# The Meaning and Role of Action Research in Education

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**ABSTRACT**

*Action research in education is known for improving the teachers and administrators' professional practice and deemed favourable by most educationists for solving problems in education. It is a formative study usually conducted by teachers and administrators in schools. Action research is a cyclical or spiral process that includes problem identification (by a teacher, a group of teachers or administrators) taking action and fact finding about the result of the action taken. Action research in education helps the teachers to adopt or craft the most appropriate strategies within teaching-learning environments. Teachers around the world employ action research in their classrooms and schools, as part of their teaching and research. In this article we discuss action research in education, show the differences between action research and traditional research and we have illustrated forms of action research in education. The paper has also made an attempt at describing the steps in action research. In the concluding section we have discussed the importance of action research to the teacher and all involved in education. All in all, we will labour to present a literature review of what action research is, its elements and the critical role it plays in perfecting the art of teaching.*

**Keywords**: Action research, Education, Teacher

## INTRODUCTION

Teaching as a craft is both a science and an art. Therefore, for teaching to produce the desired results, teachers ought to always experiment and try out new ways of engaging in their teaching-learning practices. Action research is one of the research methodologies teachers can use to investigate a particular issue within the school because it directly involves the teachers' participation in solving the problems they experience during their teaching-learning processes. According to (Johnson, 2012; Koshy, 2005), action research is particularly applicable for teachers and administrators in education because they are the ones directly involved and interested in solving problems associated with the education system. Action research is especially encouraged for teachers because they can identify, solve and reflect on the solutions within their comfort zones the classroom. Lesha (2014 p. 379.) notes that action research is suitable for any person who wishes to improve his or her performance, or a group or organisation who wish to do the same. Given the dynamism of teaching and learning settings, what may be considered as the improved practice may still demand continuous redress thus, making action research one of the best ways' teachers can use to address problems

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in their teaching-learning environments. What then is action research? What is its role in education? What are its benefits and what are the steps in action research? This paper makes an attempt at addressing these questions.

## Action Research in Education

Today, the term action research has penetrated world education systems, including the Zambian education system.The work of Kurt Lewin, a social psychologist and educator, is often described as a significant landmark in the development of action research as a methodology in the 1940s in the United States (Koshy, 200; Ferrance, 2000). Lewin coined the term action research to describe work that did not separate the investigation from the action needed to solve the problem (Mcfarland & Stansell, 1993 p. 14). The implications of Lewin's view to teachers is that action research dissolves the barrier between the researcher and the participants. The teacher actively participates in the situation i.e. teaching while conducting the research. It enablesteachers to be alert to any problems, needs as well as desires during their teaching-learning processes. It further enablesteachers to find ways of solving those problems and reflecting on the solutions. Watts, (1985, p. 118) adds that action research acts on the assumptions that teachers and principals work best on glitches they have recognised for themselves, they become more effective when encouraged to examine and assess their work and then consider ways of working differently. In short, action research gives the teacher an opportunity to simultaneously teach and research within the same environment.In a similar veinto the enhancement of the professional disposition of teachers,action research encourages teachers to become continuous learners within theirclassrooms and schools (Mills, 2011).

Mills (2003) defined action research as any systematic inquiry conducted by teachers, administrators, counsellors, or others with a vested interest in the teaching and learning process, for the purpose of gathering data about how their particular schools operate, how they teach, and how students learn.Ferrance (2000) viewed it as a process in which participants examine their educational practise systematically and carefully using the techniques of research.Action research is a tool that is used to help teachers and other educators uncover strategies toimprove teaching practices (Sagor, 2004). Action research helps the teacher to adopt and craft the most appropriate strategy within their own environments thereby achieving intended teaching-learning goals and outcomes. The undertaking of action research usually prompts action that may involve interventions on the student, teacher, administrator and policy-related matters. It provides opportunities for the teacher to continually reflect and evaluate research outcomes for the benefit of the learners and their professional development.

Typically, action research in the field of education is undertaken in a school setting. In action research teachers and administrators engage in reflective processes that involve inquiry and discussion as components of research. Usually, teachers and all involved in ensuring that the teaching-learning experience is improved, and problems associated with it are solved, carry out collative research within the

natural setting of the school or classroom. Rather than dealing with the theoretical problems, action research allows teachers to address concerns that are close to them, over which they can exhibit some influence and make a change (Ferrance, 2000). Many times, action research is considered a professionaldevelopment opportunity because, frequently, teachers test a new instructional strategy, assess a newcurriculum program, orevaluate an existing pedagogical method(Greene et. al. 2006).According to Hensen, actionresearch (a) helps teachers develop new knowledge directly related to their classrooms, (b)promotes reflective teaching and thinking, (c) expands teachers' pedagogical repertoire, (d)puts teachers in charge of their craft, (e) reinforces the link between practice and studentachievement, (f) fosters an openness toward new ideas and learning new things, and (g)gives teachers ownership of effective practices.

## Action Research versus Traditional Research

Action research is a unique approach forteachers because problems to be solved emanate from teaching and learning environments.  In other forms of research, the source of research problems could be from news or what others have identified as problems, thereby, alienating the teacher's opinion on the perceived problems. Tomal (2010) adds that action research differs from traditional research in that while traditional methods of research are concerned with relating the findings to other settings or populations (generalisation), action research is more concerned with enhancements within the milieu of the study. While most traditional research separates the researcher from the environment being studies, action research dissolves the barrier that the exists between the researcher and the participants. In action research, the researcher in the case the teacher is also a participant under study by oneself or in collaboration with other teachers.

In the context of education, (Kemmis & Wilkinson, 1998; Johnson, 2012; & Hoover, 2013) contend that action research differs from other forms of research in that it is more obstinate about changing particular teachers or practitioners' practices to solve everyday problems in the school and classroom, and  aims at improving both student learning and teacher effectiveness.

Koshy (2005) mentions that even though action research differs from quantitative and qualitative research, it has characteristics of both. It does not require intricate statistical scrutiny (e.g. quantitative research) or lengthy narrative explanations (e.g. qualitative research) but is more concerned with solving a problem efficiently and feasibly in the best possible way Fig.1 below shows the uniqueness of action research in education emphasising the difference between action research and traditional research. It highlights questions of who, where, how and why action research is conducted.

## Figure 1: A comparison of traditional research and action research

| What | Traditional Research | Action Research |
|------|---------------------|-----------------|
| **Who?** | Conducted by professors, scholars, and graduate students on experiments and control groups | Conducted by teachers and principals on children in their care |
| **Where?** | In environments, where variables can be controlled | In schools and classrooms |
| **How?** | Using quantitative methods to show some predetermined degree of statistical significance, a cause-effect relationship between variables. | Using qualitative methods to describe what is happening and to understand the effects of some educational intervention. |
| **Why?** | To report and publish conclusions that can be generalised to large populations. | To take action and effect positive educational change in the specific schools' environment that was studied. |

Source: *Mills, G. (2003) Action Research: A Guide for the Teacher Research 2nd ed. NJ: Merrill.*

## Examples of Action Research

There are different typesof action research as shown in Fig. 2 below that canbe conduct in education, and these depend on the participants involved. For instance, a single teacher investigating an issue in the classroom, a group of teachers working on a mutual problem, or a team of teachers, administrators and other stakeholders in education focusing on a schoolor district-wide issue (Ferrance,2000).

## Figure 2: Types of Action Research possible in education

| | Individual teacher research | Collaborative action research | School wide action research | District wide action research |
|---|---|---|---|---|
| **Focus** | Single classroom issue | Single classroom or several classrooms with common issue | School issue, problem, or area of collective interest | District issue Organizational structures |
| **Possible support needed** | Coach/mentor Access to technology Assistance with data organistion and analysis | Substitute teachers Release time Close link with administrators | School commitment Leadership Communication External partners | District commitment Facilitator Recorder Communication External partners |
| **Potential impact** | Curriculum Instruction Assessment | Curriculum Instruction Assessment Policy | Potential to impact school restructuring and change Policy Parent involvement Evaluation of programs | Allocation of resources Professional development activities Organizational structures Policy |
| **Side effects** | Practice informed by data Information not always shared | Improved collegiality Formation of partnerships | Improved collegiality, collaboration, and communication Team building Disagreements on process | Improved collegiality, collaboration, and communication Team building Disagreements on process Shared vision |

Source: Ferrance (2000) *Themes in Education: Action researc*h. New York: Brown University

**Individual teacher research**

Ferrance (2000) states that single teacher research typically focuses on a sole matter in the classroom. The teacher may be in quest of solutions to difficulties of classroom organisation, instructional strategies, use of materials, or student learning. Along similar lines, Tomal (2010) argues that teachers can conduct their action research drawing from various aspects of school life. These aspects can be categorised into four issues as shown in Fig. 3 below namely; student issues, teacher classroom issues, school-centred issues and instrumental development issues. The problem is one the teacher believes is evident in the classroom and one that can be addressed on an individual basis.

**Figure 3:     Aspects of the school life that can prompt action research**

| student-centred Issues | Teacher Classroom Issues |
|---|---|
| ▪ Building self- esteem<br>▪ Improving study habits<br>▪ Improving student character<br>▪ Developing student interpersonal relationships<br>▪ Helping students work together<br>▪ Helping students deal with change<br>▪ Improving student motivation. | ▪ Improving student attendance<br>▪ Managing student conflict<br>▪ Counselling students<br>▪ Helping students manage strong emotions<br>▪ Teaching challenging students<br>▪ Handling disciplinary problems<br>▪ Handling students' complaints |
| **School centred Issues**<br>▪ Dealing with financial constraints<br>▪ Gaining more parental involvement<br>▪ Improving the organisational structure<br>▪ Improving leadership<br>▪ Developing better teamwork<br>▪ Developing a school improvement plan. | **Instructional-Development Issues**<br>▪ Improving test scores<br>▪ Improving instructional techniques<br>▪ Developing team teaching<br>▪ Enhancing instruction<br>▪ Improving curriculum<br>▪ Improving student achievement. |

Source: Tomal, R.D. (2010). *Action research for education*. Lanham, Maryland: Rowman & Littlefield.

The four categories above put the teacher at the centre of curriculum implementation and evaluation. While there is minimal teacher participation in most curriculum design, teachers need empowerment to provide feedback on what works and that which does not.

**Collaborative action research**

Apart from individual action research, collaborative action research is another form of action research that may include two teachers or several teachers and others interested in addressing a classroom or department issue. This issue may involve one classroom or a common problem shared by many classrooms**.** Collaborative teacher research provides a way for teachers to participate in the examination of classrooms and schools in order to shape policies, as well as bridge the divide between teachers, academics, and otherstakeholdersin education (Rust & Meyers, 2003). Collaborative teacher research can reposition teachers to be influential stakeholders and policymakers rather than skilled technicians and implementers

(Christianakis, 2010). As in individual action research, issues here can range from instructional strategies to pupils or student participation.

**School-wide and district wide-based action research.**
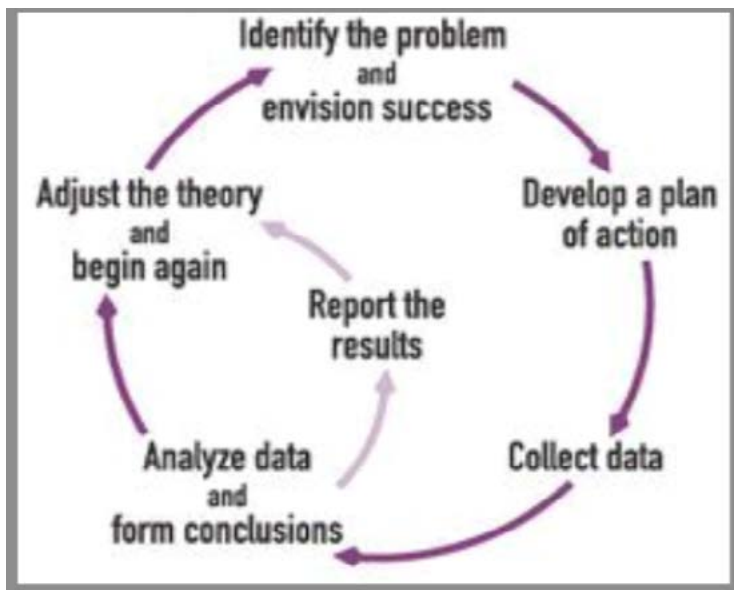


The other types of action research in education are school-wide and district-wide research. School-wide studies focus on concerns shared by all. Case in point, a school, may have a concern about poor performance in social studies, science and math. In trying to improve performance across the board, action research could be used to address the problem of school performance in different subject areas. On the other hand, District-wide research is far more complex and utilises more resources, but the rewards can be significant. Issues can be organisational, community-based, performance-based, or processes for decision-making. A district may choose to address a problem common to several schools or one of organisational management (Ferrance, 2000).

**Steps in Action Research /Methodology**
Like any other research, action research should never be haphazard. Many guidelines and models of action research are available to teachers wishing to engage in this research methodology.Action research has been described as a cyclical Fig 4, spiralling Fig 5 and collaborative process that includes problems investigation, taking action and fact finding about the result of action (Lesha, 2014; Johnson, 2012; Calhoun, 1994; Koshy, 2000; Ferrance, 2000), and as a helix Fig. 6commonly referred to as the "Look, Act, Think"model (Stringer, 2004 cited in Hine, 2013).
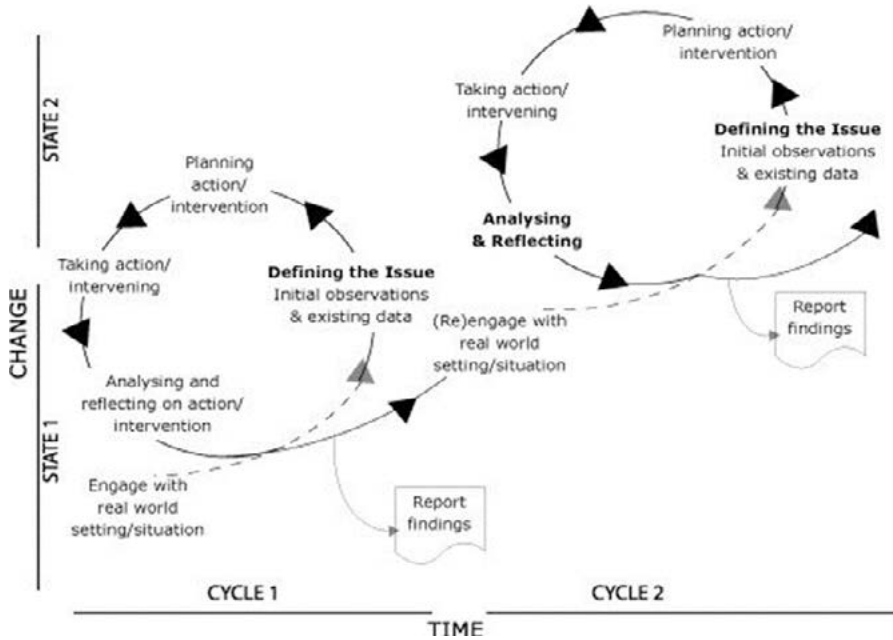
Figure 5: Action research Spiral
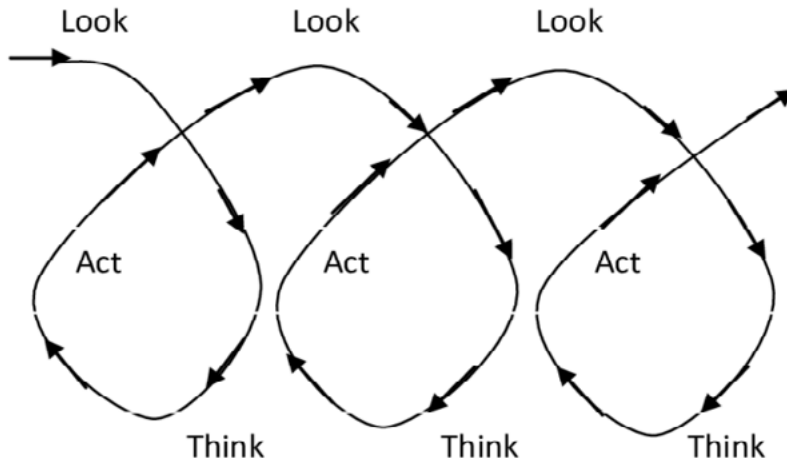Source: www.pinterest.com



Figure 6: Action Research Helix
Source: (adapted from Stringer, 2004, p. 4).

Whether represented as a cycle, spiral or helix, the steps are similar and most importantly, are recursive. In the'Look' stage of the helix which is the 'identify problem stage' in the action research cycle and the 'defining issue stage' in the spiral, information is gathered by careful observation through looking, listening,and recording. During the 'Think' stage, which is the planning stage for both the action research cycle and the spiral, researchers plan and analyse the collected

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information toidentify significant features and elements of the phenomenon being studied. Finally, the'Act' stage which is the take intervention stage in the spiral is where the newly formulated information is used to devise solutions to theissue being investigated. The steps in action research are discussed in detail below.

## 1.0 Problem identification

In the first place, identify the focus of the research (the problem). i.e. what aspect of your professional practice would you want to improve? What are you going to investigate? Action research requires that we begin from where we are. In this regard, McNiff et al. (199) suggest that:

In action research, it is important to begin from where you are, and to keep focused. You need to be practical and ask, 'Can I do something about this issue? Can I hope to bring about change, or am I out of my depth?' If it is too much, be realistic. You cannot change the world, but you can change your bit of it. (p. 37).

An issue a teacher could investigate, for example, is how to manage time better. *How can I manage my time better?* By so doing, a problem is identified. This is a step that could bring about much improvement in one's professionalism. While the teacher is projected as the sole identifier of problems requiring action research, teachers do not always experience problems alone. In departments and even localities, they do have opportunities to share challenges or opportunities that may arise as a result of experience and policy change. Therefore, the identification of problems may be as a result of collaborative ideas and efforts.

## 2.0 Data collection in Action Research

Data collection should be a thoughtful, planned, and purposeful process. Ferrance (2000) states that the teacher should think about how structured and systematic data collection will be. More often than not, action research uses the data collection tools that are used in other research methodologies and does not necessarily have unique methods tied to it. For example, the teacher could use a notebook to record her observations, checklists, interviews, journaling, documentations and audiotapes.Johnson (2012 cautions that action research is a dynamic process; thus, it is common to abandon certain forms of data collection and adopt others forms as one conducts the study.

Another issue to remember is that data collection in action research is not a one-off event; instead, it is repeated over a while. Therefore, one way to ensure that the data collected is consistent is to use a calendar or a checklist. Pine (2009) adds that a good data collection plan is systematic in that it considers what data will be collected, when, how, and how often it can be collected as well as how the analysis can is done.

It is also crucial to think about sources of data for the problem. Ask where the evidence will be collected? Data are everywhere; in the classroom, within the school or in the communities around the school. Furthermore, understanding the different data source can as well be helpful. Pine (2009 p. 252) categories these sources into three, as follow:

(a) **Existing archival sources:** Theseare items currently available in the files or archives of the school or of individual staff members. The collection of data from these sources requires little effort and time. Data include student grades, attendance patterns, number of referrals, retentions, number/percentage of students in particular programs, standardised test results, school mission statements, staff development plans, meeting agendas, discipline records,

(b) **Conventional sources:** Theseare items that require communication, observation, or follow-up with members of the population and that often require instrumentation to standardise the information collected. Conventional sources include simple interviews, surveys, number of books read, writing samples, variety of materials used, observations, and journals.

(c) **Inventive (Original) sources:** Theseare usually more creative, complex, and deep. We use these sources when we want more in-depth or qualitatively different information than we can gain from existing and conventional sources. Original sources include authentic assessment, performance assessment, exhibits, portfolios, expositions, videotapes, photographs, and children's drawings.

The researcher should also note that the biggest challenge in conducting action research is to collect and analyse data while taking action because action research is recursive, cyclical and dynamic (Pine, 2009). The previous statement implies that as data is collected during action research, interventions could be implemented and vice versa. Thus, particular care should be taken to observe, record, and implement recursive activities. It is also imperative to remember that action research does not yield statistically complex data or lengthen narrations, but it may have characteristics of both or either of the two.

## 3. Analysing data in Action research

The purpose of researching a specific topic is realised through the analysis of the data collected (Blodgett, 2010). According to Mills (2007), "data analysis is undertaken when researchers want to summarise and represent data collected in dependable, accurate, reliable, correct, and right manner. Some data is quantifiable and analysed without the use of statistics or strict assistance. Other data, such as opinions, attitudes, or checklists, may be summarised in table form. Information that is not quantifiable can be reviewed holistically, and essential elements or themes can be noted (Ferrance, 2000).

We should keep in mind, that as we proceed with the analysis of data, that action research is a recursive and is a dynamic process of inquiry. As a result, it could be very confusing to go back and forth. In support of the front view, Ladkin (2004), as quoted by Pine (2009) argues that:

Inquiry cycles are messy and are not necessarily discrete or linear. They can move much more fluidly, double back on themselves, and take unpredictable

routes. Moving from fog to clarity, and back to fog can be part of the process. Just because the inquiry is making less sense does not necessarily mean you are going in the wrong direction. (p. 125).

The purpose of analysing data is to attain usable and useful information. The analysis, irrespective of whether the data is qualitative, quantitative or action research-oriented, may define and summarise the data; identify relationships between variables; compare variables; identify the difference between variables; and forecast outcomes. There are two commonly used data analysis techniques: the thematic (qualitative) and statistical analysis (quantitative). There are two categories of Qualitative techniques: the framework analysis (Pope et al. 2000) and the thematic network analysis. More often than not, the qualitative analysis draws on a mix of both approaches.

Statistical techniques are appropriate for quantitative data. Statistical techniques used can either be descriptive or inferential. Descriptive statistics help us to summarise data, whereas inferential statistics are used to identify statistically significant differences between groups of data. Blodgett (2010) asserts that the data analysis techniques used are at the discretion of the researcher, but should be consistent with the type of data collected. Since action research has characteristics of both quantitative and qualitative approaches, analysing information from action research may necessitate the usage of more than one analysis method (triangulation). It may draw from both quantitative and qualitative analytical techniques. Even though quantitative research is sometimes used in action research, Johnson (2005) explains that:

Caution must be exercised in coming to generalised conclusions or in applying the results to larger populations. This is because of the small sample size of most action research projects and the many variables that are uncontrolled or unaccounted for. (p. 4).

## 4. Report Results

After the collection of evidence, data collected should be written down as a report. That way, it is easy to refer to it when the need arises. Upon completion of the action research, it is advisable to share findings with peers. There are sundry ways of sharing the information, for instance, at a conference or in a report. Koshy (2012) asserts that the intention of the action researcher is not to make generalisable claims, but to tell a story which is of interest to other practitioners who may want to learn from it, or replicate the study or apply findings to their situations.

## 5. Take Action Based on Results

Action research is action-oriented. It is directed towards both understanding and improving practice. The intent is to use the results collected to help educators understand and try out new or needed methods or paradigms for teaching and administering. Johnson (2012) suggests that decisions about teaching strategies must be premised on the findings. Some strategies are more effective, leading to an obvious choice. Other times, all strategies may prove to be equally effective. In

that situation, the choice is based on the teachers or learners' preference. Therefore, upon the collection of results, action should be taken.

## 6. Evaluate and reflect

Koshy (2012) points out that evaluating your action research involves asking the question of whether or not undertaking your action research was worthwhile and useful? Koshy further notes that there is need to consider whether or not the action research brought about the desired improvements. This happens by; (a) Gathering the data, (b) Identifying criteria for improvement, (c) Selecting pieces of data to act as evidence of improvement, (d) Matching that evidence with your initial research concern (e) Presenting your work for others to judge whether you have brought about the stated improvement. Undertaking these steps is deemed as having done a successful evaluation.
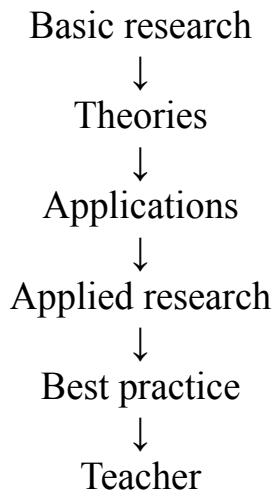
## Importance of Action Research
(a)  It provides practitioners (Teachers) with current knowledge and understanding about how to improve educational practices or resolve significant problems in classrooms and schools (Mills, 2011; Stringer, 2008 as cited by Hine, 2013).

(b)  It facilitates the professional development of educators (Barone et al., 1996 in Hine, 2013). Action research can also be used to replace teacher in-services as a means of professional growth and development. Traditional teacher in-services are often ineffective because teachers sit for long hours listening to experts in workshops describing approaches that may not work for their classroom situations. However, with action research teachers may find a solution to a problem they face and take action to solve it without having to sit in lengthy workshops.

(c)  *It Increases teacher empowerment.* Johnson, (2012) quotes (Book, 1996; Erickson, 1986; Hensen, 1996) who claim that action research also facilitates teacher empowerment. Teachers are empowered when they can collect their data to use in making decisions about their schools and classrooms. Empowered teachers can bring their talents, experiences, and creative ideas into the classroom, and implement programs and strategies that best meet the needs of their students.

(d)   It bridges the gap between theory and practice. Johnson (2012) emphasises that action research bridges the gap between research and practice, as it helps teachers understand what is going on in their classrooms. In most cases, theories and research related to best practices in the teaching and learning processes do not reflect what goes on in schools and classrooms because of two reasons. Firstly, research in education can be overly descriptive, use jargon common to only a few teachers, does not reflect the demands of a teachers' daily schedule where time is a precious commodity, and are dominated by methodologies

and hypothetical theories that are not suitable to the daily needs of the teacher (Johnson, 2012). Secondly, this gap may be caused by the Moses Effect (see Figure 7).

The *Moses Effect* is where a researcher passes on research edicts from on high with the expectation that teachers will be passive receivers of these edicts thus, creating a one-way flow of information that disregards what the teacher values, their opinion, and also over-looks the concrete problems and concerns that the teachers experience daily.

**Figure 7: The Moses Effect**

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Basic research

↓

Theories

↓

Applications

↓

Applied research

↓

Best practice

↓

Teacher

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Source: Johnson (2012, p.5) a guide to action research

In Summary, Hensen, (1996) as cited by Hine (2013) points out that the ultimate aims of action research are to; help teachers develop new knowledge directly related to their classrooms, promote reflective teaching and thinking, expand teachers' pedagogical repertoire, put teachers in charge of their craft, reinforce the link between practice and student achievement, foster an openness toward new ideas and learning new things, and give teachers ownership of effective practices. Pine (2009) cautions that practitioners, in this case, the teachers not to take action research lightly because not only does the researcher conducts research, but simultaneously enacts change by implementing an intervention. As a result, it may seem confusing despite being a manageable process, if not systematically and logically followed. In discussing teachers' classroom research, Hopkins (2008) notes that research should not impinge on the teacher's classroom activities and personal time. Methods of data collection should not be too demanding on the teacher's time.

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