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ACTION RESEARCH DESIGN IN INFORMATION SYSTEMS AND INTERNAL AUDITING RESEARCH

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ABSTRACT

Action research is a research design that has the potential to be used in information systems and internal auditing research because of its similarities in the framework. Action research was initially qualitative, but as its methodology developed, quantitative components were added as an integral part of both the data collection and its analysis and interpretation phases. Mixed methods are considered effective in leveraging the strengths and reducing the weaknesses of both quantitative and qualitative approaches in either parallel or sequential designs. The author supports the idea that, methodologically, action research in information systems and internal auditing can adopt mixed methods in either parallel or sequential designs while considering scientific stages and ethical values.

Keywords: Action Research, Quantitative, Qualitative, Mixed Methods.

ABSTRAK

Penelitian tindakan merupakan desain penelitian yang potensial digunakan dalam penelitian sistem informasi dan internal auditing karena memiliki kemiripan dalam kerangka kerjanya. Penelitian tindakan awalnya bersifat kualitatif, namun sejalan dengan perkembangan dalam metodologinya, komponen kuantitatif ditambahkan sebagai bagian integral baik dalam fase pengumpulan data maupun dalam analisis dan interpretasinya. Mixed methods dipandang berhasil dalam memanfaatkan kelebihan sekaligus mengurangi kelemahan masing-masing pendekatan kuantitatif dan kualitatif dalam desain parallel atau sequential. Penulis mendukung gagasan bahwa secara metodologis, penelitian tindakan dalam penelitian sistem informasi dan internal auditing dapat mengadopsi mixed methods baik dalam desain parallel maupun sequential dengan memperhatikan tahapan ilmiah dan nilai etika..

Kata kunci: Penelitian Tindakan, Kuantitatif, Kualitatif, Metode Campuran.

INTRODUCTION

An appropriate research design is one of the key factors for the success of a study. The aspects of a research design will vary depending on the chosen research strategy. In accounting research, particularly related to information systems, one of the research strategies that can be selected is action research. This can be understood because the protocol of action research has steps that are similar to the phases of building an organization's information system. Baskerville & Wood-Harper (1996) state that action research is often considered an ideal post-positivist social science research method for information systems research, where to achieve scientific rigor, researchers must ethically construct the client system's infrastructure and research environment, carefully plan data collection, observe the iterative phases of theory formulation, plan actions, take actions, and evaluate those actions.

Baker (2000) asserts that action research is not only aimed at acquiring useful knowledge but also achieving effective changes in organizations and social environments. Therefore, action research should be more widely applied in information systems research. Baskerville (1999) argued that action research in the investigation of information systems yields relevant findings because it is based on practical actions to solve urgent problems while carefully incorporating its theoretical framework. A study on health information systems conducted by Adaba & Kebebew (2018) demonstrated that the value of action research from a socio-technical perspective can improve existing healthcare service systems. Meanwhile, Avison et al. (2018) stated that action research in the field of information systems contributes to both research and practice, considering its strong and close relationship with the organizational problem context.

Action research is also widely applied in the field of auditing, as demonstrated by Neely et al. (1997), who showed that action research is beneficial in providing a framework for designing and measuring audit performance. Cooper & Hewison, (2002) showed that combining the cyclical nature of action research methodologies and audit processes with Lewin's theory of change provides a clear conceptual framework for achieving improvements in quality management. Menda, (2004) argued that the manufacturing audit approach based on action research methodology contributes to the formulation of operational strategies. Meanwhile, Moultrie et al., (2006) stated that the application of action research in auditing provides opportunities for improving product design processes and enables the development of accessible and useful principles of good product design for practitioners. A literature review by Landarica, (2019) indicated that action research can support the role of internal auditors in directing, correcting, and evaluating organizational decisions and actions, allowing internal auditors to provide recommendations on strategic decisions related to the company's internal controls. Kelly (2020) emphasized that action research can be used to enhance the effectiveness of future audits.

Based on the explanation above, in general, action research aligns with the needs of stakeholders to continuously improve organizational information systems and supports the role of auditors in carrying out their functions. However, questions arise as to whether the research processes in the fields of information systems and auditing consistently follow the action research methodology, and how action research strategies can be implemented by researchers to ensure that the conclusions and implications produced are not biased.

RESEARCH METHOD

This study employs a systematic literature review method, aligned with Neuman (2014) perspective, which aims to gain better knowledge and understanding of the primary research problem, demonstrate the connection between the study conducted and previous research, integrate and summarize what is known in a particular area or field of study, and leverage the findings of previous researchers. The stages of the systematic review adopt the guidelines proposed by Levy & Ellis (2006), Okoli (2015), and Templier & Pare (2015), with several adjustments, as follows:

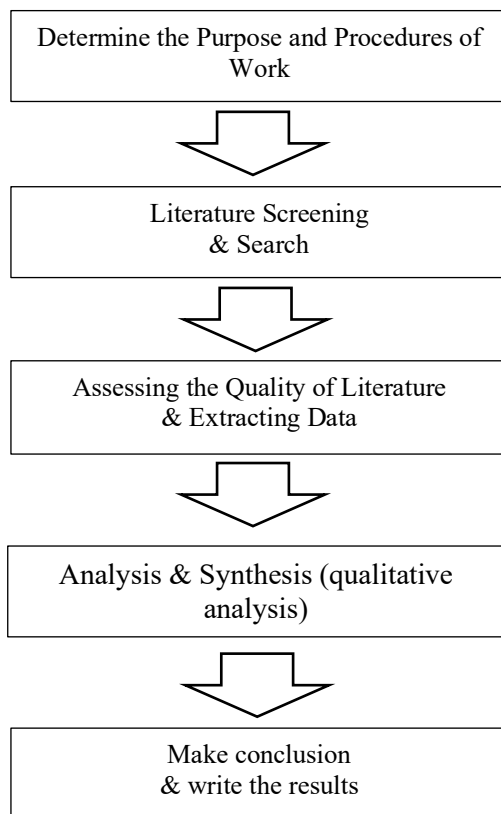


Figure 1.

Stage of Literature Review

The review was conducted to obtain information supporting the study topic from primary literature sources (focusing on peer-reviewed journals and proceedings, dissertations, and theses), which were then

cross-referenced with theoretical literature. This ensures that the analysis of empirical study results is grounded in theory, and the conclusions and perspectives offered are expected to hold value and be beneficial. To ensure this, the systematic review follows the recommendations outlined by Fisch & Block (2018), which include systematically identifying primary sources, balancing the breadth and depth of previous studies, focusing on concepts, and drawing meaningful conclusions within a coherent article structure.

DISCUSSION

Action research is a research strategy aimed at improving a practice based on planned systems, methods, or approaches. The idea of action research arises from dissatisfaction, suboptimal results or below expectations in current practice. Such conditions motivate stakeholders to conduct inquiries to improve the practice in question using specific systems, methods, or approaches believed to enhance, refine, or transform the practice for the better. In this context, Greenwood & Levin (2007) state that action research relies on a process of collaborative knowledge development and action design, involving local stakeholders as partners in a joint learning process.

The inquiry referred to in action research must support rational methods through experimental steps to stimulate and encourage change, as well as to assess the impact of the intended changes. In action research, researchers combine inquiry with action, as well as intellectual analysis with experiential knowledge, to gather evidence in various forms such as narrative evidence, statistical data, qualitative questionnaires, etc. This process provides an overview of what is actually happening by revealing the consequences of an action, which in turn serves as the foundation for the emergence of new actions (Burns, 2007).

Initially, action research was developed by Lewin (Castellanet & Jordan, 2004)

within the paradigm of pragmatism (Adelman, 1993). Action research employs various terminologies: diagnostic action research—when researchers only collect diagnostic data and provide feedback to the system; empirical action research—when researchers evaluate the actions taken by the client system and then provide feedback to it; participant action research—when researchers collaborate with the client system in diagnosing and planning actions; and experimental action research—when researchers collaborate with the client system in all phases to set up experiments, take action, and evaluate the consequences (Susman & Evered, 1978). Meanwhile, McNiff & Whitehead (2001) argue that action research can be interpretive, critical, or a living theory. In this regard, Altrichter et al. (2002) emphasize that action research is inclusive in relation to many other research frameworks. A literature review conducted by Eden & Huxham, 1996) categorizes action research as qualitative research. However, Kock et al. (1997) highlight critiques from positivists, stating that action research faces challenges such as the contingency of research findings, low control over the research environment, and excessive involvement of personnel. Therefore, action research must be conducted carefully, following an iterative approach that has the potential to meet standards acceptable to positivists while retaining the distinctive characteristics of action research. MacDonald (2012) underscores the importance of understanding participatory action research (as qualitative research) from the perspectives of its history, principles, strengths, challenges, and practical suggestions, where the qualitative features of feelings, views, and individual patterns can be expressed without control or manipulation by the researcher. Meanwhile, Avison et al. (2017) argue that in the context of issues and publications on action research in information systems, it is

generally not only interpretive but can also be positivist.

The numerous approaches adopted in action research have broadened and made its paradigm more complex. Skinner (2017) argues that action research is applied research that simultaneously generalizes and applies knowledge and can be conducted from three different perspectives: positivism, interpretivism, and critical science. Previously, Greenwood & Levin (2007) stated that action research could be carried out using qualitative, quantitative, mixed-methods, or hermeneutic-dialogue approaches. A literature review conducted by Marti (2015) indicates that although action research is often viewed as a type of qualitative research (epistemologically emphasizing the co-production of knowledge and the performative dimension: participation, learning, decision-making, and action), methodologically, action research is based not only on qualitative methods but also on quantitative and mixed-methods approaches.

Despite this, there are criticisms, especially regarding the application of research in the field of information systems. As stated by Kock et al. (2017), action research employing a positivist paradigm tends to face methodological challenges such as weak statistical power, common method bias, and multilevel influences that are difficult to explain. In this regard, Kock acknowledges that action research from a positivist perspective can succeed as long as researchers remain aware of potential methodological challenges and have solutions to address them. Additionally, the issue of validity in action research remains a subject of debate. Golafshani (2003) argues that reliability and validity rooted in the positivist perspective must be redefined for use in a naturalistic approach, where qualitative research adopts the concept of validity using terms such as quality, rigor, and trustworthiness. Meanwhile, in

research utilizing mixed methods, assessing validity becomes more complex. Onwuegbuzie & Johnson (2006) recommend the term 'legitimacy' to refer to validity as a combination of inferences from both quantitative and qualitative elements to form meta-inferences. Legitimacy represents processes that are analytical, social, emic (adopting the perspective of internal research participants), etic (objectively viewing the research field from an external standpoint), political, and ethical. This legitimacy consists of sample integration legitimacy, insider-outsider legitimacy, weakness minimization legitimacy, sequential legitimacy, conversion legitimacy, paradigmatic mixing legitimacy, commensurability quality legitimacy, multi-validity legitimacy, and political legitimacy.

Regardless of debates regarding paradigms and approaches, action research is applied research (Neuman, 2014) aimed at solving problems in practice-based settings such as classrooms, workplaces, programs, or organizations (Merriam & Tisdell, 2016). Action research involves a balance of three elements: action, research, and participation. If any of these elements are absent, the process cannot be considered action research (Greenwood & Levin, 2007). Given the characteristic collaboration between researchers and participants, field-based action research is often referred to as participatory action research. Adelman (1993) identified this type of research as having grown rapidly since the 1950s. Castellat & Jordan (2004) emphasize that participatory action research was developed primarily by sociologists, particularly in studies of industry and management.

Action research is a continually evolving research strategy conducted in natural settings with a focus on learning by integrating thought or knowledge and action, involving interaction between the researcher and participants. Generally,

action research has the following characteristics as outlined by Burns (2007):

1. Context-bound and addresses real-life problems.
2. Researchers and participants contribute to knowledge through a collaborative communication process.
3. It leverages the diversity of experiences and capacities within the researched group to enrich the action research process.
4. The investigative process is aimed at guiding actions that provide benefits or reflect constructive actions, resulting in new meanings or forms.
5. The credibility of knowledge in action research is measured by its success in solving problems, enhancing participants' practical capabilities, and improving their control over the situations they face.

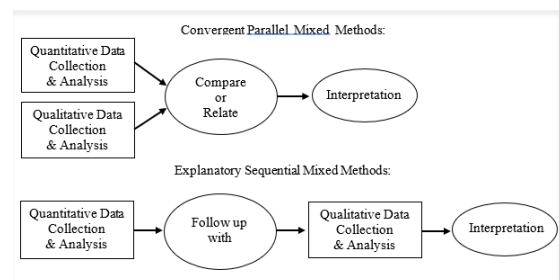
Action research is conducted by professional researchers together with members of organizations, communities, or stakeholders who seek to improve the situations faced by participants and promote actions that lead to more equitable, sustainable, or satisfactory conditions for the stakeholders (Greenwood & Levin, 2007). In this context, members of the organization (as a group or the organization itself), communities, or stakeholders are positioned as participants (also acting as co-investigators (Merriam & Tisdell, 2016)) who are guided to manage themselves more independently and sustainably. Coghlan & Brannick (2005) describe this as a collaboration between researchers and clients in their efforts to solve problems while simultaneously generating new knowledge. A literature review conducted by Cronholm & Goldkuhl (2003) indicates that collaboration between researchers and participants is primarily aimed at transforming a practice, rather than focusing on theoretical research practices.

In its application, Kock et al. (2017) explain that action research is rooted in the study of social issues related to work, where researchers typically study small samples within organizations in depth using participatory observation and interviews as data collection approaches, aiming to improve existing conditions while simultaneously generating relevant knowledge. In the business field, Cooper & Schindler (2014) state that action research is designed to address complex practical problems that are not well understood. Meanwhile, Sekaran & Bougie (2016) note that action research, which is generally conducted by consultant researchers, is intended to initiate changes in organizational processes through the following stages:

1. The researcher begins with a problem that has already been identified,
2. The researcher collects relevant data to provide tentative solutions to the identified problem,
3. The tentative solutions are then implemented, analyzed, and their impacts evaluated,
4. The research continues iteratively until the research problem is resolved or a new solution is obtained.

Action research is generally conducted qualitatively, but it also allows for the inclusion of quantitative elements in its study (Merriam & Tisdell, 2016). Within a framework where the conceptual level is higher than its design, the core design of mixed methods can be added to other methodological approaches, including action research (Creswell & Clark, 2018). Data collected can be qualitative (results from observations, verifications, and interviews) and quantitative (results from measuring attitudes/behaviors using questionnaires with specific scaling, or measurements through pre-tests and post-tests conducted before and after implementing tentative solutions, or

archival data documentation such as financial data from an accounting perspective). The quantitative approach primarily focuses on analyzing data collected during the implementation phase of tentative solutions, enabling researchers to draw more robust conclusions. Marti (2015) states that the quantitative dimension in action research is intended to measure social phenomena, while the qualitative dimension is aimed at obtaining rich and valid data from participants. Furthermore, measurement is meant to enhance discussions and decision-making. Meanwhile, Ali & Akayuure (2016) collect and analyze quantitative data as a basis for subsequent qualitative data collection and analysis, followed by interpretation. Two commonly used mixed-method designs are Convergent Parallel Mixed Methods and Explanatory Sequential Mixed Methods.



Source: Creswell (2014).

Figure 2. Mixed Method Design

The analytical design in action research with a mixed-methods approach, as conducted by Marti (2015) and Ali & Akayuure (2016), essentially adopts concepts from Creswell (2014). In a convergent design, researchers incorporate participants from the qualitative framework into the larger quantitative sample framework for comparison. The more similar the two databases are, the better the comparison. However, it is noted that the comparison does not produce a purely convergent or divergent situation due to differences in certain concepts, themes, or scales. If divergence occurs, researchers can

return to the analysis and further explore the database, collect additional information to resolve discrepancies, or discuss the results from one of the databases—for instance, due to invalid constructs or misaligned themes. Meanwhile, in an explanatory sequential design, researchers first design and implement the quantitative phase. Then, as the point of integration for mixing, they identify specific quantitative results that require additional explanation and use these results to guide the development of the qualitative strand (Creswell & Clark, 2018).

CONCLUSION

Action research in the fields of information systems and internal audits has evolved in line with its contributions to enriching knowledge, solving problems, and effectively improving systems/processes within organizations and their environments. This can be understood because, methodologically, the stages of action research share similarities with the phases of information system development and the phases within the internal audit process.

Initially, action research was a qualitative approach. However, with the development of research methods and techniques, as well as the diverse disciplinary backgrounds of researchers, quantitative approaches began to be integrated as part of the action research phases. Mixed methods have been adopted by researchers to leverage the strengths that balance the weaknesses of both quantitative and qualitative research (Creswell & Clark, 2018). Its application in action research can use either parallel or sequential designs, depending on the research needs. As a research approach, mixed methods and action research are designed and implemented following systematic procedures or stages, starting from problem identification and the formulation of research questions to data collection,

analysis, interpretation, and evaluation (Ivankova, 2015).

Thus, methodologically, action research is not solely qualitative but can incorporate quantitative components, allowing research data to be analyzed using mixed methods. The results of action research utilizing mixed methods provide comprehensive information, making its practical implications more measurable.

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