Exploring the Concept of Research Triangulation and Ethical Research

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ABSTRACT

As researchers get more skilled at developing and testing ideas, research triangulation has gained significant traction over time. It has become a potential approach that enhances the validation of data by cross-verifying it across multiple literatures. Research triangulation specifically describes the use and synthesis of various research methodologies in the investigation of a single topic. Research provides the essential information to substantiate the theory, refining and expanding current knowledge to direct the action. In the pursuit of learning gain and understanding collection, data are gathered through interactions with human study subjects. Certain data collection techniques can be intrusive, exploitative, or ethically questionable. The study should uphold the highest standards of accepted norms. Everyone who participates in the study should abide by the ethical standards that govern it. To sustain the honesty, legitimacy, and cultural influence of any research studies, an ethical research approach must be taken (Stuart & Barnes, 2005). This paper will throw light on the importance of the adaptation of research triangulation. The discussions below will be based on the definitions of research triangulation with different types of triangulations from various literature, followed by the advantages of research triangulation. Considering these, this article will also discuss the ethical principles that can be applied in any research study.

Keywords: Research Triangulation, reliability, validity, Research Ethics, Beneficence, Non-Maleficence, Justice.

Introduction

Although there are numerous definitions of research triangulation, this paper will just discuss a few definitions. For example, Turner and Turner (2009) define triangulation as the process of using a different point of view to support, refute, or broaden previous discoveries. When a subject of study is challenging, demanding, or divisive, and the presence of research fits all of these descriptions, triangulation research is commonly used.

Triangulation has additionally been considered to be a qualitative method to examine validity by bringing together data from many sources. According to Patton (1999), triangulation is the process of using several techniques or data sources in a qualitative investigation to create in-depth knowledge of a phenomenon.

On the other hand, Olsen (2004) also stated that "in social science, triangulation is defined as the mixing of data or methods so that diverse viewpoints or standpoints cast light upon a topic" (p. 3). Data triangulation, or combining several data kinds, is frequently believed to aid in confirming the conclusions that could be gathered from preliminary pilot research.

Utilizing multiple research methods to answer a research question is known as triangulation (Heale & Forbes, 2013). The main goal of research triangulation, where two or more methods are used, is to boost confidence in the findings. The findings of two or more thorough methodologies together offer a more complete picture of the outcomes than either strategy could do on its own.

Triangulation is frequently related to research techniques and designs. However, the phrase also comes in several other forms, as utilizing various ideas, data sources, methodologies, or

researchers to explore one phenomenon is known as research triangulation (Bryman, 1998; Graham, 2005).

Types of Research Triangulation

The use of triangulation during research studies by scholars has generated a range of opinions. Some authors contend that triangulation just serves to deepen and broaden our knowledge of the topic under research, whereas other researchers claim that triangulation genuinely improves research reliability (Hussein, 2009).

Several types of triangulations can be integrated into educational research. According to Wyllie (2019), from Denzin's writing in the early 1970s, many researchers appear to concur on the following four triangulations: data triangulation; investigator triangulation; theory triangulation; and methodological or method triangulation (Hussein, 2009; Olsen, 2004; Thurmond, 2001; Carter, 2014; Turner & Turner, 2009).

Data triangulation is referred to when numerous sources of data are used in a single research project for validation reasons. Data triangulation involves collecting data from several sources, at various times, or under various circumstances; nevertheless, it excludes investigations in which these sources serve as the distinct variables in a research study (Turner & Turner, 2009). Hence, the adoption of a data triangulation technique strengthens judgments concerning results and lowers the possibility of incorrect interpretations.

According to Hussein (2009), Analysis triangulation is also known as data analysis triangulation by some scholars. Kimchi, Polivka, and Stevenson (1991) describe analysis triangulation as the application of more than two procedures to the validation of a given data collection. In addition, analysis triangulation can be used to analyze data in both quantitative and qualitative dimensions within a single study, with the employment of more than two approaches for comprehensive and validation purposes.

Investigation triangulation is defined as the use of more than two academics at any given point of the research study's process in a single study. According to Denzin (1978), investigation triangulation "occurs when two or more investigators, from separate sites or using different data sets, analyze the same phenomenon and arrive at similar conclusions" (p. 303). By making sure that the results are not solely contingent on the viewpoint of one researcher, this method helps to reduce partiality and prejudicial opinions.

Thurmond (2001) concluded that one of the motivating factors for investigator triangulation is that the researchers are skilled at performing both qualitative and quantitative research. By offering a variety of viewpoints, views, and conclusions, investigator triangulation enhances the validity and dependability of research findings (Flick, 2018). In conclusion, investigator triangulation is a research strategy in which different investigators or academics work together to independently assess information and evaluate their findings.

Theory triangulation is the use of numerous theories in a single study to confirm or dispute results because diverse theories enable researchers to view the issue at hand through a variety of lenses (Denzin, 1978; Thurmond, 2001). It entails integrating many theories to develop a

thorough grasp of a research issue and to confirm the findings by assessing the coherence and agreement between various theoretical perspectives.

From the viewpoint of Bowen (2009), by combining multiple theoretical viewpoints, theory triangulation aids researchers in overcoming the drawbacks of depending on just one theory and can produce an even more comprehensive and detailed analysis of the facts. It enables academics to investigate multiple facets of a phenomenon and take into account alternative descriptive processes, boosting the complexity as well as the breadth of the interpretation. The triangulated theories are not required to agree with one another; rather, the more distinct or diverse they are, the greater the chance it is that they will pinpoint separate problems and better balance one another (Turner & Turner, 2009).

To improve the reliability and accuracy of results, methodological triangulation is a sort of research triangulation that uses several procedures within a study. By using complementary methods, it seeks to lessen the biases and limits associated with a single methodology. According to Hussein (2009), the sort of triangulation most frequently employed in the humanities is methodological triangulation. Given two separate stages in the study's process where this form of triangulation might occur, it is somewhat confusing. Denzin (1978) stated that methodological triangulation "involves the use of different methods, data sources, investigators, or theoretical perspectives" (p. 291).

Scholars can obtain numerous viewpoints by using a variety of techniques, which improves our comprehension of the studied phenomenon as a whole. For example, methodological triangulation might be used in a study looking at how an innovative educational initiative affects pupil learning results to combine quantitative research with qualitative conversations to dig deeply into the viewpoints of educators and pupils.

Advantages of Research Triangulation

The advantages of triangulation here are highlighted as the benefits of research triangulation. According to Ashour (2018), in terms of backing up the results of a study, triangulation, a multi-methodological strategy, offers a variety of methods that alter the results, theories, procedures, or surroundings to increase the credibility of the results. Scholars can lessen the chance of bias and improve the validity of their findings by utilizing various triangulation techniques (Patton, 1999). Weyers, Strydom, and Huisamen (2014) unfolded three advantages of triangulation, and these are increasing comprehensiveness and completeness, confirming trends and identifying inconsistencies, and improving reliability and validity.

Increase comprehensiveness and completeness.

Enhancing the comprehensiveness and completeness of research is one of the main benefits of triangulation. Scholars can study many aspects of a research issue by utilizing diverse perspectives, leading to a deeper and more comprehensive understanding of the subject (Flick, 2014). For instance, triangulation may involve gathering information from students, instructors, and executives in research looking at how technology is affecting education, such as including a range of perspectives and experiences. This all-encompassing strategy enables researchers to create a

thorough understanding of the phenomenon, taking into account many aspects and participants (Tashakkori, Johnson, & Teddlie, 2020).

Furthermore, completeness is also achieved through research triangulation. Triangulation assists in eliminating possible prejudices or limits connected with a particular approach by combining other data sources or research techniques; hence, improving the completeness of the investigation.

Scholars can provide a more comprehensive comprehension of complicated events by combining several data sources, methodologies, or theoretical viewpoints. By overcoming any prejudices or constraints related to any approach, triangulation adds to the credibility and dependability of the study (Ashour, 2018; Flick, 2014; Weyers et al., 2014).

Confirm trends and identify inconsistencies.

Scholars can strengthen the validity and dependability of their results by using triangulation, which is an effective strategy. Triangulation aids in the thorough and detailed knowledge of complicated events by validating trends and spotting inconsistencies. Creswell and Creswell (2017) suggested that the researchers might create a more solid basis for their arguments by correlating trends across various data sets or using theoretical arguments.

The capability of triangulation to spot inconsistencies or contradicting results is another benefit of triangulation. Researchers might dig deeper to investigate the causes of these differences when data from several sources or methodologies produce inconsistent results.

Through this method, the study's phenomenon can be better understood, contextual factors that affect the inconsistencies can be revealed, and future research opportunities can be highlighted (Tashakkori et al., 2020). They also argued that the researchers will discover trends, spot anomalies, and increase the overall quality of their findings by analyzing and contrasting information obtained from different places if they do research triangulation.

Improves reliability and validity

It is often agreed that using numerous resources that shed greater clarity on the same phenomenon or connections and then comparing the findings to those of other procedures will increase the reliability and validity of any research. Validity is associated with the precision and honesty of study findings, whereas reliability describes the consistency as well as the stability of discoveries (Cook & Campbell, 1986; Trochim & Donnelly, 2006). Patton (1999) argued that by improving the outcome's precision and authenticity, triangulation also increases the validity of the study's findings. Hence, Flick (2014; Weyers et al., 2014) goes on further and says that triangulation is a useful strategy that helps to improve validity and reliability. Scholars can improve the consistency and quality of their results, resulting in more solid recommendations. By lowering the possibility of measurement or analytical inaccuracies, triangulation increases reliability. Likewise, for studies to be regarded as trustworthy and credible, reliability is necessary.

Summary

To increase the validity and credibility of findings, triangulation is a frequently used research process that requires combining the results of many data sources, methodologies, theories, or researchers. Triangulation, its theoretical foundation, types and advantages of triangulation are all covered in depth in this paper. The benefits of triangulation include increased validity by taking into account numerous viewpoints and greater dependability through cross-validation. By embracing triangulation, academics can improve the caliber and significance of their study, thereby advancing the understanding of the areas they specialize in. By correlating or comparing data from many sources or methodologies, triangulation increases the reliability and validity of the study's findings. It enables scholars to spot trends, patterns, or inconsistencies, leading to a more precise and thorough grasp of the study's topic. By combining a variety of viewpoints along with information, triangulation encourages a comprehensive understanding of the study's issue.

Research Ethics

A vital part of life, research studies can be conducted in a variety of contexts, including the individual's daily affairs, the financial condition of society, the educational and commercial worlds, and public places. It aids in understanding and updating the current body of information to better guide practice, as well as providing the necessary support for beliefs (Mikesell, Bromley, & Khodyakov, 2013). Therefore, from the earliest conceptualization using the distribution of results, ethical issues must be incorporated at every level of the research study's process. Every person who participates in a research study should abide by the ethical principles that govern it.

According to Fouka and Mantzorou (2011), to conduct ethical research in our daily lives, researchers must respect the rights of the participants and provide quality publications about the findings. Participants in the research study should willingly offer permission to take part after receiving complete details regarding the objectives of the research, processes, threats, and possible advantages (Grzyb, 2017). Scholars who are doing research must additionally think about how they will protect participants' anonymity and dignity. For example and according to Dooly, Moore, and Vallejo (2017), "It is reasonable for anyone taking part in a study to expect a certain level of anonymity, although some participants may not feel this is too much of a concern for them, especially among the younger generation of 'public-face' social media users" (p. 351).

Moving on, Pimple (2002) defined research ethics as an "incoherent field at all" (p. 198). This encompasses the standards and criteria for using people as subjects in studies, the laws and rules that regulate studies, and the ethical issues that guide these laws and policies. Stuart and Barnes (2005) also argued that research ethics involves (Pimple, 2002; Resnik, 2015) the study of ethical problems that arise during research, such as those related to study planning, execution, and distribution.

With this background, this article aims to explain the steps that academics can take to ensure an ethical strategy and to comply with the ethical principles of "beneficence, non-maleficence, respect for persons, and justice" when dealing with human participants while collecting research data.

Beneficence: "do good."

Beneficence is characterized as a gesture of generosity, compassion, and assistance with an intense ethical imperative for doing good to humanity. Akaranga and Makau (2016) defined beneficence as a means of "doing good". They further explained that it is the responsibility of the investigator or the principal researcher to communicate the research's objectives and anticipated outcomes to participants who are in close contact with them. By doing this, the advantages shouldn't be overstated or even understated by the principal researcher. Bulger, Heitman, and Reiser (2002) further state that to be benevolent means to take acts that advance the health, happiness, and safety of others. Researchers must actively look for strategies to enhance the advantages and reduce dangers for those participating in conducting effective studies.

For a number of factors, the beneficence concept is essential to research ethics. Initially, it assures a good risk-benefit relationship by carefully balancing the possible advantages of conducting studies over possible hazards (Lo, 2009). Secondly, according to Miller and Weijer (2006), it helps to preserve the admiration for the informed approval and freedom of those participating in the study. Weinbaum, Landree, Blumenthal, Piquado, and Gutierrez (2018) further argued that research must be planned to maximize advantages for those participating while limiting damage to them in accordance with the beneficent principle.

In application, the beneficence concept is used to guarantee the welfare of those participating in the study and the larger community. For example, in humanities and educational research, beneficence mandates that investigators take participants' full possible emotional and mental impacts into consideration. Likewise, Smith (2003) agrees that researchers should never expose participants to more dangers than are essential. They should also be adaptable and willing to stop a study whenever it is hurting or could seriously hurt individuals.

Non-Maleficence: "do no harm."

According to Akaranga and Makau (2016), "beneficence asserts the usefulness of the study while non-maleficence expresses the potential risks of participation. It emphasizes what constitutes harm, which could be physiological, emotional, social, or even economic in nature" (p. 6). Hall (2010) states that the prevention of needless injury is referred to as the non-maleficence research ethical principle. This notion must be applied to every aspect of educational research in order for educational research practices to protect participants from needless injury.

Tashiro (2009) agrees that (Hall, 2010; Tashiro, 2009) being beneficent indicates that the research participants and things deliver the advantages they claim to have been prepared for. A specific design may be able to support the research objectives that ought to have motivated the concept from the start, emphasizing beneficence further in the area of educational research design. As an associated theory, no maleficence possesses the same qualities as beneficence and is regarded as an intermediate principle, which means that it depends somewhat on the manner in which one interprets the ideas of positive and negative for the purpose it serves (Hall, 2010; Tashiro, 2009). Hence, the principle of non-maleficence is focused on averting harm to the participants of the research.

Beauchamp and Childress (2001) further argue that, in terms of academic integrity, non-maleficence calls on academics to thoughtfully evaluate the merits and drawbacks of their research while working on reducing participant damage. Therefore, to avoid purposeful injury and reduce unintended damage to the research participants, academics must practice non-maleficence (Emanuel, Wendler, Killen, & Grady, 2004).

In conclusion, the fundamental principle of research ethics is non-maleficence, which obliges investigators to put the welfare of the study participants first and to refrain from doing them any damage. Scholars can be assured that their investigations are carried out ethically, preserving the liberties and well-being of those concerned, by sticking to the notion of non-maleficence.

Respect for Persons

Respect is a fundamental principle that acknowledges the inherent worth of every living human being. Vanclay, Baines, and Taylor (2013) state that respect involves prior understanding of and proper consideration for the traditions, principles, customs, opinions, and habits of persons who participate in studies, both individually and collectively. In other words, the fundamental value, self-determination, and welfare of those engaging in research are highlighted by the core ethical concept of respect for the person.

According to Beauchamp and Childress (2001) and Vanclay et al. (2013), respect for a person requires acknowledging and upholding the fundamental value, honor, and originality of individuals, which is frequently linked to the idea of liberty. It recognizes that people can choose options regarding what happens to them, including whether or not to participate in the study, and therefore, those decisions need to be acknowledged and safeguarded.

An essential element of respect for somebody is freedom, which is the ability to act independently by one's principles, views, and interests. This is implemented as a study by the procedures of informed agreement or consent, requiring informing research participants regarding the study's scope, its aim, dangers, rewards, and options in a way that is readily evident and understood. Faden and Beauchamp (1986) purport that the ability to take independent choices about participation in studies is made possible by getting informed consent. Ajemba and Arene (2022) add that the study participants complete freedom to pull out from the study at any point, whether in the initial or final stages of the study, without suffering any consequences, which is anticipated to be included in the informed consent's unambiguous definition of its validity.

In conclusion, a key tenet of research ethics is respect for the person, which defends the worth, freedom, and welfare of those who participate in the study. Acknowledging people in the study necessitates the safeguarding of populations at risk through well-informed consent.

Justice

The core concern associated with the justice concept is the equitable and just treatment of study participants. According to Nambisan (2017), it promotes fair treatment, an equitable allocation of advantages and dangers, and prohibits abuse of weaker and more vulnerable populations. Scholars can support the establishment of morally responsible methodologies for research by having a thorough awareness of the justice principle and its consequences.

The equitable allocation of responsibilities and advantages amongst people and organizations throughout society is emphasized by justice. Justice in the framework of the research study ensures the participants are dealt with properly so that the rewards and hazards of the study are distributed equally, and those with vulnerabilities are not taken advantage of (Beauchamp & Childress, 2001; Nambisan, 2017).

According to Emanuel et al. (2004), Justice entails treating people fairly and providing for their needs. Justice in research comprises making sure that participants are chosen fairly, that the risks and rewards of the study are distributed equally, and that disadvantaged or marginalized communities are not unfairly punished. To achieve justice in research, adequate reimbursement, informed consent, and equal access to all prospective advantages are necessary (Beauchamp & Childress, 2001; Resnik, 2015)

In conclusion, to ensure that study participants are treated fairly, that advantages and disadvantages are distributed equally, and that those who are vulnerable are protected, justice is a key premise for academic morality. Scholars can develop ethical study procedures, progress understanding, and protect the liberties and well-being of those who participate by maintaining the ideal of fairness.

Summary

The quality and dependability of educational research are critically dependent on research ethics. This study illustrated the underlying principles that govern ethical behavior in the field of research through an examination of significant principles of ethical research, such as "beneficence, non-maleficence, respect for persons, and justice". Scholars can protect the liberties and welfare of participants, uphold the validity of their findings, and improve understanding by following these principles. Scholars safeguard the credibility of educational research while simultaneously defending the liberties and welfare of participants by abiding by these values (Ajemba & Arene, 2022; Beauchamp & Childress, 2001; Emanuel et al., 2004). Establishing confidence in the public, encouraging cooperation, and improving understanding for the benefit of society all depend on research ethics.

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