The Main Types of Work Integrated Learning Programs, its Key Features, and its Stakeholders'

Responsibilities

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Abstract

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Responsibilities

Fauzia Sikender

Canada's aging population, rapid technological change, and increase in demand for new labour in the workforce are contributing factors responsible for an increased demand for new workers and enhanced job fit for them (Fields et al., 2017). Prior studies have documented the benefits of work integrated learning, in which students acquire knowledge outside the realm of the traditional classroom to enhance their job readiness skills. However, there is a gap in current literature on the types (nomenclature) of work integrated learning that enhance students' job fit in different contexts. The purpose of this integrative literature review is to identify the major definitions, key features, and stakeholder responsibilities of different types of work integrated learning. Applying a combination of deductive and inductive methodologies, this study identified 24 articles to answer the research questions. The results suggest that there are four major types of work integrated learning; internships, "a form of experiential education that combines practical realities to students while reinforcing classroom lessons" (Barbarash, 2016, p.21).; cooperative education, "the integration of theory with practice within a purposefully designed curriculum " (Rowe, 2018, p.144); apprenticeships, "a work placement where the student acquires the knowledge, skills, and behaviours required to be competent in a particular occupation, at the higher and degree level" (Crawford-Lee, 2016, p.324); and practica, "a pedagogical strategy adopted by colleges and universities to help students acquire essential career skills and enhance their career readiness" (Akpan, 2016, p.412). However, there is confusion in the terms since many of the definitions are similar in nature and can be used

interchangeably, like internship and cooperative education. Key features of these programs include academic credit, renumeration, self-reflective activities, application of academic knowledge in a work environment, and feedback from supervisors and co-workers. Roles and responsibilities of different stakeholders involved tend to overlap with one another as employers and institutions are responsible for organizing and aligning work assignments respectively to meet the employers' needs. Major challenges include ensuring there is a good fit between the work placement and the student's area of study, ensuring student learning is linked to employers' needs, and ensuring students learn to adapt to real life work experiences. Clarity in the terms and definitions of work placement models by employers, students, and educational institutions would help reduce confusion and enhance students' job readiness skills.

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Chapter 1. Introduction

This chapter introduces work-integrated learning: what it is, its forms, why it is important to higher education, and some of the specific challenges that need further exploration. The chapter closes by describing the problem explored by this research project and presenting the research questions underlying it.

Background

Work integrated learning is a learning process that occurs during a practice assignment within an authentic work environment (Lappia, 2011). Rooted in traditions of apprenticeship that goes back thousands of years, the concept began in higher education about 100 years ago and was better known as an alternative method of learning in the 1960s, according to Linn, Howard, and Miller (2004). Universities specifically offered cooperative education programs, the integration of education and productive labour (Qiubo, et al., 2016) to better prepare students for the transition from academia to the work environment, and to explore the real world beyond the classroom. Although work-integrated learning has its origins in Engineering and licensed healthcare professions, it has since been extended to nearly every area of academic study because it allows students the opportunity to see if the particular line of work associated with their studies is a good job fit. The arrangements also benefits faculty and administration by providing links to the industry or "the real world" and to employers, because the work placements let them see if students are good candidates for positions before offering them permanent ones.

Work integrated learning experiences are a good fit for today's workplaces because it allows for both formal and informal learning in the workplace, where students learn about the company culture and the nuances of jobs through exposure to social settings, feedback, and skill

acquisition like communication and teamwork. These soft skills are key to helping students

transition from the classroom to the work setting and are transferable to other areas of work

(Barnett, 2012). Learning how to clarify goals with co-workers or supervisors and learning how

to receive feedback and apply it in a constructive way are valuable skills needed in any job, in

any industry.

But a work-integrated learning experience is not effective on its own. Practical challenges

arise when trying to implement such a program.

One is terminology and related definitions. For example, student placement programs in

Canada can receive reimbursements if certain criteria are met. These criteria include the

placement be related to the student's field of study, that the student is legally allowed to work in

Canada, and that the student receives payment for their work. However, the Canada Labour Code

states that a "student intern" should not receive a wage. Therefore, to receive the government

subsidy, industry and their human resources department must classify the student as a "coop

student" and not an "intern student" as is described in the internship model, so they can be paid

the same as a part-time worker without benefits.

A second challenge is the correct type of work to give to a student in a work-integrated

placement. Classroom lessons may not be aligned with work experiences if the rapid onset of

technological change has impacted industry needs before it has had a chance to influence the

academic curriculum. Supervisors, therefore, may end up delegating different tasks to students

that are not aligned with their classroom studies to meet their work demands.

A third challenge is ensuring that the experience truly is a learning experience.

Supervisors must learn how to give feedback in a way that can be used constructively by

students. Students must also learn how to receive feedback, especially if it is given to correct the

trajectory of their project or work goals. However, sometimes intern supervisors are not people

managers, but rather subject matter experts and are not equipped with the same skill set needed

to provide support and feedback to the student, who is there to learn the task and not master it. If

the student receives negative feedback from the employer, warranted or not, the university

should support the student by helping them reflect and learn from their work experience.

In other words, clarifications of definitions and terms are needed to guide effective work-

integrated learning experiences. This study intends to explore those sought-after clarifications.

Research Questions

The specific research questions underlying this study are:

- What are the major definitions of work integrated learning?

- What are the key features of work integrated learning?

- What are the responsibilities of the employer, the student, and the educational institution

  regarding work integrated learning?

The rest of this chapter presents this study.

The next chapter, situates the study in the literature

The third chapter, the methodology, describes the choice of methodology, how the data

were collected, the criteria for selection, and how the data were analyzed.

The fourth chapter presents the results. Specifically, it describes the sample used to

conduct the study, and answers the three research questions.

The last chapter presents the conclusions including the implications to research and theory, the
limitations of the study, and suggestions for future research.

Chapter 2. Literature Review

The following chapter details the major sections of the literature review, describes the topic of work integrated learning, introduces the overall problem, and then goes into more detail discussing the problematic. It finishes by summarizing the main research questions.

Work integrated learning has been around for well over a hundred years. In the summer of 1894, an engineer by the name of Herman Schneider noticed graduate students who were working on a job with him had difficulty adapting skills they learned in the classroom to the field (Ryder, 1987, as cited in Grosjean, 2003). He discovered not all elements of engineering could not be taught in class, and as a result, developed an apprenticeship program where trainees worked to acquire the necessary practical skills in the field, while earning money. This transfer of knowledge between education and the workplace is what Eraut (2003) describes as "the learning process involved when a person learns to use previously acquired knowledge, skills, competences, or expertise in a new situation" (p.58). The concept of work integrated learning comes from the concept of situated learning which means learning takes place in the same place it is applied (Lave and Wenger, 1991; Billett, 1994; Wenger, 1998). "Learning in education settings cannot be substituted for learning in workplace settings, because practical components of professional programs have to be authentic, however, learning to practice and learning to use knowledge acquired in educational settings do not happen automatically" (Eraut, 2004, p.72).

Fast-forwarding to the 21st century, where globalization and the rapid onset of technological change have created a need for additional skilled industry workers, and along with it, the opportunity to test what is learned in the class within a real-life work context (Fullan and Scott, 2014). Today, the advantage of learning on the job is recognized. Work integrated learning is a way for students to test their skills, knowledge, and character in relation to developing

attributes that increase success post-graduation (Drysdale and McBeath, 2012, 2014; Drysdale et

al., 2016; Jackson, 2015; Linn, 2004; Smith, 2012). Work integrated learning can be defined as a

"form of experiential learning that provides students valuable opportunities to discover the

business world firsthand, and apply classroom knowledge to practice" (Clark, 2003; D'Abate et

al., 2009; Liu et al., 2011). However, over the years, these valuable learning opportunities have

been known by different names. For example, in the United Kingdom, work integrated learning

was referred to as a "sandwich degree" (Ward and Jeffries, 2004, as cited in Gardner and

Bartkus, 2014). In comparison, work integrated learning was often referred to as cooperative

education and internship experiences in the rest of the world (Groenewalk, 2004; Sovilla and

Varty, 2004). To add to the complexity of this phenomenon, there has recently been a renewed

focus on work integrated learning in the past 10 years from a government, industry, and

academic perspective due to an increased demand for skilled labour in industry (Fields et al.,

2017). "Work integrated learning in undergraduate degrees has attracted considerable attention in

recent years as an instrument for enhancing professional practice and developing work-readiness

to the standard which industry expects of new graduates" (Jackson, 2013. p.99). Therefore, there

is a need to better understand work integrated learning, and to facilitate collaborative

relationships between stakeholders that influence student learning during the transition phase

from classroom to work setting.

Problem of Definition

Work integrated learning is a mature topic that has both empirical and theoretical data,

yet few experimental studies. Although there appear to be commonalities in every placement,

there may also be small or large variations in each work placement. For example, many work

placements linked with higher education involve different variables like accreditation and pay, or

the lack thereof. To better understand the staples and variations in different models, we need a common understanding of the type or name of the work placement. Here are some examples of research published decades ago that offer descriptions of work integrated learning.

In 1987, Price described a practicum as that which "links theory with practice by providing regular structured and supervised opportunities for students to apply and test knowledge, skills, and attitudes learned in campus studies and applied to the real world (p.109). In 1988, Taylor described an internship as "structured and career relevant work experience obtained by students prior to graduation from an academic program" (p.393). In 1991, Stretch and Harp described an internship as "controlled experiential learning where students receive academic credit while employed by an organization in a chosen area of interest" (p.67). And in 1996, Wilson, Stull and Visonhaller described cooperative education as "a joint venture between academia and the workplace, with the latter providing work experience to students" (p.158). Therefore, these definitions of work integrated learning can be confusing, which creates a need to better understand the models. Differences in the definition of work placements may have evolved over the years to adapt to both academic and industry needs, however, these same differences make it difficult for an observer or stakeholder to gain a sense of the key characteristics of a work integrated learning placement.

Characteristics of work integrated learning

A rubric is recommended to see what is needed and what is missing in each work integrated learning model. Kolb's (1984) Theory of Experiential Learning describes important elements of learning on-the-job that include, but are not limited to, a concrete experience, reflecting on the experience, conceptualizing thoughts, and how it impacts the learner's future experience by active experimentation. In addition, there are large and small variations in

placements as well as staples. Some common variations include placements that offer accreditation compared to those that don't, and placements that pay students versus those that don't offer students pay or benefits. One staple found in most if not all work integrated learning is a level of support offered to the learner. For example, internships offer an additional level of support compared to the onboarding process of new hired employees. Work placements are also associated with the idea of evaluation and feedback, which is not always the case with non-academic work placements. Therefore, regardless of the specifics of the work placement, if key characteristics exist in work integrated learning experiences, the model should be transferrable between industry and enhance learning on-the-job.

Roles and responsibilities of stakeholders

Partnerships are required between major stakeholders to ensure work placements are effective and beneficial to all parties. Fleming and Hickey (2013) noticed students and academic supervisors described cooperative education as the ability to apply knowledge learned at school to industry, and to integrate theory and practice. However, they also noticed industry's interest was to attract and retain highly motivated and knowledgeable workers, and to establish a relationship with the university (Fleming and Hickey, 2013). Therefore, there seems to be some disconnect between the curriculum and industry. In addition, this researcher has noticed there is often a gap between the students who are ready and willing to work and the skills more specifically required by industry. Academia, on the other hand, seek industry partners that offer work placement programs, but their curriculum is not always aligned with specific industry needs, especially given that industry needs may have rapidly changed over the years (Gurcan and Kose, 2017). Better communication between both groups would be beneficial to improving work placements.

Skill building is another important part of learning on-the-job. Work integrated learning placements provide the setting for students to test their capacity for resilience (Mate and Ryan, 2015) and the reflective components of its pedagogy provide the site for rethinking their actions and reappraising their pathways (Smith, 2012). Work integrated learning experiences allow students the opportunity to try out different areas of industry to test what they like and what they don't like about their future career or employer. An example of a model that attempts to increase job fit and skills is a rotational program that an aviation company implemented in an experiential learning exercise at work. By introducing new employees to different parts of the industry and rotating them to a different area every four months, they acquired a more holistic view and global level of knowledge of the organization and improved their communication skills due to the different workspaces they integrated. After several rotations, employees were allowed to choose, along with their coach, where they wanted to work permanently which increased job fit and job satisfaction.

If we want to improve work placement programs, establish rotational programs, and adapt to the rapid onset of technology in industry, then better communication is needed between academia and industry to enhance future job fit between students and their work.

The research questions

There is a need for more clarity on work integrated learning, especially if more attention and investment is being made by major stakeholders. Therefore, this study will explore the main types of work integrated learning, its key features, and the responsibilities of students, industry, and academia.

Chapter 3. Methodology

The following chapter describes how this study was conducted. It describes why the research methodology was chosen, how the sample was selected, and how the data was collected and analyzed.

Choice of research methodology

The purpose of this study is to gain a deeper understanding of work integrated learning experiences and to identify its key characteristics among its various stakeholders.

A quantitative analysis is good in instances where a study examines the relationship among variables and measures those variables with tools that generate numbered data (Creswell, 2013 p. 32). However, this research method would not be a good fit for this study because there is no numbered data, and it would not explore the individual meanings given to different types of work integrated learning.

A qualitative analysis is a better approach to use when exploring or seeking to understand meaning attributed to a human or social problem, and where data is usually gathered in the participant's setting (Creswell, 2013). However, this study does not gather information in a real work-related setting and therefore this method would not adequately address the research questions. Case study research involves a detailed description of the case and the setting within contextual conditions (Yin, 2003). This study focused on variations within different work integrated learning experiences and therefore a case study would not be a good fit either.

The goal of this study was to explore the main types of work integrated learning experiences from a global perspective. As a result, an integrative literature review was the best fit for this study because it addresses the research questions and "explores mature topics that might have the potential for reconceptualization and synthesizes existing literature to build

theoretical models or frameworks" (Torraco,2005) (p.358). Since the existing literature on work

integrated learning includes several competing positions, there is a need for more clarity and

understanding regarding the theoretical framework. Due to a renewed focus on work integrated

learning, it is also anticipated that more stakeholders may be involved in future programs.

Therefore, in order to measure the success of work integrated learning programs, you should first

be able to explain the models, and then its key features. According to Torraco (2005), an

"integrative literature review is a good methodology to choose when there exists contradictory

evidence that appears when researching a topic" (p.359).

An integrative literature review can be conducted in three ways: 1) Conceptually, 2)

Historically, and 3) Methodologically (Torraco, 2016). This study analyzed the articles using a

conceptual approach, selecting articles that discussed the same ideas, work integrated learning

and academia. This approach is the most relevant to the research questions and to industry. A

historical approach would not be able to address the research questions, nor would a

methodological one.

How the data were collected

Material for this study was searched and gathered from published peer reviewed journals

that explored work integrated learning and its relationship with stakeholders like employers,

students, and educational institutions within the years 2010 and 2020. This time frame is relevant

because it covers the period during which the Organization of Economic Co-operation and

Development (OECD) reported a decline in student enrollment in areas like science, technology,

engineering, and math, and a rise in technological advancements like artificial intelligence

(OECD, 2011; Fields et al., 2017). As a result, there has been a renewed focus on work

integrated learning by stakeholders such as government who have incentivized industries with

subsidies aimed at attracting more students, including those from under-represented groups like

women in science, to various industries. Long and Meglich (2013) state the concept of work

integrated learning may not be new, but the urgency to better prepare students for an unknown

future is increasing due to rapid technological change on a global level and the need for

specialized skills.

Theoretical and empirical studies that used quantitative, qualitative, mixed methods, and

case studies as research methods were included in the literature, as well as opinion pieces.

Databases and keywords

The following databases were searched for peer reviewed articles on the topic of

transitioning programs from school to work, covering many fields including STEM and Business

fields: Educational Resources Information Center (ERIC), Education Source Complete

(EBSCO), Business Source Complete (EBSCO), and Science Direct (Elsevier). Table 1

describes the keywords and the resulting reports.

The sample was collected in three stages; in the first stage keywords were used to focus

on types and definitions of work integrated learning. In the second stage, keywords were used to

focus in on characteristics and points of interest of the learning experiences, and in the third

stage, keywords were used to find data related to stakeholder involvement in the learning

experiences.

Table 1 Databases and keywords

Database	Keywords	Number of reports	Reports chosen
EBSCOhost	Business & education; business school curriculum, business	11	3

	students, universities & colleges, higher education, college students, colleges, universities and professional schools, business interns, cooperative education, internship program, apprenticeship program, practicum, WIL, work integrated learning		
ABI/INFORM Collection/ProQuest	Higher education, graduate studies, business schools, college students, university students, entrepreneurship education, undergraduate students, work integrated learning, work study, experiential learning, work placement, paid work, paid employment, practical experience, workplace learning,	17 (ERIC)	4

	cooperative education, co-op program, co-op education		
ABI/INFORM Collection/ProQuest	Higher education, graduate studies, business schools, college students, university students, entrepreneurship education, undergraduate students, work integrated learning, work study, experiential learning, work placement, paid work, paid employment, practical experience, workplace learning, cooperative education, co-op program, co-op education	154 (ERIC)	51
ABI/INFORM Collection/ProQuest	Higher education, graduate studies, business schools, college students, university students, entrepreneurship education, undergraduate students, work integrated learning, work study,	10 (ERIC)	5

	experiential learning, work placement, paid work, paid employment, practical experience, workplace learning, cooperative education, co-op program, co-op education		
ABI/INFORM Collection/ProQuest	Higher education, graduate studies, business schools, college students, university students, entrepreneurship education, undergraduate students, work integrated learning, work study, experiential learning, work placement, paid work, paid employment, practical experience, workplace learning, cooperative education, co-op program, co-op education	175 (ERIC)	64
ABI/INFORM Collection/ProQuest	Higher education, graduate studies, business schools, college students, university	225 (ERIC)	63

	students, entrepreneurship education, undergraduate students, work integrated learning, work study, experiential learning, work placement, paid work, paid employment, practical experience, workplace learning, cooperative education, co-op program, co-op education		
TOTAL		**592 (ERIC)**	**190**

Criteria for selection

A total of 592 articles were gathered from the databases using key words mentioned above. All the abstracts were read, and the following inclusion criteria was applied:

- For simplicity and ease of understanding, only articles in English were chosen.

- Only articles published between the years 2010 and 2020 were included because this period covers the rapid rise of technology on a global level, and a decline in student enrollment in STEM-related courses during a time when specialized skills were in demand.

- Due to the size of the sample, additional inclusion criteria were revised to include articles that specifically referenced industry with work integrated learning, or educational institutions.

Articles that did not meet the revised criteria were removed, for a new revised total of 190 articles. All the selected abstracts were accessed, downloaded, saved, and printed. "A staged review of the literature followed that included a review of the titles followed by an in-depth review of the abstracts to analyze the literature" (Torraco, 2005) (p.361). After reviewing the 190 author provided abstracts, further criteria were applied to narrow the focus of the study that would better address the research questions: What are the major types of work integrated learning? What are the key characteristics of work integrated learning? What are the responsibilities of the stakeholders? As a result, additional criteria were applied:

- Articles that did not address academia, work integrated learning, and on-the-job industry experiences were removed.

- Articles that did not address the responsibilities of the employer, the student, or the educational institution in relation to work integrated learning experiences were removed.

As a result, 24 articles remained that met the criteria related to the research questions. These 24 articles were carefully read, analyzed, and coded using an Excel spreadsheet.

How the data were analyzed

This section describes how the data were analyzed, tracked, and measured using a scoring grid. The study used a variation on thematic analysis to analyze the data and used counts to gauge the strength of a theme.

Critical Analysis

"A critical analysis of literature involves carefully examining the main ideas and relationships of an issue and deconstructing a topic into its basic elements" (Torraco, 2005) (p.361). Therefore, the 24 articles were deconstructed and coded into categories that reflected the

major types of work integrated learning, its key characteristics, and the responsibilities of the

employer, student, and educational institution to see what strengths and deficiencies existed in

the literature.

An Excel spreadsheet was used to code the overall data from each of the 24 articles into

categories. The categories included general information, such as research context and the

research methodologies, and more specific information like research-question related data for

each study.

General information

- Year of publication.

- Authors' names

- Location of publication.

- Research methodologies used:

  o Quantitative: Experiment, survey

  o Qualitative: Case study, interviews

  o Mixed methods

  o Descriptive case study (no formal methodology reported in the article)

- Main findings from each study.

Research-question specific information:

- Definitions of each individual work integrated learning term.

- Key characteristics of the learning experiences.

- Responsibilities of the stakeholders (employer, student, educational institution)

This study used a variation on thematic analysis to study the data. A thematic analysis is

a good research methodology to use when dealing with a large amount of data based on

subjective experiences (Braun and Clarke, 2006). When looking at the responsibilities of

different stakeholders, articles highlight the subjective perspectives because the benefits of work

integrated learning experiences are viewed differently by employers, students, and educational

institutions. Definitions of work integrated learning appear to differ depending on the country as

well.

The data were analyzed using a combination of both inductive and deductive reasoning

methodologies (Creswell and Plano 2007, as cited in Soiferman, 2010). Initially, a review was

performed looking for specific information during the reading (deductive), like key features and

roles or responsibilities of stakeholders involved in the implementation of work integrated

learning, and therefore, had expectations regarding the definitions of work integrated learning.

However, the reading also uncovered new themes found in the definitions and names of different

work integrated learning models (inductive).

The procedure involved the following steps:

1. Careful reading/re-reading of the articles to extract themes related to the research

   questions.

   - Looking for types of work integrated learning, its key features, major definitions, and

     responsibilities of different stakeholders

2. Extracting information, whether stated explicitly or implicitly in the literature.

3. Taking notes in the Excel spread sheet;

   - For example, if a clear definition of work integrated learning existed in the literature,

     the quote was recorded and stated explicitly; if it was not clearly defined, and rather

     was implicit in the literature, it was paraphrased and noted.

Scoring grid

Due to the size of the sample, a scoring grid was used to characterize the strengths of recuring patterns. Table 2 indicates the scoring grid used to determine the strength of recurring patterns in the data. For each category, the relevancy of key themes was determined based on the frequency of occurrence in the literature (Bakir and Carliner, in preparation).

Table 2 Scoring grid to determine patterns in collected data

Strength of Theme	Number of articles
A Strong Pattern	16+ articles
A Solid Pattern	10 to 15 articles
A Pattern	Five to nine articles
An of note Pattern	Two to four articles
No Pattern	One or no articles

The 24 peer reviewed articles were analyzed as they discussed common ideas related to the research questions. In particular, the following themes were sought:

- Types of work integrated learning
- Key characteristics like academic credit, pay, reports, and logs in work placements.
- Responsibilities of the educational institutions, employers, and students involved in the programs.

Chapter 4. Results

The following chapter details the findings in the 24 peer-reviewed articles and answers the three research questions: What are the major definitions of work integrated learning? What are the key features of work integrated learning? What are the responsibilities of the employer, student, and educational institution with regards to work integrated learning?

About the Sample

As noted earlier, work integrated learning is found in a body of literature that includes both empirical studies and theoretical studies. The following publications include journals that reference the types of work integrated learning, key features, and responsibilities of stakeholders, since 2010. Table 3 lists the journals and the numbers of relevant articles in the sample.

Table 3 Journal titles and number of articles chosen based on this study's research criteria

Publication name	Number of articles
Asia-Pacific Journal of Cooperative Education	6
Higher Education, Skills and Work-based Learning	5
Asia-Pacific Journal of Cooperative Education (special issue)	1
Business Communication Quarterly	1
Canadian Psychology	1
Chinese Education & Society	1
Decisions Sciences Journal of Innovative Education	1
International Journal of Work-Integrated Learning	1

International Journal of Training Research	1
Journal of Education and Work	1
Journal of Education for Business	1
Journal of Employment Counseling	1
Journal of European Industrial Training	1
Radiography	1
Online Learning	1

Table 4 identifies the research methodologies used in the sample. More than half of the studies used qualitative methods. The other half report quantitative and mixed methods studies. Table 4 also shows specific methods used. Note that two of the studies had no formal research methodology but rather reported on the authors' experiences. They were classified as experience reports because they describe a particular program.

Table 4 Main methods and secondary research methodologies used

Type of methodology	Specific method	Number of articles
Qualitative	Case study	13
Quantitative	Survey	4
	Experimental	1

Mixed methods	Survey and Grounded Theory	3
	Survey and Case Study	1
Experience reports	Description of a program	2

As noted earlier, work integrated learning is known by many different names. Table 5 below details the countries where the sample studies were conducted. The data suggests that the United States has conducted the most studies, followed by Australia and then Canada. Other regions where fewer studies were conducted include the United Kingdom, India, South Africa, Spain, and The Netherlands. Therefore, according to the findings, the United States and Australia are two regions where the most research has been done on work integrated learning that relates to the research questions since 2010.

Table 5 Location and number of studies conducted from each country

Country	Number of articles
United States	8
Australia	6
Canada	4
United Kingdom	2
India	1
Netherlands	1

South Africa	1
Spain	1

The following sections describe the patterns identified in the collected data and addresses each research questions.

Question 1: What Are the Definitions of Work-Integrated Learning in the literature?

This section describes the major definitions of work integrated learning in the literature, the confusion in the terms, and how these definitions vary by region.

Definitions of major types of work-integrated learning

The data suggests four major types of work integrated learning exist: internships, cooperative education, apprenticeships, and practica.

The first most common type of work integrated learning discussed in the literature reviewed is internships which was found in 11 out of the 24 studies. There was a strong pattern according to the rubric. Key concepts that appear in most of the definitions of an internship include learning experiences that are relevant to students' area of interest and learning that combines practical realities with classroom lessons. An important detail missing from the sample literature but was found in an article published by Inkster and Ross in 1995, is that "internships are structured and supervised experiences where students earn academic credit upon completion of the experience" (p.67). Here are two representative definitions from the current sample literature:

- "[An] internship is a form of experiential education that combines practical realities to students while reinforcing classroom lessons" (Barbarash, 2016, p.21).

- "Internships are a way of providing work experience to students who apply the theoretical knowledge acquired in school and develop practical skills at work, thus increasing students' chances of successfully competing for jobs upon graduation "(Sanahuja Velez and Ribes Giner, 2015, p.121).

The second most common type of work integrated learning is cooperative education, which was found five times out of the 24 studies. Key concepts that appear in most of the definitions of cooperative education include the integration of education and labour, the integration of theory and practice, and learning through work experiences related to a students' academic goal. Here are two representative definitions from the sample literature:

- "Cooperative education is the integration of theory and practice, to apply knowledge learned at a university to industry" (Fleming and Hickey, 2013, p.209).

- "Cooperative education is the integration of theory with practice within a purposefully designed curriculum with considerable support provided for the student in the workplace" (Rowe, 2018, p.144).

An important detail missing from the sample literature is that cooperative education is not usually taken for academic credit unlike internships. However, the articles referred to cooperative educational experiences as periods of work that alternate with periods of academic study, and that the goal of cooperative education is to prepare students for their careers (Breitner, 1991) The origins of this work experience program began in the engineering and technical disciplines. (Ryder,1987). Cooperative education was made popular because non-traditional students chose to enroll in a two-year college course preferring alternative learning methods over to the more common academic model of higher education. (Heinemann,1988).

The third and fourth most common types of work-integrated learning found in the sample literature are apprenticeships and practica. There was an of note pattern found in three of the 24 articles reviewed for each type. Key concepts that appear in most of the definitions regarding an apprenticeship include the on-the-job training experience, and that it often relates to a highly technical occupation. An example of a definition of an apprenticeship is "a work placement where the student acquires the knowledge, skills, and behaviours required to be competent in a particular occupation, at the higher and degree level" (Crawford-Lee, 2016, p.324). The educational theory of apprenticeships is that it is usually associated with a vocational program where the students often work side by side with an expert to learn a specific task (Barab and Hay, 2001).

Key concepts that appear in most of the definitions of a practicum include that it is a form of experiential learning that includes a community setting. An example definition of a practicum is "a form of experiential learning technique that is a pedagogical strategy adopted by colleges and universities to help students acquire essential career skills and enhance their career readiness" (Akpan, 2016, p.412). Practica are usually associated with a program for licensed professions and constitutes an integral part of many professional courses in higher education (Ryan et al.,1996). These two programs, practica and apprenticeships are different from internships or cooperative education programs in that students can still be considered for employment in their field of study whether they have participated in a work integrated learning experience or not.

Other terms that are similar in name and definition include, work integrated learning, work integrated education, and work-related education. An example of a definition that generalizes the term work integrated learning is that which "encompasses a range of learning

activities connecting industry with education in both work and campus settings" (Jackson et al., 2016, p.160).

The terms externship and work-based learning appeared twice in the sample of literature reviewed. "Externships are experiential learning opportunities with short, practical experiences occurring in the student's field of study" (Weible, 2010, p.59). "Work-based learning is a class of university programs that bring together universities and work organizations to create learning opportunities in the workplace" (Byrom and Aiken, 2014, p.271).

Fieldwork and work-related learning arrangements were each mentioned once in the sample of literature reviewed. Fieldwork emphasizes learning in the practical setting, and work-related learning suggests the learning process is initiated by a practice driven assignment. (Gardner and Bartkus, 2014; Weible, 2010).

Confusing terminology

Two of the 24 studies did not provide formal definitions of work integrated learning even though each study used the term throughout the article. For example, in "Challenges to Providing Work Integrated Learning to International Business Students at Australian Universities" Gribble, Blackmore, and Rahimi, (2015) describe the benefits of work integrated learning but does not provide a formal definition.

By contrast, other articles used the same definition for several different terms. For example, "a form of experiential learning" was the definition given to describe field-based learning, work-based learning, learning by doing, learning from action, learning in community settings, and service-learning (Applegate and Morreale,1999; Barbarash, 2016; Boud et al., 1993; Foster and Stephenson, 1998; Henry, 1989; Hutton, 1989; Kolb, 1984; Tan, 2017; Yan and He, 2010). These are examples of how multiple terms are used interchangeably in the literature.

Some definitions of work integrated learning overlap. For example, internships and apprenticeships are described by Weible (2010) as "a student working in a temporary position with an emphasis on education" and cooperative education programs as a student working "in more structured environments combining both academic education with practical work experience" (p.59) which suggests that all three terms are interchangeable. Other examples of similar descriptions for different terms include Jian, Yuheng, Lee, and Yin (2015) that define an internship as "a form of experiential education that combines practical realities to students while reinforcing classroom lessons" (p.225). Barbarash (2016) describes cooperative education as "a structured educational strategy integrating classroom studies with learning through productive work experiences in a field related to a student's academic goals" (p.21).

Research Question 2: What are the Key Features of Work-Integrated Learning?

This section addresses some key features of the work integrated learning experience, like the length of the experience, and whether it comes with academic credit, or pay.

What is the length of the work integrated learning experience?

There were no strong patterns, solid patterns, or of note patterns found among the 24 articles with respect to a specific length of time associated with the work integrated learning experience. Only two of the 24 articles specified a time frame. The remaining articles loosely referenced "part-time" as part-time employment when describing the range of time related to the work integrated learning experience.

Of those who provided a time frame for a work-integrated learning experience, Lappia (2011) provided two examples; undergraduate students who worked in the building industry re-designing existing houses for a 20-week period, working 2 days a week, and undergraduates who worked as student teachers for a 25-week period, working 2 days a week.

By contrast, Dunn, Nicholson, Ross, Bricknell, Davies, Hannelly and Wood (2018) uncovered differences in the number of hours students were engaged in work placements. They claimed the most common placement was 240 hours, and the least common placement was 12 months (Dunn et al., 2018). Given the small number of articles reporting a length to the work-integrated learning experience and each providing a wide range of time frames, no definite standard seems to exist for the length of the experience.

Does the placement come with academic credit? What about pay?

Overall, students receive academic credit for work integrated learning. There is a solid pattern in 12 of the 24 studies that reported that students received academic credit for their work-integrated learning experiences. Names of the work integrated learning experiences described in the 12 articles include cooperative education, vocational education, career, and technical education, managed cooperative internship, business internships, practica and clinical placements, research, and teaching assistantships**.** However, whether students receive pay or not varied in the sample studies.

Among the 12 studies that mentioned academic credit, nine confirmed that students receive renumeration, two claimed to pay students at a lower rate compared to full time employees, and one study claimed students did not receive the same benefits as full time employees. Three studies where students did not receive renumeration for work were in the not-for-profit sector.

Are there any additional academic requirements associated with work-integrated learning?

One of the entering beliefs is that work integrated learning experiences encourage students to self-reflect and involve student or employer assessments. Of the 24 studies, six

mentioned reflective exercises and assessments, like research reports, diaries, logs, journals, project plan, self-evaluations reports, and work reports.

In other words, in answer to the question, what are the key features of work-integrated learning, the literature does not provide a conclusive answer. The literature reviewed provides no clear guidance on the length of the placement; whether a specific placement receives academic credit; whether students receive renumeration for their work; or other requirements, especially regarding reflective activities intended to generate insights for learning.

Question 3: What are the Responsibilities of the Stakeholders?

This section addresses the third research question, what are the responsibilities of the key stakeholders in work-integrated learning; employers, students, and the educational institution?

Responsibilities of employers

According to the data, key responsibilities of the employer in a work integrated learning experience include offering students:

- Organize work assignments (mentioned in 13 articles) by ensuring students participate and interact with others, which benefits learning by enhancing their sense of responsibility which helps them learn at work (Dunn, et al., 2018; Gardner, et al., 2014).

- Drive work experiences (mentioned in 11 articles) to ensure student learning is linked to the needs of the company (Byrom and Aiken, 2014). In addition, as part of the learning design, employers provide opportunities to supervisors to gain experience and provide educational experiences to students through professional feedback. (Barbarash, 2016; Gardner, et al., 2014; Jackson, et al., 2017).

- Mentorship (mentioned in six articles) which benefits learning because industry mentors assigned to students provide valuable feedback while supervising students in work

placements. Mentors can also collaborate with the workplace supervisor and faculty team to provide support to the student (Akpan, 2016; Heckman, et al., 2015).

- Work-related tasks (mentioned in five articles) where students acquire and practice skills in work placements. It benefits learning because the co-workers provide feedback on students' performance during their job assignment, and in real-life projects (Akpan, 2016; Gardner, et al., 2014; Milne and Caldicott, 2016).

In addition, employers are expected to:

- Help students develop skills (mentioned in four articles) by encouraging interaction with other workers and other teams which benefits learning by providing students the chance to use and develop soft skills like communication (Jones, et al., 2017).

- Provide exposure to executives (mentioned in two articles) which benefits learning by providing the student with expert-novice support and exposure to senior managers in other areas of the company (Heckman, et al., 2015; Lappia, 2011).

- Train the student (only mentioned in one article) by offering teaching and training experiences for on-the-job skills (Rowe, 2018).

Responsibilities of students

According to the data, the findings suggest the main responsibilities of students in a work integrated learning experience include:

- Performing the assigned duties of the job (mentioned in nine articles) which benefits learning because students must perform work-related tasks as part of their duty while networking with others. Because they are judged on their work, students end up working hard and doing their best. (Barnett, 2012; Lappia, 2011).

- Acquire the knowledge (mentioned in nine articles) needed prior to job shadowing or working in a new environment. Applying knowledge from the classroom helps students adapt to real world experience (Gardner, et al., 2014).

- Integrate their academic studies with work experiences (mentioned in nine articles) which benefits learning because students apply theoretical knowledge and concepts to practical settings which may help students acquire even more skills and competencies. (Barbarash, 2016; Fleming, et al., 2013; Jones, et al., 2017; McHugh, 2017).

- Work in a new environment (mentioned in eight articles) which benefits learning because students gain new skills from clarifying content regarding work experience, adjusting, and reflecting on the skills needed to meet industry needs. (Akpan, 2016; Fleming, et al., 2013; McHugh, 2017; Sanahuja Velez and Ribes Giner, 2015).

- Work with other co-workers (mentioned in six articles) which benefits learning because students need to use social skills to develop new relationships which allows students to see connections within a larger context while building new networks (Fleming, et al., 2013, Gardner and Bartkus, 2014; Gribble, et al., 2015; Sanahuja Velez and Ribes Giner, 2015)

- Learn soft skills (mentioned in five articles), which benefits learning because skills like written and oral communication are practiced while social networking and interacting with the community, and helps students have more realistic expectations at work (Gribble et al., 2015; Sanahuja Velez and Ribes Giner, 2015).

- Learn technical skills on-the-job (only mentioned in one article) which benefits learning by providing students the opportunity to perform job-related duties like research in

capstone-based projects, participate in exercises like field work, lab work, and industry

workshops (Dunn, et al., 2018).

Responsibilities of educational institutions

According to the literature, the main responsibilities of educational institutions in

preparing students for work-integrated learning and supporting them during and after the

experience include:

- Prepare students for their placement (mentioned in 12 articles) by helping facilitate

  students to find placements, to visit students in industry, and to interact with industry

  supervisors which benefits learning by reinforcing alignment between the curriculum and

  work environment (Barnett, 2012; Byrom, et al., 2014; Fleming, et al., 2013).

- Developing stronger bonds with industry (mentioned in seven articles) which benefits

  learning by allowing the educational institution to develop work experiences with

  industry. By developing stronger bonds, building relationships with host organizations,

  and establishing joint ventures, educational institutions can create sustainable long-term

  work integrated learning like apprenticeship programs that partner with future employers.

  (Crawford-Lee, 2016; Fleming, et al., 2013; Qiubo, et al., 2016; McHugh, 2017; Velez

  Sanahuja Velez and Ribes Giner, 2015).

- Design the curriculum for academic programs (mentioned in five articles) by making it

  more student-centered which benefits learning because it is aligned more with students'

  talents, career aspirations, and future professions. (Barbarash, 2016; Byrom, et al., 2014;

  Gardner and Bartkus, 2014; Heckman, et al., 2015).

- Design the curriculum for work placement (mentioned in five articles) which involves

  adjusting the existing curriculum to meet the skills needed at work. It benefits learning in

that the curriculum is better aligned with industry needs, thus ensuring student are taught

skills that can better meet their work placements requirements (Gardner and Bartkus,

2014).

What are the major types of work-integrated learning?

The four major types of work integrated learning are internships, cooperative education,

apprenticeships, and practica. Although several types of work placement experiences go by

different names, they all share similarities in that the student applies what they've learned in the

classroom to their new work environment.

Cooperative educational experiences were not traditionally taken for credit, but rather

were work placements designed to help students learn a job that required experience prior to

applying on a position. This type of work placement was popular with older students and with

those who did not value the higher education model as much as they valued an alternative

learning method, and likely because they wanted to get into the workforce right away

(Heinemann, 1988). However, as early as the 1990's educators in the hospitality industry

considered offering academic credit to students who successfully completed cooperative

education experiences (Breiter, 1991). Therefore, it appears that some characteristics associated

with this type of work integrated learning program has changed over the years. Interestingly,

there appears to be no clear finding in the literature that indicates whether students receive

credits or not for their cooperative work experiences.

What are the key features of work-integrated learning?

Key features of work integrated learning include compensation, accreditation, and self-

reflection. Even though compensation is a key feature, there is no detailed information about

wages, rates per hour, or pay schedules. There was, however, one comparison made between

students' pay not being equal to a full-time employee's pay with benefits. Work placements that did not have any compensation were linked to companies that were in the not-for-profit industry.

Academic credit was referenced in half the studies; however, it was not clearly linked to any one type of work placement.

Self-reflection, an important part of learning on-the-job according to Kolb's (1984) experiential learning model, was mentioned in the studies. However, missing from the literature were materials used to document or support self-reflective exercises. Therefore, how was it done? Six studies mentioned logs, diaries, and self-assessments, but did not give details regarding how, when, or why students documented their experiences.

What are the main responsibilities of the stakeholders?

The main responsibilities overlap among the stakeholders, with some notable exceptions. For example, employers are responsible for organizing students' work assignments to meet the needs of their company. They also must ensure feedback is provided regarding students' work, and support is available via supervisors, mentors, or co-workers.

Students' main responsibility is to work hard and learn during their placement. They are motivated to perform their assigned duties well, because they know they will receive feedback from their co-workers, supervisors, or mentors. In addition, students have a responsibility to be adequately prepared for their work by learning lessons in the classroom and then applying it in their new jobs. They also acquire knowledge in social work settings, which is similar to Eraut's theory of informal learning (Eraut, 2004a). A common soft skill referenced throughout the literature is communication. Learning how to get along with others through teamwork activities, collaboration on projects, and social interactions help students develop and strengthen their communication skills.

Educational institutions' biggest responsibility is to prepare students for their future jobs by finding them suitable work placements, and ensuring the curriculum is aligned with industry needs. In addition, schools have the added responsibility to develop stronger bonds and future partnerships with industry (Crawford et al., 2016). Strengthening stakeholder relationships would increase the success of work integrated learning initiatives and ensure all parties have a shared understanding of the goals and key features of the placement program, otherwise, their strategies may not align. For example, one article describes the need for educational institutions to design a curriculum that aligns better with industry needs (Sanahuja Velez and Ribes Giner, 2015) and in another, it was recommended the curriculum center around the student and their talents (Heckman et al., 2015). Therefore, stakeholders should cooperate to develop placements that have a common goal to all parties.

Chapter 5. Conclusions, Limitations and Suggestions for Future Research

The following puts the results of the study into context by first describing the implications to practice, and research, and theory, acknowledging the limitations of the study, and suggests future research that might emerge from this study.

Implications to practice

The most pressing issue that should be addressed is the confusion in the terms and definitions regarding work integrated learning. For example, internships were described as a way of providing work experience to students that apply the theoretical knowledge acquired in the classroom to develop practical skills at work (Sanahuja et al., 2015) and Akpan (2016) described a consulting practicum as a form of experiential learning that is a pedagogical strategy adopted by universities to help students acquire essential career skills. Such an extension of definitions between terms can cause confusion among stakeholders because of the ramifications related to the classifications of job placements in industry. Unclear definitions and terms for work integrated learning can have a negative impact on the availability of student placements in a work setting, thus reducing good job-fit opportunities. As a result, work placements become more difficult to implement because industry builds their programs and writes policies to describe student work placements which includes terminology, characteristics, and key features that must be adhered to by all who participate in the work program. This can also problems for human resource teams who calculate benefits and pay based on the exact status of the student in employment.

Therefore, confusion regarding the definitions, terms, and expectations of the work placement affects the relationship between the student, industry, and higher education when partnering to organize student work placement opportunities. For example, a student intern

looking for a work placement may find themselves unable to work in the industry of their choice even if a position is available, due to the names and definitions of the work integrated learning experience.

The literature also suggests some best practices to implement. First, regardless of the type of work-integrated placement, is an explicit definition of the responsibilities. Agreeing on a description of the work assignment and the objectives in terms of the student's education would help ensure that the student achieves because they are explicitly stated rather than implicitly understood, which can lead to a misunderstanding

The second-best practice is identifying the exact responsibilities of the student, educational institution, and employer. Although the exact responsibilities vary by placement, explicitly specifying them offers clarity and helps manages expectations of the student, who receives feedback as part of their learning process, of the school, who coordinates the work assignments with the academic schedule, and of the employer, who posts job descriptions looking for bright and eager students to fill their positions.

A third best practice pertains to renumeration. Employers should provide renumeration for work performed, but at a reduced rate when compared to a full-time employee with benefits (Barbarash, 2016; Qiubo et al., 2016)

A fourth best practice pertains to ensuring a good match between the job responsibilities and what an employer can reasonably expect from a student. Employers are responsible for the quality of the work assignments, to communicate what the job entails, to follow formalized guidelines, and to provide the expert-novice support to ensure work is meaningful (Lappia, 2011; Gardner and Bartkus, 2014).

A fifth best practice pertains to reflection. The literature also shows that reflective observation (Kolb,1984) is an important part of this type of work-integrated learning because students observe the reaction of others while in their work environment, which helps them think and learn from their actions before actively experimenting (Kolb, 1984). However, to retain these valuable learning opportunities, observations should be captured and documented. Work integrated learning's pedagogy helps develop students' critical thinking skills and self-directed learning and help students understand the realities of real-life projects from a work environment perspective (Rowe, 2018; Barbarash, 2016).

Therefore, the use of reflective materials like self-evaluations, diaries, journals, and logs to capture students' observations should be encouraged and highlighted. To support and direct students when making these reflections, provide accompanying instruction. The instructions should include the following subjects to help students link theory and practice, and to help them better understand the workplace culture (Barnett, 2012); self-evaluations, competencies, formal feedback from supervisors, informal feedback from co-workers, and other written observations before the student returns to school (Quibo et al., 2016)

Students should receive this direction at the beginning of their work placement before they prepare their first reflective assignment. Following these best practices creates shared understandings of each work experience would and facilitates students' transitions between the classroom and the workplace. Following these best practices also strengthens partnerships among students, employers, and educational institutions.

Implications to research and theory

The literature indicates students acquire on-the-job knowledge in work-integrated learning experiences, including practicing their technical skills at work, interacting with others,

and receiving feedback on their work. These activities support students' development as workers. Work-integrated learning is aligned with Kolb's (1984) Experiential Learning Theory, which states that "learning is the process whereby knowledge is created through the transformation of experience" (p.38).

Also noteworthy is the difference between classroom and workplace cultures, and the roles of particular communication skills for effectively interacting with co-workers in the workplace that differ from the communication skills needed to succeed in the classroom. This difference in culture and difference in skills suggests that the transition from school to work aligns with Eraut's (2004a) finding that learning on-the-job is complex and consists of five stages, all conducted informally and on the job:

1. Extracting potentially relevant knowledge from previous use occurs

2. Comprehending the new situation (social learning)

3. Recognizing what knowledge and skills are relevant to the workplace culture

4. Transforming prior knowledge to fit the new situation

5. Integrating existing knowledge with new skills in order to think, act, and communicate in the new situation (Eraut, 2004a).

In other words, work integrated learning experiences provide an informal learning opportunity to acquire new skills and knowledge that build on academic learning through experiences and interactions in the workplace. Two of the key areas of skill that students develop through work-integrated learning is in workplace communication and interacting within an organizational culture: some of the most valuable skills workers can possess and ones of great value to employers.

Limitations

One limitation of the study is the timeframe of the search for literature. The ten-year timeframe of year 2010 to year 2020 was selected for the study because it targeted the years when enhanced efforts were made to increase student enrollments in higher education in general, in areas of study like science, technology, engineering, and math in particular, and when there was rapid growth in work-integrated learning. However, it is possible a wider timeframe could have provided more literature with additional insights into the origins, objectives, and key features of work-integrated learning.

Another limitation may be the location of the studies. The articles chosen were from a variety of countries because no specific countries were targeted in the search. On the one hand, such results offer a global and diverse perspective of work integrated learning in higher education. However, differences in higher education systems and nomenclature in different countries might explain some of the confusion in terminology.

Suggestions for future research

Several possible studies might follow this one. As a first, future research may consider exploring work integrated learning and its key features in a more specific geography, or within a larger time frame. It may minimize the confusion in terminology and include more robust descriptions of the evolution of work integrated learning models.

A second study would provide further clarification to each type of work-integrated learning: definition, goals, and key features.

Third, a future study may explore differences in work-integrated learning in different industries and in positions related to science, technology, engineering, and math, the focus of this study. Seeing how different industries implement work-integrated learning for similar roles

models and how they employ students would provide a stronger basis for clarifying the

definitions, goals, and key features of cooperative education, internships, apprenticeships, and

practica, ones that can help strengthen these experiences for all stakeholders.

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