Discussion paper

Research in cooperative education, making the assumptions explicit

Abstract

Credible research into cooperative education (co-op) and work integrated learning (WIL) programs is considered a priority, not only as a means to maintain a currency of understanding regarding student learning but necessary to justify and legitimatize co-op placements and WIL programs as sound educational strategy. However, it has been suggested that those conducting research in this field do not always clearly articulate the approach or overall assumptions of the research being undertaken. Although the reasons for this are not clear, we argue that researchers need to be aware of and make explicit how their own assumptions based on their world view have influenced their research.

This paper aims to address this issue by exploring the differing terminology and definitions used by researchers and scholars to describe how knowledge is created and what counts as valid knowledge from different perspectives.

Terms such as epistemology, ontology, axiology, dualism and non-dualism will be discussed including how these concepts influence the key assumptions underpinning research and research process. In doing so it is anticipated this paper will assist researchers, particularly those new to the field of co-op or WIL, with a better understanding of how to clearly articulate and justify the research approach based on the key assumptions, thus improving the quality cooperative education and work integrated learning literature.

Keywords: research, assumptions, epistemology, paradigm, cooperative education
Introduction

Research in cooperative education (co-op) and work integrated learning (WIL) is aimed at not only maintaining a currency of understanding regarding student learning but considered necessary to justify and legitimatize co-op placements as a sound educational strategy (Coll & Eames). This is particularly important given the competing demands for resources in the higher education sector, and the need to justify the value of co-op programs.

Reflecting on past critical reviews of co-op research literature, Coll and Kalnins (2009) suggest that co-op has matured considerably over the last decade or so, in both the development of theoretical underpinnings, and in the advancement and dissemination of new knowledge. However, the authors highlight that research in this field, like much educational research, has been subject to criticism. One of the major criticisms involves researchers not commonly specifying or explicitly identifying the theoretical basis such as an epistemological position prior to engaging in research. This they consider is particularly evident for quantitative researchers, and to an extent qualitative researcher despite journals requiring the inclusion of such information. Coll and Kalnins (2009) also note that it is far more common for authors to specify the research approach or methodology, only alluding rather than explicitly stating what the link was to any paradigm, often confusing terminology associated with describing research approaches and data analysis with theoretical perspectives. In order to improve the quality of co-op literature Coll and Kalnins (2009, p.4), advocate that authors should ‘specify the paradigm within which they are working, talk about epistemology or what other theoretical assumptions they are working from, and seek coherency across such dimensions’.
Although reasons for the above are unclear, and we are not suggesting that this issue is confined to co-op literature only, it appears that there is universal difficulty regarding understanding terminology, concepts and definitions with respect to research, making the above task difficult. For example, Crotty (1998) highlights that research students and more seasoned campaigners can become bewildered at the array of methodologies available and unclear about how the philosophical underpinnings of these methodologies relate to the theoretical elements of the research approach.

However, in order to improve the quality of co-op research literature we argue that researchers need to be aware of and make explicit how their own assumptions based on their world view have influenced the process of research. This is important not only to assist with the process of research, but is also necessary as a convincing basis for the acceptance of the validity of the findings gathered from the study. We define the term validity as a measure of how accurately the research represents those features that it was intended to describe, explain and theorise, and include within this description the more specific views regarding validity considerations applicable to qualitative and quantitative research (Cohen, Manion, & Morrison, 2011).

The aim of this article is to support this argument by commencing with an overview of research and the research process introducing ideas contributing to a researcher’s world view. We argue that the researcher needs to critically reflect upon these ideas. The term paradigm is introduced as a means to communicate the set of assumptions held by the researcher regarding the research. Finally we present two examples relevant to co-op practice to illustrate how to make the assumptions regarding research explicit. We shall commence with an overview of research and the research process.
Research and the research process

Understanding research and the process of research, is a necessary starting point for exploring the argument proposed in this paper, as it sets the context for the discussion. We shall also propose that ideas surrounding world views should be explored during the development of the research proposal, to ensure the outcomes of the research are accepted as valid.

Creswell (2008, p. 3), describes research as ‘a process of steps used to collect and analyse information to increase our understanding of the topic or issue’, consisting of three general steps ‘pose a question, collect data to answer the question, present an answer to the question’.

Cohen et al. (2011) acknowledge that research has many meanings, but restrict its use to those activities aimed at developing the truth, particularly distinguishing research, from personal experience or common sense knowing and reasoning. Cohen et al.(2011, p.4) define research as a ‘systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations amongst natural phenomena’. Cohen et al. (2011, p. 9) further defines the word empirical, as ‘that which is verifiable by observation and direct experience.

The definitions provided, although having slightly differing explanations, highlight that empirical research, as distinct from personal experience or common sense is an investigative process. In order to be considered scientific and empirical the research must be approached in such a way that the discovery of answers to questions can be considered valid. We therefore argue that the first step in order to achieve this goal, is for the researcher to consider during the research proposal development what their own assumptions are based on their world view with respect to the very nature or essence (or reality) of the social
phenomena being investigated (Cohen et al., 2011) and how these influence the research
process and outcomes. As Crotty (1998) explains it is important to think about what the
purpose of the research is, and put considerable effort into thinking about what
methodologies will be employed to fulfil this purpose, thus justifying our this choice.

To enable this, Crotty (1998) further highlights that the justification of our choice of
methodology that reaches into our assumptions about reality. It involves examining an
understanding of what human knowledge is, what it entails, the status that can be ascribed to
it, what knowledge we believe can and will be attained from the research, and what
characteristics we believe that knowledge to have. Importantly he also highlights that this
justification impacts on how observers of the research regard the outcomes and why they
should take them seriously.

Similarly Cohen et al. (2011, p.3) suggests that a researcher’s assumptions about the
very nature or essence of the social phenomena (ontological assumptions) give rise to their
way of researching and enquiring into the nature of reality and the nature of things
(epistemological assumptions), which give rise to methodological considerations. These give
rise to issues of instrumentation and data collection. As Cohen et al. (2011, p.3) suggest, as
we begin to consider these aspects of the research process, research becomes more than a
‘technical exercise’. It requires us to think more deeply about how we view the world or
worlds, what we undertake and see as the purpose of understanding and what is deemed
valuable. We suggest it is problematic for researchers to ignore their beliefs or assumptions
about the world, as this the ability to influence the research process, and impact on how the
researcher interprets reality, and how others interpret the reality of the findings.

As discussed, understanding what research is and the research process is a necessary
starting point as it sets the context for the argument proposed in this paper. We also consider
that the examination of the ideas associated with the researchers world view should take place at the research proposal stage, before the research process commences. We now propose that in order for the researcher to make explicit how their own assumptions based on their world view influence the process of their research, is necessary for them to develop an understanding of the ideas contributing to these views.

**Ideas contributing to world view**

To enable the researcher to be aware of and make explicit their assumptions regarding their world view, we argue that an understanding of the ideas contributing to world view is necessary. We also argue that the researcher needs to critically reflect on these ideas, as assumptions arising from this reflection can influence the research. The following is not an exhaustive or extensive explanation of the potential ideas about the world that can be held, as we consider this to be beyond the scope of the paper. However we intend for this to act as a starting point to particular assist those new to research with an understanding of the key ideas which contribute to their world view, including of ontology, epistemology and axiology.

**Ontology**

Ontology is the term applied to the study of being and is concerned with the nature of existence and the structure of reality Crotty (2003, p.3) who also suggests that ontology sits side by side with epistemology, described as a ‘certain way of understanding what it means to know’ Crotty (2003, p.3).

Cohen et al. (2011) proposes a scheme for analysing the assumptions about the nature of social sciences. It commences with consideration of the ontological dimensions of the social phenomena being investigated.
Firstly, the researcher needs to consider whether the phenomenon exists external to the individual, out there in the world, thus being objective in nature. The approach is also described by Cohen et al. (2011) as adopting a realist ontological position. In this case, objects will be considered to have an independent existence, from the knower, which is also described as being dualistic (Hofer, 2001).

In other words the object whether it is a chair, car, mountain, animal or any other object, exists in reality and the only meaning that exists is the label or word ascribed to that object. It is not known as a mountain and a car, it is either a mountain or a car. The existence of these objects is also not dependent on being known to exist by the knower. In this case the philosophical resides in realism Cohen et al. (2011), where the world exists and is knowable as it really is, with organisations having real identities and independent realities of their own.

Alternatively, the researcher needs to consider whether phenomena being investigated is likely to have been created by one’s own mind as a result of their own individual cognition (Cohen et al., 2011).

Therefore in order to gain information regarding the phenomena we would need to ask the individual what their individual conception of reality was with respect to the phenomena under investigation. In other words, if we wanted to know why someone understood a mountain to be a mountain and not a car, we would need to ask the person individually, as each person may have a different reality regarding this based on an experience unique to them. The existence of the reality in this case is dependent on the relationship of the knower to the known, and therefore considered to be a non-dualist (Hofer, 2001).

If the phenomenon is a result of individual cognition, this is described by as adopting a nominalist ontological position, with a philosophical basis residing in idealism, meaning the
world exists, but people construe it in very different ways and with organisations inventing social reality (Cohen et al., 2011).

**Epistemology and axiology**

The second set of assumptions discussed by Cohen et al., (2011, p.6) are those relating to an ‘epistemological kind’, which includes the very basis of knowledge, its nature and forms, how it can be acquired and communicated to other human beings. For the researcher, this necessitates a consideration of why they believe knowledge created about the phenomenon will be valid. Or as Hofer (2009) elaborates how do we know what we know and how do we choose what and whom to believe, how is knowledge constructed, evaluated, where does it reside and how does knowing occur.

If the belief is that hard, objective and tangible evidence is necessary to understand knowledge about the phenomenon under investigation, such as human behaviour, observation will then be adopted by the researcher with respect to creating that knowledge (Cohen et al., 2011). The axiological position, as Crotty (1998) explains is that understandings and values are objectified in the people being studied, or are as Mackenzie and Knipe (2006) suggest are value free, and with the correct means the objective truth can be discovered (Crotty, 1998). In this instance, as Cohen et al. (2011) explain, the researcher is considered to be adopting an objectivist or positivist approach, where the social world is like the natural world, the reality external and objective and therefore requires a scientific investigation directed at analysing relationships and regularities between selected factors in the world.

From a methodological perspective, the research will be largely quantitative, involving identifying and defining elements and discovering ways in which relationships can be expressed, using deductive logic, based on a pre-determined design. The research principally applies the traditional methods or techniques to gather this knowledge such as
surveys and experiments, and characterised by procedures and methods used to discover general laws. The authors also referred to this a nomothetic, and it is considered to fall within the normative paradigm (Cohen et al., 2011).

Alternatively, if the researcher believes that knowledge regarding the phenomenon is ‘personal, subjective and unique’ (Cohen, et al. 2011 p.6.) to the individual, and interaction with the individual is vital in order to understand how knowledge regarding a phenomenon is created, then an involvement with the individual is required by the researcher. In this instance, as explains the researcher is considered to be adopting a subjective approach (Cohen et al., 2011). This approach is considered the alternate view of social reality to positivism, and known as anti-positivism or post positivism as the main concerns relate to how individuals create, modify and interpret the world they live in. Emphasis is ‘placed on explanation and understanding of the unique and individual case rather than the general and universal; the interest is in the subjective, relativistic social world rather than an absolute, external reality’ (Cohen, et al. 2011 p.6).

Crotty (2003) refers to this type of meaning making as, constructivism, distinguishing subjectivism from constructivism by highlighting that the object of study makes no contribution to the meaning, but the meaning of the object is imposed on it by the actor through their own perceptions of experience. Crotty (2003) considers constructivism to occur as a result of different people constructing meaning in different ways, even in relation to the same phenomenon, as meaning comes into existence in and out of engagement with the realities in our world, similar to the explanation provided by Cohen et al. (2011) in relation to the subjective approach.

Whichever definition is adopted, the commonality that arises is that the techniques used to research the phenomenon are different from those adopted by an objectivist approach.
They can involve personal accounts, participant observation and may involve both qualitative and quantitative techniques.

From an axiological perspective, Creswell (2013) points out that with respect to qualitative techniques, inquirers admit the value laden nature of the study and actively report their values and biases as well as the value-laden nature of the information gathered, with the authors interpretation of the study represented as much as the subject of study. From a methodological perspective, Creswell (2013) highlights that the researcher uses inductive logic, studies the topic within its context, and uses an emerging design. The approach to understanding individual behaviour and perceptions is termed idiographic and within the interpretive paradigm (Cohen et al., 2011).

From the preceding discussion, we have highlighted that the assumptions made by the researcher based on their world view result in distinctly different research approaches. A researcher who holds a realist ontological position will design a different type of research project, with different measures and different understandings of validity, that one who holds a nominalist ontological position.

We have highlighted that decisions made by the researcher regarding the assumptions they make about the world, based on the ideas of ontology, epistemology, and axiology have the ability to influence the research process. Importantly the researcher must consider what their assumptions are with respect to the phenomena under investigation. In order to make these assumptions explicit, we now argue that the researcher must communicate this is in a way that identifies to the research community what these assumptions are and an important aspect of this is declaring a research paradigm.
Paradigms

The argument of this paper is that researchers need to be aware of and make explicit how their own assumptions based on their world view have influenced the process of their research. We argue that researchers do this by importantly declaring in the research literature the paradigm their assumptions about the phenomena apply to.

Cohen et al. (2011, p. 23) describes a paradigm as:

‘a way of looking at or researching a phenomena, a world view, a view of what counts as accepted or correct scientific knowledge or way of working, and accepted model or pattern red belief system or set of principles, the identify of a research community, a way of pursuing knowledge, a consensus on what problems need to be investigated and how to investigate them, typical solutions to problems and an understanding that is more acceptable than its rivals’.

It is the choice of paradigm that sets down the intent, motivation and expectations for the research and influences the way knowledge is studied and interpreted. Without nominating a paradigm as the first step, there is no basis for subsequent choices regarding methodology, methods, literature or research design (Mackenzie & Knipe, 2006).

A number of paradigms are discussed in the literature, with five common contrasting paradigms mentioned by Teddlie (2009), Mackenzie and Knipe (2006), Creswell (2013): the positivist, post positivist, interpretivist/constructivist, transformative and pragmatic paradigms. Discussing the contrasting perspectives of the wide range of paradigms is beyond the scope of the paper. However, during this paper, the assumptions underpinning two paradigms have been illustrated, namely the normative/ positivist paradigm and the interpretivist/subjective paradigm (sometimes described as post positivist or constructivist).
To illustrate how we consider the researcher can make explicit how their own assumptions based on their world view have influenced the process of their research, will present two examples relevant to co-op practice for consideration.

**Co-op practice example**

Consider a question you would like to investigate regarding co-op practice. In doing so, also contemplate what sort of findings you and your research community would consider to be valid. What sort of knowledge would be required to achieve this goal? How do you discover and create this knowledge?

As a researcher, you may be seeking findings that could be applied or used or relied upon regardless of the context or circumstances, findings that are considered definitive and unbiased. For example you may wish to seek knowledge which proves that students undertaking co-op have better learning outcomes that those who do not. In order to do this you may go about it by comparing two cohorts of students, those who undertake co-op and those who do not, using quantitative data such as pre and post co-op grades as an indicator, controlling for a range of variables such as demographic facts, using appropriate statistical analysis to arrive at your findings.

To make the make explicit the assumptions underpinning this research, you could communicate that you have adopted a realist, dualistic ontological position, with to respect phenomenon under investigation. Thus the research falls within the normative or positivist paradigm. Therefore the research process involves using a methodology which is nomothetic, using deductive logic, on a pre-determined design, aimed at discovering general laws, and will be quantitative.
Or, as a researcher your view maybe that it is impossible to create one definitive answer to such a question involving learning. You consider that people construct knowledge in different ways, based on the various experiences that they have had. Even if they are participating in the same co-op activity, the knowledge that they gained will be different, as it is unlikely that during the course of life any two people would have had the exact same experience to help shape their knowledge.

You are interested in discovering what this different knowledge is. Therefore it is the experience of the student in the co-op setting and non-co-op setting which is important to understanding students learning outcomes. In order to gain this knowledge you will need to interact with the students, for example using qualitative techniques such as interviews. Understanding the context and how you interpret the experiences, the value you and the students place on this experience is important to the findings. This is because contexts are different, and others may, given their own experience interpret the experiences of the students differently. Therefore your understanding will be based on interpretation of the subjective meanings, where immersing patterns and themes may be used to describe what the meanings of the experiences are with respect to student learning outcomes. As a researcher you also acknowledge what your biases are based on your experience.

To make explicit the assumptions underpinning this research, you could communicate that you have adopted a nominalist, non-dualistic ontological position, with respect to the phenomenon under investigation. Thus the research falls within the interpretive or subjectivist paradigm. Therefore the research process involves using a methodology which is idiographic, applying inductive logic, studying the topic within its context, using an emerging design, and is largely qualitative.
The above aims to illustrate two distinctly different research approaches to a similar co-op practice topic, learning outcomes, influenced by the researches world view with respect to the very nature or essence (or reality) of the social phenomena being investigated. Examples of how to make explicit the assumptions regarding the research based on these two different world views have been provided, to assist in improving the quality of co-op research literature.

**Conclusion**

The argument of this paper is that researchers need to be aware of and make explicit how their own assumptions based on their world view have influenced the process of their research. We argue that researchers do this by reflecting upon the ideas which contribute to world views, form assumptions about each. This then informs the research process. The term paradigm was introduced as a means to communicate the set of assumptions underpinning the research. Declaring a paradigm in the research literature is important as it represents the key assumptions made by the researcher regarding the phenomena under investigation. This enables those who view your research to make an assessment of the validity of the findings based on the research approach adopted and assists in improving the quality of co-op research literature.

**References**


