IPRPD
International Journal of Business & Management Studies
ISSN 2694-1430 (Print), 2694-1449 (Online)
Volume 02; Issue no 02: February, 2021

Research Methodology Choice Dilemma: A Conceptual Note to Emerging Researchers

Nkululeko Fuyane[1]

[1] *lecturer , Department of Marketing, Mangosuthu University of Technology, South Africa, E-mail: deebobgroup@gmail.com*

Abstract

The methodology aspect of a research study is deemed central to the trustworthiness of that study's findings. Irrespective of this, most researchers, especially emerging researchers often fall for the entrenched dualist reasoning for methodological choices. Often, emerging researchers, postgraduate students in particular, and some established researchers believe in the quantitative - qualitative research divide and that these two methodological approaches cannot be employed in the same study. Several scholars have chided the dualist or purist approaches as prejudicial to the attainment of rich research findings. Thus, this conceptual note sought to stimulate further the debate leading to the understanding that these two research traditions can be combined in one study to address research questions and thus enhance the research findings. The paper discusses the philosophical views of the two research approaches confirming their differences and argues against the incompatibility thesis raised by purists in the debate against mixing the qualitative and quantitative research approaches. The article then discusses the mixed methods research approach to dispel the binary or purist reasoning and encourage emerging researchers to embrace the mixed methods research where possible to answer the research questions.

Keywords: Quantitative, Qualitative, Incompatibility thesis, Mixed methods, Research paradigm, Positivism, Interpretivism, Pragmatism

1.0 Introduction

Research is an integral part of postgraduate qualifications in the social sciences and other fields. Often, the course or module that seeks to develop students' research skills is universally referred to as 'Research Methodology/Methods'. Such a name reveals the importance placed on the methodological choices a researcher has to make to answer the research question s. However, it also brings confusion to many as these two (methodology and methods) are distinct elements of the research process.

In addition to the course's name, Mackenzie and Knipe (2006) lament the continuation of binary reference to research as either quantitative or qualitative research. Jones and Kennedy (2001) blame this binary approach on how research is taught at postgraduate level. The authors and many others (e.g., Given, 2017; Onwuegbuzie and Leech, 2005; Howe, 1988) point out that this is despite all the criticism levelled on this false dichotomy for more than half a century. According to the authors, when research is restricted to binary optics, it confuses students and many emerging researchers. Thus, this article intends to extricate emerging researchers, particularly postgraduate students, not to be naively recruited into their supervisors' methodological provinces. The paper draws from extensive literature review to dispel the binary optics favouring what Yanchar and Williams (2013) refer to as methodological eclecticism.

The article provides a logical description of research dispositions using Kuhn's (1962) concept of paradigms. After that, it presents and discusses the two dominant paradigms used as binary approaches to research, and whose proponents see as inherently incompatible (Howe, 1988). In the main, the article also dispels the incompatibility thesis held by the proponents of the two dominant paradigms. Therefore, it discusses an emergent paradigm that provides the philosophical basis for integrating into one study, research activities thought as incompatible. Lastly, the article provides explanations and justification for adopting mixed methods research approaches when conducting the study.

2.0 Conceptual framework: Kuhn's Concept of Paradigms

In his classical work (The Structure of Scientific Revolutions), Kuhn (1962) introduced the concept of research paradigms which he characterised as scientists' communities of practice. Among the communities of practice, scientists hold different philosophical worldviews or fundamental belief systems, informing how they view social reality (Bryman and Bell, 2015; Rehman and Alharthi, 2016; Rahi, 2017; Kivunja and Kuyini, 2017). According to Bird (2018), paradigms have two functions, viz, provide a scope and understanding of problems or puzzles, and furnish them with the tools or approaches to solving these problems/puzzles. As Killam (2013) stated, paradigms are the lenses through which we view and interact with the world around us.

However, it is noteworthy that before Kuhn's work, information production was viewed as a rational, apolitical and accretive process (Shepherd and Challenger, 2012). Contrary to this note, Kuhn (1962) rejected the view that scientific observations were theory neutral. Instead, he emphasised that paradigms provide researchers with the philosophical assumptions and theoretical frameworks that guide or inform how they relate to social reality, create knowledge and construct meaning (Chilisa and Kawulich, 2012). Over time, various scholars (e.g., Crotty, 1998; Scotland, 2012; Killam, 2013; Al-Ababneh, 2020; Alharahsheh and Pius, 2020) have described a research paradigm as composed of ontological and epistemological views, methodological approaches and axiological disposition (see Figure 1 below).

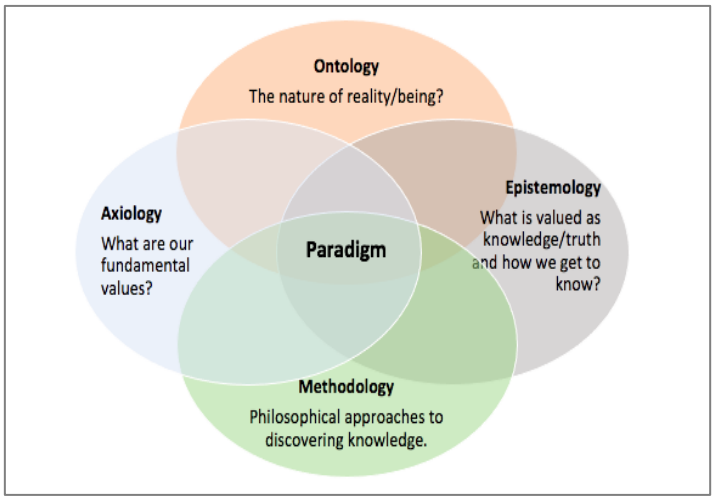

Figure 1: The Basic Elements of a Research Paradigm
(Source: Guba and Lincoln, 2005; Henry and Macpherson, 2019)

The elements shown in Figure 1 characterise and distinguish the research paradigms. Based on these differences, Kuhn (1962) also introduced the incommensurability thesis (Bird, 2018; Mizrahi, 2015; Sankey, 2018), which has become to be known as the incompatibility thesis (Howe, 1988). In simple terms, the thesis claims that what is considered an acceptable approach to science in one paradigm is not acceptable for another paradigm due to philosophical differences.

Insomuch as Kuhn (1962) believed in distinct and incommensurable paradigms, he, however, conceded, especially in his later essays (Kuhn, 1970, 2000), that science goes through revolutions. Bird (2018) concretises this by stating that the development of science comes through adding new truths to the old stock of truths, or the increasing conjecture of theories to the truth, and in some cases, the rectification of past errors. On the development of science, Kuhn (1970:182) emphasises on a constellation of shared "... strong commitment by the relevant scientific community to their shared theoretical beliefs, values, instruments and techniques, and even metaphysics."

Kuhn's thesis of incommensurability can be understood in two ways, viz, the taxonomic incommensurability and methodological incommensurability (Mizrahi, 2015). Taxonomic incommensurability, which is also referred to as the semantic form (Sankey, 2018), views concepts incompatible if they do not share the same lexical taxonomy. Kuhn (2000) defines lexical taxonomy as the structures and vocabulary to state theory. On the other hand, the methodological incommensurability assumes that theories are incompatible if there is an absence of shared standards of theory appraisal (Sankey, 2018:76). These theses of incommensurability are the genesis of what has been labelled as 'paradigm wars' (Gage, 1989; Shepherd and Challenger, 2012). Paradigm wars have further exacerbated the research method-ology choice dilemmas for many researchers. In particular, emerging researchers find themselves trapped in the paradigmatic camps, where their professors or mentors strongly argue that their specific worldviews are the most appropriate for investigating research questions (Jones and Kennedy, 2011).

In the following section, the article presents the dominant research paradigms within the social or management sciences and expounds on their distinct characteristics or elements as depicted in Figure 1 above. Without necessarily obfuscating the differences attributed to incompatibility, the essence is to set out the possibilities of combining them to enhance the research results. As a result, a comparative analysis of the two dominant paradigms is made along

with the four essential elements (ontology, epistemology, methodology and axiology) of a research paradigm. After that, the article presents what has been dubbed as the third paradigm (Tomski, 2017) to illustrate, without necessarily obfuscating the differences attributed to incompatibility, the possibilities of combining the two different and dominant paradigms to enhance the research results.

3.0 Research Paradigms within the Social/ Management Sciences

Even though Kuhn's concept of research paradigms has received much criticism, it has aroused interest among various social scientists (Bird, 2018). According to Shepherd and Challenger (2012), the concept wields significant influence on contemporary thinking across the research domains. There are two fundamental and dominant paradigms, viz, the positivist and interpretivist paradigms (Collis and Hussey, 2013; Tomski, 2017; Alharahsheh and Pius, 2020). The differences between the two, rise sharply out of the definition and characterisation by Kuhn (1962) and others (Killam, 2013; Bryman and Bell, 2015; Strang, 2015; Saunders, Lewis and Thornhill, 2016; Rahi, 2017; Alharahsheh and Pius, 2020). Belonging to either of the camps exposes a researcher's onto-epistemological disposition, which in turn shapes their methodological and axiological approach to investigation of a phenomenon and answering of research questions (Ragab and Arisha, 2018).

In the following two subsections (3.1 and 3.2), the article provides a detailed account of the two paradigms (positivist and interpretivist) regarding their ontological, epistemological, methodological and axiological perspectives. The discussion of the two paradigms will provide the distinction which Saunders, Lewis and Thornhill (2016) identify as the source of methodology choice dilemmas for several researchers, emerging ones in particular. Gage (1989) referred to the polemic relationship between positivist and interpretivist as the paradigm wars.

3.1 Positivist Worldview/Research Paradigm

Positivism as a worldview can be attributed to early philosophers such as Aristotle, Emmanuel Kant, Francis Bacon, Auguste Comte and John Locke (Kelly, Dowlin and Millar, 2018; Kivunja and Kuyini, 2016; Mackenzie and Knipe, 2006; Mertens, 2005). It is described by Crotty (1998) as the "oldest and best-known 'researcher' philosophy, which refers to being evidence and theory-driven". Table 1 below presents a detailed evaluation of the positivist paradigm on criteria, including the essential four elements of a paradigm depicted in Figure 1.

Criterion	Description
Ontology	Positivists view reality (the researched) as external and independent of the researcher (Almalki, 2016; Howell, 2013), that is, the world exists and is there to be discovered (Gemma, 2018). They are absolutists believing that there is one truth about (singular) reality (Saunders, Lewis and Thornhill, 2012, 2016). Irshaidat (2019:3) avers that for positivists, "the world is an offshoot of diverse causal inferences, as this causality results in a given effect." There are many ontological views under the positivist paradigm, for example, empiricism, naive realism and logical realism.
Epistemology	Positivism follows an objectivist epistemology which assumes that the world/reality can be understood (observed and measured) through scientific methods. According to Saunders, Lewis and Thornhill (2012), the scientific methods are law-like (nomothetic) generalisations that emphasise causal explanations and predictions as a contribution to knowledge. Thus, positivists tend to naively believe that what we observe reflects the world/reality (Howell, 2013). Quantitative data and information are so much valued; hence so much emphasis is placed on data collection instruments and statistical analysis.
Methodology	The ontological and epistemological views influence the types of questions and how they are addressed (Irshadiat, 2019). Using quantitative methods, positivists are more interested in patterns that can be elicited from the data, which they assume to be applicable across similar situations (Gammelgaard 2004). Simply put, research methodology refers to the procedures used to systematically conduct research, for example, your design, sampling techniques, data collection and analysis techniques. Methodologically, positivists seek to answer the 'what' questions to determine, explain and predict the relationships between variables. The positivist paradigm emphasises what has become known as the eight hallmarks of scientific research (Marshall and Rossman 2011; Sekaran and Bougie 2013).
Methods	On the other hand, research methods refer to the means/ways of conducting research. For purists, positivism uses quantitative methods such as; the questionnaire, surveys, structured interviews/observation, experiments. The methods adopted follow a confirmatory scientific approach as the focus is on testing the hypothesised relationships between variables based on some theory (Antwi and Hamza, 2015). Ragab and Arisha (2018) add that the results could also be predictive or explanatory. Due to the emphasis on results' generalisability (Saunders, Lewis and Thornhill, 2016), representativity is attained through large [and randomly selected] samples and analysed using stringent statistical techniques. As indicated, quantitative approaches to data collection, analysis and interpretation are the cornerstones of positivist studies.
Axiology	As a testimony to the reality-researcher independence, positivists see research as a context- and value-free phenomenon where the researcher is assumed to maintain objectivity throughout the research process (Saunders, Lewis and Thornhill, 2016; Alharahsheh and Pius, 2020).

Scientific Method (role of theory)	Studies conducted under the positivist paradigm seek to test a theory. That is, they identify the theoretical position, operationalise it through research questions and, or a hypothesis (Saunders, Lewis and Thornhill, 2016; Głogowska, 2011) and then select a research method to test and confirm theory objectively (Ragab and Arisha, 2018). The objective testing and confirmation of theory are known as deductive reasoning.

Table 1: Characteristics of the Positivist Paradigm

Primary source

3.1.1 Strengths and Weaknesses of Positivism

Proponents of positivism extol it for several strengths. The emphasis on rigour enables positivist studies' findings to be generalisable/replicable if the sample is relatively large and random (Bryman, 2012; Johnson and Onwuegbuzie, 2004). Thus, the research instruments can be used in different settings and remain valid and reliable. Gall, Gall and Borg (2003) also posit that the positivist principle of objectivity/independence reduces the chances of interference or influence by the researcher's values on people's responses or behaviours. The confirmation, explanation and prediction of phenomena, in reality, is supported by empirical evidence (Hammersley, 2013), and not opinion or common-sense conjectures.

However, despite these strengths, positivism continues to face criticism from various scholars. Amongst other things, critics have attacked positivism for its naive and dogmatic view. For example, Strang (2015) argues that pure positivism (also referred to as naive realism) is infrequently used other than in highly regulated laboratory-based situations such as behavioural experiments or process testing. Shek and Wu (2018) describe this approach as trying to understand social reality in a ''social vacuum'', a "context-stripping" view. When added to the nomothetic approaches (passively noting the laws of nature) under a positivist paradigm, objectivist research principles might preclude the capture and reflection of contextual nuances of the researched. Moreso, the assumption of perfect reality-researcher independence is an elusive and unfathomable principle. The researcher (a human being) cannot be devoid of values and beliefs that inform how they collect, analyse and interpret research results.

Furthermore, despite being popular in social sciences, some social phenomena variables are way too complex to be simplified through quantification, for example, social values, beliefs and attitudes. Alharahsheh and Pius (2020) raise a significant concern that statistical tests might be manipulated or misused. Recently, there have been some rising critical voices on the over-reliance on null hypothesis significance testing (NHST). A sizable number of scholars (McShane et al., 2019; Szucs and Ioannidis, 2017; Trafimow, 2014, 2019) have problematised the conventional $p<.05$ as strong evidence in favour of a scientific theory. The criticism above is among the many reasons for the emergence of a breakaway paradigm known as interpretivism (Alharahsheh and Pius, 2020; Rehman and Alharthi, 2016; Grix, 2004), discussed in the next section.

3.2 Interpretivist/Constructivist Worldview/Research Paradigm

Interpretivism, also referred to as constructivism (Rahi, 2017) or constructionism (Bryman and Bell, 2015), takes an entirely different standpoint altogether compared to positivism. These terms (interpretivism, constructivism and constructionism) are sometimes used interchangeably in the literature. Interpretivism has four main variations, viz, hermeneutics, verstehen, phenomenology and symbolic interactionism. For a detailed discussion on these variations, see; Thirsk and Clark (2017); Hamilton, Cruz and Jack (2017) and Blumer (1969), respectively. Table 2 below details the interpretivist paradigm's characteristics on the same essential elements as in Table 1, enabling a comparison of the two dominant paradigms.

Criterion	Description
Ontology	Interpretivists reject the naturalistic and independence (scientific) view of positivists. Instead, they view the world/reality through humanistic, constructivist, relativist or idealist lenses (Saunders, Lewis and Thornhill, 2012; Ragab and Arisha, 2018; Gemma, 2018; Irshaidat, 2019; Alharahsheh and Pius, 2020). Accordingly, interpretivists see the world as socially constructed, and through the experience, individuals create/interpret reality in their minds (Ragab and Arisha, 2018; Goldkuhl, 2012). By rejecting the presence of fixed facts and detached entities (Irshaidat, 2019), interpretivists believe that the researcher and the researched are interdependent. Again, interpretivists reject the positivists' view of a singular/absolute and static reality favouring multiple realities and interpretations (Saunders, Lewis and Thornhill, 2016; Brand, 2009).
Epistemology	Interpretivism is underpinned by a subjectivist epistemology which accepts multiple [individual] stories, narratives, circumstances, perceptions and interpretations in understanding a reality (Irshaidat, 2019; Lopes, 2015; Saunders, Lewis and Thornhill, 2012) compared to positivist nomothetic) generalisations. Interpretivists believe that humans cannot be separated from their experiences and knowledge, and they think that the researcher is somehow inextricably linked to the researched (Gemma, 2018; Alharahsheh and Pius, 2020). Within the interpretivist paradigm, cultures, texts, theories, concepts, and behaviour is valued in comprehending human decisions (Thanh and Thanh 2015; Andriopoulos and Slater 2013). As a result, interpretivists accommodate new understanding and worldviews as a contribution to knowledge.

Methodology	Flowing from the ontological and epistemological views above, it is clear that researchers cannot be detached from the matter under examination (Irshadiat, 2019). The interpretative approach relies on qualitative methods, providing an in-depth understanding of specific contexts (Chilisa and Kawulich, 2012; Alharahsheh and Pius, 2020). Thus, an interpretative methodology seeks to draw from the qualitative data, deep insights and conclusions that may vary from others (Saunders, Lewis and Thornhill, 2012), constructed, interpreted and experienced through social interactions (Tuli, 2010). As a result, interpretivists focus on answering the 'why' questions.
Methods	Interpretivism is known for its typically inductive qualitative research methods (Saunders, Lewis and Thornhill, 2016). Unlike quantitative research methods where large samples are viewed as critical for reliability, qualitative methods are more concerned about the merit of accuracy with which contexts and behaviours are thoroughly described (Irshadiat, 2019). Furthermore, qualitative methods strive to interpret behaviours from a range of data, usually obtained through methods that capture the lived experiences of the researched, such as case studies, grounded theory, action research, narrative inquiry and ethnography (Balsvik, 2017). Specific methods include unstructured interviews, observations, text/images and audio/video recordings analysis. Instead of testing the hypothesised relationships between variables based on some theory (Antwi and Hamza, 2015), qualitative methods seek to explain propositions.
Axiology	As a testimony to the belief in multi-reality and the interdependence between the researcher and the researched, interpretivists view research as a context-bound and value-laden (Yilmaz, 2013; Alharahsheh and Pius, 2020). Through the research process, the researcher is always aware of the phenomenon's subjectivities under investigation (Saunders, Lewis and Thornhill, 2016).
Scientific Method (role of theory)	Interpretivist studies seek to generate theory by obtaining an in-depth and contextual understanding of the research phenomenon (Ragab and Arisha, 2018). From observation to the exploration of data, it takes a bottom-up approach to identify themes and formulate propositions that become theory (Trochim and Donnelly, 2008).

Table 2: Characteristics of the Interpretivist Paradigm

Primary source

3.2.1 Strengths and Weaknesses of Interpretivism

Interpretivism's strength as a research paradigm lies mainly on its acceptance of multiple realities in under-standing social phenomena and within specific contexts (Crotty, 1998). Thus, it rejects the presence of static reality and detached entities (Irshadiat, 2019), praises cultures, experiences texts, theories, concepts, and behaviour as the key to the comprehension of human decisions (Andriopoulos and Slater, 2013). Based on this, Myers (2008) states that interpretivism enjoys high-level validity in data as it captures the world through what McQueen (2002:16) refers to as "a series of individual eyes".

Furthermore, the research literature suggests that interpretivists deploy qualitative research inquiry strategies that have several advantages. For example, Johnson and Onwuegbuzie (2004) extol its ability to describe complex phenomena based on naturalistic settings. In agreement, Thanh and Thanh (2015) state that interpretivist see the world through the participants' experiences and eyes of the researched. Such an attribute makes qualitative research responsive to contexts and the needs of those under investigation (the researched).

However, there have always been concerns about interpretivist approaches to research. Denzin and Lincoln (2005) are esteemed for their historical analysis of qualitative methodologies, in which he identified eight historical periods or 'moments' of qualitative research. Denzin and Lincoln's (2005) work generated what Mura and Sharif (2015) referred to as the ontological, epistemological and axiological chaos. This chaos is relentlessly being resisted and criticised by 'hard' scientists (positivists). The most eminent criticisms of the paradigms after positivism are; the 'crises' of representation, legitimation and praxis (Denzin and Lincoln, 2005; Anwaruddin, 2019).

As Peterson (2004, 2015) stated, the crisis of representation is a challenge that becomes acute when positivist perspectives are renounced. As one of the post-foundational empirical research paradigms, interpretivism is said to suffer from this crisis. In general, the notion of 'representation' centres on the question of representing the world through writing amid a value-laden dispensation. However, for Peterson (2015), the crisis of representation is instead primarily about "onto-epistemological questions, for writing is an ontological and ontologising activity" (p. 151).

Thus, according to Denzin and Lincoln (2018), the onto-epistemological shift to a relativist-subjectivist perspective puts researchers in a quandary of locating themselves and their subjects in reflexive texts. The crisis of representation is projected through researchers' ethnic, gendered and corporeal identities embedded in text or narratives (Mura and Sharif, 2015). In simple terms, Onwuegbuzie and Leech (2007) aver that the concern about or the weakness of interpretivism stems from the extent of accuracy with which researchers can adequately capture lived experiences of the 'researched'.

Flowing from the crisis of representation comes the crisis of legitimation, which questions the researchers' mandate and authority to represent the researched. For example, in her article titled "The problem of speaking for others", Linda Alcoff raises 'legitimation' concerns, that is, researchers/scholars speaking for the 'researched'. In concurrence with Mura and Sharif (2015), Alcoff (1991) states that the researcher's social location is epistemically salient and that "certain privileged positions are discursively dangerous" (p. 7). Then, the crisis of praxis, which

Fernandes (2017) say is a bigger problem symptomised by the crisis of representation, is mostly about the misalignment between research (theory) and practice. That is when research findings fail to positively impact the everyday lives of the 'researched' (Anwaruddin, 2019).

To address the crisis of representation together with the crisis of legitimation and praxis, and at the same time also avoid falling for a sloppy positivist [naturalist] approach, many researchers (e.g., Creswell et al., 2007; van Griensven, Moore and Hall, 2014; Bazeley, 2015) now choose pragmatism. Pragmatists reject dualism, which is touted as the reason for paradigm wars, in favour of multiplism. In the following section, a discussion on paradigm wars (Denzin and Lincoln, 2005, 2011; Gage, 1989) is presented to situate pragmatism's emergence and popularity.

3.3 Paradigm Wars

According to Cheema (2018), there have been about three paradigm wars that have happened since 1980. These are "positivist versus post-positivists, post-positivist and constructivists versus critical theorists and lastly mixed-methods versus evidence-based methodologists" (p. 38). However, several methodologists (e.g., Gage, 1989; Shepherd and Challenger, 2012; Antwi and Hamza, 2015; Rehman and Alharthi, 2016; Alharahsheh and Pius, 2020) have condensed these paradigm wars into a positivist - interpretivist dichotomy and is the focus of this article. Gage's (1989) characterisation of this dichotomy as paradigm wars suggests a rift between proponents of these two dominant traditions (positivism and interpretivism).

This rift between positivists and interpretivists explained through the incommensurability or incompatibility thesis (Kuhn, 1962; Howe, 1988) is the leading cause of the confusion among postgraduate students, emerging scholars and even to some established researchers. Through research supervisors' influence, postgraduate students are un-consciously inducted into the binary reasoning pitying quantitative against qualitative research traditions. Such an approach precludes the students and emerging researchers from exploring the prospects of integrating quantitative and qualitative research approaches to answer their research questions.

As indicated by the differences pronounced in Sections 3.1 and 3.2, the rift stems from the adversarial debates at ontological, epistemological, methodological and axiological disposition between the two paradigms (Yilmaz, 2013; Donmoyer, 2008), each claiming primacy and or superiority over the other (Rahman, 2017; Antwi and Hamza, 2015). Given (2017) exemplifies this superiority rift by indicating how interpretivist studies are scrutinised and demonised for small sample sizes, lack of objectivity and rigour, often by positivist supervisors and or grant approval committees.

For Denzin and Lincoln (2018), the standards used to criticise interpretivists are from the scientifically based research (positivism) movement. According to Lather (2004), interpretivists resisted (and continue to fight) such criticism, and Galvez, Heiberger and McFarland (2020) report that interpretivism has fortified as an epistemological contender of the positivist paradigm. Between the proponents of these two paradigms, the significant difference stems from their beliefs about what qualifies as scientific research. The two camps believe that they have no fundamental commonality; hence, their methodological strategies cannot be melded to solve research problems. Howe (1988) referred to this as the incompatibility thesis, a concept derived from Kuhn's (1962) and Burrell and Morgan's (1979) idea of incommensurability. Rahman (2017) indicates that the paradigm wars persist to date.

The incompatibility thesis manifests acutely at a methodological level, resulting in the infamous quantitative-qualitative dichotomy (Onwuegbuzie and Leech, 2005; Ercikan and Roth, 2006; Wood and Welch, 2010). On the one hand, quantitative research is deemed to follow deductive reasoning, where the focus is on hypothesis testing through statistical techniques. The purpose of quantitative studies is to generalise the findings, provide causal explanations between research variables, and extrapolate value-free predictions (Makrakis and Kostoulas-Makrakis, 2016; Yilmaz, 2013). On the other hand, qualitative research uses inductive reasoning (Saunders, Lewis and Thornhill, 2016; Alharahsheh and Pius, 2020), contextualised and interpreted phenomena through actors' perspectives (Yilmaz, 2013).

As shown, several scholars concur that the quantitative-qualitative debate is a false dichotomy, for example, Onwuegbuzie and Leech (2005), Wood and Welch (2010), Åsberg, Hummerdal and Dekker (2011), Walsh (2012), and Makrakis and Kostoulas-Makrakis (2016). Onwuegbuzie and Leech (2005) discuss how the sampling schemes are religiously linked to the two traditions. The authors indicate that sampling decisions are also provincialised into the quantitative-qualitative divide due to the quantitative-qualitative binary reasoning. For instance, large samples and random sampling techniques are associated with quantitative research, while small samples and non-random sampling techniques are related to qualitative research. They argue that such is a simplistic view and misleading as either of the two sampling techniques can be employed in either quantitative or qualitative research studies.

In support of the false dichotomy narrative, Wood and Welch (2010:) argue that such a tendency to categorise research methods into "quantitative-qualitative often omits many potentially useful possibilities, such as non-statistical hypothesis testing and statistical induction" (p. 56). Like Onwuegbuzie and Leech (2005), the authors regard the dichotomous approach as problematic or an over-simplification. For Ercikan and Roth (2006), the polar categorisation of research into quantitative-qualitative binaries not only distorts the conception of research but is also fallacious. Makrakis and Kostoulas-Makrakis (2016) also reject the dichotomisation of research into quantitative-qualitative camps. Instead, they advocate for a more pragmatic research approach, discussed in the following section.

3.4 Pragmatist Worldview/Research Paradigm

Given the omnipresent paradigmatic wars within the research arena (Głogowska, 2011) resulting in a false dichotomy between positivism and interpretivism (Onwuegbuzie and Leech, 2005; Wood and Welch, 2010; Åsberg, Hummerdal and Dekker, 2011), pragmatism emerged as the third paradigm reconciling the two warring camps to work together. From a pragmatist approach, Onwuegbuzie and Leech (2005) advocate for the teaching of research methodology courses without the quantitative-qualitative divide, where students are allowed to use and appreciate both methodologies in addressing research questions. This reconciliation has been dubbed as 'paradigm peace' (Bryman, 2006; Morgan, 2007; Głogowska, 2011; Heimtun and Morgan, 2012; Reardon, 2015).

According to Morgan (2014), pragmatism serves as a philosophical program for social research. However, Głogowska (2011) states that researchers in the applied fields were among the frontrunners to offer the olive branch, thus shunning the methodological purity. Pragmatists reject the incompatibility thesis between the two traditional paradigms (positivism and interpretivism), in favour of the 'what works' practical approach to understanding social phenomena. To them, understanding is intrinsically fallible, and knowing is viewed as an "open-ended quest for greater certainty" (Mintz, 2004:2).

As indicated above, the incompatibility thesis is premised on the entrenched purist positionalities and differentiated characterisation of the two traditional paradigms (positivism and interpretivism). To the contrary, pragmatism as an alternate paradigm sidesteps the warring worldviews of positivists and interpretivists. As a result, pragmatists concede, at least philosophically, the presence of both singular and multiple realities that can be put under empirical scrutiny (Feilzer, 2010). Thus, pragmatists value both subjective and objective knowledge (Creswell and Plano-Clark, 2011). Methodologically, pragmatism enables, among other things, researchers to integrate qualitative and quantitative research approaches in a single study (Creswell, 2014).

In concurrence with Onwuegbuzie and Leech (2005), the author believes that inducting students into the pragmatist worldview will free them from mental and practical constraints imposed by the false methodological dichotomy between positivism and interpretivism (Morgan, 2014; Creswell and Plano-Clark, 2011; Onwuegbuzie and Collins, 2007; Johnson and Onwuegbuzie, 2004). Such an approach to teaching research methodology will as opined by Morgan (2007, 2014) bring peace to paradigmatic politics, and save students from falling into unnecessary camps. As Tran (2016) suggests, this peace will enable postgraduate students and emerging scholars, in general, to connect subjectivity with objectivity, inductive reasoning with deductive reasoning and generality with context. Such is key to the effective adopting and use of mixed methods research approaches.

Figure 2 depicts the pragmatist paradigm's integrative nature and introduces new terms - intersubjectivity, abduction and transferability that come with this philosophical order. More important is how the figure depicts the middle ground and the latitude of moving towards either of the polar in designing research to answer specific questions. For postgraduate students and emerging researchers alike, this will show the possibility of reconciliation between positivism and interpretivist research approaches (Mintz, 2004; Dewey, 2008), without obliterating their differences. Instead of restricting researchers into deductive-inductive binary reasoning, pragmatism brings about another reasoning dimension – the abductive reasoning.

For Dewey (2008), the onto-epistemological debate between positivists and interpretivists/constructivists offers two essential claims about the nature of social reality and the nature of knowledge. The debate, Dewey remarks, can be reconciled. Our experiences in (and of) the world are indeed products of the nature of that world and how we understand the world is inherently limited to how we interpret our experiences (Morgan, 2014). Thus, without necessarily discarding the differences between positivism and interpretivism, Dewey emphasises experience as the dichotomy centre.

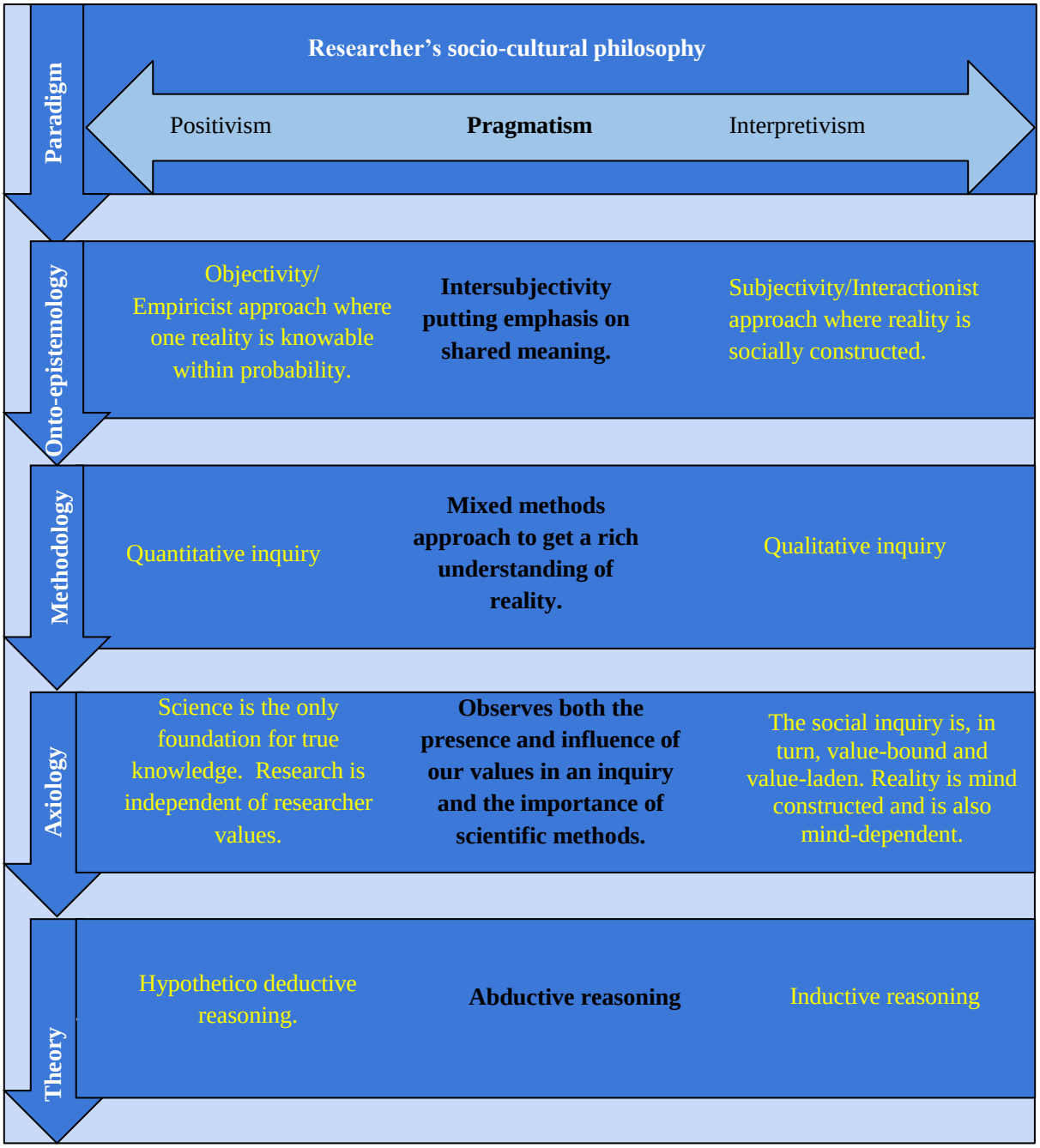

Figure 2: Pragmatism Paradigm Source: Adapted from Morgan (2007)

Whereas positivists and interpretivists are divided into quantitative and qualitative camps, pragmatists choose to carefully work back and forth between the two to find a practical approach to social inquiry. The methodological approach underpinned by pragmatism is referred to as mixed methods research (Biesta, 2010). Instead of being confined to the fallacy of deductive-inductive reasoning dichotomy, emerging researchers must apply abductive reasoning that combines quantitative and qualitative strategies in a sequential or parallel fashion. Sequentially, the inductive goals of a qualitative approach can be informed by the deductive results from a quantitative approach, or vice versa (Tran, 2016; Morgan, 2007), thus resulting in integrating both approaches.

3.4.1 Mixed Methods Research

In Sections 3.1 and 3.2, the two methodological camps (that is, quantitative research underpinned by positivism and qualitative by interpretivism) were discussed and identified as dichotomous. It is indicated that such a binary approach is the genesis of the paradigm wars (see section 3.3) as the two research traditions claim primacy and supremacy over each other. Section 3.4 discussed an alternative paradigm (pragmatism) which rejects the methodological monism emanating from the purist, dogmatic and dualist approaches to social research. Methodologically, pragmatism is associated with mixed methods research (Creswell and Clark, 2011; Biesta, 2010; Onwuegbuzie and Johnson, 2004; Tashakkori and Teddlie, 2003).

Johnson and Onwuegbuzie (2004) refer to mixed methods research as the 'research paradigm whose time has come'. It is also described as the third methodological movement (Makrakis and Kostoulas-Makrakis, 2016; Venkatesh, Brown and Bala, 2013). As indicated in the name, mixed methods research adopts a pluralist stance that sees no problem in employing research methods from rival paradigms (Makrakis and Kostoulas-Makrakis, 2016; Hall, 2013; Harrits, 2011; Morgan, 2007, 2014).

According to Harrison III (2013), social science researchers have used mixed methods research for decades. Azorín and Cameron (2010) and Johnson and Gray (2010) extend that social sciences and management researchers have increasingly adopted mixed methods research. However, for Creswell (2014), mixed methods research is relatively a new field "with major work in developing it stemming from the middle to the late 1980s" (p. 101). In the hard sciences, only the medical/health researchers seem to have adopted mixed methods research with others still stuck to positivist research approaches.

From its name, it is easy for emerging scholars to think that conducting a mixed methods research study is a stroll in the park. On the contrary, Niglas (2009) and Caruth (2013) caution that it is a complex research approach that must not be overly simplified. The mixing of qualitative and quantitative methods is not in the literary sense; it involves many considerations that must be meticulously thought out in pursuit of a research problem. Central to a mixed methods research study is the critical decision about the timing and prioritisation between the qualitative and quantitative research aspects in a study.

Timing of the research aspects above refers to the phasing of the qualitative and quantitative research aspects in a study. The decision is whether the qualitative and quantitative research aspects occur concurrently (approximately the same point in time but still independent of one another) or they occur sequentially (one after the other, with the latter aspect dependent, to some degree, on the former aspect) in a single study (Onwuegbuzie and Collins, 2007). The priority decision is all about which of the two research approaches is given more weighting or dominance over the other.

Morse (2003) developed a procedural notation system that can help the inductees into mixed-methods research to understand timing and prioritisation notions. The system uses plus (+) symbol and an arrow (→), and capital and lowercase letters to respectively denote timing and priority decisions in a mixed-methods study. The plus symbol indicates that the research strands occurred concurrently while an arrow shows the sequence (Harrison III, 2013). Capital letters (e.g., QUAL or QUAN) typify the dominance or higher priority of a particular method, and lowercase letters (e.g., qual or quan) signify a lower priority of that particular method (ibid).

Flowing from the above decisions is integrating data to avoid a mere collection of both forms of data but keeping them separate or casually combined (Creswell et al., 2011; Harrison III, 2013). Creswell and Plano Clark (2011) suggest three forms of integration in a mixed methods research study: merging, connecting and embedding data. Merging data refers to combining both data strands (qualitative and quantitative) in reporting and discussing the study results. This can also be achieved through 'quantising' qualitative data or 'qualitising' quantitative data (Sandelowski, Voils and Knafl, 2009; Harrison III, 2013).

Connecting data in a study draws from the sequential mixed method where the analytical results of one dataset are used to inform the subsequent data collection. For example, descriptive results (quantitative) are used to employ focus group interviews (qualitative) to understand a phenomenon under investigation. Embedding data refers to when a dataset of secondary priority (qual or quan) is embedded in the primary (QUAL or QUAN) design (Creswell and Plano Clark, 2011). There are various benefits/reasons for mixing methods, with the most popular being triangulation, complementarity, development, initiating and expansion.

The pursuit of such reasons has culminated in several mixed methods research designs. For example, Tashakkori and Teddlie (2003) outlined approximately thirty-five mixed methods research designs, making it tedious and challenging for emerging researchers to choose an appropriate design. To save researchers from this predicament, some scholars (e.g., Greene and Caracelli, 1997; Creswell et al., 2003; Onwuegbuzie and Johnson, 2004; Creswell and Plano Clark, 2007; Creswell, 2012; Almalki, 2016) have simplified the designs into manageable typologies. From these typologies, Creswell's (2012) list is comprehensive yet simplified. The author identified six designs, viz; convergent parallel mixed methods, explanatory sequential mixed methods, exploratory sequential mixed methods, embedded mixed methods, transformative mixed methods and multiphase mixed methods.

3.4.1.1 Strengths and Weaknesses of Pragmatism/Mixed Methods Research

Like the other paradigms and their methodological approaches, pragmatism and its progeny (mixed methods research) have not gone without praises and criticisms. The exceptional strength of pragmatism emanates from its onto-epistemological approach which seeks to find a middle ground for different research philosophies. Such an approach allows researchers to adopt eclectic and pluralist ways of solving research problems, benefiting from the amalgamation of the strengths from both the quantitative and qualitative research approaches while offsetting their weaknesses (Bryman, 2006; Creswell et al., 2003).

Flowing from the onto-epistemological strengths, mixed methods research is extolled for its ability to provide an in-depth and valid explanation of a phenomenon under investigation. Such can be achieved through the convergence and corroboration of results from different methods, which improves the validity of research findings

(Johnson and Onwuegbuzie 2004; Caruth, 2013). Also, mixed methods research enables researchers to elaborate and clarify results, thus enhancing the findings' interpretability and meaningfulness (Ragab and Arisha, 2018). According to Johnson and Onwuegbuzie (2004), mixed methods research enables the use of results from one method to develop or inform the other method to improve the validity of the constructs. The breadth and depth of research are extended by employing different methods at different stages of an inquiry (Greene, Caracelli and Graham, 1989).

Despite all this glorification, mixed methods research has equally received a fair share of criticism. Some of the criticism reveals the remnants of the methodological purists' incompatibility claims who merely bundle the quantitative and qualitative data stream without integrating them to answer questions (Creswell and Plano Clark, 2007). The other criticism stems from Johnson and Onwuegbuzie (2004) suggestion that it may be difficult for some researchers to employ qualitative and quantitative research approaches in a study concurrently. For this reason, Doyle, Brady and Byrne (2009) opine that a researcher must have sufficient knowledge of both methods (quantitative and qualitative) independently, something scarce. Some (Johnson and Onwuegbuzie, 2004; Ivankova, Creswell and Stick, 2006; Creswell, 2012; Caruth, 2013) have also criticised mixed methods research, sequential designs in particular, for its resource intensity, that is, time, financial and human resources (research team).

4.0 Conclusion

Choosing the research methodology for a study is not an easy thing to do (Walker, 1997). Compared to seasoned researchers, emerging researchers, particularly postgraduate students, find choosing research methodology for their studies cumbersome. Often, they rely on their postgraduate studies supervisors' guidance, which makes them susceptible to being recruited into their supervisors' methodological camps. Once they are inducted into the dualist on-to-epistemological views of these camps, they are left with an impression that they have to clearly show their allegiance to a particular paradigm, either positivist or interpretivist (Onwuegbuzie and Leech, 2005). The emergence of the mixed methods research as the 'third methodological movement' (Makrakis and Kostoulas-Makrakis, 2016; Venkatesh, Brown and Bala, 2013) further compounds the methodological choices dilemma for emerging as well as senior scholars.

As part of the paradigm shift, Onwuegbuzie and Leech (2005) advocate that postgraduate students be allowed to be pragmatists in their approach to research problems, and master quantitative and qualitative research approaches. In the same spirit, this conceptual note sought to start methodological conversations among postgraduate students and with their supervisors, and among other emerging scholars. As such, the article encourages that while postgraduate students should be able to identify the differences between quantitative and qualitative paradigms, they must also appreciate that the two can be integrated to improve the validity, hence the findings of a study. In support, Mushemeza (2016) states that pragmatic integration of the two dominant research paradigms will enable postgraduate students to analyse the identified research problem better. More important to note for researchers is that the choice of a mixed-methods research design must be driven by the research question rather than "concretely realise one method or another" (Ercikan and Roth, 2006).

Works Citation

1. Al-Ababneh, M.M. (2020). Linking Ontology, Epistemology and Research Methodology. Science & Philosophy, 8(1), 75-91.
2. Alcoff, L. (1991). The problem of speaking for others. Cultural critique, 20, 5-32.
3. Alharahsheh, H.H. and Pius, A. (2020). A Review of key paradigms: positivism VS interpretivism. Global Academic Journal of Humanities and Social Sciences, 2(3), 39-43.
4. Almaki, S. (2016). Integrating Quantitative and Qualitative Data in Mixed Methods Research—Challenges and Benefits. Journal of Education and Learning, 5(3), 288-296.
5. Andriopoulos, C. and Slater, S. (2013). "Exploring the Landscape of Qualitative Research in International Marketing: Two Decades of IMR." International Marketing Review 30(4), 384–412.
6. Antwi, S.K. and Hamza, K. (2015). Qualitative and Quantitative Research Paradigms in Business Research: A Philosophical Reflection. European Journal of Business and Management, 7(3), 217-225.
7. Anwaruddin, S.M. (2019). How language teachers address the crisis of praxis in educational research. Oxford Review of Education, 45(6), 715-730.
8. Åsberg, R., Hummerdal, D. and Dekker, S. (2011). There are no qualitative methods – nor quantitative for that matter: the misleading rhetoric of the qualitative-quantitative argument. Theoretical Issues in Ergonomics Science, 12(5), 408-415.
9. Azorín, J.M. and Cameron, R. (2010). The application of mixed methods in organisational research: A literature review. Electronic journal of business research methods, 8(2), 95-105.
10. Bazeley, P. (2015). Mixed methods in management research: Implications for the field. Electronic Journal of Business Research Methods, 13(1), 27-35. [Online] Available at: http://www.ejbrm.com/volume13/issue1/p27 (Accessed on 04 November 2020).
11. Biesta, G. (2010). Pragmatism and the philosophical foundations of mixed methods research. In A. Tashakkori and C. Teddlie (Eds.), Sage handbook of mixed methods in social research. 2nd Edition. Thousand Oaks, CA: Sage Publication.
12. Bird, A. (2018). "Thomas Kuhn", Zalta, E.N. (ed.) The Stanford Encyclopaedia of Philosophy (Winter 2018 Edition). [Online] Available at: https://plato.stanford.edu/archives/win2018/entries/thomas-kuhn/ (Accessed on 19 October 2020).
13. Blumer, H. (1969), Symbolic Interactionism: Perspective and Method, Englewood Cliffs: Prentice-Hall.
14. Bryman, A. (2006). Integrating quantitative and qualitative research: how is it done. Qual Res, 6, 97–113.
15. Bryman, A. (2012). Social research methods, 4th Edition. Oxford: Oxford University Press.
16. Bryman, A. and Bell, E. (2015). Business Research Methods. International Fourth Edition. Cape Town: Oxford University Press.
17. Burrell, G. and Morgan, G. (1979). Sociological paradigms and organisational analysis: Elements of the sociology of corporate life. New York: Routledge.
18. Caruth, G.D. (2013). Demystifying Mixed Methods Research Design: A Review of the Literature. Mevlana International Journal of Education (MIJE), 3(2), 112-122.
19. Cheema, S. (2018). Research Paradigm and Paradigm Wars: Dilemma of a Researcher. The Research Journal of United Institute of Management, IX(1&2), 36 - 41.
20. Chilisa, B. and Kawulich, B. (2012). Selecting a research approach: Paradigm, methodology and methods. In C. Wagner, B. Kawulich, and M. Garner (Eds.), Doing social research: A global context. Berkshire: McGraw Hill Education.
21. Collis, J. and Hussey, R. (2013). Business research: A practical guide for undergraduate and postgraduate students, New York: Palgrave Macmillan.
22. Collins, K., Onwuegbuzie, A. and Sutton, I. (2006). A model incorporating the rationale and purpose for conducting mixed-methods research in special education and beyond. Learn Disabil, 4(1), 67-100.
23. Creswell, J.W., Hanson, W.E., Clark Plano, V.L. and Morales, A. (2007). Qualitative research designs: Selection and implementation. The Counseling Psychologist, 35(2), 236-264.
24. Creswell, J.W., Klassen, A.C., Plano Clark, V.L., and Smith, K.C. (2011). Best Practices for Mixed Methods Research in the Health Sciences. Office of Behavioural and Social Sciences Research, National Institute of Health.
25. Creswell, J.W., Plano Clark, V.L., Gutman, M.L. and Hanson, W.E. (2003). Advanced mixed methods research designs. In Tashakkori, A. and Teddlie, C. (Eds.), Handbook of Mixed Methods in Social & Behavioral Research. Thousand Oaks, CA: Sage Publications.
26. Creswell, J.W. (2012). Qualitative inquiry and research design: Choosing among five approaches. 3rd Edition. Lincoln, NB: Sage Publications.
27. Creswell, J.W. (2014). Research Design: Qualitative, Quantitative and Mixed Method Approaches. Fourth Edition. Thousand Oaks, California: SAGE Publications Limited.
28. Creswell, J.W. and Plano Clark, V.L. (2007). Designing and Conducting Mixed Methods Research. London: Sage Publications.

29. Creswell, J.W. and Plano Clark, V.L. (2011). Designing and conducting mixed methods research. 2nd Edition. Thousand Oaks: Sage Publications.
30. Crotty, M. (1998). The foundations of social research: Meaning and perspective in the research process. 1st Edition. London: Sage Publication, Inc.
31. Denzin, N.K. and Lincoln, Y.S. (2005). Preface. In N.K. Denzin and Y.S. Lincoln (Eds.), The Sage handbook of qualitative research, 3rd Edition. Thousand Oaks, CA: Sage Publications.
32. Denzin, N.K. and Lincoln, Y.S. (2011). Introduction: The discipline and practice of qualitative research. In Denzin, N.K. and Lincoln, Y.S. (Eds.), The Sage handbook of qualitative research. 4th Edition.Thousand Oaks, CA: Sage.
33. Denzin, N.K. and Lincoln, Y.S. (2018). Introduction: The discipline and practice of qualitative research. In Denzin, N.K. and Lincoln, Y.S. (Eds.), The Sage handbook of qualitative research. 5th Edition. Thousand Oaks, CA: Sage.
34. Dewey, J. (2008). The child and the curriculum including, the school and society. New York: Cosimo, Inc..
35. Donmoyer, R. (2008). Paradigm. In L.M. Given (Ed.), The Sage encyclopedia of qualitative research methods, 2, 591–595. Thousand Oaks, CA: Sage.
36. Doyle, L., Brady, A.M. and Byrne, G. (2009). An overview of mixed methods research. Journal of research in nursing, 14(2), 175-185.
37. Ercikan, K. and Roth, W.M. (2006). What good is polarizing research into qualitative and quantitative? Educational Researcher, 35(5), 14–23.
38. Feilzer, M.Y. (2010). Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. Journal of Mixed Methods Research, 4(1), 6–16.
39. Fernandes, S. (2017). Crisis of Praxis: Depoliticization and Leftist Fragmentation in Brazil. [Unpublished Thesis] Doctor of Philosophy in Sociology, Faculty of Graduate and Postdoctoral Affairs, Carleton University, Ottawa, Ontario.
40. Gage, N.L. (1989). The Paradigm Wars and Their Aftermath: A "Historical" Sketch of Research on Teaching since 1989. Educational Researcher, 18(7), 4-10.
41. Gall, M., Gall, J. and Borg, W. (2003). Educational Research. Boston: Pearson Education Inc.
42. Galvez, N-H.S., Heiberger, R. and McFarland, D. (2020). Paradigm wars revisited: A cartography of graduate research in the field of education (1980–2010). American Educational Research Journal, 57(2), 612-652.
43. Gammelgaard, B. (2004). "Schools in Logistics Research? A Methodological Framework for Analysis of the Discipline." International Journal of Physical Distribution & Logistics Management 34(6), 479–91.
44. Gemma, R. (2018). Introduction to positivism, interpretivism and critical theory. Nurse Researcher, 25(4), 41–49.
45. Given, L.M. (2017). It's a New Year...So Let's Stop the Paradigm Wars. International Journal of Qualitative Methods, 16, 1–2.
46. Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. European journal of information systems, 21(2), 135-146.
47. Greene, J.C., Caracelli, V.J. and Graham, W.F. (1989). Toward a conceptual framework for mixed-method evaluation designs. Educational evaluation and policy analysis, 11(3), 255-274.
48. Greene, J.C., Caracelli, V.J. and Graham, W.F. (1989). Toward a conceptual framework for mixed-method evaluation designs. Educational evaluation and policy analysis, 11(3), 255-274. https://doi.org/10.3102/01623737011003255
49. Glogowska, M. (2011). Paradigms, pragmatism, and possibilities: Mixed-methods research in speech and language therapy. International Journal of Language and Communication Disorders, 46, 251-260.
50. Greene, J.C. and Caracelli, V.J. (Eds.) (1997). Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms: New directions for evaluation (No. 74). San Francisco: Jossey-Bass.
51. Grix, J. (2004). The Foundations of Research. New York: Palgrave Macmillan.
52. Hall, JN. (2013). Pragmatism, Evidence and Mixed Method Evaluation. New Directions for Evaluation, 138, 15-26.
53. Hamilton, E., Cruz, A.D. and Jack, S. (2017). Re-framing the status of narrative in family business research: Towards an understanding of families in business. Journal of Family Business Strategy, 8(1), 3-12. https://doi.org/10.1016/j.jfbs.2016.11.001
54. Hammersley, M. (2013). What is Qualitative Research? New York: Sage Publications.
55. Harrison III, R.L. (2013). Using mixed methods designs in the Journal of Business Research, 1990–2010. Journal of Business Research, 66, 2153–2162.
56. Harrits, S.G. (2011). More than method?: A discussion of paradigm differences within mixed methods research. Journal of mixed methods research, 5(2), 150-166.
57. Heimtun, B. and Morgan, N. (2012). Proposing paradigm peace: Mixed methods in feminist tourism research. Tourist Studies, 12(3), 287–304.
58. Henry, S. and Macpherson, M. (Eds.) (2019). Scope: Contemporary Research Topics (Flexible Learning 5). Dunedin: Otago Polytechnic.

59. Howe, K.R. (1988). Against the quantitative-qualitative incompatibility thesis or dogmas die hard. Educational Researcher, 17, 10–16.
60. Howell, K.E. (2013). An introduction to the philosophy of methodology, London: SAGE Publications.
61. Irshaidat, R. (2019). Interpretivism vs. Positivism in Political Marketing Research. Journal of Political Marketing, 1-35.
62. Ivankova, N.V., Creswell, J.W. and Stick, S.L. (2006). Using mixed-methods sequential explanatory design: from theory to practice. Field Methods, 18, 3–20.
63. Jones, C. and Kennedy, G. (2011). Stepping beyond the paradigm wars: pluralist methods for research in learning technology. In: ALT-C 2011, 18th International Conference: Thriving in a Colder and More Challenging Climate, 6-8 Sep 2011, Leeds, UK.
64. Johnson, R.B. and Gray, R. (2010), 'A history of the philosophical and theoretical issues for mixed methods research'. In Tashakkori, A. and Teddlie, C. (Eds.), Handbook of mixed methods in social & behavioral research, 2nd edition, Thousand Oaks, CA: Sage Publications.
65. Johnson, R.B. and Onwuegbuzie, A.J. (2004). Mixed methods research: A research paradigm whose time has come. Educational Researcher 33(7), 14–26.
66. Killam, L.A. (2013). Research Terminology Simplified: Paradigms, Axiology, Ontology, Epistemology and Methodology. Sudbury: ON Author.
67. Kivunja, C. and Kuyini, A.B. (2017). Understanding and Applying Research Paradigms in Educational Contexts. International Journal of Higher Education, 6(5), 26 - 41. https://doi.org/10.5430/ijhe.v6n5p26
68. Kuhn, S.T. (1962). The Structure of Scientific Revolutions, 2nd edition. Chicago: University of Chicago Press.
69. Kuhn, S.T. (1970). The Structure of Scientific Revolutions, Chicago: University of Chicago Press.
70. Kuhn, S.T. (2000). The Road Since Structure, Chicago: University of Chicago Press.
71. Lather, P. (2004). This is your father's paradigm: Government intrusion and the case of qualitative research in education. Qualitative Inquiry, 10(1), 15–34.
72. Leech, N.L. and Onwuegbuzie, A.J. (2009). A typology of mixed methods research designs. Qual Quant, 43, 265–275. https://doi.org/10.1007/s11135-007-9105-3
73. Guba, E.G. and Lincoln, Y.S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), The Sage handbook of qualitative research. 3rd ed. Thousand Oaks, CA: Sage Publications.
74. Mackenzie, N. and Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. Issues in Educational Research, 16(2), 1-13.
75. McShane, B.B., Gal, D., Gelman, A., Robert, C. and Tackett, J.L. (2019). Abandon Statistical Significance. The American Statistician, 73(1), 235-245
76. Mertens, D.M. (2005). Research methods in education and psychology: Integrating diversity with quantitative and qualitative approaches. 2nd Edition. Thousand Oaks: Sage Publications.
77. Kelly, M., Dowling, M. and Millar, M. (2018). The search for understanding: the role of paradigms. Nurse Res., 25(4), 9-13.
78. Makrakis, V. and Kostoulas-Makrakis, N. (2016). Bridging the qualitative–quantitative divide: Experiences from conducting a mixed methods evaluation in the RUCAS programme. Evaluation and Program Planning, 54, 144-151.
79. Martin, M. (2017). Verstehen: The Uses of Understanding in the Social Sciences. New York: Routledge.
80. Mintz, J.A. (2004). Some Thoughts on the Merits of Pragmatism as a Guide to Environmental Protection. B.C. Envtl. Aff. L. Rev. 31(1), 1 - 26. Available at: http://lawdigitalcommons.bc.edu/ealr/vol31/iss1/2 (Accessed on 06 November 2020).
81. Mizrahi, M. (2018). Kuhn's Incommensurability Thesis. What is the argument? In Mizrahi, M. (Ed.). The Kuhnian Image of Science: Time for a Decisive Transformation? London: Rowman & Littlefield International.
82. Mizrahi, M. (2015). Kuhn's Incommensurability Thesis: What's the Argument? Social Epistemology, 29(4), 361-378.
83. Morgan, D.L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. Journal of Mixed Methods Research, 1(1), 48-76.
84. Morgan, D.L. (2014). Pragmatism as a paradigm for social research. Qualitative inquiry, 20(8), 1045-1053. Available at: https://doi.org/10.1177/1077800413513733 (Accessed on 28 October 2020)
85. Morse, J. (2003). 'Principles of mixed methods and multimethod research design', in Handbook of Mixed Methods in Social & Behavioral Research, Tashakkori, A. and Teddlie, C. (Eds) 2003, California: Sage Publications.
86. Mura, P. and Sharif, S.P. (2015). The crisis of the 'crisis of representation' – mapping qualitative tourism research in Southeast Asia, Current Issues in Tourism, 18(9), 828-844.
87. Mushemeza, E.D. (2016). Opportunities and Challenges of Academic Staff in Higher Education in Africa. International Journal of Higher Education, 5(3), 236-246.
88. Myers, M.D. (2008). Qualitative Research in Business & Management. Thousand Oaks, CA: Sage Publications.

89. Niglas, K. (2009). How the novice researcher can make sense of mixed methods designs. International Journal of Multiple Research Approaches, 3(1), 34-46.
90. Onwuegbuzie, A.J. and Collins, K.M. (2007). A typology of mixed methods sampling designs in social science research. Qualitative Report, 12(2), 281-316.
91. Onwuegbuzie, A.J. and Johnson, R.B. (2004). Mixed method and mixed model research. In R.B. Johnson and L.B. Christensen (Eds.), Educational research: Quantitative, qualitative, and mixed approaches. Needham Heights, MA: Allyn & Bacon.
92. Onwuegbuzie, A.J. and Leech, N.L. (2005). Taking the "Q" out of research: Teaching research methodology courses without the divide between quantitative and qualitative paradigms. Quality & Quantity: International Journal of Methodology, 39, 267-296.
93. Petersen, E.B. (2004). Academic boundary work: The discursive constitution of scientificity among researchers in the humanities and social sciences. Copenhagen: University of Copenhagen.
94. Petersen, E.B. (2015). What crisis of representation? Challenging the realism of post-structuralist policy research in education. Critical Studies in Education, 56(1), 147-160.
95. Ragab, M.A.F. and Arisha, A. (2018). Research Methodology in Business- A Starter's Guide. Management and Organisational Studies, 5(1), 1-24.
96. Rahi, S. (2017). Research Design and Methods: A Systematic Review of Research Paradigms, Sampling Issues and Instruments Development. International Journal of Economics & Management Sciences, 6(2), 1-5.
97. Rahman, M.S. (2017). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language "testing and assessment" research: A literature review. Journal of Education and Learning, 6(1), 102-112.
98. Reardon B.A. (2015). Toward a Paradigm of Peace. In: Betty A. Reardon: A Pioneer in Education for Peace and Human Rights. Briefs on Pioneers in Science and Practice, 26. Springer, Cham. [Online] Available at: https://doi.org/10.1007/978-3-319-08967-6_9 (Accessed on 10 November 2020).
99. Rehman, A.A. and Alharthi, K. (2016). An introduction to research paradigms. International Journal of Educational Investigations, 3(8), 51-59.
100. Sandelowski, M., Voils, C.I. and Knafl, G. (2009). On quantitizing. Journal of Mixed Methods Research, 3(3), 208-222.
101. Sankey, H. (2018). The Demise of the Incommensurability Thesis. What is the argument? In Mizrahi, M. (Ed.). The Kuhnian Image of Science: Time for a Decisive Transformation? London: Rowman & Littlefield International.
102. Saunders, M.N.K., Lewis, P. and Thornhill, A. (2016). Research methods for business students. 7th ed. Harlow: Pearson Education.
103. Scotland, J. (2012). Exploring the Philosophical Underpinnings of Research: Relating Ontology and Epistemology to the Methodology and Methods of the Scientific, Interpretive, and Critical Research Paradigms. English Language Teaching, 5(9), 9 – 16.
104. Shek, D.T.L. and Wu, F.K.Y. (2018). The Social Indicators Movement: Progress, Paradigms, Puzzles, Promise and Potential Research Directions. Soc Indic Res, 135, 975–990.
105. Shepherd, C. and Challenger, R. (2012). "Revisiting Paradigm(s) in Management Research: A Rhetorical Analysis of the Paradigm Wars: Revisiting Paradigm(s) in Management Research." International Journal of Management Reviews, 15(2), 225-244.
106. Strang, K.D. (2015). Articulating a Research Design Ideology. In: Strang K.D. (eds). The Palgrave Handbook of Research Design in Business and Management. New York: Palgrave Macmillan.
107. Szucs, D. and Ioannidis, J. (2017). When null hypothesis significance testing is unsuitable for research: A reassessment. Frontiers in human neuroscience, 11, 390. [Online] Available at: https://www.frontiersin.org/articles/10.3389/fnhum.2017.00390/full (Accessed on on 06 November 2020).
108. Tashakkori, A. and Teddlie, C. (Eds.) (2003). Handbook of Mixed Methods in Social & Behavioral Research. Thousand Oaks, CA: Sage Publications.
109. Thanh, N.C. and Thanh, T.T.L. (2015). "The Interconnection between Interpretivist Paradigm and Qualitative Methods in Education." American Journal of Educational Science 1(2), 24–27.
110. Thirsk, L.M. and Clark, A.M. (2017). Using Qualitative Research for Complex Interventions: The Contributions of Hermeneutics. International Journal of Qualitative Methods, 16, 1 - 10. https://doi.org/10.1177/1609406917721068
111. Tomsky, P. (2017). On Case Study Method in Entrepreneurship Research. Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie, 27(2), 189–198.
112. Trafimow, D.A. (2014). Considering Quantitative and Qualitative Issues Together. Qualitative Research in Psychology, 11(1), 15-24.
113. Trafimow, D.A. (2019). Frequentist Alternative to Significance Testing, p-Values, and Confidence Intervals. Econometrics, 7(26), 1-14.
114. Tran, B. (2016). The nature of research methodologies: Terms and usage within quantitative, qualitative, and mixed methods. In Mixed methods research for improved scientific study, 1-27. IGI Global

115. Tran, T.T. (2016). Enhancing graduate employability and the need for university-enterprise collaboration. Journal of Teaching and Learning for Graduate Employability, 7(1), 58-71.
116. Trochim, W.M. and Donnelly, J.P. (2001). Research methods knowledge base. [Online] Available at: https://www.educationdissertation.com/wp-content/uploads/2019/10/Research-Methods-Knowledge-Base.pdf (Accessed on 07 November 2020).
117. Van Griensven, H., Moore, A.P. and Hall, V. (2014). Mixed methods research–The best of both worlds? Manual therapy, 19(5), 367-371.
118. Venkatesh, V., Brown, S.A. and Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. MIS Quarterly, 37(1), 21-54.
119. Walsh, K. (2012). Qualitative vs quantitative research: A false dichotomy. Journal of Research in Nursing, 17(1), 9-11.
120. Walker, D.H. (1997). Choosing an appropriate research methodology. Construction Management and Economics, 15(2), 149-159.
121. Wood, M. and Welch, C. (2010). Are 'qualitative' and 'quantitative' useful terms for describing research? Methodological Innovations Online, 5(1), 56-71.
122. Yanchar, S.C. and Williams, D.D. (2013). Reconsidering the Compatibility Thesis and Eclecticism: Five Proposed Guidelines for Method Use. Educational Researcher, 35(9), 3-12.
123. Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. European journal of education, 48(2), 311-325.