Curriculum

Throughout this section, the focus will be on the similarities and differences between pedagogy and adult education, also known as andragogy. In addition, a framework will be provided for self-engaged learning in order to develop curriculum. **Pedagogy** derives from the Greek etymology of 'paidos,' meaning child or boy, and 'agogos,' meaning leader, so the leading of the child through knowledge. In common terms, pedagogy simply refers to the science of teaching. **Andragogy** is the art and science of adult education. It was Malcolm Knowles who developed this method in the early 20th century, when adults wanted to expand their knowledge after World War I, and the classic pedagogical model needed revising for adults[10].

Both pedagogy and andragogy require educational leadership. There are, however, differences in what learning looks like. Pedagogical concepts tend to be content-centred, as opposed to learner-centred in andragogical forms. Adult education should be focused on involvement and the experience of adult learners[10]. Below is a matrix outlining the impact of each method on areas in the learning paradigm.



	Pedagogical	Andragogical
<b>The Learner</b>	<ul style="list-style-type: none"> <li>• The learner is dependent upon the instructor</li> <li>• The teacher/instructor evaluates learning</li> </ul>	<ul style="list-style-type: none"> <li>• The learner is self-directed</li> <li>• Self-evaluation</li> </ul>
<b>Role of the Learners' Experiences</b>	<ul style="list-style-type: none"> <li>• The learner comes to the activity with little experience that could be used as a resource for learning</li> </ul>	<ul style="list-style-type: none"> <li>• The learner brings a large volume of experience, as a rich resource</li> <li>• This supports self-identity</li> </ul>
<b>Readiness to Learn</b>	<ul style="list-style-type: none"> <li>• Students are told what they have to learn in order to advance to the next level of mastery</li> </ul>	<ul style="list-style-type: none"> <li>• Any change triggers a readiness to learn</li> <li>• Able to assess self and goals</li> </ul>
<b>Orientation to Learning</b>	<ul style="list-style-type: none"> <li>• Learning is acquiring subject matter</li> <li>• Content units are sequenced according to the logic of the subject matter</li> </ul>	<ul style="list-style-type: none"> <li>• Learners want to perform a task and solve problems</li> <li>• Learning must be attached to the real-world</li> </ul>
<b>Motivation for Learning</b>	<ul style="list-style-type: none"> <li>• Primarily motivated by external pressures, competition for grades, and consequences for failure</li> </ul>	<ul style="list-style-type: none"> <li>• Internal motivators of self-esteem, recognition, self-confidence, and self-actualization</li> </ul>

Learning styles can be compared between these two approaches. **Self-engaged learning**, from Samaroo, Cooper, and Green, promotes an effective learning environment for engaged individuals of all ages that promote self-efficacy and exploration in a term coined *pedandragogy*[11]. **Pedandragogy** calls for the core elements of pedagogy and andragogy to be synthesized so that self-engaged learning by individuals of all ages can be achieved. Combining subject matter and evaluation attempts to create a structure that reinforces the learning and engagement of an individual. This is not

to be considered a 50/50 split, but rather a gradation of the best possible outcomes based on the characteristics of the learners involved.

The importance of pedagogy and andragogy relies on its interpretation towards developing curriculum. **Curriculum**, according to Egan, is the course of learning experiences planned towards goals and learning outcomes in a school setting. It is a phenomenological construct that observes questions of pedagogical and andragogical principles[12]. Egan reflects on his previous assertion that curriculum is not static. It can be dynamic and provide many different views and reforms for change[13]. Ultimately, the curriculum stipulates the course of action for pedagogical or andragogical design and develops learning outcomes for students over the course of their studies. The goal is to develop competent individuals. Furthermore, the curriculum provides various forms of design that accommodate educators and learners toward the desired learning outcomes. The activities below will help you to better understand and test your knowledge of pedagogy, andragogy, and curriculum.



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# Conclusion

This chapter brought forth many different concepts of knowledge and learning, from the theoretical to the practical. These included theories of knowledge, learning paradigms, neuroscience in education, the art and science of teaching (pedagogy), adult education (andragogy), curriculum development, and learning outcomes.

These are the learning objectives of this chapter:

1. Theories of knowledge (epistemology), the SOLO Taxonomy, and other theoretical frameworks provide perspectives that help formulate practical applications in education.
2. Traditional teaching employs an instructional approach, whereas a learner-centred teaching style focuses more on the students' capabilities toward success. In addition, the concept of VARK learning stipulates instructional and learner-centred techniques for a more comprehensive educational experience.
3. Neuroscience and education move beyond the classroom towards the emotional aspects of learning. A holistic and cognitive approach may be beneficial for the future development of educational systems and policies.
4. The curriculum can be variable, so the course of action to develop learning outcomes, either pedagogically or andragogically, is an ongoing process. Self-engaged learning provides students with their own creative paths to meet curriculum objectives.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://ecampusontario.pressbooks.pub/ticl/?p=325#h5p-31>

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## CHAPTER VIII

# INTERDISCIPLINARITY AND HIGHER EDUCATION



*Pictured is Marcus Aurelius, a classic example of an interdisciplinarian. "Marcus Aurelius Glyptothek Munich" by TURCOLIVE is licensed with CC BY 2.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by/2.0/>*

It was the great Roman emperor and classical interdisciplinarian, Marcus Aurelius, who reflected on his broad knowledge of change. "The parts of the Whole, all that form the natural complement of the universe, must

necessarily perish – and perish should be taken in the sense of change”[1]. The “Whole,” as Aurelius contends, is the breadth of knowledge that can be obtained within a natural environment. That is at the heart of interdisciplinarity. Throughout this chapter, this will be reviewed, along with its connection to learning communities, its future in higher education, and its perceived inherent or developed traits within learning.

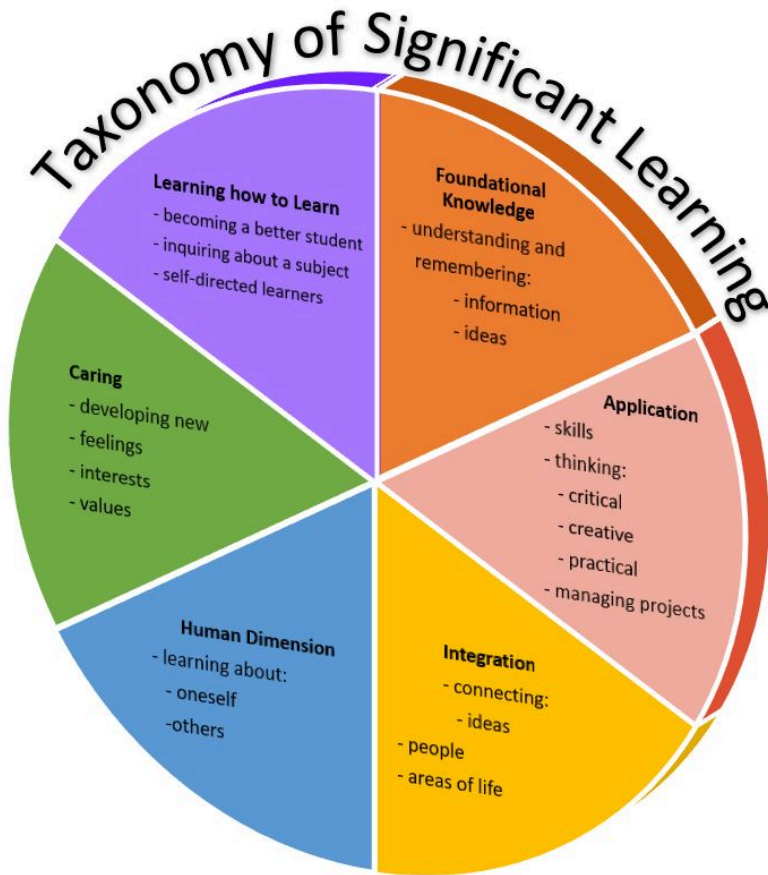
These are the learning objectives for this chapter:

1. Compare and contrast the concepts of interdisciplinarity in higher education.
2. Analyze interdisciplinarity and its relation to learning communities.
3. Develop a framework for the future of interdisciplinarity in higher education.
4. Construct a theory on how interdisciplinarity may be an inherent or a developed trait of learning.



## 8.1 The Concept of Interdisciplinarity

The first stage of interdisciplinarity is to provide a working definition. **Interdisciplinarity** is when multiple academic disciplines are consolidated into one idea, objective, or task. Authors like Lisa Lattuca point out that interdisciplinarity is the natural ability to make knowledgeable connections in learning[2]. Julie Thompson Klein further notes that interdisciplinarity is the connection of ideas that develops answers to complex questions[3]. Some students, throughout their educational career, may have taken part in interdisciplinary programs within their high school, college, or university. In the diagram below, Fink describes a concept for interdisciplinarity by providing a taxonomy of significant learning[4].



**Figure 1:** Taxonomy of Significant Learning. In Fink, L. D. (2003). What is 'significant learning'? In *Creating Significant Learning*. Josey Bass, p. 3. Long description.

**Figure 1:** Taxonomy of Significant Learning. In Fink, L. D. (2003). What is 'significant learning'? In *Creating Significant Learning*. Josey Bass, p. 3

Interdisciplinarity can be implemented in higher education. Lattuca, Voight, and Fath state in this setting, it may:

- Make connections to previous knowledge
- Help students develop complex understandings of problems
- Develop advanced views of knowledge
- Utilize a multitude of perspectives[5]

In conjunction with Fink's Taxonomy, these multiple perspectives lead to authentic learning, especially in a post-secondary setting. For example, a lawyer or a judge needs to be conscious of the many different domains involved in a case, such as developing a comprehensive understanding of every facet of the situation. Educators also need to focus on these macro ideas to expand their understanding of how teaching can be effective through the application of various cognitive and social-human dimensions.

This ultimately leads to the role of interdisciplinarity as a catalyst for a consciousness of the ethically-centered greater good. **Ethical interdisciplinarity** is the process of ensuring that knowledgeable connections meet the needs of the greater good on a large scale. This topic warrants further study, given its broad scope.

## 8.2 Interdisciplinarity and Learning Communities

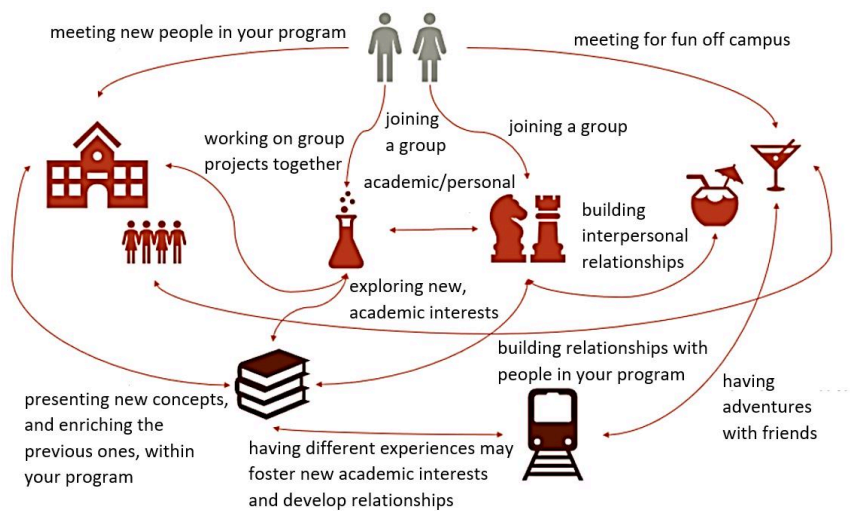


A **learning community**, according to Goodyear, De Laat, and Lally, is a group of people who meet regularly and share common academic goals and attitudes[6]. Learning communities tend to place importance on academic competency. In addition, they possess shared emotional connections and active involvement in learning professionally and personally. In many ways, it is a more focused approach towards the development of interpersonal relationships, and goes beyond academics by blending theories from many different areas outside of the structured disciplines.

This is common in institutes of higher learning, given the psycho-social development that occurs for students during their post-secondary educational student experiences. Students in higher education tend to engage in different courses that broaden their horizons. For example, a group of students in an education program develop a cohesive working and personal relationship, and decide to take a political-science course about Canadian elections. As a cohesive, personal group, these students are engaging in, and learning, new content together. They also bring theories back to their own educational discipline to further explore interdisciplinary connections.

This macro view can lead to their final capstone project or thesis. In many ways, the college/university experience of academics, clubs, friendships, and those who gather for knowledge is a form of interdisciplinarity. These connections go beyond the classroom. Moving forward, the concept of interdisciplinarity can be an important phenomenon to improve the

understanding of the communities within a college or university, both inside and outside the classroom.

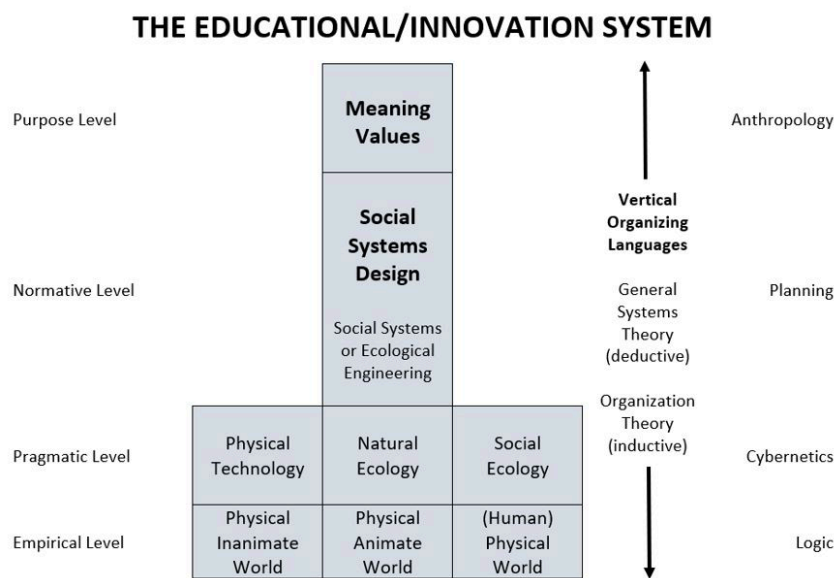


**Figure 2:** Visual Representation of Building Learning Communities in Higher Education. Long description.

# 8.3 Future of Interdisciplinarity

One of the top higher-educational analysis firms, Quacquarelli Symonds, points to the need for interdisciplinarity to propel learning into the future[7]. As previously mentioned, students can develop advanced views of complex situations. In addition, structuring knowledge for the greater good is ethically grounding, and thus is valued from the relationships that are built inside and outside of the classroom.

A clearer and more logical understanding can be achieved through the interdisciplinary process. In the diagram below, Klein suggests an **educational/innovation system** of interdisciplinarity, which scaffolds different sociological, psychological, technological, and physical systems towards interdisciplinary goals within learning[3].



**Figure 3:** The Educational/Innovation System. In Klein, J. T. (1990). *Interdisciplinarity: History, theory, and practice*. Wayne State University Press, p. 67. Long description.

This sets a precedent towards achieving lifelong learning within higher-educational systems. According to Nijhof, **lifelong learning** follows five

elements, as outlined by the Organisation for Economic Cooperation and Development (OECD), to ensure lifelong learning is achieved[8]:

1. Improving the accessibility and quality of initial education
2. Improving pathways and transitions during a lifespan of learning
3. Rethinking and reflecting on roles and responsibilities for more clarity in a multitude of learning organizations
4. Increasing incentives for the proliferation and investment of lifelong learning
5. Monitoring and evaluating the progress of lifelong learning

The ultimate goal of lifelong learning within an interdisciplinary framework is to ensure that learning is connected on professional and personal levels, and that it is autonomous, continual, and self-motivated. This is a classical liberal approach to interdisciplinarity that uses an ethical lens of enhancing lifelong learning, not only for social or organizational goals, but for personal goals as well. This is echoed in the Educational/Innovation System where the individual's control of lifelong learning, through areas of logic and cybernetics, is connected on a personal level to planning and anthropology that increases understanding of the social and physical world.

Currently in Canada, some concerns arise around lifelong learning, given that there is a lag in productivity, and a skills crisis, due to the high proportion of post-secondary completion and a perceived lack of job entrance. What interdisciplinarity can provide is a pathway for using knowledge in one field, and applying it to another for personal and professional advancement. Furthermore, interdisciplinarity goes further and offers a level of self-action and personal responsibility for controlling individuals' lifelong learning.

# 8.4 The Inherency of Interdisciplinarity



Does a fox learn to hunt or is it instinctual?

The above photo calls into question nature versus nurture, which is an old debate. It seems natural that an interdisciplinary strategy is how humans learn in everyday life. Schools, even ancient ones, have segmented learning into labeled chunks of subject matter: mathematics, rhetoric, philosophy, and so on. Teachers are trained in these various subject areas, because that is how the curriculum is structured. However, while schools maintain this framework, teachers within the classroom often plan their units and lessons using an interdisciplinary method. Below is a sample template of what some teachers at Helen Thomson School, in Gardiner, Maine, used to plan out a unit.

**Science**

- *Snail and Turtle* (1924) 43, 14-17 (1919)
- *Secondary Bird and Bird* (1914) 121, 122 (1914)
- *Science Time Period* and *Science* (1914) 121, 122 (1914)
- *Science Time Period* and *Science* (1914) 121, 122 (1914)
- *Science Time Period* and *Science* (1914) 121, 122 (1914)
- *Science Time Period* and *Science* (1914) 121, 122 (1914)

**Math**

- *Logic in the Sciences* (1914) 121, 122 (1914)
- *Science Logic* (1914) 121, 122 (1914)
- *Science Logic* (1914) 121, 122 (1914)

**Reading**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Art**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Writing**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**History**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Geography**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Physical Science**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Chemistry**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Biology**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

**Environmental Science**

- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*
- *Science by Henry Drey*

Activities and lessons would be written below each subject area, ensuring that all were included. Publications, such as *Ranger Rick's Nature Scope*, from



the National Wildlife Federation, provided educators with books on various topics, such as dinosaurs, geology, habitats, weather, astronomy, specific animals, plants, and insect groups, etc. Seventeen books were included and were used by teachers and nature camps.

One of the big questions surrounding interdisciplinarity is: is learning cultivated over time or is it an inherited human trait of humans? In the field of teaching, we often hear this question: do teachers become interdisciplinary individuals, or do interdisciplinary individuals become teachers? One would suggest that teachers become teachers and develop a sense of interdisciplinarity through a *theory of practice*. The latter would conclude that individuals become teachers through some *law of nature*. The debate of learned interdisciplinarity or inherent interdisciplinarity is an interesting area for future research on this topic.

Theory of Practice	Law of Nature
<ul style="list-style-type: none"><li>• Interdisciplinarity is learned.</li><li>• Interdisciplinarity is elastic.</li><li>• Interdisciplinarity is environmental.</li></ul>	<ul style="list-style-type: none"><li>• Interdisciplinarity is inherent.</li><li>• Interdisciplinarity is inelastic.</li><li>• Interdisciplinarity is biological, psychological, or physiological.</li></ul>

One of the cases for a theory of practice is that there is very little research on the natural ability to teach, given the paradigm of teaching reflects growing into the role and expanding growth through professional development. On the other hand, research outside of the field of education, predominantly in fields of anthropology, develops interesting theories on the ability of early humans, suggesting building connections with creative learning developed over 40,000 years ago[9]. The question that is at the centre of this debate is: how do we know how to know? Perhaps it returns to epistemology and how we craft knowledge. The deeper question here is: do we craft knowledge from an environmental perspective? Or is it some natural cognitive mechanism built into humans, the same built in to our parents, and their parents, and their parents, and so on?

Interdisciplinarity is a dynamic field, always introducing questions relating to its purpose. Further inquiry relating to the developed or inherent traits of interdisciplinarity opens new doors to understanding learning and its purpose in our lives. The topic of naturalism with interdisciplinarity may be

a key to understanding learning on a whole new level, with deep implications for the future of teaching and learning.

## Design Thinking and Global Interdisciplinarity

A common theme with interdisciplinarity is how students relate to their institution outside of the classroom walls. For an outlook of interdisciplinarity in the future of institutions, we can look towards the process of design thinking, as described by Molinari and Gasparini, to introduce students towards democratized concepts of creative interdisciplinarity in two areas leading to enhanced creativity and connection to their institution[10]:

1. Student-Centred Learning.
2. Participation in University Governance.

These two areas are beneficial for students both inside the classroom and outside the classroom connect them to inherent interdisciplinarity. For example, student-centred learning inside the classroom that is focused on student engagement enhances their out-of-class academics in work and relationships through social epistemological growth. This is important not only for students but also for educators. Increasingly, the academy is acknowledging that interdisciplinarity learning is becoming more prevalent as we move toward a more connected world. Global interdisciplinarity is found in the willingness of educators and administrators to enhance the competency of interdisciplinarity in their teaching across borders and across cultures[11]. The inherency of interdisciplinarity seems to be proliferating as a concept for how we manage learning and teaching inside post-secondary educational institutions. Fill in the blanks below for a more cohesive understanding of design thinking and global interdisciplinarity.



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# Conclusion

This chapter showed how interdisciplinarity has been used in ancient times, recent times, and currently in many levels of education and life. In addition, this process leads to a more comprehensive understanding because it provides views from various subject angles and from the different experiences of those who collaborate on its development. Since life is not separated into different subject areas (only schools do that), it is clear that this natural approach is akin to the lifelong-learning process.

These are the learning objectives of this chapter:

1. Interdisciplinarity benefits students because, in the real world, subjects are not separated. The natural ability to gain perspectives from various avenues provides an impetus for continual learning throughout life. Higher education may profit from incorporating more the techniques interdisciplinarity provides.
2. Learning communities can be formed, shaped, and expanded within the classroom or within other areas related to the college experience. Interdisciplinarity in learning communities is the academic and social domains of learning.
3. Lifelong learning is a feature of interdisciplinarity for the future in higher education. This type of learning will provide continual pathways towards new forms of knowledge, answering challenging questions in a connected world.
4. The key questions of interdisciplinarity are: Is it developed? Is it inherent? This question is contested given the evidence on both sides of the argument. Further research needs to be conducted in this field.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://ecampusontario.pressbooks.pub/ticl/?p=377#h5p-32>

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viewcontent.cgi?article=1176&context=major-papers](https://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1176&context=major-papers)

## CHAPTER IX

# INDIGENOUS PEDAGOGY



Pictured is **Senator Murray Sinclair** from Manitoba. Senator Sinclair served the justice system in Manitoba for over 25 years. He was the first Aboriginal judge appointed in Manitoba and Canada's second. From <https://sencanada.ca/en/senators/sinclair-murray/>

Canadian senator and judge, Murray Sinclair, once stated: “...education has gotten us into this mess, and education will get us out”[1]. This is in reference to the reconciliation with Indigenous groups in Canada, and a beacon for understanding the place of education for First Nation, Métis, and Inuit peoples. Throughout this chapter, an attempt to understand the roles of curriculum design, and educational policies regarding Indigenous populations will be discussed. Given that this book relates to the Canadian context of education, Indigenous pedagogy finds its place within its dialogue of learning.

These are the learning objectives for this chapter:

1. Define Indigenous pedagogy and its role within a modern framework of education.
2. Contextualize Indigenous theories of knowledge and their influences on the curriculum.
3. Describe Indigenization and its ultimate goal of achievement.
4. Compare and contrast some of the different ideas around policies relating to Indigenous pedagogy.



## 9.1 Defining Indigenous Pedagogy

The challenge with most classic textbooks in the Canadian context is that there is very little discussion about Indigenous pedagogy. **Indigenous pedagogy** is a teaching method that connects aboriginal stories as a guiding path toward knowledge[2], relying on the relationships between people and nature with broad, holistic interconnectedness[3]. The role of Indigenous pedagogy is to promote learning through four distinct areas, according to Antoine, Mason, Mason, Palahicky, and Rodriguez de France[3]:

1. Personal and Holistic
2. Experiential
3. Place-Based Learning
4. Intergenerational

Personal and holistic learning is a reference to the previous understanding of holistic education through the Holism-Pluralism-Action Orientation (HPAO) vision for student competency of actionable learning. Holistic learning, in an Indigenous framework, allows students to be highly reflective on their experiences within a learning setting. This sets the groundwork for free and meaningful education. This, of course, leads to experiential and place-based learning which has been discussed through the impacts of experiential and authentic learning objectives. Within an Aboriginal context, students engage in observable and natural learning with a connection to the location, and in groups, that are related to experience. An example would be to actively engage in learning at an Aboriginal center. Intergenerational learning is unique to Aboriginal education, as the role of elders has a large impact on the learning experience. **Elders** are older and experienced members of a community and are regarded as a key component of Indigenous education[3].



Image of the Navajo Nation Tribal Council in Window Rock, Arizona. Image from [https://commons.wikimedia.org/wiki/File:Navajo\\_Nation\\_Tribal\\_Council\\_-\\_Aug\\_2019\\_03.jpg](https://commons.wikimedia.org/wiki/File:Navajo_Nation_Tribal_Council_-_Aug_2019_03.jpg)

Outside of Canada, Indigenous education is also being expanded. For example, the Navajo Nation of Arizona, New Mexico, and Utah have developed the Department of Dine Education to increase cultural knowledge of Navajo traditions, and discuss modern issues related to health, crime, and unemployment within the Navajo Nation[4]. The common theme within Indigenous pedagogy is to learn and grow within a modern context, while at the same time, participate in local and cultural traditions for members of the community, and non-Aboriginal communities alike.

## 9.2 Indigenous Ways of Knowing and Curriculum Design



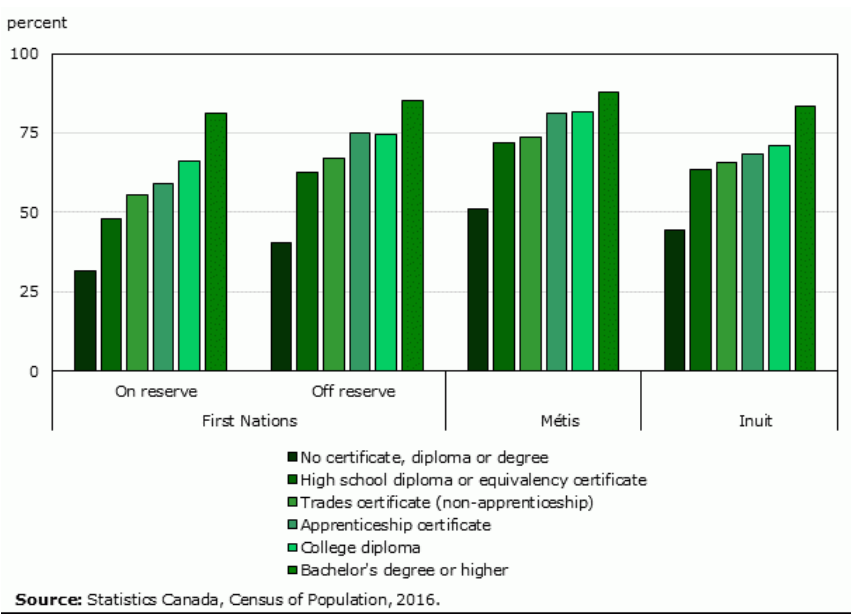
*The Kwantlen First Nation at the end of their salmon ceremony where elders and community members, in ceremonial clothing, return the bones from the first fish harvest to the river. Image: [https://commons.wikimedia.org/wiki/File:Kwantlen\\_First\\_Nation\\_Salmon\\_Ceremony.jpg](https://commons.wikimedia.org/wiki/File:Kwantlen_First_Nation_Salmon_Ceremony.jpg)*

As Indigenous pedagogy focuses on how knowledge can be obtained, **Indigenous epistemology** or ways of knowing is the justification of knowledge, and how knowledge is formed within an Indigenous context. Returning to Antione et al., Indigenous pathways to knowledge are defined through three key aspects[3]:

1. Relationality
2. Sacred and Secular
3. Holism

The focus of all three areas is connectedness, and interconnectedness to the physical, natural, and spiritual environment. This blends into the curriculum of Indigenous teaching by building goals, learning outcomes, and assessments that encompass interconnectedness. The ideas behind experiential learning, as discussed in earlier chapters, also reflect this notion of interconnectedness to the physical, natural, and spiritual environment. It returns to a form of naturalism espoused by enlightenment thinkers in the 17th and 18th centuries.

One resource for understanding Indigenous pedagogy more thoroughly is Stats Canada, which provides some insight into how Indigenous learning is progressing. One metric that can be used is the growth of education within Aboriginal communities and the acquisition of high school, trades, and advanced degrees within communities, both on and off reserve[5].



**Figure 1:** Employment Rate and Selected Highest Certificate, Diploma or Degree, for Indigenous People Aged 25 to 54, Canada, 2016. From Chart 8; In Statistics Canada. (2018). First nations people, Métis and Inuit in Canada: Diverse and growing populations. Statistics Canada Catalogue no. 89-659-X. Ottawa. <https://www150.statcan.gc.ca/n1/pub/89-659-x/89-659-x2018001-eng.htm>

The Canadian Council of Learning also notes the holistic attributes of

lifelong learning within Indigenous pedagogies. The Holistic Lifelong Learning Measurement Framework is arranged in four learning stages[6]:

1. Infants and Children (0-5)
2. Youth (6-18)
3. Young Adults (19-34)
4. Adults (35-64) and Elders (65+)

The concept of lifelong learning is important to the holistic process. This has been shown in the popular works of Thomas J. La Belle, who concludes that individuals are engaged in learning at all times throughout their lives. This manner of nonformal education is important to the learning process for a broader group of individuals (i.e., based on politics, economics, and other social factors)[7]. The concept of lifelong learning should be an important factor for curriculum designers and educators. Understanding the natural engagement of learning throughout life should be guided towards curriculum development and educational policy to enhance pedagogical goals for classrooms and institutions.

## 9.3 Indigenization

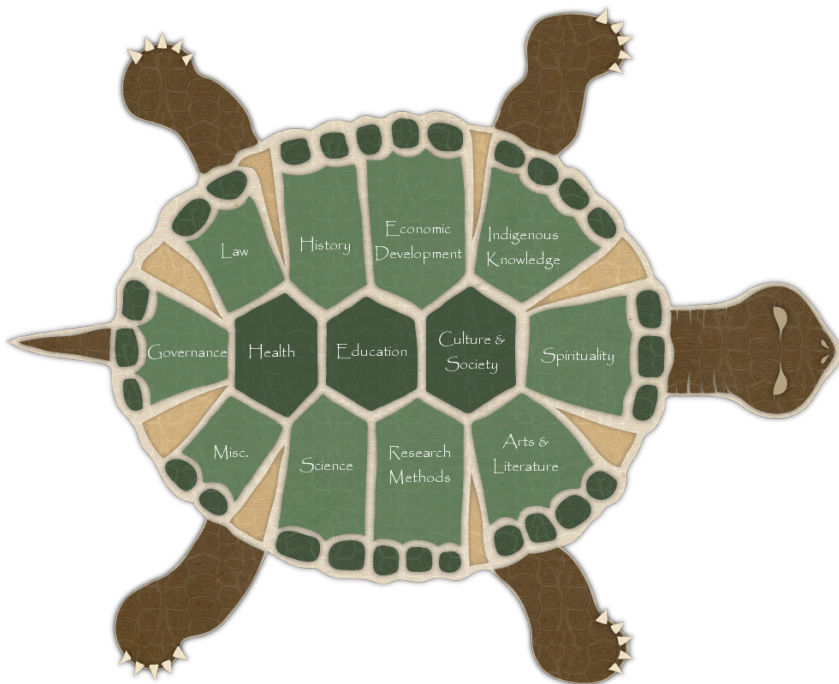


Image of the Knowledge Creation from the Anishinabe Tribe. Image: [https://iportal.usask.ca/themes/turtle/images2/iPortal\\_Turtle-2.png](https://iportal.usask.ca/themes/turtle/images2/iPortal_Turtle-2.png). Long description.

One of the current strategies in education is an attempt to bridge the gap between Indigenous pedagogy and western pedagogy. **Indigenization**, according to Trent University, is a braiding of pedagogies and theories of knowledge between western and Indigenous learning tools that complement each other[8]. However, Trent suggests that the processes that perpetuate a legacy of western ideology should be undone[8] which may contradict that stance of blending the two. It may be beneficial to look beyond this rhetoric of negativity around western culture, and learn more about how Indigenous learning can complement western pedagogy that would create positive learning outcomes. Implications for the future would be to learn

from one another, and maximize the most effective strategies for each situation, noting that all of these techniques have value and are beneficial to learners. One of the ways to bridge this gap is through codifying the characteristics of Indigenous pedagogy. This process is done by comparing the elements of Indigenous and western pedagogy. Examples are listed below[2]:

Indigenous Pedagogy	Western Pedagogy
<ul style="list-style-type: none"><li>• Narrative pedagogy</li><li>• Learning through images and symbols</li><li>• Learning through place and natural environment</li></ul>	<ul style="list-style-type: none"><li>• Narrative research methodology</li><li>• Focus on practical and experiential learning</li><li>• Learning through interdisciplinarity</li></ul>

It may be prudent to view Indigenous and western pedagogies by using an interdisciplinary approach.

## Transformational Learning Through Indigenization

Transformational learning, when the teacher is the designer, and the student, the co-designer, can be used to mesh western and Indigenous models of education.

Barker advises mutual goals between institutions and communities to help create transformative learning by bridging the gap between traditional and Indigenous concepts. He further offers an outline of a prototype of transformative learning in four steps[9]:

1. Inclusive: a variety of perspectives
2. Reflective: review and reciprocity
3. Connected: sharing of narratives
4. Powerful: meeting deep learning goals

This prototype can be beneficial for Indigenization, so long as it is rooted in liberalized concepts of building on the knowledge discrepancies.



## 9.4 Indigenous Policy for Education

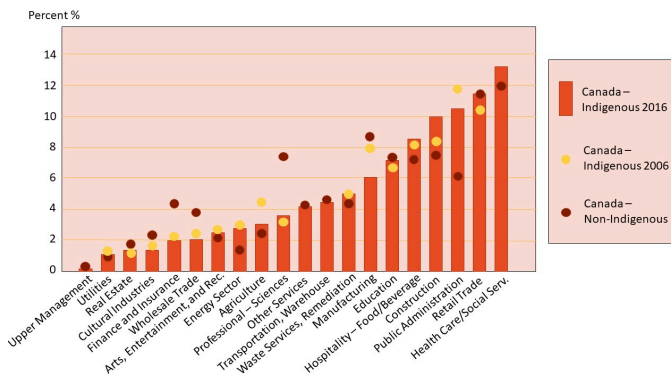
The influence of Indigenous pedagogy comes from a review of educational policies related to the implementation of learning inside schools. The most detailed one comes from the Ontario government and their First Nations, Métis, and Inuit (OFNMI) Education Policy Framework from 2007. It is in this vision where collaboration with Canadian society and Indigenous groups are addressed in terms of social and economic success[10]:

“First Nation, Métis, and Inuit students in Ontario will have the knowledge, skills, and confidence they need to successfully complete their elementary and secondary education in order to pursue postsecondary education or training and/or to enter the workforce. They will have the traditional and contemporary knowledge, skills, and attitudes required to be socially contributive, politically active, and economically prosperous citizens of the world. All students in Ontario will have [the] knowledge and appreciation of contemporary and traditional First Nation, Métis, and Inuit traditions, cultures, and perspectives.” (p. 7)

Criticisms have arisen about the many social policies in Ontario, stating that such measures are sustaining some form of conservatism and neoliberal tendencies[11] or by re-introducing the history of colonialism and propagating a Western ethos of professionalism[12]. Policies, much like the OFNMI, may perpetuate the struggle that FNMI peoples have experienced throughout Canadian history.

The OECD data shows that although the Indigenous share of the employment is low, this is only in the areas of public administration, manufacturing, and agriculture. Other fields, such as construction, educational services (teaching), and the energy sector are above the 2006 numbers, and exceed non-Indigenous employment. Even in specialized fields, such as art and culture, and utility engineering, Indigenous individuals exceeded their 2006 numbers[13].





**Figure 2:** Share of Employment by Industry, Indigenous, and Non-Indigenous, 2016. In OECD. (2020). Profile of Indigenous Canada: Trends and data needs. In Linking indigenous communities with regional development in Canada. <https://www.oecd-ilibrary.org/sites/e6cc8722-en/index.html?itemId=/content/component/e6cc8722-en>

There is still much to be done socially with Indigenous groups, such as reconciliation. However, the educational policies seem to be working, given the job and economic growth, especially in higher-paying professional occupations.

# Conclusion

This chapter examined Indigenous pedagogy and the benefits it provides when incorporated into a modern educational landscape. Justice Sinclair, who suggested that good education will get us [Indigenous peoples] out of this mess, seems to be true. Effective education using pedagogical techniques related to the Indigenous peoples of Canada will benefit them in Canadian society.

These are the learning objectives of this chapter:

1. Indigenous pedagogy is a teaching method that uses Aboriginal stories as a guide toward knowledge. Its role is personal, holistic, experiential, place-based, and intergenerational.
2. Indigenous ways of knowing focuses on lifelong learning, which is an important factor for curriculum designers and educators.
3. Indigenization is a braiding of pedagogies and teaching techniques between western and Indigenous learning tools that complement each other. Its goal is to bridge the gap between Indigenous and western learning styles.
4. Indigenous educational policy has a marginal, but positive effect on job placement. Although work still needs to be done, the current Indigenous policies have the potential for achieving FNMI self-sufficiency.



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<https://ecampusontario.pressbooks.pub/ticl/?p=425#h5p-34>

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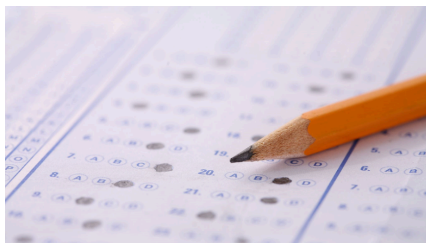
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## CHAPTER X

# MEASURING AND ASSESSING LEARNING



Most people probably think of measuring and assessing learning as tests, assignments/course grades, and rubrics. However, assessment can be more than these procedures. In this chapter, feedback, constructive alignment, and authentic assessment will be considered.

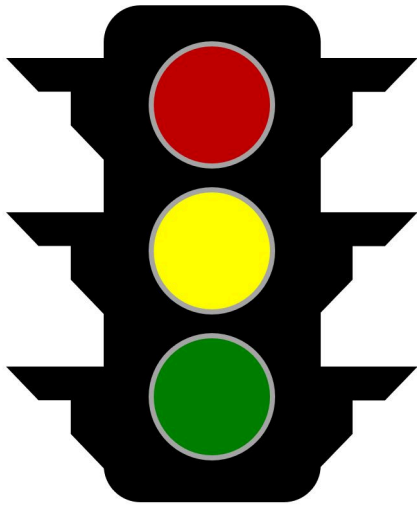
The learning outcomes in this chapter are as follows:

1. Define learning assessment and connect it to higher education and technology.
2. Analyze and interpret the importance of feedback for learning assessment in a modern context.
3. Compare and contrast how constructive alignment may be a reflective practice of learning.
4. Critique authentic assessment and its impact on academic integrity.



## 10.1 Assessment

One of the most important characteristics of an educator is the ability to effectively assess students. **Assessment**, or learning assessment, is the ability to gather information about students to understand their competencies in relation to learning objectives. In addition, it provides guided information to help them advance their learning, question methods, or restructure their focus. A more contemporary framework of assessment is less about checkmarks and x's, but using other factors of learning, such as advancement, questioning, and restructuring. For example, the analogy of a stoplight can be used by an instructor to guide a student through assessment.



The work is not quite meeting the objectives.

What can I do to help you get to the green light and achieve learning?

The work is good, but I have some questions about your methods.

Continue this work; keep progressing with this method to achieve more learning.

*Long description.*

The stoplight analogy is a way to move beyond the classic right or wrong finality and offers a different avenue of achieving learning outcomes. When an answer or a student's work is incorrect, the teacher should use these errors as teachable tools. They serve, as a starting point to construct strategies that build on the student's existing knowledge. The student can

then improve, and apply, these techniques to the existing work, and prevent future errors on upcoming assignments.

Some of the common glossary words that show up in relation to assessment are outcomes, rubrics, missions, goals, and alignment. Regardless of assessment, these are important factors that impact how learning assessment achieves learning objectives. In Gordon Joughin's work, *Assessment, Learning, and Judgement in Higher Education*, the collection of essays focus on different forms of assessment through new modes and systematic inquiry. Joughin concluded that students should be at the centre of the assessment in higher education, with time allocated to students to fully comprehend the assessment, making it a focal point in higher education institutions[1]. If we use our glossary as an example, how would this look?

- **Rubric:** A table of expectations and requirements for each marking range and learning category, written in descriptive language
- **Goals:** Creating effective steps for the learner, that are rational and achievable, in order to effectively meet expectations
- **Constructive Alignment:** Aligning learning outcomes, teaching practices, and assessment of learning to ensure they mutually reinforce each other

Because assessment and technology are important, the key question comes from the transmission of content. Bates describes seminars and tutorials for online teaching. Online seminars and tutorials offer a flexible way for students and educators to achieve learning objectives[2]. However, educators must always be aware of the effect of their teaching methods. Joughin asserts that learning and assessment should be student-focused. Use the activity below to develop an understanding of the role of assessment in learning.

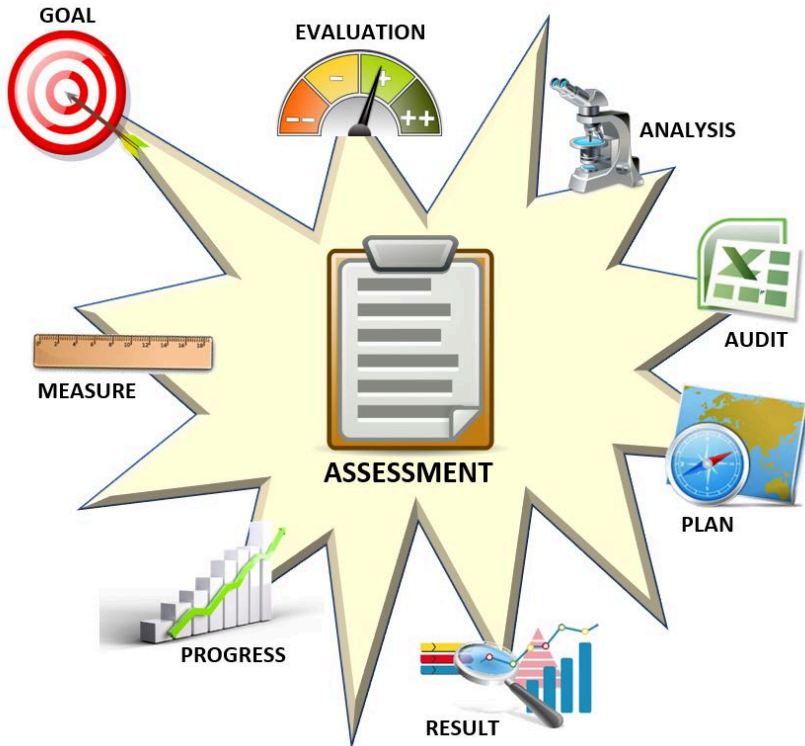


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<https://ecampusontario.pressbooks.pub/ticl/?p=455#h5p-35>



## 10.2 Importance of Feedback



Adapted from: <https://www.directive.com/blog/what-happens-during-an-it-assessment.html>

Feedback within teaching and learning is perhaps the most important tool for assessment. **Feedback** is constructive communication for the benefit of both the student and educator. Wiggins offers that feedback, more than teaching, is a greater tool for achieving learning outcomes[3]. However, it may be more prudent to combine both of these to ensure that the methodology makes room for effective feedback. This presents a motivating reason for feedback because it benefits learning outcomes.

Feedback has many components. Some of them correlate with many of

the different pedagogical and learning styles discussed in previous chapters. Here are some of the components:

- **Recurring:** Scheduled as needed: weekly, monthly, etc.
- **Tied to Performance:** Acknowledging the inherent strengths of the individual
- **Easy to Understand:** Less academic, more of a conversation
- **Based on Data:** Empirical, to ensure clarity of performance
- **Based on Behaviour:** Account for the individual and her/his attitudes toward the assessment
- **Based on a Plan:** Clear and concise points for the educator and the student

A more systematic way of looking at feedback is by breaking the process down into different parts. Fontana, Milligan, Littlejohn, and Margaryan outline self-regulated learning as a form of feedback information through three phases: forethought, performance, and self-reflection, with attached sub-components, such as goal-setting, critical thinking, and self-evaluation[4]. This allows the educator to guide the feedback process in the most beneficial way. In this way, they work together on goals and objectives.

In a modern classroom, the feedback has changed due to differing ideals and the advancement of technology. However, the communication aspect and the climate of expanding knowledge are still at the forefront. The importance of feedback today is to adjust to the changing needs of the modern student. Molloy, Boud, and Henderson suggest that feedback is important for achieving learning outcomes. It is done through an active, reciprocal process, and is guided by improvement[5]. Feedback should be an important element of the pedagogical paradigm, especially in a modern classroom setting. The collaborative characteristics of feedback provide students with clear and concise objectives about how they can enhance their learning.

## The Feedback Strategy Cycle

It is important to understand the goals and motivations of education and

students when it comes to learning feedback. The educator's goal is that the content is being dispersed in an effective manner. The goal of the student is to ensure that the content is being retained. Feedback does not have to be a daunting endeavour. Ambrose et al. describe feedback as working smarter through a principle of goal-directed practice, coupled with targeted feedback. They continue this principle through a feedback strategy cycle[6].



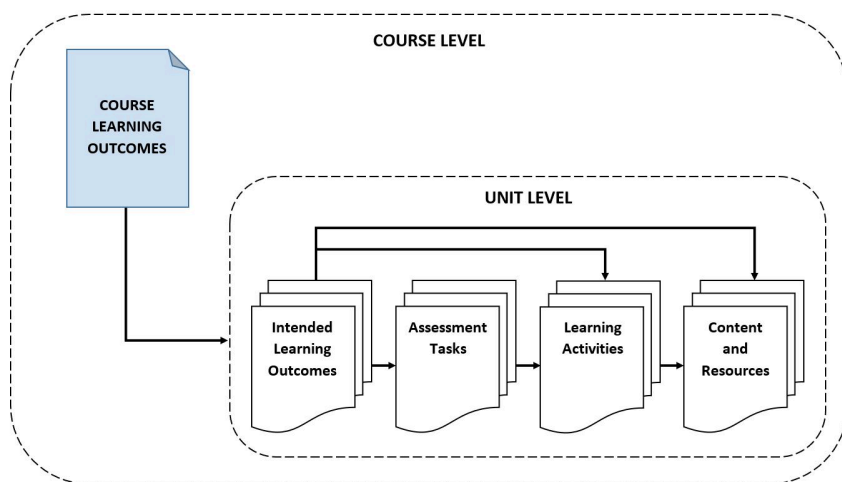
Figure 1: Cycle of Practice and Feedback. In Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). *How learning works: Seven research based principles for smart teaching*. Jossey-Bass, p. 126. Long description.

What this describes is that feedback must be focused and oriented towards objectives. For example, an educator must be clear and concise with the learning objectives for the course. This provides goals that the student

strives to meet. Feedback from the instructor helps to achieve those learning outcomes.

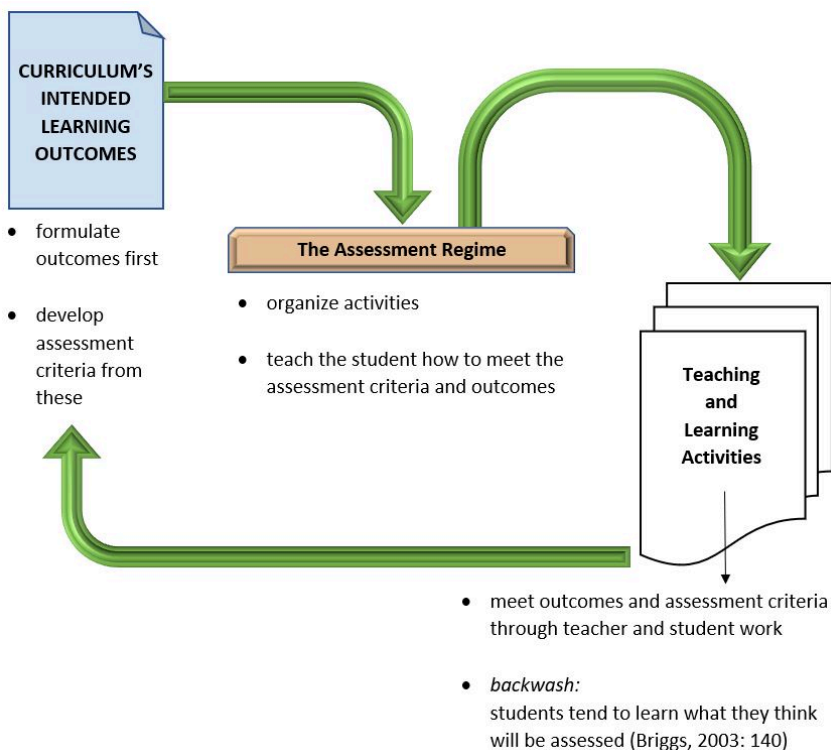
## 10.3 Constructive Alignment of Learning

The many purposes of assessment are to diagnose the methodology of work, formulate opportunities for achievement, and summarize the progress needed for success. **Constructive alignment** of learning is a method of organizing learning outcomes, teaching practices, and assessments in a systematic way that connects units to the overall content of the course. Below is a flow chart outlining constructive alignment.



**Figure 1:** Constructive Alignment Flowchart. Original information by Beale Gurney & Nell Rundle, CC BY-SA. Long description.

Another way to view constructive alignment is through the Biggs method in relation to curriculum design.



**Figure 2:** Basic Model of an Aligned Curriculum. In Biggs, J. (2003) *Teaching for Quality Learning at University – What the Student Does* 2nd Edition SRHE, Open University Press. Long description.

Constructive alignment also uses reflection as an important activity for learning. **Reflective practice** focuses on actionable contemplation and self-awareness that serves as a tool to master learning objectives[7]. The concept of reflective practice is an important aspect of the learning process as previously discussed with prior methodology and through constructing learning based on reflective practice.

Constructive alignment serves the learning objectives of the psychomotor, affective, and cognitive domains by arranging the assessments to the goals of the students in a particular program. This can be done by ordering the learning taxonomies for assessment, and by constructing a combination of Bloom's and the SOLO taxonomies.

# Bloom's Taxonomy

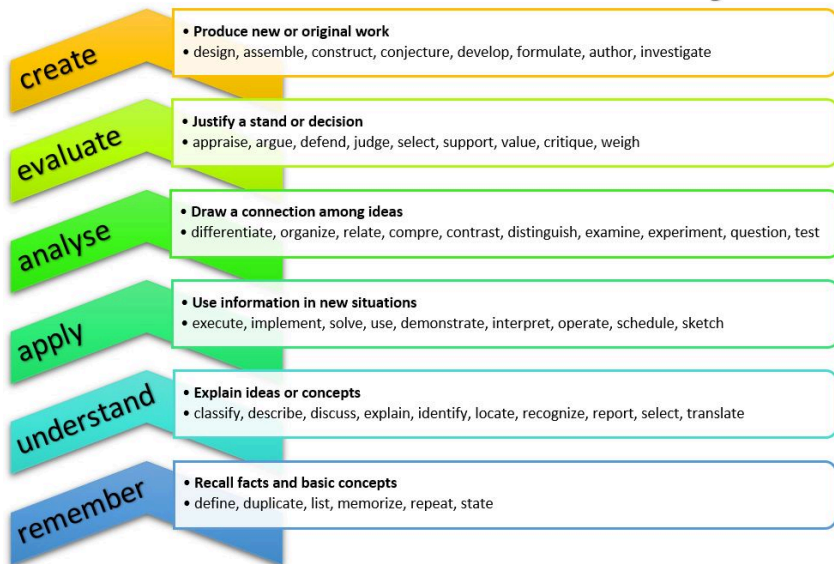


Figure 3: Bloom's and SOLO Taxonomy. From <http://www.learningandteachinghub.com/blog/2018/08/23/constructive-alignment-and-learning-outcomes/>. Long description.

The connection between learning theories on cognition, the construction of curriculum, and teaching practices all work together to benefit the students.

Reflection plays a key role in the constructive alignment of learning. For example, the process of how students achieve goals, and ultimately, how they structure their own learning can be used to meet course objectives. Ambrose et al., describe the role of metacognition and the impact it has on students' abilities to create and guide their own learning. They mention two students. One is seen as a procrastinator, while the other is viewed as proactive. Although the first may seem to have a stigma attached, both use strategies resulting in learning[6].

What this means is that student learning is not a one-size-fits-all application. Some students (seen as procrastinators) may be able to work more efficiently under pressure, while other students, need to plan and complete work well in advance to be effective. The method by which the

learning is done, based on the process, is not relevant, so long as the students are constructing their learning towards mastery.



## 10.4 Authentic Assessment



Image: [https://www.seekpng.com/ipng/u2w7u2e6r5u2r5o0\\_30-day-money-back-guarantee-up-power-corporation/](https://www.seekpng.com/ipng/u2w7u2e6r5u2r5o0_30-day-money-back-guarantee-up-power-corporation/)

Assessment, within the context of experiential learning, should be authentic. Therefore, learning objectives should reflect the purpose of achieving competency for work in the real world. Boulos and Raffoul outline principles of authentic assessment as[8]:

- situated
- aligned with experiences
- uses multiple learning domains
- fosters meaningful learning
- promotes complex, creative, critical thinking
- is practical and meaningful

- is criterion-based

Campbell suggests that exams be customized in a way that connects knowledge, rather than listing facts, which require rote memorization[9]. One way to look at authentic assessment is through a prism of interdisciplinarity and focus on the connections of all the learning that happens. For example, the competencies required for nursing fall into both the technical and theoretical domains of learning, and all practical applications that can be used in the workforce. Another example would be a lawyer who needs to read about the law, but could benefit from situational and experiential learning in the complex and critical nature of a mock trial.

The integration of authentic assessment and experiential education is shown by Yates, Wilson, and Purton who state that authentic assessment was widely used within their research for experiential learning. Traditional methods, when applicable, were also used. In addition, differing pedagogical approaches led to differing assessment approaches, offering a diverse set of values toward learning[10]. The use of authentic assessment is the product of blending traditional forms that outline the clearest levels of learning for students, especially in higher education. The mix of classical and authentic assessment is the most beneficial for these students, given that post-secondary educational institutions seek to develop character, competence in the workforce, and purposefulness in society.

Authentic assessment also involves academic integrity. **Academic integrity** is the educator and the student's commitment to moral behaviour in an academic setting, through teaching, learning, and assessing. Research would conclude that authentic assessment would be able to detect academic cheating, and the application of real-world experiences would ultimately produce a reduction in academic dishonesty[11] [12]. This would suggest that when learning is centred and aligned towards effective learning objectives that meet the educators' and students' needs, the apparent incentive for academic dishonesty would be reduced. Use the activity below to analyze, appraise, and construct your own ideas on authentic assessment.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://ecampusontario.pressbooks.pub/ticl/?p=461#h5p-36>*

# Conclusion

Throughout this chapter, the importance of assessment for pedagogical design, along with its need to be constructively aligned was explored. In addition, feedback and critically discussed authentic assessment play a role in helping to curb academic dishonesty. Further, assessment for educators will continue to be significant, considering the field of education is consistently changing.

These are the learning objectives of this chapter:

1. Assessment is the ability to gather information about learners to understand their competencies. In a modern classroom, it must be levied together with the content to determine effectiveness.
2. Forethought, performance, and self-reflection are introduced so that feedback is guided. Improvement is active, logical, and is done through a reciprocal process.
3. Actionable reflection and construction lead to mastery of self-aware learning and are important to the learning process.
4. Authentic assessment can provide a measure of control when aligned with effective learning outcomes and can reduce academic dishonesty.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

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# CHAPTER XI

## METAPHORS AND IMAGES FOR ORGANIZATIONAL LEARNING



*As the Northern Cree would suggest a canoe ride for a hunt might be similar as the hunt for knowledge. “Canoe visual metaphorical” by gmayster01 on & off ... is licensed with CC BY-NC-ND 2.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc-nd/2.0/>*

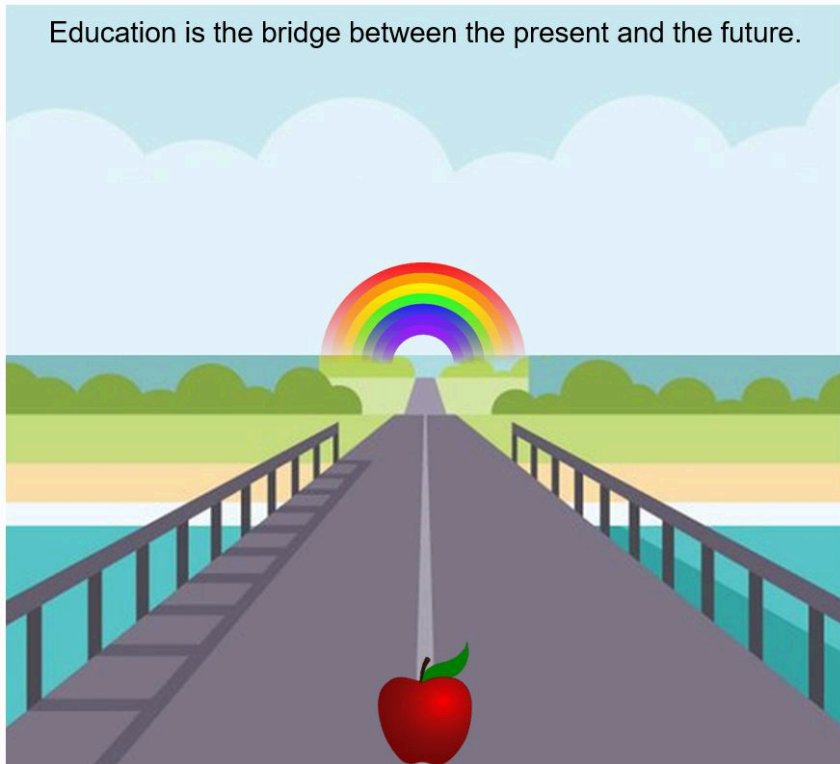
Metaphors can provide insight about learning through an organizational framework. This final chapter will discuss what a metaphor is, develop an understanding of metaphors for organizational complexity, introduce organizational learning, and present the need for motivation in learning. Motivations are left for last since it is such an important part of the learning cycle for both educators and learners.

The learning outcomes in this chapter are as follows:

1. Define a metaphor and understand some conceptual metaphors.
2. Analyze some metaphors for organizational complexity and their purposes.
3. Critique the concepts of organizational learning and organizational theory.
4. Describe the importance of motivation in learning and the forces that contribute to it.



## 11.1 What is a Metaphor?



<https://helpfulprofessor.com/metaphors-about-school-education/>

Metaphors can paint a vivid picture to help understand a concept. A **metaphor** is an expression, word, or phrase that is used in place of another expression, word, or phrase, suggesting a likeness or analogy. Within learning, a metaphor could describe the way it is connected towards a story, word, expression, or analogy. For example, how would we use the concepts of Bloom's Taxonomy in relation to learning using a metaphor? Bloom's Taxonomy could be seen using an architectural approach for building learning, like building a house. Learning basics are its foundation, while higher-order concepts are the walls and roof.

Literary understanding of metaphors is beneficial for understanding. Much like linguists and philosophers, the use of a metaphor connects organizational analysis to language, ethics, and social constructs in the same framework as learning[1]. Research in higher education can use a metaphor that relates to the research process. Consider outlining themes for a literature review. They are like herding sheep into a pen as a way of trying to collect many different ideas and develop a collective farm of analysis.

It is helpful to develop metaphors that relate to everyday life. **Conceptual metaphors** are imaginative views that use rhetorical tools to develop an understanding of the “nature of meaning, truth, logic, rationality, and objectivity” (p. 486)[2]. Metaphors can be creative and divergent, depending on the person’s viewpoint. In many ways, they represent freedom of the mind to expand concepts of learning based on individuality. In the activity below, fill in the missing words based on your reading of the following article by Lakoff and Johnson.



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# II.2 Metaphors of Organizational Complexity

The use of metaphors can help the understanding of learning organizations and their complex structures. **Organizational complexity** is how the many different factors connect within an organization, and the number of resources that are used. The use of metaphors for organizational complexity can be used to realize and understand organizational life. In addition, it is a way to open up the thought process from multiple ones, and develop organizations in a way not previously conceived. The study of complexity theory is valuable, especially with regard to operations within an organization. McKinsey and Company impart the importance of complexity study within organizations, and suggest removing any complexity that does not add benefit to the organization. They also identify its different types[3]:

Imposed Complexity	Inherent Complexity	Designed Complexity	Unnecessary Complexity
<ul style="list-style-type: none"><li>• includes laws, industry regulations, and interventions by non-governmental organizations</li><li>• usually unmanaged by companies</li></ul>	<ul style="list-style-type: none"><li>• intrinsic to the company</li><li>• can be removed through exiting the related portion of the business</li></ul>	<ul style="list-style-type: none"><li>• based on choices about the who, what, where, when, why, and how of an organization</li></ul>	<ul style="list-style-type: none"><li>• comes from misalignment between needs and organizational support</li><li>• can be managed effectively once identified</li></ul>

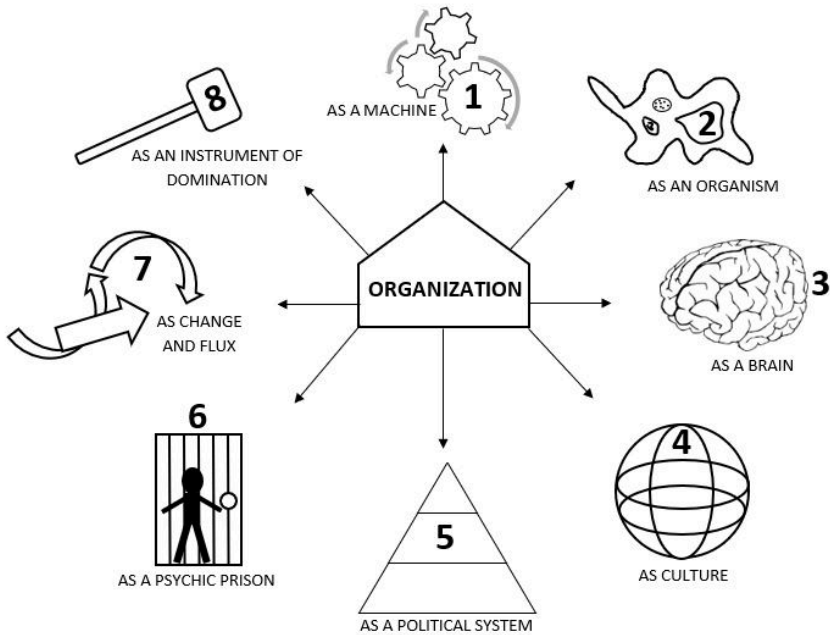
The purpose of using metaphors for learning organizations is that they offer a unique vantage point. Gareth Morgan states that metaphors provide insight towards a pluralistic approach for understanding and that this combines multiple perspectives from different individuals[4]. It also helps to move beyond complexity and achieve a deeper understanding of organizations.

This stems from the work done by Morgan in the 1980s, when he identified eight key metaphors to understand organizational complexity. He uses them

as a way to show how organizations govern, maintain, and regulate themselves[5]:

1. **Mechanization:** organizations as machines
2. **Natural:** organizations as organisms
3. **Self-Organized:** organizations as brains
4. **Social Reality:** organizations as cultures
5. **Political:** organizations of interests, conflict, and power
6. **Incarceration:** organizations as psychic prisons (i.e. Plato's allegory of the cave)
7. **Logical:** organizations of transformation
8. **The Ugly Face:** organizations of domination

The importance of visually seeing these metaphors provide a possible perspective for specific situations, and how they should, or should not, be managed. Below is a graphic of Morgan's eight stages of organizational complexity through visuals.



## THE 8 METAPHORS OF AN ORGANIZATION

modified from Gareth Morgan's *Images of Organization*

Long description.

## Metaphors for Organizational Complexity Activity

Use the activity below to develop a deeper understanding of how metaphors are used for conceptualizing organizational complexity. You can use the Morgan text as well as the Star text for a better understanding of metaphors.



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# 11.3 Organizational Learning



**Organizational learning** expands on organizational theory through an administrative philosophy. For organizational learning to be effective, it must start within the organizational culture. Erdem and Satir propose that the use of metaphor theory for organizations is a constructive tool for uncovering negative perceptions. Furthermore, it is a multi-dimensional approach to the understanding of organizational views[6]. Culture plays a noteworthy role within organizational learning, and introduces creative ways to address potential problems within organizations.

Taber mentions that the use of metaphor exercises inside of classrooms provides a sense of autonomy and freedom for individuals to develop their own metaphors that address common and uncommon organizational challenges[7]. This opens up a new way for organizational learning to model a framework to handle complexity in organizational learning. One way to look at this is through rational and natural systems approaches in relation to organizational theory (see below)[8].

Rational Systems' Approach	Natural Systems' Approach
<ul style="list-style-type: none"><li>clearly defined goals</li><li>logical structures</li><li>tradition of management</li></ul>	<ul style="list-style-type: none"><li>organisms' survival</li><li>can be contrary to organizational goals</li><li>the tradition of conflict</li></ul>

There are critical questions that can be asked about organizational learning, organizational theory, and the use of metaphors to understand complexity.

It may be more prudent, however, to focus on the aims of these methods. Hager concluded that metaphors for learning can, at times, mislead outcomes, while also conceding that they provide fresh and innovative ways to think about learning[9]. Their use should be critiqued based on the characteristics of the organization.

## Organizational Learning and Technology

The impact of technology on the education sector during the 21st century has been considerable. Technology within organizational learning is influencing knowledge-based management and industry. Argote and Hora suggest that in the future, technology management will impact organizational learning by connecting knowledge tasks and tools[10]. Tortorella et al. examine the impact of the new industrial revolution (I-4.0) becoming more prevalent by integrating cyber-systems that focus on opportunities that are useful to work-based learning[11]. Technology has and will continue to make a large impact on how we learn and obtain information.

Below is an activity on learning and metaphors, based on the article by Paul Hager, which will help with the acquisition of a more concise understanding of learning and metaphors.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

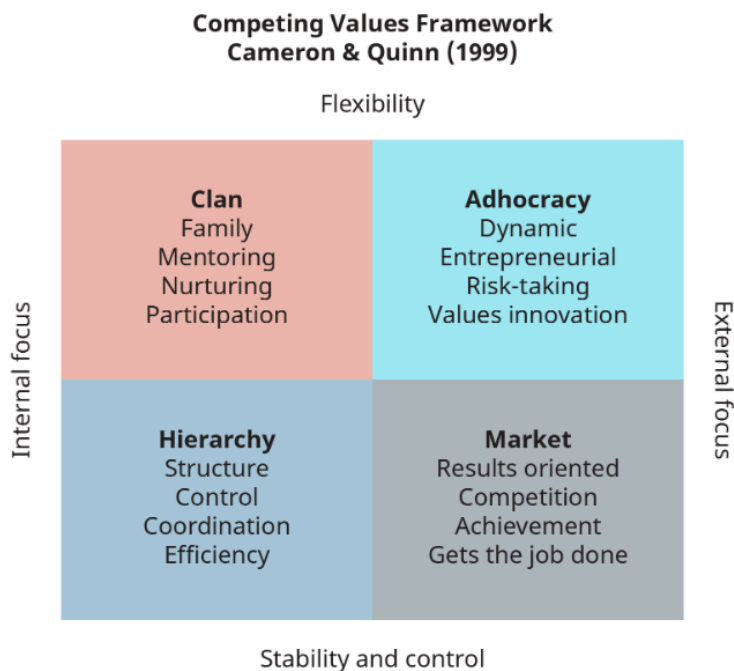
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## 11.4 Motivation for Learning

Metaphor theory, within organizations, helps to extend knowledge for attaining certain goals. This is perhaps the most important task when leading and managing learning within an organization. Motivation also needs to be considered when dealing with learning. **Motivation** is a person's willingness to attain goals or carry out a task. Through a narrative research inquiry, Lennie describes a leader who uses metaphorical management as a motivational tool to modify the organizational direction of the company[12]. What this inquiry suggests is that an individual can use metaphors in a way to enhance positive motivation out of learners.

One framework that connects motivation with learning comes from the area of the corporate culture. The **Competing Values Framework (CVF)** allows for insight relating to self-awareness in an organization[13].



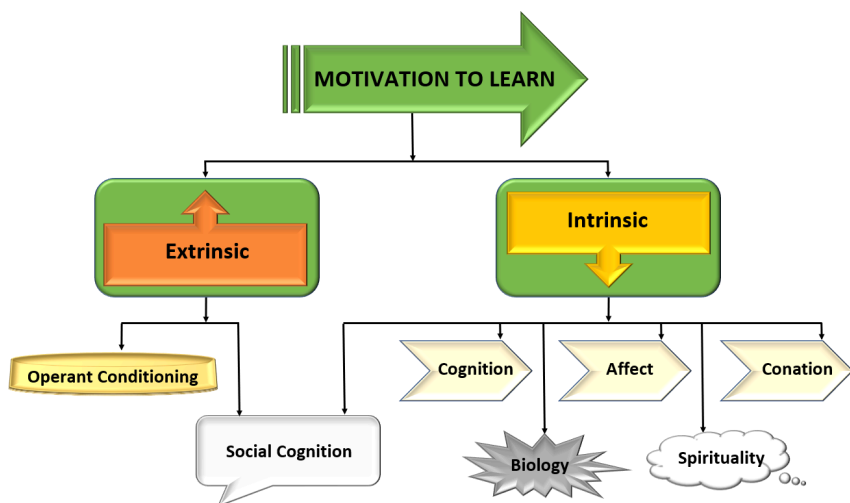
**Figure 1:** Competing Values Framework. (Source: K. Cameron and R. Quinn, 1999. *Diagnosing and Changing Organizational Culture*, Addison-Wesley, p. 32.). Long description.

What the CVF accomplishes is a check and balance towards a healthy work environment, all while outlining motivational values for the individuals, and forces (both internal and external). Flexibility and stability are weighted and measured against different motivations from various people.

The willingness to learn is an interesting course of study, especially when motivation can be used in pedagogical practice. Through a systematic review of the literature, Harlen and Crick describe the different implications for this practice by sharing the emphasis on learning to achieve goals and to promote professional development for students through six motivational factors[14]:

1. School ethos
2. Curriculum
3. Pedagogy
4. Home Support
5. Assessment Practices
6. Peer Culture

What these factors represent is a tendency to guide students towards the behaviour of learning. The motivation to learn comes from extrinsic and intrinsic factors. **Extrinsic factors** are the environmental factors that can motivate or influence individuals, as opposed to **intrinsic factors** that come from an individual's cognition or biological factors. **Conation** is the mental faculty of purpose, desire, or will to perform an action, or volition. **Operant conditioning** is a method of learning that employs rewards and punishments for behaviour.



**Figure 2:** Motivation to Learn. In Huitt, W. (2011). Motivation to learn: An overview. Educational Psychology Interactive. Valdosta, GA: Valdosta State University. <http://www.edpsycinteractive.org/topics/motivation/motivate.html>. Long description.

Motivation cannot be implemented. Rather, it must be cultivated by acknowledging the learner’s extrinsic and intrinsic tendencies.

# Conclusion

Throughout this chapter, the impact that metaphors have on learning and how they can produce motivation for learning has been discussed. Metaphors and their uses have been defined in order to understand organizational complexity, organizational learning, and the need for motivation to promote learning through extrinsic and intrinsic factors.

These are the learning objectives of this chapter:

1. A metaphor is an expression, phrase, or visual that is used to show a likeness or analogy to something else.
2. Organizational complexity can be managed by using metaphors to navigate challenges.
3. Metaphors can mislead outcomes; however, they can also provide a fresh and innovative way to look at learning.
4. Using metaphors to influence motivation, through intrinsic and extrinsic factors, is an important way to foster learning, but motivation needs to be cultivated, not implemented.



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# Glossary of Terms

**Academic Integrity:** the commitment of the educator and student regarding academic honesty through teaching, learning, and assessing

**Adhocracy:** a malleable organization that is free of official policies, procedures, formalities, and is open to change

**Andragogy:** the art and science of adult education

**Assessment:** the process of gathering information about students' learning in order to understand their competencies and their achievement of the learning outcomes

**Authentic Assessment:** customized, constructive, workable assessments that involve teacher-student interactions

**Authentic Education:** an experiential form of learning that transcends the scope of the traditional method, and proceeds at an individualized pace

**Bloom's Taxonomy:** Named after Benjamin Bloom, this taxonomy uses a set of three, hierarchical levels: cognitive, affective, and psychomotor, and is one of the most recognized learning theories in the field of education

**Cognitive Apprenticeship:** the use of coaching with authentic teaching practices and activities

**Competing Values Framework (CVF):** a check/balance structure that helps to gain insight into self-awareness in an organization

**Conation:** the willingness to carry out a task or activity

**Conceptual Metaphor:** an imaginative view that uses rhetorical tools to develop an understanding of the nature of meaning, truth, logic, rationality, and objectivity

**Constructive Alignment:** a method of organizing learning outcomes, tasks, activities, and assessments in a systematic way that connects units to the overall content of the course

**Constructivism:** the theory that knowledge is constructed from perceptions about our society, leading to mutually agreed-upon conventions

**Critical Literacy:** the process of finding reliable sources, trustworthy data, and creating sound arguments

**Critical Pedagogy:** a politically-conscious method of teaching and learning that focuses on power, oppression, social justice, and democracy

**Critical Thinking:** the ability to form a skeptical and unbiased analysis

by providing factual and empirical evidence that advances knowledge and learning

**Critical Writing:** the ability to analyze a topic or a potential issue, observe its strengths and weaknesses, and find potential solutions and alternatives for additional analysis

**Curriculum:** the course of learning experiences that are planned with specific goals and learning outcomes in a school setting

**Democratic Education:** the pedagogical aims and learning objectives that are rooted in freedom, values, and trust

**Democratic Moral Development:** moral learning acquired throughout life, supported by freedom and autonomy

**Descriptive Writing:** words that involve dates, locations, minor statistics, and a summary of events

**Didactic Education:** a teaching method where the teacher provides instruction to students, and students are mostly passive learners

**Diverse Strategies:** wide-ranging pedagogical approaches that encompass a broad range of competencies

**Educational Internationalization:** teaching and learning that is focused on international cultures, with the goal of creating globalized understanding

**Educational Ethics:** analyzing and conceptualizing moral behaviour through pedagogical determinants

**Educational/Innovation System:** interdisciplinary goals that are developed from a framework of sociological, psychological, technological, and physical systems networks (attributed to Julie Thompson Klein)

**Epistemology:** the rationalization and justification of knowledge, considering all factors of education, life, and society

**Ethical Interdisciplinarity:** the process of ensuring knowledgeable connections for learning that meet the needs of the greater good on a large scale

**Experiential Learning:** the acquisition and reflection of knowledge through real-life and real-world experiences

**Extrinsic Factors:** the environmental factors that can motivate or influence individuals

**Feedback:** constructive communication for the benefit of both the student and the educator; regarded as a key for learning and achieving learning outcomes

**Feminist Pedagogy:** a theory about the teaching and learning process that



empowers educators and students to act responsibly toward one another and the subject matter, and to apply that learning to social action

**Flipped Teaching:** the educational theory of assessment that lays the groundwork for doing the homework in the classroom and the classwork at home

**Foundational Learning:** the necessary prerequisites to fully participate in society, relationships, and employment

**Genetic Epistemology:** learning is acquired at a young age through action and assimilation, which shapes learning throughout life

**Goals:** effective steps for the learner that are rational and achievable in order to effectively meet expectations

**Holism-Pluralism-Action Orientation (HPAO):** the coherent vision for students' competencies with actionable and integrated teaching

**Hybrid Learning:** the combination of in-person and technology-based education that accommodates learners with more flexibility for scheduling and time-management

**Indigenization:** the braiding of pedagogies and ways of knowing between western and Indigenous learning tools that complement each other

**Indigenous Epistemology:** the justification of knowledge and how knowledge is formed within an Indigenous context; focuses on relationships, sacredness, stories, histories, philosophies, and ceremonies

**Indigenous Pedagogy:** a teaching method that connects Aboriginal stories as a guide towards knowledge, relying on nature and a broad, holistic interconnectedness

**Industrialized Education:** education based on the industrial revolution and pedagogical principles akin to factory work

**Instructional Paradigms:** the teaching methods of one instructor and one classroom, where the learning is cumulative and linear

**Interconnected Moral Development:** acts of good and bad are only perceivable and not based on a *prior* (reasoning based on self-evident truths) response

**Interdisciplinarity:** multiple, academic disciplines that are consolidated into one idea, objective, or task

**Intrinsic Factors:** those that are derived from an individual's cognitive or biological factors

**Leadership:** a social relationship with the express consent of reaching and attaining certain goals within an organization

**Learning Community:** a group of people who meet regularly and share common academic goals and attitudes

**Learning Organization:** any organization that fosters growth through learning in an ongoing manner

**Learning Paradigm:** the active participation of students in their own learning

**Liberal and Scientific Epistemology:** the advancement of learning through actions to create merit, and through merit to create action

**Lifelong Learning:** ongoing, autonomous, self-motivated learning that is both personal and professional (see OECD goals for lifelong learning)

**Management:** the planning, organizing, and directing of activities within an organization, using resources to obtain goals

**Mastery Learning:** an empirical scale achieving knowledge and conditioning within a normal distribution

**Meaningful Learning:** learning that results in information being completely understood that makes use of active, constructive, cumulative, self-regulated, and goal-oriented teaching

**Metaphor:** an expression, word, or image that is used in place of another expression, word, or image, suggesting a likeness or analogy

**Moral Development:** a structure of moral reasoning throughout life, from punishment and obedience at the early stages, to conventional morality and authority in the latter stages, following a divergent design

**Motivation:** a person's willingness to attain goals or carry out a task

**Normative Ethics:** the field of morals of how one ought and should act regarding the ethical principles of justice, utilitarianism, duty/obligation, and human rights

**Ontario First Nations, Métis , and Inuit (OFNMI) Education Policy Framework:** educational policies that enhance the knowledge, skills, and confidence FNMI students need to successfully complete their elementary and secondary education in order to pursue post-secondary education or training and/or to enter the workforce

**Operant Conditioning:** a learning method that employs rewards and punishments for behaviour

**Organizational Complexity:** the number of various departments, tiers, and resources of an organization

**Organizational Culture:** the philosophical, administrative, and stylistic characteristics of a learning organization

**Organizational Learning:** building learning competencies through organizational and administrative philosophy

**Pedagogy:** derived from the Greek words of 'paidos,' meaning child or boy, and 'agogos,' meaning leader; the leading of the child to knowledge

**Postmodern Pedagogy:** a theory of learning that focuses on a rejection of classical and societal pedagogical norms, and focuses on individual differences in learning

**Post-Secondary Education:** education after high school that offers diploma, certificate, and degree programs through theoretical and applied foundations

**Powerful Learning:** a set of principles guiding educators to design learning experiences that evoke learners' active construction of knowledge

**Rational Pedagogy:** a teaching approach that focuses on clear communication of academic content

**Reflective Practice:** learning that is self-aware and tends to focus on actionable reflection and construction for mastery

**Rubric:** A table of expectations and requirements for each marking range and learning category, written in descriptive language

**Scientific Method of Teaching:** education that is modeled after a scientific inquiry-based process, and may include learning that is cooperative and student-centred

**Self-Engaged Learning:** an effective learning environment for engaged individuals of all ages that promote self-efficacy and exploration in a term coined *pedandragogy*.

**Social Cognition:** a sub-topic of social psychology that explores the role that cognitive processes play in social interaction

**Stakeholders:** individuals who are affected by the actions of a group or organization

**Structure of Observed Learning Outcomes (SOLO) Taxonomy:** a taxonomy for classifying learning outcomes in terms of their complexity

**Structuring Cognition:** organizing knowledge outcomes so that the personal competency of the student can be achieved

**Student Satisfaction:** ensuring that the broad range of students are happy with diverse practices and engaged in their learning

**Theological Pedagogy:** a theory of learning that relates pedagogy to a higher being or force, guiding the learning of both the teacher and the student

**Threshold Concepts:** stem from two types of knowledge: declarative and

functioning, contrasting core concepts of learning through performances of understanding

**Transformative Education:** tendencies placing the teacher as the designer of learning and the learner as the co-designer of knowledge

**VARK Learning:** providing instruction for learning through many different modes including visual, audio, read/write, and kinesthetic