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[Review] Conceptualizing and Operationalizing Action Research: Disclosing the Gaps and Amalgamating for Future Practice

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Abstract

The main purpose of this review was to examine the gaps observed in conceptualizing and operationalizing action research and make suggestions for future practice. In doing so, among the different types of literature review, a narrative literature review was used. Using keywords for searching the literature, different online sources were consulted; relevant data (literature) were selected and analyzed. Based on the results of the analysis, I offer suggestions, made modifications, and concluding remarks.

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Introduction

Different scholars of action research have conceptualized and operationalized action research in books and research papers to their backgrounds and fields of expertise. Nowadays, action research is practiced in different fields so that practitioners can improve their practice by conducting studies producing practical knowledge that resolves issues in their specific contexts. One of the fields is teacher education in which both pre-service and in-service teachers have the opportunity to develop the theoretical and practical aspects of doing action research to improve their teaching and their student's learning. Even though different scholars have written about the theoretical and practical aspects of conducting action research (e.g., the concept of action research, the processes/steps of conducting action research, action research methodology, theory, and research design in action, etc.), there are inconsistencies and gaps in the trends of undertaking

action research that must be filled for future practice. Hence, reviewing and examining the literature on action research, I argue that action research scholars have not defined the concept of action research, stated the two different processes of undertaking action research, action research methodology and its theoretical bases, and framed the design of action research in line with the specific context, clarity, and complexity of the problem of action research.

Context of the Review

After the introduction of the new teacher education training program by the Ethiopian Ministry of Education in 2009, a post-graduate diploma in teaching (PGDT), I have been teaching a course 'Teacher as Reflective Practitioner', and advising student-teachers and teacher-students in both pre-service and in-service PGDT program in conducting an action research project in College of Education, at Debre Berhan University. As action research is presented as one of the strategies of reflection in one chapter, teacher educators like me have failed to equip students (both pre-service and in-service) with the knowledge and skill of conceptualizing and operationalizing action effectively. In filling this personal knowledge gap, I have read different books and articles written on action research, developed 'Action Research Project Guidelines for Teacher Educators and Student Teachers' in 2014 and presented to the College of Education staff, and have been sharing a copy for my students that have been assigned to undertake their action research project under my supervision. However, through my continuous reading of the literature and research findings of action research, and advising my students in doing their action research projects, I have observed that there are gaps in the trends of conceptualizing and operationalizing action research.

In conceptualizing action research, one of the gaps in the way McNiff and Whitehead (2010, 2016) describe action research. They state that "action research is about two things: action and research. The action aspect of action research is about improving practice. The research aspect is about creating knowledge about practice" (McNiff & Whitehead, 2010, p. 12). This is not always a reality in conceptualizing action research. I argue that the action part is the activities that are implemented while the improvement is the results of the activities. Also, the research part of action research is not only to produce practical knowledge but also it can be to understand the root causes of an action research problem.

There are also gaps in operationalizing action research by different scholars (e.g. Flynn & Bruce; 2019; Johnson, 2019; Lodico, Spaulding, & Voegtle. 2006; McNiff & Whitehead, 2002, 2010, 2016; Mertler 2009; Norton, 2009; Tekin & Kotaman, 2013). The heart of operationalizing action research is action research methodology. Nevertheless, scholars in the field do not have the same understanding and suggestions for practitioners on how to use action research methodology to understand and improve their practice by producing practical knowledge (Carr, 2006; Coghlan & Brannick, 2005; Dosemagen & Schwalbach, 2019; Gray, 2004; McNiff & Whitehead, 2010, 2016; Nolen & Putten, 2007; Reason & Bradbury, 2008; Swann, 2002; Tekin & Kotaman, 2013). Consequently, the main purpose of this review is to explore the gaps in conceptualizing and operationalizing action research from the present literature mainly available on the web and synthesize the results for future practice.

The Rationale for the Review

The underlying reason to undertake this review is that there are gaps in conceptualizing what action research is in line with the two different processes of undertaking action research (see the conceptualization of action research below). There are also no clear explanations or justifications why a teacher educator or student or any professional has to use one of the processes of undertaking action stated by different scholars. In operationalizing action research, there is no clear agreed explanation about action research methodology and its theoretical or philosophical base, and action research design and conduct action research to improve their practice or for the partial fulfillment of a requirement for qualification (see in operationalizing action research below). Therefore, the main rationale of this review is to examine the different trends and gaps in conceptualizing and operationalizing action research, synthesis the findings from this review of the literature, and suggest ways to fill the above-mentioned gaps for future practice.

The research questions are the following:

1. How do different scholars define action research in the context of education, particularly in teacher education? How is it should be defined?
2. What are the different processes of undertaking action research suggested by different scholars? What should be the reason to use one or the other processes of undertaking action research?
3. What are the theories that underpin action research methodology?
4. How do different scholars state actions research methodology and design? What are the gaps in this regard?
5. What should be the end goal/purpose of conducting action research in education: Improving practice, generating theory, confirming the existing theory, or developing personal/living educational theory?

Method of the Literature Review

As the main purpose of this review is to explore the gaps observed in conceptualizing and operationalizing action research, and synthesizing the results for future practice, among the different types of literature reviews 'narrative review, integrative review, and systematic review' (Toronto & Remington, 2020), the narrative literature review was used in this review. Based on the experience, opinions, or a priori assumptions of the reviewer, present theories and models, a narrative review summarizes different sources mainly primary ones, and reaches conclusions from holistic interpretation narrative analysis (Campbell Collaboration, 2001; Toronto & Remington, 2020). Although Toronto and Remington (2020, p.2) suggest that "narrative review does not follow a systematic method for locating and analyzing selected studies", keywords such as the concept/definition of action research, the processes/steps of conducting action research, theoretical bases of action research methodology, research design in action research, goal/purpose of action research were used to conduct searches for relevant literature. Sources for research included online libraries and databases such as Z- Library, Google Scholar, ERIC, open access action research journals as well as general Internet searches. The literature was quoted, described, synthesized, and critiqued, and modifications and suggestions were made for future practice. The findings were presented as follows.

Conceptualizing Action Research

Defining Action Research in the Context of Education

Scholars define action research from a different point of view. One of the oldest definitions of action research is by Collier (1945). For Collier, action research is “research-action, action-research” (1945, p. 293). From this definition of action research, one can understand that the main duty of an action researcher is to research the action taken/performed. After six decades and so, McNiff and Whitehead (2010, p.5) defined action research as "...is about two things: action (what you do) and research (how you learn about and explain what you do). The action aspect of action research is about improving practice. The research aspect is about creating knowledge about practice". From these definitions, I argue that action research is not only taking action and researching the action taken to produce practical knowledge to improve our practice. It should be also researching our practice to understand and propose actions/solutions to be taken. In support of my claim, different scholars defined action research. Action research is a systematic and sustained inquiry, planned and self-critical, which is subjected to public criticism and to empirical tests where these are appropriate (Stenhouse, 1981). It is simply a form of self-reflective inquiry undertaken by participants in social situations to improve the rationality and justice of their practices, their understanding of these practices, and the situations in which the practices are carried out (Carr & Kemmis, 1986). Action research is an inquiry that is carried out to understand, evaluate, and then change, to improve educational practice (Bassey, 1998). It is about working towards practical outcomes, and also about creating new forms of understanding, since action without understanding is blind, just as theory without action is meaningless (Reason & Bradbury, 2001). It is also any systematic inquiry conducted by teachers, administrators, counselors, and others with a vested interest in the teaching and learning process or environment to gather information about how their particular schools operate, how they teach, and how their students learn (Mills, 2007). “Action research brings together action and reflection, as well as theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern” (Bradbury, 2015, p.1). According to Johnson (2019, p.225),

Action research is a type of research related to one's professional practice. In the field of education, it can be defined as the process of studying a school, classroom, or teaching-learning situation with the purpose of understanding and improving the quality of actions or instruction. In this sense, it is the ultimate form of teacher reflection.

In the definition of Carr and Kemmis (1986), reflection is a key component of action research where the action researchers examine the biases and injustice in their practice in different social contexts. Johnson's (2019) definition focuses on education context in particular; one can understand that teachers undertake research in a different context, a particular teaching-learning state, a whole classroom, or a school to understand the root causes of a problem to change the way they act to improve their practice. This implies that teachers propose solutions or actions to be taken to improve their practice of teaching and learning based on research findings.

As can be understood from the above definitions of action research by different scholars, there is no convincing definition

of action research when a practitioner research only the action part of an action research, and when a practitioner has to research both the practice to identify the cause of a problem of practice to propose the right actions/solutions, and the actions implemented to evaluate if there is change and improvement. Hence, to fill this gap, I define action research as a research that is conducted by practitioners to examine if the action(s) they proposed and performed bring improvement in their practice knowing the cause(s) of a complex problem that requires trial and error experimentation. Alternatively, action research is a research to be conducted by practitioners to research and understand their practice when the cause(s) of a problem is not known to propose the right action(s), to act, and research to produce practical knowledge that works in their particular context.

Generally, in conceptualizing action research, all the above definitions of action research imply that there are two different processes of undertaking action research: action - research, and research-action - research.

Steps/Processes of Conducting Action Research

In describing the steps/ processes of conducting action research, currently, there are two different types of undertaking action research. Some of the leading scholars (Kemmis, 1980; Elliott, 1991; McNiff, Lomax & Whitehead, 1996; McNiff & Whitehead, 2002) wrote about the processes of conducting action research. Kemmis (1980) cited in Elliott, 1991, p.69 equates the process of conducting action research with a 'cycle of activities, and describes it as

The basic cycle of activities is identifying a general idea, reconnaissance, general planning, developing the first action step, implementing the first action step, evaluation, revising the general plan, developing the second action step, implementation, evaluation, revising the general plan, developing the third action step, implementation, evaluation and so on.

Elliott (1991) argued and modified the above processes of conducting action research proposed by Kemmis. According to Elliot (1991, the processes of undertaking action:

- Identifying and clarifying the general idea
- Reconnaissance
- Constructing the general plan
- Developing the next action steps
- Implementing the next action step(s)

Elliott (1991) argued that reconnaissance should be part of each cycle an action research, and the implementation step should be monitored. I argue that reflection should be part of each step/process in a cycle of undertaking action research, especially to identify an area of our practice to be improved and to examine the changes and improvements made while and after the implementation of the tentative solutions proposed to re-plan to address that has not been yet improved. Above all, the steps that Elliot (1991) modified are not clear as that of Lewis model of action research described by Kemmis (1980) as it does not show in simple and clear steps what an action researcher has to do after implementation of

the action(s) proposed.

To McNiff, Lomax, and Whitehead (1996), the main processes of conducting action research are

- We review our current practice,
- identify an aspect we want to improve,
- imagine a way forward,
- try it out, and
- take stock of what happens.
- We modify our plan in the light of what we have found and continue with the 'action',
- evaluate the modified action, and
- so on until we are satisfied with that aspect of our work.

Similarly, according to Norton (2009), the processes of conducting an action research are the following:

- Identifying a problem/paradox/ issue/difficulty
- Thinking of ways to tackle the problem
- Doing it
- Evaluating it (actual research findings)
- Modifying future practice

As argued above, before we review our current practice or identify a problem, we have to reflect on our current practice so that we can describe, analyze, and interpret our practice, review our strengths and gaps, and identify an area or a problem for improvement. From the data of our reflection and an informally gathered data from colleagues, we can propose solution(s), not 'imagine a solution' suggested by Whitehead (1993), not 'imagine a way forward' as suggested by McNiff, Lomax, and Whitehead (1996), and as 'thinking of ways to tackle the problem' by Norton (2009), understanding the causes/ an area/ gap/ to be improved rather than to think of something as an action to be implemented to improve and change our practice.

After a decade and so, McNiff and Whitehead (2010) described the main processes in 'most kinds of research' including action research are

- Identify a research issue.
- Identify research aims and formulate a research question.
- Set out a research design.
- Take action.
- Gather data.
- Identify criteria and standards by which to make judgments about the quality of the research.
- Generate evidence from the data concerning the criteria and standards of judgment.
- Make a claim to knowledge.

- Link the claim with existing knowledge.
- Test the validity of the claim.
- Submit the claim to critique.
- Explain the potential significance of the research and claim.
- Generate theory from the research
- Modify practice in light of the evaluation.
- Write a report and disseminate findings.

McNiff and Whitehead (2016) the action steps of a project:

- Identify a research issue.
- Identify research aims and formulate a research question.
- Set out a research design with an action plan for implementing and realizing the design, including ethical procedures.
- Try it out.
- Gather data.
- Identify criteria and standards by which to analyze and interpret the data.
- Generate evidence from the data in relation to the analysis.
- Make a provisional knowledge claim.
- Link the claim with existing knowledge, referring to relevant literatures as appropriate.
- Submit the claim to critique to test its validity.
- Explain the potential significance of the research and knowledge claim.
- Generate new or confirm existing theory through the research.
- Modify practice in light of the evaluation.
- Write a report and disseminate findings.

The processes of conducting action research suggested by MicNiff and Whitehead (2010, 2016) above are very long and complex that focus on generating a new theory or confirming the existing theory that a basic research. The significance of action research, like basic research, comes together with the problem of action research, before the research design. The other gaps of MicNiff and Whitehead's (2010, 2016) processes of conducting action research are that they focus on developing criteria and standards to assess the quality of action research, and testing the validity of knowledge produced when action research is context specific and the practical knowledge produced may not be valid in all education contexts (e.g. classrooms, schools, and districts).

In the context of education, Ferrance (2000) suggested that there are five phases in doing action research:

- Identification of problem area
- Collection and organization of data
- Interpretation of data
- Action based on data

- Reflection

To Koshy (2005), the steps/stages of conducting action research are the following:

- Identifying a topic and setting the context
- Reviewing and analyzing the literature
- Focusing on the topic, question or hypothesis
- Planning activities
- Gathering data
- Analyzing data
- Acting/implementing
- Reflecting on outcomes
- Reporting.

To Lodico, Spaulding, and Voegtle (2006), the steps of doing action research are the following:

- Reflect on your practice and identify a problem or something you want to improve.
- Set the problem in a theoretical and research context by reading published literature on the topic.
- Reflect on your own experiences with the problem.
- Identify persons with whom you can collaborate.
- Make a plan for systematic data collection (not just armchair impressions!).
- Collect and analyze your data, reflecting on what you are learning throughout the process of data collection.
- Create a plan of action based on the results.
- Plan the next cycle of research to carry out your action plan and assess whether it improves practice.
- Analyze all of the data collected and reflect on its meaning for practice.
- Form tentative conclusions and determine what questions remain to be answered.

One of the main strengths of the steps of conducting action research proposed by Lodico, Spaulding, and Voegtle (2006) is a reflection on our practice as the base to identify a problem that we would like to change and improve. However, the third step, reflecting on your own experiences with the problem, can be part of the first step, reflecting on our practice. The other gap in these steps of doing action research is looking for people who can undertake the action research collaboratively though this can work mainly for participatory action research. All types of action research necessitate collaboration between the action researcher and the researched to construct and create meaning like most qualitative research.

According to Mertler (2009), the steps in doing action research are

- identifying and limiting the topic,
- gathering information,
- reviewing the related literature,

- developing a research plan,
- implementing the plan and collecting data,
- analyzing the data,
- developing an action plan and implementing,
- sharing and communicating the results and
- reflecting on the process

The main gap in the steps of conducting action research proposed by Mertler (2009) is gathering information, what Elliot (1991) called 'reconnaissance' as the purpose is not proposing solution(s) as the step next to it reviewing the literature.

According to Tekin and Kotaman(2013), raising a question first, the steps of undertaking an action research:

- Problem formulation.
- Review related literature to see similar situations and solutions, and to deepen theoretical understanding of the problem,
- Data collection
- Data analysis
- Reporting and sharing results and action planning.

In Tekin and Kotaman's (2013) steps of conducting action research, there are also gaps. The first gap is that one cannot formulate a problem without reflecting on our current practice and identifying a problem to be improved. The second serious problem in these processes of doing action research is it ends with action planning based on proposed solution(s). However, if there is no implementation of the proposed solutions suggested based on the findings of the research and reflection on the improvement made after researching the action, it is not action research rather it is the traditional one that ends with a conclusion and recommendations.

To Johnson (2019), the steps for conducting action research are the following:

- Ask a question, identify a problem, or select a research topic.
- Set the problem or research topic in a theoretical context- review of the literature.
- Make a plan for data collection.
- Begin to collect and analyze data.
- If necessary, allow the question or problem to change as data are collected.
- Analyze and organize the data.
- Make conclusions and recommendations.
- Create a plan of action.
- Report your findings.

In Johnson's (2019) processes of undertaking action research, there are both strengths and gaps. One of the main strengths is showing/giving clues that an action research process is not simply cyclical as the problem may be changed in

the middle of an action undertaking, what McNiff and Whitehead (2002, 2010, & 2016) called 'generative transformational processes'. On the other hand, the gaps are that reflection is not the basis to identify a problem for the action research; implementation and monitoring are not parts of the action research process; and making conclusions and recommendations, and reporting the findings are not the major agenda of action research rather writing the implications for own practice and planning the next step phase of the action research based on the findings should be the focus of an action research.

Also, according to Efron and Ravid (2020), the processes of action research comprises the following steps:

- Identify an issue or problem the practitioner wants to explore.
- Gather background information through a review of appropriate literature and existing research on the topic.
- Design the study and plan the methods of collecting data.
- Collect data.
- Analyze and interpret the data.
- Write, share, and implement the findings.

The main strength of Efron and Ravid (2020) steps of conducting action research are relating the action research problem identified with the current research findings from the literature. The steps suggested a seemingly basic research process except for implementing the findings. Writing and sharing should come after proposing solution(s) based on the findings, implementing and monitoring, researching, and reflecting on the changes and improvements made.

The above different processes of conducting action research suggested by different scholars can be categorized into two different types of conducting action research. The first type comprises the process/steps of conducting action research that focuses on identifying an area to be improved, proposing solutions, implementing the solutions, and researching the implemented action if there is change and improvement as suggested by Elliot (1991), Norton (2009), McNiff, Lomax and Whitehead (1996), and McNiff and Whitehead (2010,2016). Whereas, the second type consists of the processes/steps of conducting action research focusing on identifying a problem, reviewing the literature, developing a research proposal, undertaking research, proposing solutions based on the results of the research, implementing the solutions, and researching the implemented action if there is change and improvement as suggested by Efron and Ravid (2020), Ferrance (2000), Johnson (2019), Koshy(2005), Lodico, Spaulding, and Voegtle (2006), Mertler (2009,2017 & 2019), and Tekin and Kotaman (2013).

When each step of the above two different types of conducting action research is examined closely, it seems that the authors suggest the second type of conducting action research resembles action research with traditional research (basic research) that the researchers produce theoretical knowledge and recommendations for practitioners to implement the research findings. The steps are very complex processes (the data collection and analysis before and after implementing the solution/the action), and for students, academics/teacher educators, teachers, or other professionals. Like all the steps of action research discussed before, reflection as a basis for identifying an area or a problem to be improved or changed is forgotten by all scholars except Lodico, Spaulding, and Voegtle (2006) perceiving that it can be identified easily from our observation though our observation is a beginning for our reflection. For McNiff and Whitehead (2010, 2016),

implementing an action comes after developing a plan for a research, a research design. Hence, the research design by McNiff and Whitehead (2010, 2016) is not clearly described that it is either a research proposal to collect data to understand our current practice and propose solutions or to collect data on the implemented action to reflect and evaluate if there is improvement and change as a result of the implemented action.

Like all qualitative research designs, particularly grounded theory design, the main intent of a researcher for McNiff and Whitehead (2010) is to 'generate theory from the research', and to McNiff and Whitehead (2016) is to 'generate new or confirm existing theory through the research'. However, I argue that the main goal of action research is not to generate new theory or to test existing theory through like a grounded theory and experimental designs respectively. Rather producing practical knowledge that can improve our practice through action research is one of the qualitative research designs that we can produce a theory that McNiff and Whitehead (2002) called 'I-theory' or what Whitehead (1989) called 'living educational theory' after an intensive data collection and analysis on a particular education issue. Whereas, the main intent of the quantitative research approach in general is to test a theory. Hence, I claim that generating a new theory cannot be one of the steps in quantitative research as outlined as one of 'the main steps of all research' by McNiff and Whitehead (2010, 2016).

On the other hand, the first type in the processes of conducting action research, according to Efron and Ravid (2020), Ferrance (2000), Johnson (2019), Koshy (2005), Lodico, Spaulding, and Voegtler (2006), Mertler (2009, 2017 & 2019), and Tekin and Kotaman (2013), there are gaps in the steps or processes in conducting action research. For instance, all of the authors do not begin reflecting on our current practice as a base to identify a problem/a gap for our action research except Lodico, Spaulding, and Voegtler (2006) though the reflection is part and parcel of all the processes of undertaking action research. To Mertler (2009, 2017 & 2019), 'gathering information' after limiting the topic is one of the steps of doing action research. Nevertheless, I argue that it is wasting our time as it is not based on reconnaissance, or fact-finding that an action researcher proposes solutions or takes actions based on the understanding of the information gathered. Rather, it is based on the proposed solutions based on the findings/results of the data analysis.

Except for Elliot (1991), the scholars suggest that the two different types of action research do not consider monitoring as one key important aspect in the implementation of the proposed solution(s) that help the action researcher to identify and manage if there are no other interventions so that one can have clear understanding and reflection on the improvements and changes made as a result of the implementation of the proposed solution(s).

In general, I argue that in both the two different types of action research that emerged and discussed in this review of the literature, the processes of conducting action research have strengths and gaps. Hence, it is very important to note that action researchers should ask themselves when and why they do follow the above two different types of undertaking action research as none of the scholars justified why an action researcher has to follow which processes of doing action research and in what context. Therefore, to fill such gap observed in the two different types of undertaking action research, I suggest the following:

1. The scholars of action research should note in their books, and research papers that an action researcher can choose

which processes of undertaking should base on the nature of the action research problem or an issue to be addressed. While reflecting and reviewing their professional practice, if the action researcher has clearly understood and identified the root cause(s) of a problem or an issue, and if the action research problem or issue is very complex that needs complex solution(s) but the cause(s) of the problem is known, I propose the processes of undertaking action research suggested by Elliot (1991), Norton (2009), McNiff, Lomax and Whitehead (1996), and McNiff and Whitehead (2010,2016) by filling the gaps I disclosed so that an action researcher can experiment solutions on a trial and error base to bring the right improvement and change by producing practical and context-specific knowledge.

2. If the action research problem is clear and not complex but the action researcher does not know the cause(s) of the problem, I suggest that the action researcher should follow the steps/processes suggested by Efron and Ravid (2020), Ferrance (2000), Johnson (2019), Koshy(2005), Lodico, Spaulding, and Voegtle (2006), Mertler (2009,2017 & 2019), and Tekin and Kotaman (2013) so that they can understand the reasons behind the problem from the research findings and propose solution(s) or actions to be implemented.

Based on the findings of this review of the literature, my arguments and the suggestions above, I have synthesized and modified the two different types /processes of undertaking action research as follows:

I synthesized and modified the action research processes written by Elliott (1991), McNiff, Lomax, and Whitehead (1996), Norton (2009), and McNiff and Whitehead (2010, 2016) as:

- Reflecting on our current practice
- Reviewing and identifying an area/a problem or an issue
- Making reconnaissance (finding the fact) about the problem/issue
- Proposing solution(s) or actions and developing an action plan
- Implementing the solutions(s) or actions, and monitoring the implementation
- Collecting, analyzing, and looking for evidence of improvement
- Reflecting on the improvements and changes made, and an area that needs further improvement in the next phase or cycle of action research.
- Disseminating and sharing through different means(optional)

I have also made modification to the action research processes written by Efron and Ravid (2020), Ferrance (2000), Johnson (2019), Koshy (2005), Lodico, Spaulding, and Voegtle (2006), Mertler (2009,2017 & 2019), and Tekin and Kotaman (2013) as:

- Reflecting on our current practice
- Reviewing and identifying an area/a problem or an issue
- Reviewing the related literature
- Developing a research plan(proposal)
- Collecting, analyzing, and interpreting the data
- Proposing solutions/actions based on the research findings
- Implementing the proposed solution(s) and monitoring the implementation

- Collecting, analyzing, and interpreting the data including during the implementation
- Reflecting on the improvements and changes made, and an area that needs further improvement in the next phase or cycle of action research.
- Disseminating and sharing through different means(optional)

In conceptualizing action research mainly in defining action research and describing the processes of undertaking action research, I have argued that there are gaps and inconsistencies observed in some selected books written by scholars in the field of action research. In addressing these gaps and inconsistencies for future practice, I have tried to modify and suggest the definition of action research and the two different processes of conducting action research. However, all these are theoretical parts of action research, and the big challenge and gap observed in the literature are guiding action researchers in how to operationalize their action research practically as different scholars have written and undertaken action research based on their own experience and methodological orientation and field of study. The next section deals with the gaps, and synthesis of current literature for future practice about operationalizing action research.

Operationalizing Action Research

In planning and implementing action research practically, scholars do not have an agreed explanation about the theories that support action research methodology, use action research methodology and action research design, and the end goal or purpose of undertaking action research.

Theories that Underpin Action Research Methodology

Scholars of action research have not written about the theories that reinforce action research methodology in the same way. To Carr (2006), action research is a social science research methodology that has a connection with a philosophy that guides the use of the right methods, and the practical knowledge produced from the methods used. In the words of Carr (2006, p.422), "What action research methodology derives from philosophy is a theoretical account of the distinctive nature of the 'action' that constitutes its object of study and an epistemological justification for the kind of knowledge it seeks to generate". Carr (2006) argued that action research should not be exercised as the traditional social science research methodology whose major agenda is to produce theoretical knowledge for the sake of knowledge generation. Rather, it should be a kind of research that encourages dialogue/conversation between professional/school community as action research should be founded in a 'practical philosophy', one of its areas is action theory which pushes practitioners to be specific and concert, and practical thinker through reflection on their practice.

Coghlan and Brannick (2005) described the philosophical base (paradigm) of action research by comparing it with the philosophical foundations of positivism, interpretivism, and postmodernism. According to these scholars, the research paradigm for action research is critical realism ontologically objectivist, epistemologically subjectivist, with a particular theory base, epistemic in reflexivity, and the role of the researcher is close to data. However, I argue that the nature of reality (ontology) in action research is not objective but rather subjective as action research is context and situation

specific that requires action researchers to construct and produce their own practical knowledge. Unlike the nature of reality in a positivist paradigm that is assumed to be measured and discovered, like the nature of reality in interpretivist/constructivist paradigm, the reality for action research is subjective that can be created, constructed, and produced in the specific context like in a classroom, and in a school as an educational institution. Kemmis, McTaggart and Nixon (2014, p.11) also state the nature of action research that "classroom action research typically involves the use of qualitative, interpretive modes of inquiry and data collection by teachers ... with a view to teachers making judgments about how to improve their own practices".

Even though McNiff and Whitehead (2010, 2016) have written the philosophical assumptions of an action research (ontology, epistemology, methodology and socio-political intent) as the major natures of the action research process when action research is conducted and written. Nevertheless, they have forgotten axiology though scholars like Creswell (2007, 2013) suggest that the philosophical assumption of a qualitative research paradigm is described as ontology, epistemology, axiological, and methodology dimensions as the nature of action research is the nature of qualitative research paradigm, interpretivism. In supporting this claim, Tekin and Kotaman (2013, p.88) state that:

many characteristics of action research overlap with post-positivist and interpretivist paradigms, such as being against the superior status of research over participants and claiming to seek the improvement of social conditions by creating a more democratic, free and humanitarian social environment.

While discussing theoretical assumptions to be considered in conducting and writing action research, there are gaps in the books of McNiff and Jack Whitehead (2010, 2016). They described ontology as an 'a theory of being, the identity and the relationship an action researcher has with others, and the life the action researcher has meaning and purpose'. The relationship aspect is the elements of methodology that McNiff and Jack Whitehead (2010, 2016) called 'relational epistemologies', not ontology. To Creswell (2007, 2013), ontology is how reality should be understood: single or multiple realities, objective versus subjective reality. Concerning writing about axiology, McNiff and Whitehead (2010, 2016) do not include it though an action research is not free from values, and the bias of the action researcher. In this regard, Whitehead (2018) described that values help an action researcher not only to evaluate the improvement and changes made in the education practice but also enable the practitioner to explain the influence of own learning, the learning of others, and the establishment of learning community, and then a community of practice.

The other important theoretical aspect that McNiff and Jack Whitehead (2010, 2016) includes in their books is the socio-political aspect of action research that action researcher has to work with not only ethically but also to contribute to creating justice and equality between and among the members of the community/ society. To Stringer (2019, p.150), "Action research is always political since it is enacted in social contexts based on systems that result from actors with quite different worldviews, values, affiliations, and so on".

According to Stringer (2019), although action research is guided by pragmatism occasionally, an action researcher should have an understanding of positivist, interpretive and pragmatic worldviews to undertake an action research project effectively based on the nature and context of the action research problem.

In general, concerning the importance of different theories (philosophical, academic and professional) that support action researchers to conduct quality action research, Stringer (2019, p.157) suggests that:

Action research implicitly acknowledges the wide range of theories that can be incorporated into a process of investigation, including academic and professional theories based on quantitative and qualitative research, as well as those implicit in the everyday life worlds of stakeholders who populate the educational setting investigated. Theory, therefore, operates at different levels for different purposes, all of which may be integrated into processes of educational action research having the goal of establishing the basis for a more humane, effective, and educationally authentic approach to the educational life of schools, communities, and nations.

In the context of participatory action research, Wood (2020) suggested that action research should be conducted from emancipatory and transformative paradigms although teachers can undertake action to address their classrooms practical or technical issues. McNiff and Whitehead (2010, 2016) described ontology as a relationship of action researcher, epistemology as knowledge is constructed collaboratively, and methodology as 'how things are done', and the methodology for action research is both 'systematic and haphazard'. From this explanation, one can understand that action research is part of the qualitative research paradigm though it has different philosophical bases of interpretivism, critical theory, and emancipatory and transformative paradigms. Also, according to McNiff and Whitehead (2002), the current trends in action research are interpretive, critical theory and living educational theory which are typically qualitative in nature and whose intents are to understand, construct knowledge, improve and transform situations or issues or problems in our practices.

According to McNiff and Whitehead (2002, p. 22), "At the moment three distinct developmental trends are visible in the literature of action research: an interpretive, a critical theoretic and a living theory approach". These trends in undertaking action research show that an action researcher may use one of the approaches and engage in conducting action research either to construct knowledge that fills the knowledge gap in practice or to emancipate from injustice, oppression, bias, and subjectivity or to 'produce personal theories from within practice' (McNiff & Whitehead, 2002, p. 8). This suggests that when theories developed by educational (other professional) researchers fail to guide our practice and become too theoretical to be implemented practically, action research has to produce what McNiff and Whitehead (2002) said 'I-theory' and what Whitehead developed 'living educational theory' (Whitehead, 2018). According to McNiff and Whitehead (2002, p.22),

...action research leads to the generation of I-theories of knowledge, theories which are already located within the practitioner's tacit forms of knowing, and which emerge in practice as personal forms of acting and knowing. These theories are linked with other I-belief systems – values, for example. The way the theories manifest as living practices is congruent with the belief systems of the knower.

I argue that unlike validating the practical knowledge produced by an action researcher by self, peer and an institution,

personal theory, I-theory, is very subjective as it is an explanation of knowledge of practice what works in the practitioner's professional specific context and connected with personal values so that it might not help to improve the system at department organization (e.g, school) and sectorial levels. In this regard, Whitehead (2018, p.2) also states living educational theory as,

My life-affirming and life-enhancing values enable me to explain and judge the success of my educational influence as I try to improve it. The values-based explanations of my educational influence in my own learning, the learning of others and the learning of social formations constitute my living-educational theory...

To explain and judge our success in influencing the improvement of our professional practice through Whitehead's living educational theory, I argue that it needs time and intensive data collection and analysis like a grounded theory so that we can explain knowledge of practice and develop our own working personal or discipline-based theory like education theory developed by practitioners themselves rather than education researchers that help us to guide our practice in quality and practicality. This is because the basic problem, especially in education is the use of theories developed in another social sciences context for guiding and explaining the practices in education. The basic definition of a theory is a description of a phenomenon and the interactions of its variables that are used to attempt to explain or predict (Thomas, 2017); a theory is any attempt to explain or create a representation of an aspect of reality (Littlejohn, 1989), and a theory is also is the systematic organization of knowledge that can be applied for problem-solving (Stam, 2007), I argue that personal or I-theory and living educational theory should not focus on explaining tacit knowledge and personal beliefs and values as they are very subjective, depends on the experience of the practitioner and learning and explanation for personal consumption. Rather, practitioners have to engage in action research to produce practical knowledge to improve their own context-specific practice and develop a relevant and practically well-tested theory that helps to explain and guide practice in their profession in general through a grounded theory approach using intensive data collection and analysis.

On the contrary, Carr (2006) argued that action research should not be considered as a research methodology that is guided by a research paradigm. Rather, it is a 'mode of inquiry' with the main purpose of facilitating/creating a community of practice that dialogue on their practice. This implies that Carr (2006) resembles action research with reflective practice though the reflection is not the same as action research. Rather reflection is a key component of each step of conducting action research.

Therefore, from the above description one can explicitly understand that authors/scholars in the field of (education) action research do not have an agreed explanation about the theoretical base for action research methodology. However, what is emerged from this review of literature is that the theoretical base for action research is mainly interpretivism, living education theory(I-theory), pragmatism (in the context of addressing injustice, inequality, and oppression), and the action researchers' knowledge of disciplined based and professional theories like theories of educational leadership, and theories of learning in education. Hence, an action research can be guided by a theory (theories) depending on the nature of the action research problem/issues to be improved and changed. Consequently, the theoretical/philosophical base of an action research methodology can be mainly interpretivism and pragmatist world views, and theory/ies from the specific

discipline.

Action Research Methodology

Scholars in the field do not agree on whether action research is considered as research methodology though some of them categorized action research as one of the qualitative research designs (Paterson, Medves, Chapman, Verma, Broers, & Schroder, 2007). For instance, Reason and Bradbury (2008, p.1) stated that action research is “not so much a methodology as an orientation to inquiry”. Preferring not to use the term methodology or method, Reason and Bradbury (2008, p.235) focus on managing the process justifying that action research “takes place in the doing of it rather than the abstract describing of it”. Dosemagen and Schwalbach (2019) equate action research methodology with the action research cycle.

As the main goal of any action researchers (practitioners) in different professions is to improve their practice by producing practical knowledge, their practice is context specific, bounded by time and place. To Gummesson (2000) cited in Coghlan and Brannick (2005), action research is conducted in ‘real time’. Hence, I argue that a single case study is the appropriate research design for action research. In supporting my claim, Henriken and Mishra (2019, p. 425) state that “one of the attributes of action research is that it is context specific to the needs of a local school and or district....” Moreover, equating medium with research design, Gray (2004, p. 26) also states that “the main action research medium ... is the case study or multiple case studies. In some research designs, both an experimental and a control case study may be used, so emulating the experimental approach”. Nevertheless, I claim that a single case study, not multiple case studies design should be the main action research design as the site for our action research is our practice of teaching and learning in a school, a university, or a district that is context specific that focuses on single context (maybe a case of a student, a case of students, a case of a classroom, a case of a school, a case of a district, etc.) rather than multiple ones. Also, I argue that experimental designs mainly quasi-experimental that test a theory in the context of teaching and learning using controlled and experimental groups is not the business of education action research. Rather, the action researcher experiments if the implementation of the solution(s) can improve our practice of teaching and learning on a trial and error experiment.

Most of all, scholars do not define action research methodology consistently. To Coghlan and Brannick (2005), a methodology is a philosophical approach and method that an action researcher does. Whereas, McNiff and Whitehead (2010) describe that methodology as both a way of generating new theory and doing things having both a 'systematic' and 'haphazard' nature. In the context of social sciences, action research is a “practical yet systematic research method to investigate their own teaching and their student's learning in and outside the classroom” (Nolen & Putten, 2007, p.401). To Swann (2002), action research methodology applies the principles of other research methodologies though it has additional qualities: “The cyclical nature of the methodology involves group discussion, trialing of ideas, reflection, evaluation, and action in an iterative, evolutionary design process—a mode of working which design teams find familiar and comfortable” (Swann, 2002, p.58). Equating action research methodology with action research design, McNiff and Whitehead (2010, 2016), action research design is the ‘overall plan’ of an action research. Describing research design

and research method as they are the same, Gummesson (2000) cited in Coghlan and Brannick (2005) describes that action research is the right design for undertaking a case study.

As discussed so far, scholars/authors of action research do not define action research methodology clearly and consistently. Hence, I claim that the most common design for education action research should be a single case study to improve and change our practice in the classroom, a school... by producing practical knowledge; and to guide and explain our practice by developing theory from our intensive data collection and analysis on our practice of teaching and students' learning. Also, I argue that as action research methodology comprises different theoretical bases, the focus should be on action research design (a case study, a student, students, a classroom, a school, etc.), the plan for an action research that consists of the specific methods of data collection and analysis.

End Goal of Action Research: Improving Practice Versus Producing Theoretical Knowledge/Developing New Theory

Action research has its significance. The four fundamental importance of action research are to connect theory to practice, improve (educational) practices, empower teachers (professionals), and help teachers (professionals) to grow professionally (Mertler, 2009). This implies that different professionals undertake action research to improve their professional practice by developing expertise and professional competencies and by filling the gap between theory and practice. In so doing, the action researcher has to produce practical knowledge that McNiff and Whitehead (2010) called 'knowledge about practice'. The four significances of action research also show that professionals have to free themselves from any dependency and domination in their professional practice by developing the expertise and decision-making power in their own right and becoming competent professionals in their field.

Norton (2009, pp.xv-xvi) underlined that, unlike basic research whose aim is to produce new and theoretical knowledge, the main purpose of action research is to "systematically investigate one's own teaching/learning facilitation practice with the dual aim of the modifying practice and contributing to theoretical knowledge". To Norton (2009), action research has two aims: producing practical and theoretical knowledge. Whereas, to Reason and Bradbury (2008), and Fouché and Chubb (2017), the principal purpose of action research is producing practical knowledge for improving the day-to-day life of people, and educational institutions respectively. To McNiff and Whitehead (2010, 2016), action research has two purposes: improving the learning of action researchers to improving their practice.

From the above discussion, one can understand that action research scholars do not have an agreed explanation about the goal and purpose of action research. On the one hand, the purpose is explained as both producing practical and theoretical knowledge. On the other hand, the purpose is to produce practical knowledge to improve the practice and life of people by experimenting the theoretical knowledge practically, improving the competencies of practitioners, and empowering them to make decisions on their professional practice independently. However, I argue that the purpose of an action research is not to produce theoretical knowledge as stated by Norton (2009) as one of the purposes of action research. Rather, in action research, theoretical knowledge is experimented if it works or not practically in schools,

particularly in the classrooms in the context of education. In general, from the discussion about the theoretical bases of action research methodology, and the end goal/purpose of action research, it can be inferred that the main goal/purpose of action research is to improve practice by producing context-specific practical knowledge in classrooms and schools, not producing theoretical knowledge or developing new theory although there is a possibility of developing new theory in the context of teaching and learning, and education after years' intensive data collection and analysis.

Discussion

In conceptualizing action research, scholars in the field defined action research as a process and end goal of action research. As a process, for instance, McNiff and Whitehead (2002, 2010, & 2016) explain action research as action and research. The action part is the implementation of the proposed solutions, and the research part is researching the action to assess if there is change and improvement as a result of the implemented action. However, this review reveals that action research can be defined as research-action-research. When the problem of an action research is complex and the causes of the problem are not known, an action researcher has to research the practice to propose an action/solution to be implemented, and after implementing the action/solution, the action researcher researches the action/solution implemented to see if there is improvement and change due the intervention. These definitions of action research show that there are two different types in the processes of undertaking action research.

As an end goal of action research, McNiff and Whitehead (2002, 2010, & 2016) describe the main goal/purpose of conducting action research as to improve the learning of practitioners to improve their practice by producing practical knowledge. They also explain that the end goal of an action research is to develop 'I-theory', a 'new theory', what Whitehead (2018) called 'living educational theory' to explain and guide one's professional practice. To Reason and Bradbury (2008), and Fouché and Chubb (2017), the purpose of the action is to improve the life of the people, and education institutions correspondingly. Whereas, scholars like Norton (2009) define action research as research to be conducted by practitioners to produce not only practical but also theoretical knowledge. Nevertheless, I argue that the main goal of action research is neither to produce theoretical knowledge nor to develop a new theory. Rather, it is to improve one's professional practice by producing practical knowledge though a practitioner may develop new theory through intensive data collection and analysis following like a grounded theory development approach.

As presented in the body of this review, there are different processes/steps of conducting action research suggested by different scholars. However, I analyzed and synthesized into two different types of the processes of undertaking action research though different gaps were found in the processes/steps suggested by each scholar. The first type of undertaking action research is synthesized from the processes/steps of conducting action research by Elliot (1991), Norton (2009), McNiff, Lomax and Whitehead (1996), and McNiff and Whitehead (2002, 2010, 2016). Filling the gaps observed, I modified and suggest the following processes for undertaking action research when the problem of an action is complex though the cause(s) of an action research problem is known (refer to p. 14).

The second type of the processes/steps of conducting action research is synthesized from the action research processes

written by Efron and Ravid (2020), Ferrance (2000), Johnson (2019), Koshy (2005), Lodico, Spaulding, and Voegtle (2006), Mertler (2009,2017 & 2019), and Tekin and Kotaman (2013). Disclosing the gaps, I modified and suggest the following processes of doing action research when the cause(s) problem of an action research is not known (refer to pp. 14-15).

Regarding theories that underpin action research methodology, according to Stringer (2019), an action researcher has to understand quantitative, qualitative and pragmatic research approaches to undertake the research effectively. This implies that the theories that guide an action research may be positivist, interpretivist and pragmatic.

Discipline/profession specific theories also guide an action research (Stringer, 2019). From the ontological, epistemological and methodological explanation of McNiff and Whitehead (2010, 2016), one can understand that an action research methodology is guided by mainly interpretivism. To Carr (2006), action research methodology should be guided by 'practical philosophy' that encourages dialogue/conversation among the practitioners.

Even though different scholars wrote in different ways, this review revealed that the theory (ies) that guides action research methodology depends on the nature of the action research problem to be addressed, and changed. When the action research problem is complex and necessitates an action researcher to research and understand the problem in a specific context like in a classroom, a school, etc., interpretivism better guides the action research methodology. When the action research problem focuses on injustice/inequality/oppression, the pragmatism that employs different theories can guide the action research methodology. Whereas, if the action research problem is focusing on a specific topic like students' learning, instructional leadership, and education leadership, the action research methodology is guided by learning theory and theories of educational leadership.

Like the theoretical bases of an action research methodology, scholars do not have an agreed explanation about action research methodology. Coghlan and Brannick (2005) explain it as a philosophical base of action research; Reason and Bradbury (2008) describe it as a process of doing action research; and Dosemagen and Schwalbach (2019) as the cycle of conducting action research. To McNiff and Whitehead (2010, 2016), action research methodology is described as the way of doing action research and producing new theory, and whereas, they explain action research design as the overall plan of an action research. This implies that an action research design consists of a specific research strategy having a theoretical base, methods of data collection and analysis. To Gray (2004), the main action research design is a case study (single and multiple cases). Inversely, Gummesson (2000) cited in Coghlan and Brannick (2005) states that action research is the right design for conducting a case study. Hence, in filling this inconsistency of explanation about research methodology, I argued that action research methodology is very broad and included the different philosophical bases of action research whereas; action research design is an overall plan of action research having a theory/theories that guide the action research based on the nature of the problem and including participants of the study, methods of data collection and analysis. As a student, a classroom or a school, or a district is context specific, I suggest that the right action research design should be a single case study. In general, although this review is not comprehensive, the findings revealed the gaps in conceptualizing and operationalizing an action research. In filling the gaps, modifications were made, and suggestions were forwarded for the future practice of undertaking action research.

Concluding Remarks for Future Practice

As different scholars of action research conceptualize and operationalize action research undertaking in their books and articles based on their experience, personal beliefs and methodological orientation, some gaps should be filled so that practitioners can do action research having a clear understanding of the concept, processes, methodology, design and end goal of action research, in so doing, as I have tried to argued and modified, and I suggest the following:

- Action research should be defined not only by producing practical (tacit) knowledge from our proposed and implemented actions or solutions. It should also be defined as the effort an action researcher exerts to research and understand why practice is not functioning properly to suggest the right actions or solutions.
- Currently, there are two different types of processes of conducting action research suggested by different scholars with no clear justification for which process an action researcher should follow and why. Hence, scholars in the field have to justify that choosing one or the other process of undertaking action research depends on the nature of the action research problem and the clarity of the causes of the problem during the action research reflection on their experience and identifying a problem, an area or an issue for improvement. Consequently, I suggest the two different types in the processes of undertaking action research in teacher education/education: action-research, and research-action-research.
- Depending on the nature of action research, this review reveals that the theoretical base of an action research design can be interpretive, pragmatist or disciplined-based theories. However, I argue that positivist philosophy may not guide an action research study as the nature of reality in action research is not objectively that can be discovered.
- Concerning action research design, as the main action research agenda for any teacher practitioner is context specific that necessitates an action researcher to research, understand, act and produce knowledge of practice, or to reflect, act and construct knowledge, the main action research design should be a single case study to study, produce practical knowledge and improve one's professional practice in specific context bounded by actual time and place though an action researcher can use a kind of grounded theory design from qualitative research approach to develop profession-specific theory by testing practically in one's own practice rather than borrowing theories from other disciplines like in education, and developing living educational theory based on personal beliefs and values that is very personal and subjective to guide and explain the practice in a particular profession at department, organizational or sectorial level. Therefore, action research has two end goals, either to produce practical knowledge to improve the practice of the practitioners or to develop one's own disciplined based/professional theory from intensive data collection and analysis while improving one's professional practice to fill the gap between theory and practice.

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