

Chapter One: Introduction

Overview

This chapter begins with background information on the researcher and the situation that prompted this study. This is followed by a detailed outline of the particular problem that this study has sought to explore. This particular problem is then situated within the wider context, leading to the research question. Next, the significance of answering this question is discussed. Following this, the research setting is described in detail. The chapter ends with an outline of the rest of the thesis.

Background

This research is the result of two years' work as a volunteer teacher trainer in Jirapa, a town in northern Ghana. Placements like these have been generated to address the low student achievement of schools in many developing countries. The cause of this low achievement is commonly linked to the uniform use of rote teaching methods. The objective of this placement was to introduce teachers to alternative methods of teaching. In the course of these duties, many teachers raised concerns about the reading ability of their students. The objective of this study was to investigate this particular problem in collaboration with teachers.

Research Problem

Some teachers noticed that when students were called upon during a lesson, they were often reluctant and unable to read. Some teachers also believed that if students' reading ability improved, this could have a flow on effect to exam results in other subjects, like science and social studies.

Upon further investigation, it appeared that some students were able to recite pages of text word for word, but were unable to pronounce specific words when asked. They were also unable to locate words that were pronounced for them, despite having been able to recite those words just moments earlier. It appeared students had memorised the text, but were not able to interpret the script on the page. Teachers were aware of this and called it ‘singing’ (Field notes, 2011). Moreover, some teachers attributed the cause of the phenomenon to the widespread use of rote teaching methods. Rote teaching is an approach based on students repeating what the teacher tells them until they memorise it. It was puzzling that teachers could make such a negative analysis of rote teaching, yet continue to use it daily.

When confronted with the poor reading ability of students, most teachers claimed that it was outside of their personal responsibility. According to them, it was generally because the students were lazy, or the parents did not support education for their child. The teachers believed that if these factors were addressed, then the problem of poor reading results would be solved. Timperley and Robinson (2001) assert that when actors attribute problems to external causes or ‘the enemy out there’ (Senge, 1990b), they are likely to be closed to the idea of changing their teaching practice. This presented a problem for the researcher, because of their belief that an unintended consequence of rote teaching was that students learnt to recite but not to read text.

The problem that formed the basis of this thesis was how to help teachers take responsibility for their role in the poor reading outcomes. Explanations of poor student achievement based solely on external circumstances present a perennial challenge for school improvement (Timperley & Robinson, 2001). Further, there is little information available on how one can shift teachers from analyses that discount their personal responsibility and contribution to ones that test it (Timperley & Robinson, 2001).

Wider Debate

There are some common responses to these problems, although they are generally unsuccessful. The course of action taken by most non-government organisations (NGOs) is to bypass the discussion on who is responsible. NGOs commonly advise trainers to focus on propagating

preconceived solutions, such as student-centred teaching methods (Sifuna & Kaime, 2007; Voluntary Services Overseas (VSO), 2009). However, the question remains as to why teachers would want to take action to address a problem that they believe is caused by students, parents and other external parties.

An alternative response is to engage teachers in a process of problem solving, such as lesson study (Fernandez & Yoshida, 2004; Lewis, Perry & Hurd, 2004; Saito, Hawe, Hadiprawiroc & Empedhe, 2008), action learning (Barefoot, 2011; Reeler, Van Blerk, Taylor, Paulsen & Soal, 2009) or action research (Fuller, 2001; Grundy, 1995; Maxwell, 2003; Mills, 2003; Somekh & Zeichner, 2009; Stringer, 2007). Although these processes seem to acknowledge the central role of the practitioner in problem resolution, they often lack detail in regards to how to engage practitioners in taking responsibility for their actions.

Moreover, these approaches appear to lack an in-depth account of what practice actually is. For example, they may broadly associate practice with problem solving. Schon (1987) asserts that practitioners are rarely faced with structured problems that require solving. Rather, they are faced with unstructured situations that require that practitioners select what is important in any particular context. Practitioners select which constraints a solution will need to satisfy. Schon refers to this process as problem setting. So, a more complete picture of what practitioners do is they first select what they will attend to (problem setting) and then devise a means of achieving those aims (problem solving). As the processes described above are only likely to examine problem solving, they are unlikely to uncover or address problems in the problem setting of practitioners.

Argyris and Schon's (1974) research provides a positive direction for interventionists to take (Argyris, 2002; Argyris, Putnam & Smith, 1985). First, their account of practice includes not just actions, but the constraints (also called governing variables) that led those actions to be selected, and the intended and unintended consequences of those actions. They call these components one's theory of action. Second, they outline a theory of interpersonal relations that enables dialogue on issues of personal responsibility and competence. They call this theory model 2. Third, they distinguish between solutions that require changes in actions and the more

challenging variety that involve changes in constraints or governing variables. They call these types of learning single-loop learning and double-loop learning, respectively. Action science (Argyris et al., 1985) was developed in order to help interventionists help practitioners test their responsibility for their results and increase the likelihood of double-loop learning. However, this methodology is relatively untested outside the field of business and organisational learning (Friedman, 2001; Senge, 1990b; Taylor, Rudolph & Foldy, 2008).

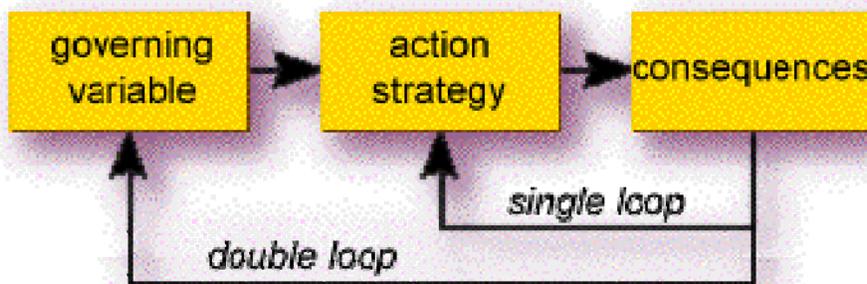


Figure 1.1: Single- and double-loop learning (Anderson, 1997)

Robinson (2008) was the first individual to tailor the work of Argyris and Schon (1974) to suit educational problems. Her efforts have laid much of the groundwork for using action science within educational settings. The methodology that Robinson developed using these theories is called problem-based methodology (PBM) (Robinson, 2008; Robinson & Lai, 2006). However, despite being regarded as one of the most popular action technologies, there is little evidence in the literature that action science is being used (Friedman, 2001, p. 169). Further, although there are several authors of action science research, very few have come from outside Argyris's colleague base (Argyris et al., 1985; Friedman, 2001; Noonan, 2007; Robinson, 2008; Robinson & Lai, 2006). This has caused some critics to question whether the processes described by Argyris can be learnt and applied from reading a book alone (Dick, 2009, p. 432). These approaches highlight some of the concepts the researcher used to conduct professional development (PD) with teachers during this thesis. The research question that guided this PD is described below.

Research Question

How can Professional Development (PD) affect the teaching practice of a cohort of Ghanaian primary teachers so that they are more likely to teach students to identify, pronounce and comprehend what they read?

Significance

Attempting to answer this question is potentially significant for two reasons. The first reason is that it may be relevant to the broader issue of how to shift teachers from explanations of problems to which they deny their contribution. Second, finding an answer may help the teachers and students involved address the problem of poor reading outcomes.

The features of action science (Argyris et al., 1985; Argyris & Schon, 1974) and PBM (Robinson, 2008; Robinson & Lai, 2006) may offer the best direction for interventionists who wish to help practitioners improve their practice. However, although this methodology appears simple in theory, it has been described as difficult to implement (Dick, 2009). Further, if one wishes to undertake action science, it is necessary to frame one's conclusions as inferences rather than fact and to test rather than assume their validity. This study can potentially address these issues. First, by testing whether action science/PBM can be replicated by one who has not learnt it directly from a skilled researcher. Second, by comparing the effectiveness of the features of PBM to help teachers help their students identify what they read against other another approaches, such as lesson study (Lewis, 2002; Saito et al., 2008). In this way, this research can potentially contribute to the methodological debate around how to affect teaching practice.

There are also potentially direct benefits for the teachers and students involved in the research. Given that the intention of the research is to help teachers help students improve their reading skills, to the extent that it can be achieved, this will directly benefit current and possibly future students. Last, this research could provide information about why many interventions have failed in the past, and why rote teaching is perceived as preferable by many teachers. An understanding of why this practice continues, and the methodological features of PD that can potentially challenge it, is useful for those interested in changing practice in other parts of Ghana.

In summary, this research is significant because it can potentially contribute to improved reading outcomes with a cohort of schools in the Jirapa district. Additionally, an increased understanding of the reasoning sustaining rote teaching practices and how to challenge this may be relevant for organisations working with teachers in other parts of Ghana.

Key Terms

Action research

An approach to research that targets both action and research outcomes. This is generally achieved through collaborative cycles of iterative problem solving.

Action science and PBM

An approach designed to increase the professional effectiveness of practitioners. Effectiveness is defined as an alignment between one's intended and actual outcomes. This approach is distinct in that it draws on an account of what practitioners do, described as a theory of action, and also explicates a theory of interpersonal effectiveness, namely model 2, which facilitates inquiry into one's theory of action.

Lesson study

A cyclical process developed in Japan to help teachers identify gaps between intended and actual outcomes and design lessons that may reduce such gaps. This is usually conducted in groups. One teacher trials a lesson designed by the group, while the others observe the effect of this lesson on the learning of the students.

Professional Development

The name given to a range of activities designed to engage teachers in professional learning.

Setting

This research project is set in Jirapa. Jirapa is a small town in the upper west region of Ghana. There are approximately 80 primary and junior high schools in the Jirapa district. This section describes some of the features of this setting that may be unfamiliar to the reader.

History of Formal Education in Northern Ghana

Formal education was introduced to Ghana first by Arab traders and later by Christian missionaries and British colonists around the 1800s (Gocking, 2005, p. 29; Oppong & Oppong, 2003). However, most of these schools were concentrated in southern Ghana. Most of northern Ghana, particularly the upper west region where Jirapa is located, had to wait for the universal compulsory primary education reforms of Ghana's first president, Kwame Nkrumah, to have access to formal education (Kuyini, 2009a).

Although Nkrumah's reforms made it illegal for parents of school-age children¹ to not send their children to school, this did not necessarily change the attitude of many parents that children were most useful working at home on the farm (Kuyini, 2009b). Although it seems that many parents want their children to do well at school, during the farming season in particular they appear to value the support of their children on the farm more highly. In many classes, attendance seems much lower during the farming season. This is likely to affect student outcomes.

Another historical feature of the setting that may influence student outcomes is that the methods of teaching introduced along with western education seem to have survived intact to present day. The rote method, which was used in many western countries at the time but has largely been abandoned, does not appear to be losing favour in Ghana. The reasons for this are unclear and warrant further research.

¹ This age was measured not by birth date, but by whether or not one could reach their ear by placing their arm over the top of their head.

School Reform

Because Ghana lacks the tax revenue to fund some activities of the public service, it generally relies on outside funding to help support government reforms. However, it is sometimes unclear the extent to which outside funds support, or rather direct, government reforms. For example, the World Bank is often criticised for pushing a western ideology onto developing countries in exchange for funds (Klees, 2002).

This notion of exchange is sometimes referred to as colonialism by another name (Piljer, 1996, p. 3). Ghana, in exchange for billions of dollars in loans, has implemented many neo-liberal reforms that have opened up its economy to trade and free market policies (Amponsah, Denzau & Roy, 2006; Cheru, 2002). These reforms have often failed to translate into improvements in the living conditions they were designed for (Amponsah et al., 2006). Neo-liberal ideology, which is a belief in the ability of free market principles to improve standards of living for all, has also influenced educational policy. For example, because scientists and engineers are necessary for prosperity within a neo-liberal economy, educational policy has particularly targeted areas like mathematics and science (Japanese International Co-operation Agency (JICA), 2008) rather than early childhood. Such policies are generally designed with the economic rather than education system in mind.

Additionally, these reforms usually rely on the cascade or train the trainer model (McDevitt, 1998; Wedell, 2005). While a benefit of this approach is that alternative teaching practices may be disseminated widely at a low cost, it generally fails to largely affect teaching practices (Akyeampong, 2004). It seems that the reasons for this lack of effect are not fully understood and also warrant further research.

Teachers and Teaching Conditions

Teaching salaries and working conditions are also worth consideration because these often have consequences on who wants to become a teacher. A study of the world's top performing education systems found that a key component to their success was the high academic standards

expected of those who wished to train as teachers (Barber & Mourshed, 2007). Low teacher salaries are often blamed for the difficulty faced when trying to attract candidates to train and remain as teachers (Osei, 2006, p. 46). Consequently, individuals often take advantage of teacher training programmes, which are easier to enter than others and are sometimes funded by the government, by using them as a stepping stone to a career in the health or private sector.

Further, attracting teachers is most difficult in rural areas, which lack basic amenities such as electricity and nearby access to water. This unpopularity is likely because most prefer to live in a town rather than a village. The main advantage of living in a town is access to electricity, which can power televisions and mobile phones. There are also problems in rural areas with many teachers either late to work or simply not turning up. For many, attendance depends on whether or not they have money to fuel their scooters. For others, they may have to ride a pushbike over 20 kilometres.

Another reason teachers may absent themselves from their workplace is in order to resolve issues with their salary or employment status at the District Education Office. Unfortunately, the centralised education system, which is a remnant of colonial rule (Osei, 2006), has difficulty managing the vast numbers of teachers across the country. As a result, it can take up to 12 months for new teachers to start receiving their salary. Also, teachers who are employed as part of schemes like the National Youth Employment Program are dependent upon the local government offices for their salary, and the funding of such offices is sometimes inconsistent or delayed. Sometimes delays within the system can have a positive effect for teachers who at times receive their salary even when they have not been at work. However, the inconsistencies within the system and the difficulty following up issues with superiors likely effects the motivation of many teachers.

Finally, schools usually lack enough textbooks for one per child, may lack enough desks for the whole class and sometimes have class sizes up to 100 students. Teachers often say that a lack of teaching and learning materials (TLMs) is related to the poor outcomes of their students.

In summary, the conditions and salary of teachers affect the calibre of the applicants drawn to the profession. Unfortunately, in Ghana, people with a high level of education prefer to look outside the education system for work. Further, living conditions and resources negatively affect the time and energy both teachers and students commit to their education.

Chapter Summary

In summary, this research is based on a concern teachers had that many of their students were not able to read the text expected of them at their particular grade level. Initial discussion revealed that teachers blamed these results on external causes, such as low parent support for education. It seemed they were not inclined to discuss the possibility that these results were an unintended consequence of rote teaching. However, the researcher concluded that the students had learnt to ‘sing’ rather than read at school. The issue explored by this thesis is how to resolve this difference of opinion with teachers, and how PD could affect the way teachers teach. The inquiry into this problem links to the broader debate around change methodologies and how they may be learnt. More importantly, it can potentially help the teachers within the study to improve reading outcomes. This may provide insight for others interested in challenging rote teaching. The problem of rote teaching is embedded within an education system inherited from the colonial era that is poorly resourced and largely subject to external influences from development organisations like the World Bank. Further, the system has difficulty attracting quality candidates due to poor conditions and salary.

Chapter Outline

This chapter has introduced the problem that underpins this study. Chapter Two reviews the theoretical and practical approaches to solving problems that require that teachers change their practice. Chapter Three outlines the methodological implications of researching teaching practice, and outlines the methods of data collection and analysis used by this study. Chapter Four, titled Findings, presents the results of this data collections and analysis. Chapter Five discusses these findings in relation to the research question and the literature on rote teaching

and teacher change. Chapter Five also discusses the limitations of the research methodology and some implications for future intervention. It also presents concluding comments.

Chapter Two: Literature Review

Introduction

Although it may not be explicitly stated, the aim of most PD is to change how teachers teach. However, changing teaching practice is regarded as difficult to achieve (Clarke & Hollingsworth, 2002; Fullan, 2001; Kaasila & Lauriala, 2010; Richardson, 1990; Vulliamy & Webb, 1991). This chapter considers how PD can contribute to changing the practice of rote teaching in Ghana by examining several studies. The chapter begins by distinguishing between two types of change strategies: the bypass strategy and the engagement strategy (Robinson, 2011). It is argued that the engagement strategy is preferable and several examples are drawn from the literature in order to test this assertion. The chapter also focusses on exploring some of the reasons presented in the literature that try to explain why many teachers in third world countries continue to prefer rote methods (George, 2011; Rhea, 1995). The chapter concludes by summarising which strategies have the most potential for this study and why.

Bypass and Engagement Strategies

Robinson (2011) argues that a mistake many leaders make is that they seek to persuade others to change without adequately understanding what leads them to act as they do in the first place. In these cases, the one initiating change (PD provider) focusses on advocating their own point of view while bypassing the point of view held by the object of their persuasion (teacher). This is why it is referred to as the bypass strategy (see Figure 2.1). However, as the teachers' point of view is potentially leading them to act as they are, ignoring such reasoning may reduce the likelihood that they will change. This may lead professional developers to perceive teachers as resistant to change, even though this is not necessarily the case (Robinson, 2011).

Conversely, the engagement strategy aims to make the reasoning, in this case of both teachers and professional developers, public and to negotiate a means of evaluating the relative adequacy

of these competing views. Advocacy of one’s point of view is encouraged, but is balanced by inquiry into the views of others (Argyris, 1990; Noonan, 2007; Stone, Patton & Heen, 1999). In this way, the professional developer can inquire and discover, rather than assume they know the reasons (such as being resistant) that lead the teacher to continue with their current practice (Robinson, 2011). Both parties can work together to construct the criteria that will be used to judge the suitability of any action. These criteria can be used to assess the adequacy of both current and alternative teaching practices.

The effectiveness of the bypass strategy to change teaching practice depends upon the extent to which the theory of action of PD providers and teachers converge (Robinson, 2008, 2011). For example, the bypass strategy is not necessarily ineffective at changing practice if the changes can be incorporated within the teachers’ existing constraint set. The next section of this chapter explains what a theory of action is, then infers from the literature the usefulness of the bypass and engagement strategies for changing rote teaching.

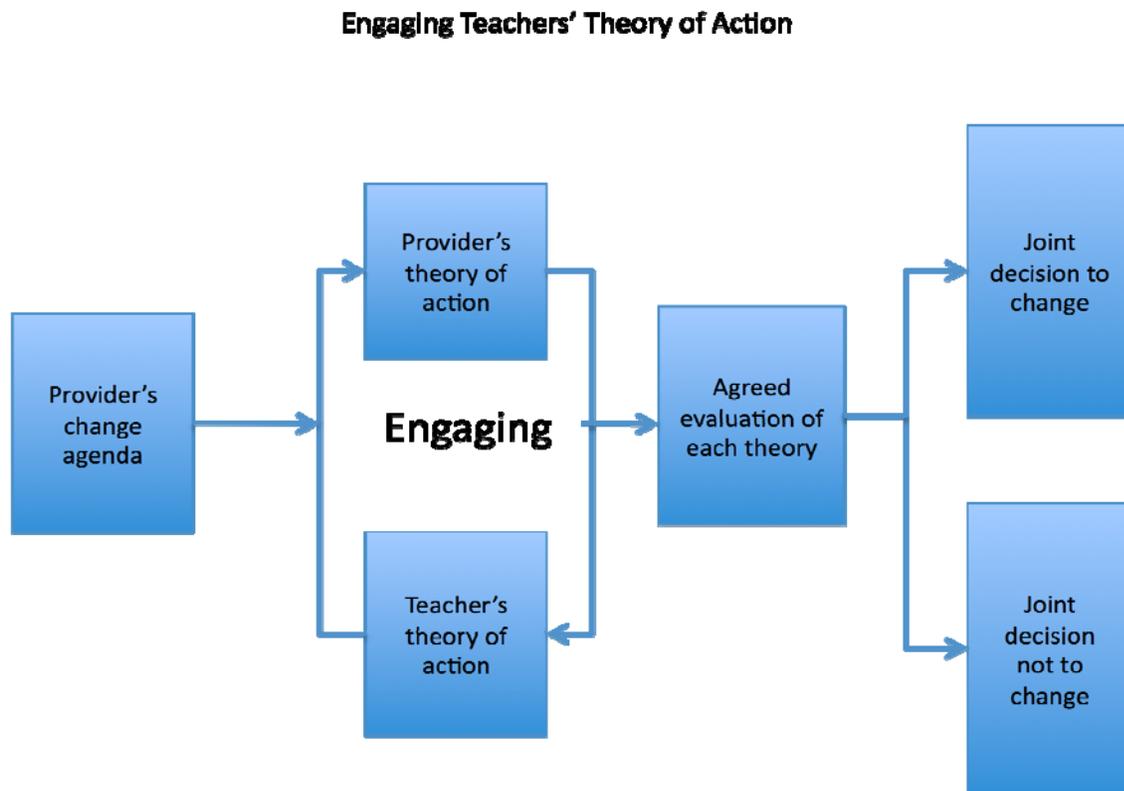


Figure 2.1 Strategies for leading teacher change (Robinson, 2011, p. 118)

Theory of Action

Argyris and Schon (1974) introduced the theory of action concept to explain how and why individuals act as they do under particular circumstances. One's theory of action is made up of the governing variables that your actions are designed to accomplish, your actions and the consequences of those actions, both intended and unintended. Governing variables or constraints consist of one's beliefs, values and norms, and propel individuals to make decisions about what to do in any given situation (Robinson, 2008). For example, a teacher may believe that students learn better in a quiet classroom. This teacher will then design their actions in order to ensure students keep noise to a minimum. This teacher may openly agree that experiments and debates are also useful teaching tools, but fail to put them into practice. For this reason, a distinction is made between one's espoused theory and one's theory-in-use (Argyris, 2002; Argyris & Schon, 1974). What the teacher agrees with in theory may not match what they are willing to or desire to put into practice.

The example above illustrates the relationship between one's theory of action and the potential effectiveness of the bypass and engagement strategies. If the teacher was presented with a new approach to teaching that increased the amount of discussion between students, like group work, then that teacher is likely to reject it because it is vastly different to their own theory of action. When using the bypass strategy, the objections of the teacher are less likely to surface or be respected. However, if the teacher was confronted about their belief that students will learn more in a quiet classroom than a class where discussion in groups is encouraged, and then was asked to validate those views, there is an opportunity to change the beliefs that are guiding those actions. Changes to the governing variables would then lead to new actions designed to satisfy them.

Argyris and Schon (1974) assert that learning that involves changes to one's governing variables (double-loop learning) is different to learning that only involves one's actions (single-loop learning). They also assert that when individuals display an inability to learn how to improve their effectiveness, which they define as learning to produce action that achieves one's desired

consequences, it is generally because they implicitly continue to pursue the same governing variables. That is, it is because they fail to engage in double-loop learning.

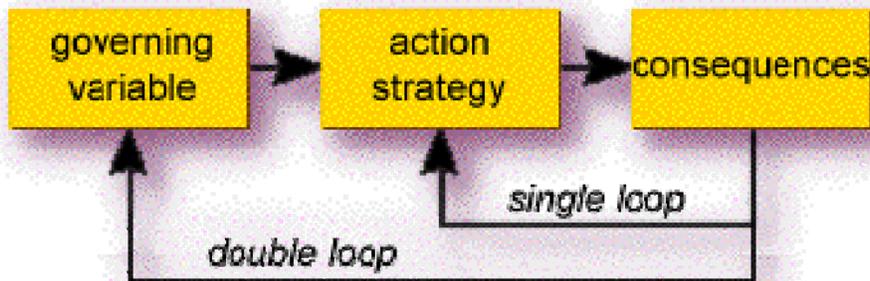


Figure 2.2: Single and double-loop learning (Anderson, 1997)

The theory of action approach raises several questions for PD that are considered in the next part of this chapter. The chapter so far has referred to some of the theoretical aspects of teacher change. The next part of the chapter uses these aspects to examine some practical examples of change projects and considers the following questions. First, which approaches to PD are commonly advocated in the literature? What is more common, the bypass or engagement strategy? To what extent are PD programmes aligned to teachers' theories of action, particularly in developing countries? What are the actual consequences of the bypass and engagement strategies? Last, the chapter considers if double-loop learning is necessary to change the practice of rote teaching, and how this may be accomplished.

Do Training and Workshop Approaches Adhere to the Bypass Strategy?

A meta-analysis of teacher professional learning projects concluded that most PD providers generally assumed that teachers needed to engage in deep learning and change their practice, while teachers did not and such sentiments were rarely disclosed (Timperley, Wilson, Barrar & Fung, 2007). Keeping ones' beliefs that teachers need to change private by not stating this openly is generally an indication that the bypass strategy is driving change efforts (Argyris, 1990). Further, the main thrust of most PD seems to be the strategy espoused by the provider,

which is not balanced with inquiry into the constraints that the teachers' actions are designed to satisfy.

The most common approach to PD is to invite teachers to workshops and train them to use new teaching methods. This approach is commonly used to address the persistent problem of low reading outcomes. For example, teachers could attend a variety of workshops about how to teach reading. A PD provider could demonstrate or explain any number of approaches: the phonic teaching method (Ehri, Nunes, Stahl & Dale, 2001; Stahl, 1992; Strategy, 2007), whole language approach (Cambourne, 1988; Wilson, 2002), explicit comprehension strategies (Miller, 2006; Pressley, 2006) or the reading-to-learn approach (Culican, Rose & McCusker, 2003-2004; Martin & Rose, 2005; Rose, 2005; Rose & Acevedo, 2006; Rose, Gray & Cowey, 1999) based on the concept of functional grammar (Halliday & Matthiessen, 2004). Such PD strategies focus on providing teachers with theoretical and practical information about how to teach in order to support the development of literacy.

This approach is also commonly used to introduce teachers who use rote methods to student-centred methods (Akyeampong, 2004; O'Sullivan, 2004; Sifuna & Kaime, 2007). The train the trainer strategy is used to advocate student-centred methods to a large number of teachers for a relatively small cost (McDevitt, 1998; Wedell, 2005). Through workshops teachers are presented with a variety of tools and techniques and either encouraged or directed to use them upon their return to class. The next section examines the outcome of several of these PD programmes.

Examples of Training and Workshops

Sifuna and Kaime (2007) state that training teachers to use student-centred methods was unsuccessful at changing the practice of rote teaching in Kenya. Despite providing access to a variety of training sessions designed to introduce student-centred methods, such as workshops, demonstrations and distance learning, most teachers continued to teach as they had done prior to receiving the training. Unfortunately, the study is mainly concerned with identifying teachers' level of use of student-centred methods, rather than understanding that level of use. As such, there is no direct inquiry into teachers' theories of action. Rather, Sifuna and Kaime (2007)

explain that some conditions, such as large class sizes, make student-centred methods less practical. Although such conditions may be present, it is not necessarily the case that smaller class sizes would make teachers more likely to use student-centred methods. Hence, it is unclear the extent to which the factors they identify can be said to cause the teachers to continue using the rote method. Without inquiry into teachers' theories of action, the study is unable to provide much guidance for how future programmes can be more likely adopted by teachers.

Several studies from Ghana also indicate that training teachers to use student-centred methods is unlikely to affect teachers' practices. The train the trainer model has been used previously with limited effect (Akyeampong, 2004; McDevitt, 1998). The Whole School Development project aimed to provide teachers with access to a District Teacher Support Team who could provide training around areas the school wanted to target (Akyeampong, 2004; Sayed, Akyeampong & Ampiah, 2000). These studies concluded that the train the trainer model did not result in changes to teaching practices.

Dull (2004) provides another example from Ghana, which found that a cohort of teachers were unlikely to use more interactive teaching methods. This was not because teachers considered them less effective, but because they believed those ideas would make it more difficult to maintain control of the classroom. This demonstrates how teachers' theories of action was bypassed, and how that led them to prefer their current actions. Similarly, another study in Namibia found that despite ongoing access to PD, teachers were incapable of adopting the student-centred approaches, like group work, which were espoused by the provider (O'Sullivan, 2001, 2002, 2004). O'Sullivan (2005) concluded that teachers were not developmentally ready to use such strategies. However, this assumption was not publicly tested with the teachers and thus may not be accurate.

There was one example from the literature of a study that actively inquired into the reasons why teachers continued with their current practices, rather than implementing student-centred reforms, in South Africa (Stoffels, 2008). While this behaviour may be perceived as resistance to the new reforms, which focussed more on outcomes, further investigation revealed that using the textbooks, rather than the new curriculum, was the teachers' best solution to a combination of

constraints, such as satisfying the expectations of parents, school leadership and time efficiency. Stoffels noted that this was alarming considering the poor regard the teachers had for the textbook:

It is alarming that this dependence persisted despite the teachers' articulated belief that these support texts were 'straightforward, superficial and unchallenging to the learners'. (Stoffels, 2008, p. 38)

However, because the reforms bypassed the reasoning that sustained current practices, and that reasoning continued to constrain what was perceived by teachers as suitable actions, the reforms were not implemented. The current actions satisfied a range of valued constraints that the reforms did not, and so teachers continued to use them. These results raise questions about the usefulness of the knowledge provided to teachers with the expectation that it will lead them to change their practice.

Summary of Effectiveness of Training Teachers in New Teaching Methods

Although training teachers to use alternative teaching methods may be necessary to provide them guidance about how they should change, such training alone seems to be insufficient. This seems especially the case when seeking to change the practice of rote teaching in many developing countries. One possible reason for this is that most of these examples bypassed the theory of action of teachers. In this, teachers were likely to ignore teaching methods that ignored the constraints that teachers aimed to satisfy. This bypass may lead teachers to doubt the applicability of new knowledge to their practice (Ur, 1992). It also assumes that putting a theory into practice is an exercise in technical rationality (Schon, 1983) or rationalism (Elliot, 1986), despite evidence that it is not. The term 'technical rationality' describes attempts made by some to produce simple formulas with which others can use to solve problems. This approach is often unsuitable because there are often dilemmas with how the problem has been set which complicate how it may be solved. Further, particularly in developing countries, there is cause to believe that the methods, and underlying aims of those methods espoused by professional developers are very different from teachers' theories of action. The next section examines a different approach to PD, which, rather than advocating new methods to teachers, seeks to build teachers' capacity to engage in collaborative problem solving.

Does Collaborative Problem Solving Adhere to the Bypass Strategy?

An alternative approach to PD is to facilitate teacher involvement in processes that will support their own problem-solving efforts. In these cases, the facilitator is an expert in reflective processes rather than alternative teaching methods. This represents a shift from presenting teachers with research to engaging teachers in conducting a form of their own research. The literature indicates that although it would seem that engaging teachers in problem solving would appear to engage their theory of action, such processes are often used in ways that bypass it instead. The following section highlights how some of these approaches take form before identifying the effect of such processes when used in ways that bypass teachers' reasoning.

For example, action research (Kemmis & McTaggart, 1982; Mills, 2003) and lesson studies (Fernandez & Yoshida, 2004; Lewis, 2002; Lewis, Perry & Hurd, 2004; Ono & Ferreira, 2010; Saito, Hawe, Hadiprawiroc & Empedhe, 2008) are both iterative problem-solving processes designed to help teachers solve educational problems. Teachers begin by identifying a gap between their desired and actual outcomes. Then, teachers are tasked to redesign their actions to close this gap.

Another example is the development of communities of practice or professional learning communities.

Communities of Practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis. (Wegner, McDermott & Snyder, 2002, p. 4)

In this sense, teachers are encouraged to work together to pool their knowledge to solve their problems.

The main assumption of these approaches is that teachers acquire knowledge about their practice, not by learning general conclusions from systematic studies, but by thoughtfully engaging in their particular context (D'Eon, Overgaard & Rutledge Harding, 2000, p. 157). The following examples demonstrate how this approach is generally used and the effect of several projects.

Examples of Problem-Solving Processes

There were not many examples of this approach from projects in developing countries that could be used to draw conclusions about its potential value to changing practice in Ghana. Thus, this section explored a wider range of examples from the literature. What research there was presented mixed results.

One example from a developing country was a lesson study project in Indonesia did lead lecturers to use more student-centred practices, such as group work (Saito et al., 2008). However, it was discovered that teachers were more likely adopting such practices because they perceived it was what the researchers expected them to do, rather than because of their own problem-solving efforts. Further, teachers had difficulty discussing issues of competency with their peers and this limited the effect of such collaboration for improving practice. When using lesson studies, lecturers spoke about their peers' lessons in ways that were either very critical or very collegial and lacked concrete observations of students learning. Thus, the project may have accomplished its aim of introducing group work, but failed to develop lecturers' capacity to independently engage in collaborative problem solving.

Pryor (1998) questions the use of action research, a collaborative problem-solving process, to help teachers in Ghana move beyond rote methods of teaching. He claims that teachers lack the agency and autonomy to be able to engage with such methods.

The Ghanaian teacher is the person who waits for the top hierarchy to say 'You do this, you do that' and they implement it. (Ackumme, 1996)

Although Pryor still advocates the use of action research by researchers, he questions the use of action research for changing teachers' practices, namely because teachers may not see themselves as in charge of what they do.

Another example shows more clearly how problem-solving processes can be used in ways that bypass practitioners' reasoning, and how this limits the potential of such strategies for change. A national initiative in New Zealand was designed to meet two concerns held by the Ministry of Education: that principals had become expert school managers, rather than expert instructional leaders and that their use of data to inform teaching decisions was lacking (Timperley & Parr,

2005, p. 227). An action research project was selected to help schools raise student achievement in literacy. However, as the researchers tasked with evaluation of the project concluded, the desired outcomes were not achieved because the theories of action about effective leadership differed between those responsible for initiating change and those responsible for implementing it. Table 2.1 shows the nature of these gaps.

Table 2.1: Components of theories in competition (Timperley & Parr, 2005, p. 239)

Theory component	Ministry of Education's theory	School's theory
Beliefs and value		
Who should change	Principals and leaders	Not the leadership but those for whom leaders were responsible
How and what they should change	Become more data-based and learning-centred leaders	Foster commitment and collegiality among staff
Knowledge and skills		
What is needed to achieve the change	Data-based skills to test the effect of teaching	No new leadership skills required and teacher judgement sufficient to assess student progress
Desired outcomes and criteria for success		
New leadership and teaching skills	Leadership change	Teachers become more focussed and collaborative
Outcomes for students	Improved student achievement	No student-related criteria because achievement already satisfactory

School leaders framed the task of how to be an effective leader as one who fosters collegiality among staff. Hence, they did not perceive a need to engage in developing the skills required to

become more instructional leaders using data-driven strategies. This limited their aims of making teachers more focussed and collaborative. Further, because they regarded student achievement as unproblematic, they did not engage with the aspects of the project that were designed to improve student achievement. Because the Ministry of Education's change theory was not made explicit, and leaders' change theories were bypassed, providers were unaware of the mismatch and consequently of how their actions contributed to the failure of the project.

Finally, another example from the United States shows how collaborative processes that bypass practitioners' theories of action limit the potential for change. First, an A+ arts project (Gordon & Patterson, 2008) was designed for teachers to introduce methods like drama, which were deemed to be more engaging. However, the campuses involved in the project tended to implement it in ways that helped them to satisfy their current theory of action. For example, one campus used their involvement in the project to help maintain tighter control of their students, and another campus used it to implement high-stakes testing in a more caring manner (Gordon & Patterson, 2008).

The outcomes of these projects cast doubt over the effectiveness of problem solving for changing the practice of rote teaching in Ghana. This is particularly so if these processes are used in ways that bypass the reasoning that sustains teachers' continued reliance on rote methods.

Summary of Effectiveness of Training Teachers in Collaborative Problem Solving

The examples from the literature presented here of processes such as action research and lesson study suggest that these processes are unlikely to lead teachers to use alternatives to rote teachings. These processes do not engage teachers in double-loop learning. Thus, teachers continue to design their actions in ways that help them satisfy their pre-existing aims. This means that new ideas are generally modified or adapted in ways not originally intended. One issue is that teachers struggle to recognise the discrepancy between their own actions and those outlined by the change initiators.

The problem of over-assimilation means that new information is sometimes perceived as congruent ('I already do this') when it is actually quite dissonant. As a result,

teachers' new practice resembles the new learning only on the surface; in reality, little changes. (Timperley et al., 2007, p. xii)

It appears that problem-solving processes that bypass teachers' theories of action will limit the potential for change.

Summary of Bypass and Engagement Differences

In summary, the examples above indicate that providing teachers with new teaching approaches, like student-centred methods, or engaging them in collaborative problem solving is insufficient to change the practice of rote teaching. This does not preclude the possibility that these may be useful components of a broader strategy. For example, combining these two approaches could have a greater effect. Indeed, such an approach was part of the first action cycle of this research study. However, ongoing research and reviewing of the literature indicated that whether or not the PD engaged the theories of action of teachers was much more crucial to achieving change than the content or processes that made up the PD. Indeed, when advocacy is balanced with inquiry, one is in a better position to provide content that is valued and thus used by teachers. The next section considers how theories of action may be engaged.

How to Engage Theories of Action

Given that engaging one's theory of action can potentially improve the outcome of change projects, it is important to consider how this may be achieved and why it is not achieved more often. The following section presents an example of an approach that seeks to engage teachers' theories of action to achieve double-loop learning. It then provides information about some of the features that enable engagement with the theory of action of others. Finally, an example of a practical project from the literature is used to examine the potential of this strategy to change teachers' practices in Ghana.

PBM posits that the beliefs, values and norms people hold enable them to make decisions about what to do in a given situation (Robinson, 2008; Robinson & Lai, 2006). In the case of teachers, these beliefs, values and norms enable them to solve the neutral problem of how to educate. It is

only when teachers are not able to solve this neutral problem of how to educate adequately that their actions become problematic in a negative sense. However, teachers' actions and the consequences of those actions cannot be evaluated without first being clear about the beliefs, values and norms that gave rise to them. These beliefs, values and norms are called constraints, because they constrain what a solution to the problem may be. When evaluating a teaching practice, it is necessary to have an accurate description of the constraints, actions, and consequences before evaluating that practice. Rather than bypassing teachers' theories of action, PBM seeks to uncover them and engage them by making them explicit, evaluating them and, if necessary, revising them.

Inquiry into a teacher's theory of action is only possible when one is able to suspend judgement about the adequacy of that theory. However, most PD providers think they need to persuade teachers to use their espoused methods, and generally persuade harder when they meet resistance. The desire to persuade precludes the genuine curiosity and respect needed to inquire into why teachers do what they do (Robinson, 2011). In order to conduct such an inquiry, one needs to balance inquiry with advocacy, treat others as having sound reasons for their actions and bilaterally decide on what criteria will be used to determine the adequacy of competing actions (Robinson, 2011). Research indicates that such behaviour is difficult to produce in practice (Argyris, 2002; Argyris, Putnam & Smith, 1985; Argyris & Schon, 1974). Also worth consideration is the possibility that much of what guides actions is implicitly rather than explicitly known.

One of the reasons why there is limited data that adequately explain why teachers in developing countries prefer to use rote teaching methods is that teachers themselves may not be explicitly aware of what drives their actions. Although the literature presents several factors as contributing to teachers' ongoing use of rote, such as large classes, examination procedures, behaviourist learning theories, it seems that the data used to draw these conclusions were generally the anecdotal evidence of the researchers, or the self-reports of practitioners. These self-reports are particularly unreliable in these circumstances because practitioners themselves are unlikely to be aware of what motivates their actions (Argyris, 2002; Argyris et al., 1985; Argyris & Schon,

1974). Such information is likely taken for granted by teachers and difficult to articulate. In these cases, such reasoning is only tacitly known (Eraut, 2000; Polanyi, 1967).

Examples of Engaging Teachers' Theories of Action

There were not many examples of studies that had actively sought to understand why teachers taught as they did, and if necessary sought to modify this thinking. The examples that were available had generally been conducted by Robinson or her colleagues (Robinson, 1992, 1998, 2008; Robinson & Lai, 1999, 2006; Timperley & Robinson, 2000; Ward, Robinson & Parr, 2003). For example, Timperley and Robinson (2001) found that the prevailing assumptions of teachers on the causes of low student achievement were counterproductive to improving the quality of instruction offered (p. 281). Typically, teachers explained problems in terms of external factors, such as student and family deprivation, and ignored school-based factors. The analysis of the four schools involved was based on schema theory.

The central functions of schema are to assist with the comprehension of new data and to predict future events. They serve as recognition devices that allow new data to be processed according to the goodness of fit with current schema. Existing schema strongly influence how the new data might be perceived, so that to a great extent, we perceive what we expect to perceive. (Lipman, 1997, as cited in Timperley & Robinson, 2001, p. 282)

As teachers' schema took little notice of school-based causes of low achievement, the researchers undertook steps to challenge teachers' existing schema in order to change it. The process is described below as it explains how researchers led teachers to modify their thinking. There were several factors that led teachers to revise and change their previously problematic schema. The first of these was exposure to discrepant data (Timperley & Robinson, 2001, p. 288). Discrepant data are intended to create a sense of dissonance so that what was once regarded as normal seems strange (Argyris et al., 1985; Lewin, 1948; Spillane, Reiser & Reimer, 2002). However, teachers' initial reactions to discrepant data was to explain it in ways that kept their initial explanations intact. For example, data that showed entry level skills as being higher than expected were explained as that cohort being out of the norm. Change required the presence of an external researcher who pressed teachers to validate their explanations. Because teachers' explanations were not valid, they were challenged to rethink their own assumptions.

Second, teachers were supported to collect and analyse data that was used to test their causal explanations of the problem. ‘Repeated challenges and new knowledge about how to test assumptions led to teachers initiating their own testing processes with decreasing reliance on external agents’ (Timperley & Robinson, 2001, p. 292). The effect of ongoing schema testing on teachers’ schema and teachers’ causal explanations is illustrated in the diagram below.

Initial Schema	Revised Schema
Causes of low achievement lie with the parents, children and the community’s socio-economic conditions	Causes of low achievement are complex with current school practices contributing at times
↓	↓
No need to test schema	Schema constantly tested
↓	↓
New data interpreted in terms of existing schema	Schema continually revised

Figure 2.3: Effects of challenges to existing schema (Timperley & Robinson, 2001, p. 291)

This example illustrates how engaging the implicit reasoning of teachers can lead to changes in teachers’ practices. Teachers came to see their current methods as problematic and in need of change. Further, in some cases, teachers started to independently question and revise other schema on an ongoing basis.

Unfortunately there were not many examples of PBM within the educational research literature. The results above do suggest that this approach warrants further investigation. Further examples of similar approaches can be drawn from the research on organisational change. Organisational change literature indicates that engaging individuals’ theories of action can lead to lasting changes in their practice (Argyris, 1990, 1994, 2002; Argyris et al., 1985; Argyris & Schon, 1974). Change is made more likely when individuals start to regard their own responsibility for problems rather than attributing them to external causes (Senge, 1990a; Senge & Scharmer, 2001; Senge, Scharmer, Jaworski & Flowers, 2004). Issues of personal responsibility are openly

discussed, rather than bypassed, by the use of interpersonal strategies that reduce defensive reactions to criticism (Argyris, 1990). Individuals learn to modify not merely their actions but the motivating factors behind their actions, which then lead to new actions that are less likely to be problematic (Putnam, 1991). In this way, the PD provider inquires into, rather than assumes, what kinds of knowledge will help the practitioner improve their practice.

Summary of Engagement Strategy

In summary, despite the potential benefits of using the engagement strategy, it does not appear to be widely utilised by educational researchers, professional developers or school leaders. This is perhaps a consequence of the often automatic tendency of change initiators to prejudge the adequacy of teachers' actions against their own criteria, combined with a desire to persuade others to agree that what they are advocating is preferable. Such attitudes preclude the genuine curiosity needed to inquire into the reasons that explain teachers' actions. However, the example from the literature presented above indicates that when teachers' reasons were explicated, and teachers were challenged to validate them rather than persuaded to abandon them, teachers and researchers agreed there was a need to change. Following this, they were more responsive to PD that introduced new teaching methods. This approach appears to be useful for this particular research because, if it is uncovered that teachers' tacit reasoning is responsible for their continued use of rote methods, it shows how such reasoning can be challenged by asking them to validate their views.

Chapter Summary

In conclusion, the literature indicates that training teachers to use an alternative approach, such as student-centred methods, or facilitating their engagement in collaborative problem solving, such as lesson studies, is not sufficient to entice teachers to explore alternatives to rote teaching. However, this is based on accounts of these techniques that have typically bypassed the theories of action of teachers. When teachers' theories of action have been engaged, and teachers were asked to validate their reasoning, they became more responsive to the need for changing the way they taught. This literature review provides two useful leads that this study can further explore.

First, the study can explore the potential of combining information from the research literature about content and process. This means conducting PD that presents teachers with a means of teaching reading that has been validated by the literature as well as facilitating a collaborative problem-solving process. Second, the study can explore how to engage teachers in explicating and evaluating their theories of action. This means acting in ways that balance inquiry with advocacy, respect teachers' free choice and bilaterally determine which criteria will be used to judge the adequacy of competing theories of action.

Chapter Three: Methodology and Methods

Chapter Overview

This chapter outlines the research methodology and methods. It begins by examining a variety of research paradigms and identifies action research as appropriate for this type of study. It then articulates how the action research project drew on mixed methods methodology. Finally, the methods of data collection and analysis used during the two action research cycles are described.

Introduction

The research question addressed in this thesis is:

How can PD affect the teaching practice of a cohort of Ghanaian primary teachers so that they are more likely to teach students to identify, pronounce and comprehend what they read?

This question is exploratory by nature. Exploratory research questions require a less structured research design because they need to have the flexibility to pursue unexpected lines of inquiry (Robinson & Lai, 2006). The main purpose of this section is to highlight how the study evaluated the effect of two cycles of PD, and how critical reflection on the outcomes of the first cycle informed the design of PD during the second cycle.

Research-Practice Gap

Despite the considerable debate over different approaches to research, the design of the research should be well matched to the phenomena studied. Before justifying the research paradigm, methodology and methods that underpin this study, this section briefly examines how some types of research may be better suited to problems that implicate human practices.

There is often a gap between what researchers advise and what teachers and policy makers do. Some may argue that this is essentially a problem of information dissemination. This implies that

the solution would be to disseminate information about research findings or new teaching methods harder or wider. However, there are others who take the view that this is a natural outcome when the assumptions underpinning the type of educational research are mismatched with the generic features of educational practice (Robinson, 1998). Lawler (1985) shares these concerns.

[I]f research is to jointly contribute to theory and practice, it must be designed to accomplish this objective. It cannot simply be taken as a matter of faith that adhering to certain scientific research principles will lead to jointly useful research. Indeed, it may be that adhering to principles that were designed to produce research that contributes to scientific knowledge will make it certain that this research will not contribute to practice. (Lawler, 1985, p. 3)

Although it was not within the scope of this research to reach any conclusions in relation to debate over how research methodology can better inform practice, given the practical nature of the research it was deemed worthwhile to take these concerns seriously. This meant that it was necessary to examine alternative research approaches that may be considered less conventional. Schon (1983) adequately describes the situation faced by the researcher in this study. Namely, he highlights how research that adequately considers the complexity of practice needs to be flexible in nature.

In the varied topography of professional practice, there is a high, hard ground where practitioners can make effective use of research-based theory and technique, and there is a swampy lowland where situations are confusing ‘messes’ incapable of technical solutions. The difficulty is that the problems of the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger society, while in the swamp are the problems of greatest human concern. Shall the practitioner stay on the high, hard ground where he is constrained to deal with problems of relatively little social importance? Or shall he descend to the swamp where he can engage the most important and challenging problems if he is willing to forsake technical rigor? (Schon, 1983, p. 42)

Kahane (2007) similarly argues that complex problems are unlikely to be solved by conventional thinking or approaches. The implications of this brief description of practice and complex problems indicates a need to explore approaches to research that could respond suitably to the demands of the practical situation at hand.

Research Paradigm

For this study, action research was chosen as a suitable research paradigm because it enables a dual focus on both action and research outcomes, is flexible and responsive and supported the researcher to continually refine the action and research through iterative problem-solving cycles. Although this term is not usually applied to action research, Dick (1993) describes it so because there are a variety of methodologies that may fit under this category, such as participatory action research (Carr & Kemmis, 1986) and action science (Argyris et. al, 1985). The reasons for choosing action research are further elaborated below.

This study was primarily concerned with changing the actions of the teachers involved in the study, and a contribution to the general body of knowledge was a secondary goal. Using Dick's (2002) views, this research can be described as an **action** research project as opposed to an action **research** project. The difference in highlighting reflects the different weighting of the 'action' or 'research' component in a given project. Action research is considered suitable for those who aim to improve their own actions, particularly in projects that have change as an outcome (Dick, 2001).

The second advantage of action research for this study is that it is responsive. This means that it provided the opportunity for the researcher to refine their interpretations and actions as the project proceeded. Dick (1999) also notes that, although uncommon, this can provide flexibility to adjust one's research methodology after the project has started. Such flexibility and responsiveness is a necessary element when the situation is complex and relatively unknown. This leads to the third advantage of action research, the use of iterative problem-solving cycles.

Action research methods are most likely to be appropriate when you do not know where to start, and do not have a lot of time to invest in the study. It is useful for exploratory research, where you do not yet have a very precise research question.

But it is most valuable when you have to be responsive to the changing demands of a situation. For example, this may be when you wish to build a research component into some change program or the like. For this reason it can also be used for evaluation of an ongoing program. (Dick, 2001)

The researcher can begin with tentative research questions and tentative research methods and then begin to refine these through cycles of critical reflection and action. Perhaps the uncertain nature of the research process convinces some that this approach to research lacks rigour. However, the nature of these questions and methods do not remain unclear, but rather become increasingly concise through iterative cycles of inquiry. Such a process is beneficial when researching in settings with many unknown variables that could limit the effect of one's actions.

The argument here is not that positivist approaches to research lack value, but rather that they are less appropriate for investigating this particular research setting and topic. Indeed, by selecting action research, this study is arguably more likely to achieve action outcomes, but less able to achieve research outcomes. For example, research that is conventional in psychological fields or positivist research, is more likely to produce findings with greater generalisability. However, this is also what prevents such research from being responsive.

Conventional research sacrifices responsiveness in the interests of achieving replicability. That is what often makes it unsuitable as a change technique. Action research values responsiveness over replicability, because otherwise it is very difficult to achieve action as part of the research. (Dick, 1993, p. 32)

Thus, this research prioritised responsiveness in order to pursue and attempt to resolve issues of local, rather than global, relevance.

Further, action research is better suited than interpretive research because the former can draw on interpretivist principles, such as using qualitative data to understand the experience of teachers, without being limited to only that descriptive inquiry. Ordinarily, interpretivist research would prioritise the importance of understanding teachers' perspectives naturally, that is without interference from researchers. Action research, conversely, argues that understanding one's perspective is actually enhanced when one tries to change it (Lewin, 1948).

In summary, the flexibility and responsiveness of action research are attractive characteristics suitable for this inquiry. Although focussing on the particular may limit the generalisability of findings, action research that emphasises critical reflection that can improve change outcomes is more suitable for this study, because it is primarily concerned with a cohort of teachers' particular problems. How the study developed in response to the situation is described below.

Two-Cycle Action Research Design

The action research lasted approximately 15 weeks and involved two action cycles. The research was designed to enable the researcher to pursue unanticipated avenues of inquiry. It was also informed by evaluation and analyses of the first cycle of PD. This evaluation of PD was a major component of this action research study. The design that is presented below was developed as a response to several sub-questions that arose during the course of the study. Following these questions, the research design is highlighted by Figure 3.1.

What is the effect of PD that uses lesson study techniques and the reading-to-learn approach on the way teachers teach reading? This question was answered by comparing how teachers taught before the first cycle of PD with how they taught after it. The way four teachers taught reading was closely observed, recorded and discussed with teachers prior to the PD. These data served as a baseline sample. The same four teachers' lessons were observed, recorded and discussed after the PD. Any changes were analysed with reference to the likelihood that new practices would better teach students to pronounce, identify and comprehend what they had read.

The lack of success of the first action research cycle prompted an unanticipated line of inquiry. This inquiry was driven by the questions below.

1. *What explains the lack of effect of lesson studies and the reading-to-learn approach on the way teachers taught reading?* The teachers' levels of implementation of their own ideas, which were the product of lesson studies as well as the researchers' ideas (reading-to-learn), was explained by discovering the constraints that determined the extent to which these alternative practices were inconsistent with how teachers thought they should teach reading. These data were collected through the teacher scenario response survey and analysed by coding data that indicated key constraints.
2. *What is the effect of using PBM techniques, namely theory explication and theory competition, on the way teachers teach reading?* This question was answered by comparing observations of how teachers taught before engaging in PBM techniques with

how they taught afterwards. Changes were analysed with reference to the likelihood that new practices would improve the ability of students to pronounce, identify and comprehend what they read. This research design is also presented as a diagram below (see Figure 3.1).

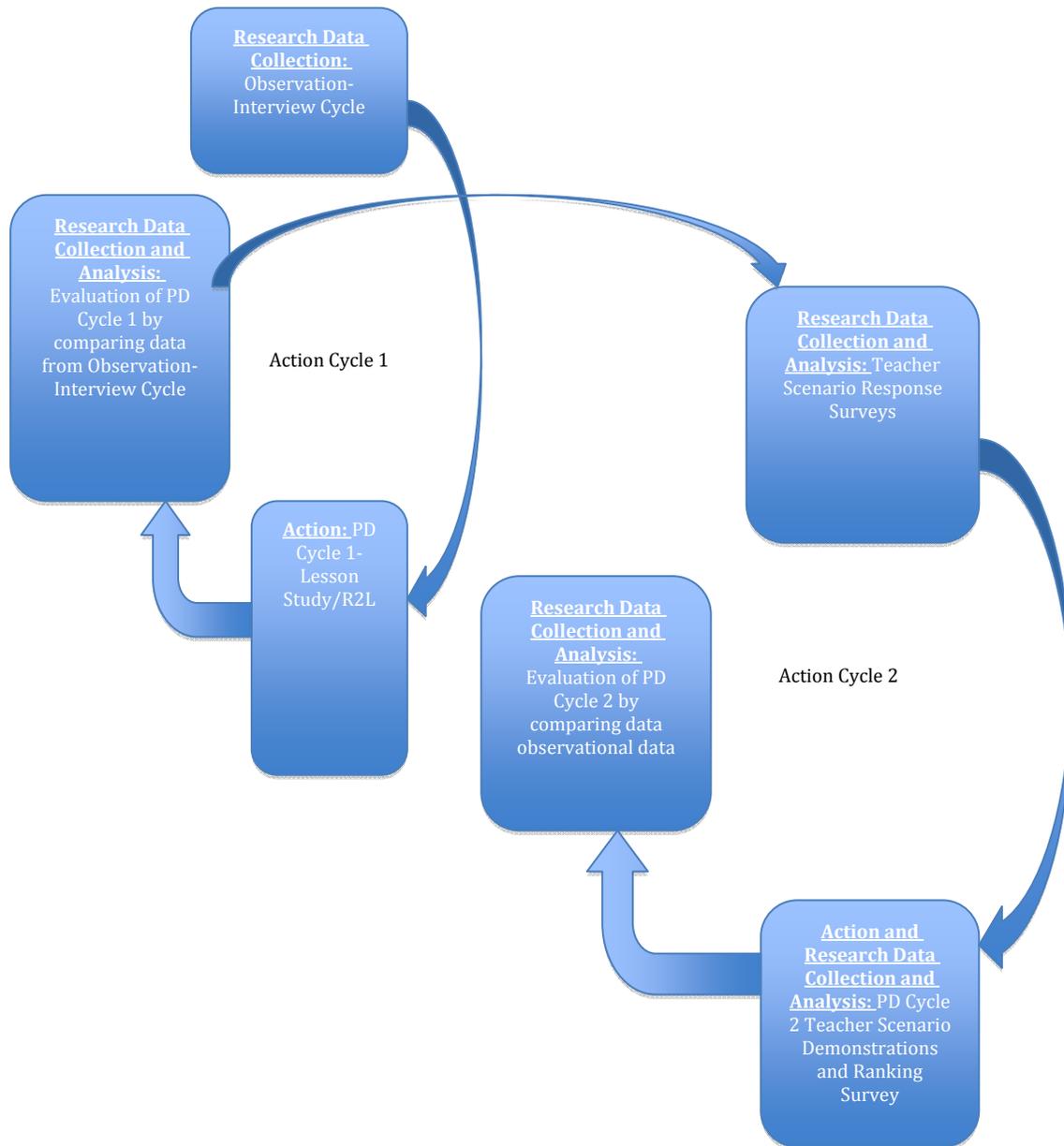


Figure 3.1 Two-cycle action research design

Personal Development

Action research cycle 1 explored the effect of two approaches to PD. These two approaches included a reflective process called lesson study (Lewis et al., 2004; Saito et al., 2008) and an alternative approach to teaching reading called reading-to-learn (Rose, 2011; Rose & Acevedo, 2006b). Prior to conducting this research, these two approaches had been used separately and the effect had been very limited. This study explores the effect that blending both approaches together had on the teaching practice of a cohort of teachers. Action research cycle 2 explored the effect of engaging a cohort of teachers in strategies outlined by PBM (Robinson, 2008; Robinson & Lai, 2006). Each of these approaches to PD is described in more detail below.

Alternative to Read and Repeat

The alternative reading approach advocated was the reading-to-learn approach (Rose, 2011; Rose & Acevedo, 2006b). Reading-to-learn was seen as a potential alternative to current practice because:

- it was designed and tested with students who had a similar background to those in Ghana, namely INDIGENOUS Australian students living in remote locations (Rose et al., 1999);
- it had achieved rapid improvements in reading and writing (e.g., two years progress in six months) (Rose & Acevedo, 2006a);
- it did not require any special resources;
- the researcher had practiced and trialled the methods with a junior high school class and it appeared to be working, although there were no test results or other data to support these perceptions and
- it was consistent with the researcher's belief that reading is enhanced by developing the ability to understand the graphophonic, syntactic and semantic cues within a text, rather than favouring one aspect like phonics.

A reading-to-learn lesson takes approximately two hours, and involves both reading and writing activities. Lessons are structured according to a theory of what reading is, based on functional grammar (Halliday & Matthiessen, 2004) and how learning occurs, based on scaffolding the gap

between what students can do with and without support (Bernstein, 2008). The theory of functional grammar indicates that what needs to be taught are the patterns in different text types that help one communicate. For example, a persuasive text seeks to persuade someone by listing the various pros of a particular idea, and also trying to prove the cons invalid. The pedagogic approach initially leads the teacher to offer lots of support to students, who are initially unaware of these patterns. This support is gradually withdrawn as students become more able to identify and use these patterns on their own. A typical lesson involves six steps.

1. Preparing for reading: orients the students to the topic as it unfolds in the text. The pedagogic principle behind this is to prepare all students to be able to read the text with understanding by providing a summary that all students can understand.
2. Detailed reading: the teacher supports all students to read each sentence in a short passage. The pedagogic principle behind this step is for students to become very familiar with the literary patterns found in an excerpt of the text. Students are supported to identify these patterns through the scaffolding interaction cycle; prepare-identify-affirm (Martin & Rose, 2005, p. 258). For example ‘The next sentence tells us about the dog eating his dinner. Who is this sentence about?’ ‘The dog’ ‘Exactly, well done. What was he doing? That is right, eating. What was he eating?’ ‘A delicious bone.’ ‘Exactly right.’
3. Preparing for writing: students plan exactly what they are going to write, based closely on the passage they have studied in Detailed reading. The pedagogic purpose of this step is for students to abstract the patterns they have seen while reading in preparation for writing. For factual texts, this involves listing dot points of relevant information. For stories, arguments and text responses, this involves brainstorming new topics they can write about using the patterns they have identified.
4. Joint rewriting: the teacher supports the class to write a new text that is patterned on the reading text. The pedagogic principle of this step is for the teacher to support students to reconstruct a text prior to asking them to do so independently. The teacher is able to support by scribing, helping with spelling and reminding students of relevant patterns.
5. Individual rewriting: students practice writing a new text using the same patterns as the Detailed reading and Joint rewriting texts. This step is similar to Joint Rewriting but without as much teacher support.

6. Independent writing: students use what they have learnt from the preceding stages to write an independent text. The pedagogic principle behind this step is for students to practice applying the generic patterns they have learnt to a new writing topic independently (Acevedo & Rose, 2007).

This approach was demonstrated to teachers during action research cycle A. However, merely demonstrating alternatives to teachers had not been very successful in the past, so the research aimed to also engage teachers in reflecting on their teaching. This was done by facilitating small groups of teachers to collaboratively plan, implement and reflect on some reading lessons.

Reflective Practice

While the content of the intervention was based on reading to learn, the process was based on the lesson study cycle (Figure 3.2). Lesson study was chosen because:

- it had been trialled successfully in Indonesia (Saito et al., 2008);
- it started with a gap the teachers had identified for themselves and
- it involved planning, implementing and reflecting on lessons.

The lesson study cycle usually ran as three parts: 1. Identifying gaps and planning a lesson, 2. Teaching and reflecting on the outcomes of that lesson, 3. Revise and re-teach the lesson.

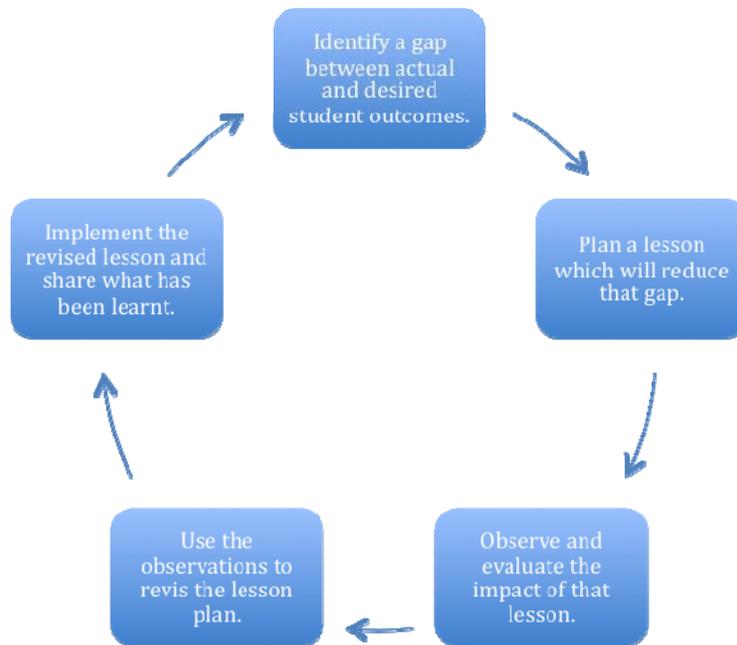


Figure 3.2: Lesson study cycle (Lewis, 2002)

This process had been trialled prior to this research with several teachers in northern Ghana and had not had a significant effect. Thus, the research investigated the effect it would have when teachers were also supported to trial alternative teaching methods.

Problem-Based Methodology

The central purpose of PBM is ‘to explain, evaluate and improve teaching practices in ways that are rigorous as well as relevant to the particular context in which a teacher is working’ (Robinson & Lai, 2006, p. 15). In order to achieve this, it positions educational practices as solutions to problems about how to educate. In this thesis, these problems occur in classroom situations and are solved by teachers. In order to examine how these problems are solved, PBM draws on a theoretical framework of what problems are (Nickles, 1981) and how people solve them (Argyris, 1990; Argyris, Putnam & Smith, 1985; Argyris & Schon, 1974). This methodology is briefly described below.

PBM posits that the beliefs, values and norms people hold enable them to make decisions about what to do in a given situation; that is, solve the neutral problem of what to do (Robinson, 2008).

A key point is that the actions and the consequences of any actions cannot be evaluated without being clear about the beliefs, values and norms that gave rise to them in the first place. These beliefs, values and norms are called constraints by Robinson because they constrain what a solution to the problem may be. Hence, when evaluating a teaching practice, it is necessary to have an accurate description of the constraints, actions and consequences before evaluating that practice. For example, a phonics researcher may observe a teacher teaching reading and note that they are not implementing the methods they have been shown during a workshop. The researcher may rationalise this as the teacher lacking understanding about what the methods are and may pass on some more information at the end of the session. However, if the reason that the teacher was not implementing those methods is because they held different beliefs about how children become literate, or believed that using the approach would create behaviour management problems for themselves, then the researchers' actions are unlikely to affect teaching practice. For this reason, PBM, rather than bypassing teachers' theories of action, seeks to uncover them and engage them by making them explicit, evaluating them and, if necessary, revising them. The researcher's theory and the teacher's theory are both subject to evaluation.

When a theory of action has been described, it can then be evaluated for accuracy, effectiveness, coherence and improvability. Explanatory accuracy determines the extent to which the beliefs, values and norms explain why certain actions are ruled in while others are ruled out. Further, since beliefs, values and norms are products of human perception, and humans consistently misinterpret or make mistakes in how they perceive phenomena, these can also be tested for accuracy. For example, a teacher may be using a particular textbook in the belief that it will keep parents satisfied because they had to pay for it. Checking if this belief is accurate is part of evaluating the accuracy of the teacher's theory of action.

Effectiveness determines the extent to which the consequences of the actions satisfy the constraints that led them. For example, in the example above, it would be beneficial to check how satisfied parents were, and also inquire into potentially more effective ways to satisfy them. Coherence determines to what extent the problem of what to do is solved without creating other problems. To continue the example, the textbook above may be unsuited to the exam material; in that case, its use could be challenged. Last, 'given the complexity in educational problems and

our uncertain knowledge about how to solve them, it is important to develop theories that are testable and able to be revised to meet changing situations' (Robinson & Lai, 2006, p. 31). This criterion asks the extent to which the teacher would be willing and able to uncover flaws in their theory independently, by examining the accuracy, effectiveness and coherence of their current solution.

Implicit in the idea of theory evaluation is the notion that a better theory is possible, and that theory is evaluated against competing theories or solutions to problems. This means questioning the competence of the teacher. It is not easy to discuss such things as people find it difficult to provide negative feedback without damaging relationships. One of two things generally happens: they sacrifice the relationship for the sake of the task ('give it to 'em straight!') or they sacrifice the task for the sake of the relationship ('pussy footing'). However, PBM draws on a theory of interpersonal effectiveness known as model II (Argyris, 1990; Argyris & Schon, 1974) or open-to-learning conversations (Robinson, 2008, 2011; Robinson & Lai, 2006) to address the social challenges involved in theory evaluation. This will be discussed in more detail later in the chapter.

In summary, PBM is a methodology that seeks to improve educational practice by uncovering and engaging, rather than bypassing, teachers' theories of actions. These theories are evaluated in order to determine their accuracy, effectiveness, coherence and improvability. Both researchers' and teachers' theories are evaluated. In order to avoid defensiveness, PBM uses open-to-learning conversations to engage people in the process described here.

Research Methodology

The research methodology used for the study was based on a mixed methods approach described by Creswell (1994). In this approach, the researcher conducts a study within a single dominant paradigm, with one small component drawn from the alternative paradigm. Although this introduces an apparent inconsistency in choice of methods (the use of interview and observation on the one hand, and survey data on the other), it was considered that the survey data added the ability to check inferences the researcher made during observations and interviews.

A qualitative approach was deemed most useful to evaluate the effect of the PD on the way teachers taught reading. Thus, a video-recorded observation of a cohort of teachers' reading lessons were compared before and after the PD to examine the effect. This enabled the researcher to explore possible changes to teachers' practices, rather than developing tools to measure specific areas (Dick, 1993). Because change was not evident, the flexibility of action research allowed the researcher to critically reflect on why teachers' continued with rote teaching methods, and that type of research methodology could enable this line of inquiry.

PBM was selected as a means of inquiring into the theory of action that led teachers to persist with rote teaching methods. As noted earlier, PBM is an approach to research with the specific aim to improve practice. In this study, PBM was used to satisfy both research and action aims. For example, how PBM was used to engage the teachers in PD has already been described above. How PBM was used to research the theory of action of teachers, and the effect of attempts to validate that reasoning, is described below.

PBM is described as a form of non-positivist empiricism that draws on mixed methods research (Robinson, 2008). This research followed the guidelines outlined by PBM to both inquire into teachers' theories of action and bilaterally evaluate that theory, as well as the alternatives presented by the researcher. This was accomplished using both interview and survey data as described in the methods section below. In this way, the research aimed to advance the collective understanding of why teachers persisted with rote teaching, as well as ways that the reasoning that sustained such practices could be challenged by future researchers.

In summary, the initial action research cycle drew mainly on qualitative research to evaluate the effect of the first PD cycle. Critical reflection on the lack of implementation of new teaching methods led the researcher to use PBM to inquire into the reasoning that led teachers to reject the alternative practice. At this point, the delineation between research and action became blurred because PBM was used to achieve both action and research outcomes. However, the outcomes were relevant and useful to the aim of research.

Research Methods

This section outlines the methods of data collection and analysis used to answer the research question.

Data Collection

There were three tools that were used to collect data during the two cycles of action research. They were an observation-interview cycle, a semi-structured interview and a survey.

Interview-Observation Cycle

In order to study the effect of both action cycles, there was a need to collect data on how teachers taught reading before and after each cycle of PD. An interview-observation cycle was used to develop case studies for a cohort of teachers involved in each project (Loughran, 2002). The process was designed to identify how teachers taught, as well as the kinds of thinking that informed lesson preparation and delivery.

The cycle began with a semi-structured interview that lasted about 15 minutes (see Appendix 2). This was designed to inquire into how the teacher had planned the lesson. Second, the teacher taught a reading lesson, which was observed and video recorded by the researcher. After the lesson, there was another semi-structured interview that was designed to explore the teacher's reaction to their lesson and identify if they had modified anything as the lesson progressed. Finally, the teacher and researcher watched the video of their reading lesson and discussed what they observed. This was undertaken in order to probe teachers' reactions to the lesson, as well as further inquire into their decisions during the lesson. Interviews were recorded digitally.

This process was chosen because it provided a means of identifying how teachers taught prior to engaging in the PD and a means of comparing this with how they taught after PD. Observations were preferable to self-reports or surveys because they provided a more reliable account of how teachers actually taught, rather than their perceptions of how they taught. These observations

were then discussed openly with the teacher in order to check that the interpretations of the researcher matched those of the teacher.

Semi-Structured Interviews

After data from the first action research cycle indicated there was no improvement in teachers' practices, there was a need to collect further data that could help explain the limited effect. This was accomplished by identifying the constraints that led teachers to perceive rote teaching as a suitable practice.

Data on constraints were collected through a teacher scenario response interview that used critical dialogue (Robinson, 2008). This type of survey had been used previously as an indirect method of inquiry into teachers' reasoning. In those cases, the indirect method elicited more accurate information than direct questioning about how teacher' solved the problem of how to teach (Timperley & Parr, 2005; Ward et al., 2003). This was used in this case to elicit more accurate information, as direct questions would likely uncover what teachers were supposed to think, rather than what they actually thought. Additionally, it should not be assumed that teachers are explicitly aware of the reasons for their own actions. There is considerable data that indicates the tacit nature of much human knowledge (Eraut, 2000; Polanyi, 1967; Robinson, 2008; Robinson & Lai, 2006; Schon, 1983, 1987). Asking teachers to comment on other teachers was more likely to help them raise issues that they took for granted.

Four different teaching scenarios were presented to teachers to comment on. The order in which scenarios were presented was rotated to avoid bias. Participants were asked to rate each teacher on a nine-point scale. A score of one was very poor, nine was very good. However, the emphasis was on asking teachers about *how* they made their judgement. A semi-structured interview accompanied these scenarios.

Table 3.1 Different approaches to reading scenarios

Teaching Method A (Rote method-memorisation)	In teacher A's reading class, he puts the key words on the board. He calls them, then the students call them a couple of times. He always listens to check the students say the words correctly. After the key words have been called, he begins to call the main story, and students call after him. At a point in the lesson, the students could not call after him well, so he thought it was too long, and divided some of the sentence up. The students were able to call after him successfully and he was happy.
Teaching Method B (Reading-to-learn method-teaching the whole text, sentence and word level patterns)	In teacher B's class, first she reads through the story or text and checks that students understand what it is about by asking questions, explaining the meaning of new words and linking what is written down to what is already known. She often asks students 'What will happen next?' After reading each paragraph, the class usually summarises what has been said. At the very least, there will be a short discussion so the teacher can check that students have understood the meaning of unfamiliar words and the paragraph. After this, the class reads the story together and the teacher helps the students to read the sentences themselves, sometimes individually, sometimes in groups.
Teaching Method C (Phonic method-teaching the relationship between letters and sounds)	Teacher C introduces the key words on the board by pointing to the first letters in the word, pronouncing what sounds they make and asking if students can then say what the word is. Sometimes, teacher C also breaks the word into syllables and asks students to pronounce parts of the word. As the teacher models the reading of the whole story, he sometimes stops and asks students to call out what the next word is. If they do not know, he might give them a clue by calling the first sound. After reading, the teacher sometimes does some spelling activities, where he asks the students to look at the syllables of a word on the board, then covers the word and asks the students to write it.
Teaching Method D (Language Experience Approach-	Teacher D does not use the textbook. He usually prefers to create an interesting experience for the class, like a nature walk or a practical experiment, and then to help them to learn how to talk about what they are doing. After such activities, he then brings students' attention to the blackboard where they begin to write about what they were doing. At several times during the writing, he

developing students oral language and using that to scaffold reading ability)	hands the chalk over to the students to share in the writing. The story that they write then becomes a text for them to practice learning how to read. They revisit this story for several days, reading it together, discussing how it is written and sometimes editing it or adding to it.
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Table 3.2 Teacher scenario responses to semi-structured interview questions

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1. How would you rate this teacher on a scale of 1 to 9 (1= very poor, 9= very good). Why would you rate them like that?
 2. Which one of these teachers is most similar to yourself? What is similar?
 3. Which of these teachers is most different to yourself? What is it that is different?
 4. Which of these teachers would you most like to be like? What are the gaps between that teacher and yourself? What is preventing you from becoming more like that teacher?
 5. Which of these teachers did you used to be like? Why were you like that? What made you change?
 6. Which of these teachers would you say is the most common? What do you think are the reasons for this?
 7. Which one of these teachers is the most beneficial for students' learning? What makes you say that?
 8. Which of these teachers is the most beneficial for students' understanding of what they read? Why?
-

This process was chosen because it had previously been successful in describing teachers' theories-in-use as opposed to their espoused theories (Ward et al., 2003). For example, the previous study was able to explain why teachers who openly espoused the value of using Information and Communication Technology (ICT) in their classroom chose not to by describing the constraints that led them to view their current practice as suitable. It was reasoned that by asking interviewees to compare the different teaching approaches with their own practices would

elicit information about their theory-in-use. Direct questioning was avoided because it would uncover teachers' espoused theories about teaching reading, and these may not necessarily match what actually guided their practice.

Ranking Survey

A ranking survey was used to check the description of teachers' theories of action presented by the researcher, as well as to check the coherence and effectiveness of teachers' theories of action. The purpose of this survey was not to collect data that were representative of the population, but to collect data that the teachers themselves would recognise as valid, which could be used to question their current practice. Teachers were asked to rank teaching approaches A (rote), B (phonics), C (comprehension) and D (language experience) against a list of criteria. These criteria are described in Table 3.3.

Table 3.3: Ranking survey questions

Which approach would:
A District Education Office want you to do?
Best develop student ability to identify words?
Help students most when it came to a problem?
Involve students in the lesson?
Make a lesson enjoyable?
Help students progress in ability to read?
Teachers or head teacher advise you to do?
Be a boring lesson?
Develop English speaking skills?
Develop students' fluency?
Receive teacher training college support?
Reduce fear?
Develop spelling skills?
Develop composition skills?
Best match the children's ability?
Make children most confident?
Make children most attentive?
Make children most happy?
Be approved by MOE?
Be the best?
Cause you to send your child to which teacher?
Be best at controlling the students?
Help children learn what new vocabulary means?
Help children remember new vocabulary?
Be the most common?
Be the most comfortable to imitate?
Require the least work?
Help the teacher get the best exam results?
Help the teacher have the most control?

Data Analysis

The data described above were analysed separately. The case studies were analysed after action cycles 1 and 2. The teacher scenario response survey was analysed prior to action cycle 2 by the researcher and refined in collaboration with the research participants during action cycle 2.

Analysing the Effect of PD

A comparative analysis of teaching practice before and after the intervention was used to uncover the effect of the intervention (Robinson & Lai, 2006, p. 85). What was analysed was purposefully left open prior to collecting the data. After the first action cycle, the researcher decided to identify the procedural steps of each reading lesson and the time teachers spent on each step. Comparative analysis was then used to look for changes in these procedures and the time spent on each step. In cases where change was present, the researcher attempted to evaluate whether or not those changes would potentially increase the likelihood that students would learn to identify and understand what they were reading.

A comparative analysis was selected because it provided a suitable means of identifying the effect of PD on teachers' practices. However, when this analysis indicated that the first action cycle had failed to affect teachers' practices, the researcher was able to refine the direction of the research through critical reflection. This became a strength of the study.

Analysing the Reasoning of Teachers

To understand why the initial PD had such a limited effect, the teacher scenario response interviews were coded to identify information about constraints. The data identified as a possible part of teachers' key constraint sets were then checked in numerous ways by using member checks and looking for disconfirming data. First, drafts were presented for member checking on an ongoing basis (Lincoln & Guba, 1986). Second, teachers' actions and comments during post-lesson discussions were continuously reviewed to seek disconfirming data. Third, the predictive ability of draft descriptions were checked through role-play situations.

This method of analysis was continuous and iterative: the description of teachers' theories of action was continually treated as tentative and checked for disconfirming data. It was selected because the process of identifying the constraints on teachers' actions, which were tacitly held and were assumptions about how to teach, involved careful checking against the views of participants as well as their actions.

Participants

The participants during action research cycle 1 and 2 varied. This was mainly because action research cycle 2 was conducted during the school holidays and during this time some of the participants from action research cycle 1 had other commitments. This did not seem to affect the results. The section below outlines who participated in each cycle.

Cycle 1

Two primary schools participated in action cycle 1. These schools were purposefully selected for two reasons. First, they had both actively participated in previous PD sessions and had expressed an eagerness to participate further. This was important because the project was voluntary. Second, they both were located in rural villages that were representative of most of the schools in the region.

The teachers in these schools varied in terms of gender, age and qualifications. In both schools, the background of teachers varied from those with a teaching diploma to those who only had high school qualifications. Although training levels differed, teaching practices did not and all teachers used similar teaching methods. Two volunteers were requested from each school to participate in the data collection processes described above.

Cycle 2

Action cycle 2 consisted of two classroom teachers, a circuit supervisor, an exams officer and a logistics officer. All participants had been purposefully selected. One of the teachers had participated in action cycle 1, whereas the others had not. The other teacher had been selected because he was a member of the district teacher support team, had been willing to participate in training during his own time in the past and had also demonstrated support for rote learning. His support for rote learning was important because the researcher wanted to understand the reasons for this support and test if the methodology could challenge this reasoning. The circuit supervisor had been nominated by the District Director, who wanted to test his commitment. The two remaining education officers had been selected because they had shown concern over students' reading ability and teachers' teaching ability. The supervisor and officers experienced considerably more authority than the classroom teachers. The supervisor's role was to monitor the work of teachers. The logistics officer's role was to provide schools with required resources. And the exams officer's role was to ensure schools were prepared for the national exams and to collate exam data. Each of these officers had been promoted to these positions from classroom teaching positions. All participants had completed a diploma of education, and some had completed a bachelor degree. All participants were male. This was not intentional, but reflects the ratio of male to female education officers to some extent.

Ethics

Data were collected in accordance with the guidelines, and with approval from, the University of New England Human Research Ethics Committee (Approval number HE10/220). A copy of the relevant documents is provided in Appendix 3.4.

Written information describing the project and a written invitation to participate was prepared for all participants. The researcher engaged in discussion with participants to ensure that interviews and observations took place at their convenience.

Chapter Summary

This chapter described the main aspects of research methodology and approach used in the study and methods of data collection and analysis, along with their justifications. Action research was well suited to the exploratory nature of the research question because it encouraged the pursuit of unanticipated lines of inquiry. This was a two-cycle action research project. The findings of the initial action research cycle were used to inform the second action cycle. Observational data of teachers' reading lessons before and after the PD was used to evaluate the effect of each action cycle. The flexible research design enabled this study to introduce methods that helped explain why the initial action research cycle failed to have the intended effect and how future actions may more effectively contribute to change. Data on the constraints that explained teachers' actions was collected through a teacher scenario response survey. This data was then used, alongside strategies from PBM, to explore the effect of action cycle 2. The effect of the second cycle was also analysed by comparing observations of how teachers taught reading before and after the second intervention.

Chapter Four: Findings from Action Cycle 1

Chapter Overview

This chapter presents the initial findings of this research. First, it evaluates the effect of the action research cycle on the way teachers taught reading. Second, it discusses the reasons for the lack of effect in the first cycle on teachers' practices, along with the lessons learnt..

Action Research Cycle 1

This section presents a summary of action cycle 1 based on the journal and field notes kept by the researcher. The first PD session was used to check whether or not most students experienced a high level of difficulty reading the textbook. Students were observed reading the textbook by teachers and the researcher. All teachers observed one or two of their students reading during this first PD session; these observations conducted by the researcher and teachers showed that many students experienced difficulty reading. However, the observations also demonstrated how some students had memorised pages of the textbook without being able to identify or pronounce the words. The researcher discussed these observations with the teachers briefly. It was noted that students who could recite (recall from oral memory) but not read (decode or comprehend) the text were a common phenomenon, and it was the view of some teachers that this was caused by rote teaching. The researcher thought that this realisation should increase teachers' interest in and willingness to use alternatives to rote teaching. Further, the researcher attributed teachers' use of rote teaching to their particular way of understanding the reading process, and decided to focus on this in the second session.

The researcher used the second session to create a shared definition of reading. This occurred approximately one week after the first session. Teachers were presented with a novel, a textbook and an exam paper. Teachers spent approximately five minutes reading each item, then discussing in pairs what they were actually doing while they were reading. This information was

then shared with the whole group and recorded on the chalkboard. As a result of this exercise, two areas were identified as very important in learning to read: pronunciation/identification and comprehension. This shared definition (see Figure 4.1) was accepted by all participants as a fairly accurate description of the reading process. Teachers were then invited to plan lessons that they thought would teach students how to learn to pronounce and comprehend what they read and were invited to present or demonstrate it the following week.

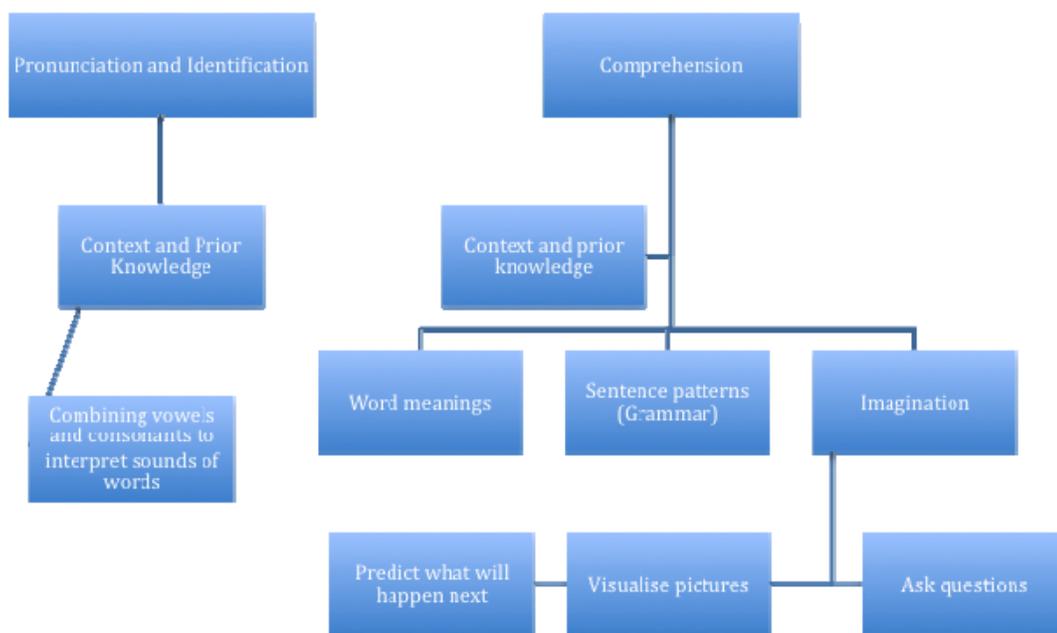


Figure 4.1: Shared definition of reading

The third, fourth and fifth sessions, which occurred on a weekly basis consecutively after the second session, were used to observe and discuss teachers' lessons designed to teach students to identify and comprehend what they read. Teachers' demonstration lessons matched one of two patterns. Either they did not deviate from the norm of rote teaching or they replicated what the researcher demonstrated; for example, using a big book. Where they did not deviate from the norm, the researcher directed discussion to the shared definition of reading and asked which part of the reading process they believed the lesson had targeted. In their responses, teachers agreed that students were not taught or asked to use actual reading skills, but rather listening and

speaking skills. Once again, it was assumed that this would lead teachers to trial alternative approaches to teaching reading. However, as the sessions went on, it was observed that this was not the case. Subsequently, the researcher decided to be more direct with the teachers and arranged to demonstrate the reading-to-learn lesson plan to teachers, and to then observe them using the teaching process and provide them with feedback.

The sixth, seventh and eighth sessions, which were conducted after the following weeks, were used to demonstrate and discuss the reading-to-learn process; the teachers were then observed in their teaching lessons in their normal classrooms. This procedure took about two weeks to complete. Due to a variety of factors such as illness, exams and lack of preparation, teachers were unable, unwilling or unprepared to teach using the reading-to-learn approach. As it was nearly the end of the term, the researcher did not pursue this with teachers, but rather began a process of critical reflection that inquired into why this was.

The next section presents the evaluation of the first action cycle. The data collected from the observation-interview cycle are presented here as individual case studies that enable a comparison of two teachers' reading lessons before and after the action cycle, in order to provide further insights into the subject of this study.

Lesson Observations Before and After Action Cycle 1

These case studies attempt to capture teachers' actions and explore their thinking about their actions before and after the PD cycle 1. Data collection followed a cycle of pre-lesson interviews to determine the planning that went into the lesson, lesson observations, post-lesson interviews to determine if everything had gone according to plan and video-assisted recall interviews to inquire into the teachers' thinking as the lesson progressed (Loughran, 1996). The data are presented as case studies to facilitate the identification of change in individual teachers' practices.

Cynthia

Cynthia was in her 20s and had been teaching for a couple of years in the upper west region. She stayed in Jirapa and rode her motorbike to school, which was about 10km away. She taught a primary curriculum that included science, English, maths, Dagaare (the language of Ghana) and social studies to a Grade 5 class of boys and girls, predominantly in English.

On the day of the baseline data collection, one week prior to PD cycle 1, Cynthia returned to the office to retrieve a poster, also known as a Teaching and Learning Material (TLM), before she began her lesson. She probably did not do this often, but perhaps felt she should because her teaching was on display. Using TLMs was regarded by many teachers in Ghana as good practice, and she wanted to make a good impression. The lesson was taken from the English textbook and was about sources of water. First, Cynthia asked students to identify different sources of water from the poster. Then she wrote the comprehension questions up on the board and spoke to them about how they would need to list the sources of water to answer one of the comprehension questions. Cynthia wrote the key words on the board and read them aloud for the students. She then read them for students to repeat after her, paying close attention to their pronunciation. Then Cynthia explained what the key words meant by linking them to the local language or providing examples.

She read the whole text in much the same way that she had managed the key words. First, the students listened to her read. Then she listened to some students read. However, there were not many students who were willing or able to read. Four students out of about 40 read a paragraph each. Whenever they pronounced a word incorrectly, Cynthia would quickly supply the correct pronunciation to make sure nobody memorised it incorrectly. Before asking students to answer the comprehension questions in their books, Cynthia made sure that all the questions had been answered orally. Even though students had heard the right answer before they were asked to write them, Cynthia appeared disappointed with the students' work. She complained that many students had copied the wrong part of the text, and were unaware that they were wrong. Despite

being disappointed with the outcomes of the lesson, Cynthia did not indicate that she would have changed any aspects of the lesson in the post-lesson interview.

During the PD sessions described earlier, Cynthia was present and punctual. She occasionally contributed to discussions. However, she avoided teaching a lesson for the rest of the staff to observe. She helped identify the problem of ‘singing’, contributed to our shared definition of reading and observed a colleague and myself teach a NALAP (National Literacy Acceleration Program) lesson using a big book. NALAP was part of a national project aimed at teaching students to read in their mother tongue and came with many TLMs that were not generally well utilised. She also saw me demonstrate a technique called ‘look, cover, write, check’. This is an activity where students are shown a word, then the word is covered and they try to remember how to write it. After this, students are allowed to look at the word again to check their spelling. The process can be repeated if desired.

During the post-action cycle observation conducted two weeks after the completion of action cycle 1, there were no TLMs, only the story from the textbook that the class was up to. The text was a folk story about Ananse the spider, who had cheated his way to marrying the village princess. The lesson began immediately with reading and repeating the key words. These words were explained or translated by Cynthia into the mother tongue, Dagaare. The class then discussed the picture that accompanied the story, and Cynthia gave the students an overview of the story. She then read the story to the students, elaborating on parts at times. Then she read short sections for the students to repeat, carefully checking they were pronouncing words correctly. The class then tried to answer the comprehension questions provided by Cynthia orally, before some students were asked to read paragraphs to the rest of the class. Finally, after revising the answers to the questions, the students were given the task of providing written rather than oral answers to the comprehension questions. Once again, it seemed that Cynthia was disappointed with the results, because she noticed that many of the students had got questions wrong as she observed them working. Cynthia then decided to go over the right answers orally again before ending the class.

After the lesson, the researcher asked to show Cynthia a way to help students learn to identify words without simply telling them. She agreed to watch the demonstration. During the short demonstration, the researcher asked students to read a text on the chalkboard silently, then asked them questions to determine if they had understood what they read. They answered all the questions correctly, but had been unable to pronounce some of the names in the story. Cynthia had received a phone call during this demonstration and had missed most of the content. Afterwards, she responded that she thought the lesson went well, but that students needed to read aloud in lessons. A comparison of her lesson before and after intervention A is shown below (see Table 4.1).

Table 4.1 Cynthia’s lessons before and after the PD cycle

Before Intervention A	After Intervention A
Teaching Procedure	Teaching Procedure
1. Introduce topic by listing sources of water and identifying objects in a poster (4:15 min)	1. Read and repeat key words (3:40 min)
2. Introduce comprehension questions and discuss answers with class (3:55 min)	2. Explain key words or translate into Dagaare (4:00 min)
3. Read and repeat key words (2:55 min)	3. Class discussion about picture in text (4:00 min)
4. Explain meaning of key words (3:20 min)	4. Teacher talks about text (5:10 min)
5. Teacher reads text to students (21:15 min)	5. Teacher reads to students and elaborates on text (7:00 min)
6. Review comprehension questions and answers (3:25 min)	6. Read and repeat text (6:40 min)
7. Some students read text to students(8:20 min)	7. Answer questions orally (10:30 min)
8. Comprehension questions (35:20 min)	8. Some students read text for whole class to repeat (6:15 min)
9. Marking orally in English (6:20 min)	9. Students complete textbook exercise for text (26:30 min)
	10. Teacher provides answers orally again (3:20min)

The data above indicate that Cynthia's lesson after the PD was not more likely to teach students to identify and comprehend what they read. Cynthia's main strategy to teach students to identify and pronounce words was to read the words for students to repeat. This did not change after the researcher's demonstration or the identification of the skills students need to learn to become proficient readers. It appears Cynthia's strategy continues to be unsuccessful because students are either unable or unwilling to read aloud when called upon. Further, by calling the words for the students to repeat, the teacher is unable to determine if the problem is whether they are unable or unwilling. Knowing more about where the students are experiencing difficulty could help Cynthia teach them what they need to know.

Regarding comprehension, Cynthia's main strategy before the PD was to cue students to prior knowledge that would assist them to answer the questions. While this was worthwhile, it did not appear to work the way it was intended, because many students still chose to incorrectly copy text from the book in the hope it contained the answer. Perhaps that was the first time they had been taught in such a way. However, surprisingly, after the PD Cynthia chose not to use this strategy and relied rather on telling the students the answers. There are two problems associated with this decision. First, it did not work because many students still were unable to locate the answers in the text and copied incorrect parts of the story. Second, it was unlikely to help students to get better at answering questions in the future, because they had not learnt how the teacher derived her answer. Although Cynthia recognised these problems, she did not link them to the use of the rote methods.

The comparison of Cynthia's reading lesson before and after the PD indicates that it did not have the desired effect on her practice. She indicated that the best she could do was to use the read and repeat lesson, but add extra elements in like breaking words into syllables or using TLMs. The case details provided above give useful insights into the reasons for her behaviour/approach to teaching and the classroom context.

Agnes

Agnes was in her 30s and working as part of the National Youth Employment Scheme. She was not a qualified teacher. She was originally meant to work as a teaching assistant; however, due to teacher shortages in remote villages, she was taking on the responsibilities of a teacher. Agnes had a young boy of about three who accompanied her to work every day (and often demanded her attention, especially while the researcher was interviewing her).

During the baseline reading lesson, Agnes appeared a little flustered. ‘You want to observe a reading lesson?’ she asked. Agnes was not timetabled for a reading lesson that day, and the part of the textbook they were due to study was not a reading lesson either. Agnes decided to use the part of the textbook that they were up to, which was a grammar lesson about verbs, and change it to a reading lesson.

She began by reading the key words while the students listened. Then the students repeated the words after her. After they had repeated them several times, Agnes stopped saying the words for the students. They could read them out when she went through the list from top to bottom, so Agnes tried mixing the order of the words. The students stumbled here. Rather than correcting the students, Agnes kept her stick pointing to the word if they got it wrong, prompting them to try again. Students then acted out each of the words, like ‘pick up the book’ or ‘shut the window’. Agnes then turned the lesson to the textbook that had several pictures of people doing something with a written description underneath. The teacher read this and the students listened. The teacher then told students to repeat after her. This continued for a while until the teacher stopped reading for the students. The students had some difficulty reading it without the teacher, so Agnes started to read for the students to repeat again. After this, some students acted out the sentences. Then Agnes wrote some sentences on the board with a blank space where the verbs should have been, and asked students to complete the sentences. After the students had spent about 25 minutes working on the exercises, and Agnes had marked some of those who had already finished, she called for volunteers to answer the questions on the board. There were around 10 volunteers, and most answered the exercises correctly.

During PD sessions, Agnes had been involved in identifying the issues of ‘singing’, creating a shared definition of reading and observing some lessons using a big book as well as the reading-to-learn approach. However, when the time came to observe her teach a reading-to-learn lesson, she avoided it. Also, when the time came to video her lesson to compare it with her teaching before the intervention, she avoided this also. Partly, her avoidance was due to illness. However, there were opportunities after this when she had recovered, but it seemed like other activities were more important to her than demonstrating her teaching.

While there was no opportunity to video Agnes’s lesson after the PD cycle, the researcher had observed her teaching many times during the intervention and after its completion. Agnes did not appear to use or trial any of the techniques she had been shown during PD sessions. In the absence of video observation, these field notes were used to compare her teaching before and after the PD.

Table 4.2: Comparison of Agnes’s teaching before and after PD cycle

Before Intervention A	After Intervention A
Teaching Procedure	Teaching Procedure
1. Read key words for students (2:45min)	1. Read the key words for students
2. Read and repeat key words (1:00min)	2. Read and repeat key words
3. Ask students to translate key words into Dagaare (1:40min)	3. Whole class reads the key words
4. Whole class read key words (1:45min)	4. Individual students read the key words
5. Student reads key words for whole class to repeat (3:20min)	5. Several students act out the key words
6. Identify key words in the pictures (1:30min)	6. Class discusses the pictures in the text
7. Read and repeat text (2:45min)	7. Teacher reads the text while students listen
8. Model text (1:00min)	8. Teacher reads text and students repeat
9. Read and repeat text (0:45min)	9. Teacher reads text again and students repeat
10. Whole class read text (1:05min)	10. Whole class reads text together
11. Students read and repeat (4:10min)	11. Exercise questions are read to students on the board
12. Teacher reads and repeat text (1:00min)	12. Students complete exercises orally as a class
13. Whole class reads and one student acts	

<p>out sentence (1:50min)</p> <p>14. Write questions on board (7:00min)</p> <p>15. Students complete exercise orally (2:45min)</p> <p>16. Students complete exercise in books (32:25min)</p> <p>17. Marking (7:10min)</p>	<p>13. Students complete exercise in their books</p> <p>14. Teacher marks exercises as a class</p>
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In terms of identification, Agnes’s main strategy in both cases was read and repeat. In contrast to Cynthia, Agnes withdrew her support in ways that enabled her to see whether or not students could pronounce words independently. However, when she found out students could not, her strategy was more of the same: continue to read and repeat until students can do it independently. The problem was that, once again, this prevented the teacher from accurately gauging the ability of the students. That is, such actions masked whether or not a student answered from memory or from other strategies, such as letter-sound recognition. This prevented the teacher from addressing any gaps the students may have had.

Agnes’s main strategy to teach comprehension in both cases was to act out the words. This appeared to work well, as most students were eager to be involved and correctly acted out the sentences. If she continued to use such strategies, it appears that most students would comprehend what they had read in class. However, this strategy is likely to be less useful as texts become longer and more abstract.

A comparison of Agnes’s reading lessons before and after the PD cycle indicates that there was no effect on her teaching practice. Her reasoning appears to indicate she believes that students who experience difficulty reading need more read and repeat.

Why Did Action Cycle 1 Not Have the Intended Impact?

There are two probable reasons why the PD cycle did not produce the desired effect. First, it did not address the constraints that governed teachers’ actions better than their current actions. Second, it avoided discussing issues of responsibility.

Failed to Meet Practitioners' Constraints

Teacher practice can be seen as a solution to the practical problem of how to educate within a particular context (Robinson, 2008). Teachers solve this problem by framing a solution to the constraints that they must address; that is, the conditions that determine the appropriateness and efficacy of their solution (Robinson, 2008). This view of practice can be used to explain why teachers' practices did not change as a result of the PD cycle.

Changing practice requires an understanding of the logic and reasoning that led to that practice in the first place. In this way an alternative solution, or new practice, can be offered that meets both the original constraint set and offers significant new benefits. Without such an understanding, any new practice may be an inadequate solution when judged against the constraint set of practitioners or may be viewed as unnecessary by practitioners satisfied with their current practice. (Ward et al., 2003, p. 3)

This view of practice indicates that it is possible that during lesson study sessions teachers were unable to think of a solution that better addressed their constraint set compared with their current actions, or that such change was viewed as unnecessary. Similarly, the new practice, reading-to-learn, was either perceived by teachers as an inadequate solution to the current constraint set, or as offering no significant advantages. These constraints could include criteria such as being time efficient, interesting the students and being easy to learn; however, these cannot be accurately described without explicit inquiry. Explaining why teachers did not change their practice thus involves identifying which constraints (practical, normative or theoretical) the new practice failed to satisfy.

Failed to Tackle Issues of Responsibility

Teachers were unlikely to take action to resolve a problem they claimed was caused by students' lack of motivation to learn, or parents' lack of interest in education. During the observation sessions, the researcher disagreed with teachers that this problem was caused by students and parents, and when trying to clarify this, the situation became heated and tense and it was not possible to come to an agreement that was acceptable mutually. Subsequently, the researcher

avoided discussing who was responsible for the problem, and instead focussed on advocating strategies that targeted the pronunciation and comprehension skills of students.

Why was Teachers' Tacit Reasoning and Personal Responsibility Bypassed?

Given the high probability that the two factors identified above contributed to the failure of the PD cycle, it is important to consider why the researcher bypassed inquiry into teachers' constraint sets and issues of personal responsibility. In this way, it may be possible to avoid similar mistakes in the future and design the next steps in the research process in a more effective way.

The major difficulty with inquiring into the constraints that governed teachers' actions was that this knowledge about constraints was tacitly held by teachers. Because of this, it was not possible to uncover such constraints by asking teachers directly. To illustrate this further, a typical conversation demonstrates how a direct approach is unlikely to elicit the desired response.

Researcher: Why do you use read and repeat?

Teacher A: To teach students how to read.

Teacher B: To help students learn how to pronounce words.

While teachers may believe they use read and repeat to address these constraints, this does not explain why they see read and repeat as a better option than alternatives that would also teach students how to read and pronounce words. For example, teaching phonics would be a more effective means of teaching students to pronounce words. To fully explain the teachers' continued use of read and repeat or rote teaching, it is necessary to uncover the additional constraints the teacher perceived that led them to think of rote teaching as the best solution. Without an understanding of how to elicit the tacit theories of teachers, the research cycle was unable to go beyond teachers' espoused constraints. This study later elicited these tacit theories by asking teachers to reflect on alternative approaches to teaching reading.

Although research cycle 1 lacked a means of explicating teachers' tacitly held knowledge, an analysis of the researcher's own internal reasoning and reflection indicated that inquiry into these areas was being avoided. Data are presented using the left hand to right hand column format.

This shows what was actually said in the left hand column, and the unvoiced thoughts that can help others to infer the researcher's theory-in-use are shown in the right hand column (Argyris, 1990; Argyris et al., 1985). For example, see Table 4.3.

Table 4.3 Example of an interaction with a teacher about teaching reading

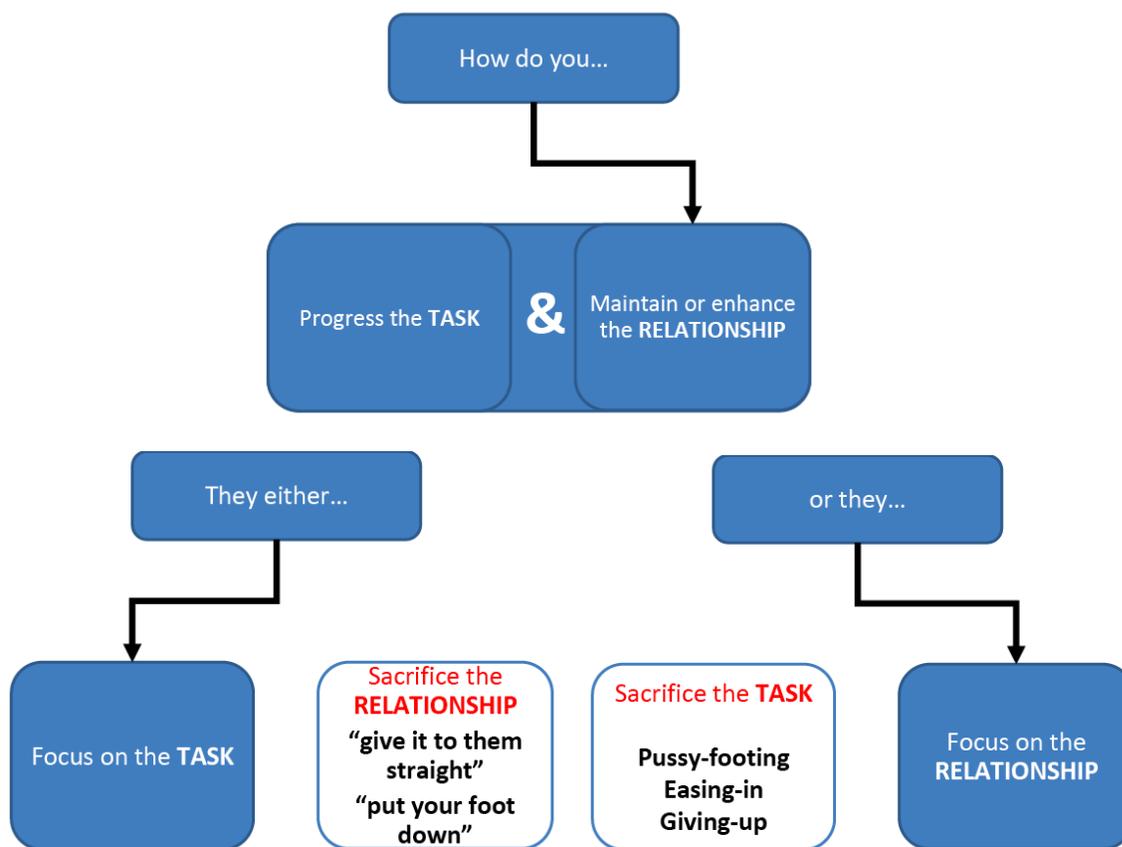
What was said	What the researcher thought but did not say
Researcher: So what do you think reading is?	<u>I do not really agree with what she has been saying so far.</u>
Teacher: To read you need to be able to pronounce the words properly. You need to be able to read aloud.	<u>No, no, no! You have not even mentioned comprehension!</u>
Researcher: But you can read silently. And if you have read something aloud, but do not know what it means, have you really read it? For example, I can read some Dagaare books out loud, but I have no idea what I am saying. Is that reading?	<u>This is a good point. Perhaps it will convince you that reading is also about comprehension.</u>

Robinson (2011) identifies this as the bypass strategy:

In the bypass strategy, it is the leader's theory that structures the conversation about change—usually consisting of reasons why an alternative approach is desirable ... There is no connection between that theory and the theory of action of the persuasion target—hence the name *bypass strategy*. When disagreement is encountered, the typical response is to persuade harder. Convinced of the need to persuade the other to his or her own point of view, the leader remains closed to the possibility that the other person has sound reasons for preferring his or her current practice. The desire to win precludes the respect and genuine curiosity required to inquire into these reasons. For the leader, the consequence can be misdirected change strategies and frustration. (p. 119)

By seeking to persuade others of the preferability of their own point of view, the researcher's mind was closed to the point of view of others. Observing this behaviour may have led teachers to respond in kind. This shows how the researcher's bias can affect the research process.

Discussing who was responsible for the problem of poor reading ability was also bypassed. In order to ensure an ongoing relationship with teachers, criticisms about their teaching were withheld. However, when this did not result in changes to their practice, the researcher became more forthright in advocating their own views by directly questioning teachers about their continued use of rote teaching, despite its apparent lack of effect. The way in which the researcher became more forthright confirmed the previous assumption that doing so would damage their working relationship with teachers. That is, the researcher initially tried to protect teachers from criticism, but also to address areas of their practice considered negligent. When this did not work, the researcher targeted the areas considered negligent more openly, and ignored the consequences this had on the relationship (see Figure 4.2). In either case, the effect on teachers' practices was very limited.



**Figure 4.2: Dilemma of giving negative feedback when guided by model 1 values
(Robinson, 2009)**

The behaviour described above has been recognised frequently in empirical research conducted by Argyris (1990) and Argyris and Schon (1974). It represents the tensions actors experience between making progress on the task while maintaining a positive relationship. Actors find that they are faced with sacrificing either the relationship or the task. Bypassing others' points of view and issues of responsibility is a common pattern of behaviour when people are faced with potentially embarrassing or threatening situations, such as calling a teacher's competence into question. This pattern of behaviour is called model 1 (see Figure 4.2). As seen in the following table, model 1 theory-in-use reduces one's effectiveness to solve problems, create trusting relationships, uncover barriers to change and build shared agreement and commitment to change.

Table 4.4: Model 1 (modified from Argyris & Schon, 1974, p. 68–69)

Governing Variables	Action Strategies	Consequences
Win, do not lose	Advocate your own point of view	Problem-solving effectiveness decreased
Be in control	Unilaterally evaluate the situation	because: - climate of distrust
Minimise negative feelings	Censor sensitive information	- barriers are kept secret - no agreement about need to change - lack of commitment to change

In order to avoid bypassing the areas mentioned here, it is necessary to develop skills in critical dialogue. This requires that one balance advocacy with inquiry, test the adequacy of one's and others' views publicly, raise and discuss sensitive information and bilaterally evaluate. However, such action strategies will not work if an individual remains motivated to win, be in control and minimise negative feelings. In order for these strategies to work, research indicates that they need to be guided by an alternative set of values, namely a desire to increase the availability of valid information, enhance freedom of informed choice and enhance commitment and

responsibility. These values make up a different theory-in-use, model 2 (Argyris & Schon, 1974).

Learning a New Theory-in-Use

The researcher's own actions and reasoning had contributed to the failure of the first research cycle, and so such reasoning and actions were modified during the second research cycle. Due to the negative consequences of the bypass strategy and model 1 behaviour, the second research cycle explored an alternative theory-in-use, model 2. Available research indicates that when guided by the values of model 2, action strategies that balance inquiry and advocacy, the public testing of views and bilateral decision making are more conducive to solving embarrassing or threatening problems (Anderson, 1997; Argyris et al., 1985; Argyris & Schon, 1974; Noonan, 2007; Stone, Patton & Heen, 1999).

Despite the apparent common sense of this approach, individuals commonly experience difficulty when trying to implement a new theory-in-use. The process involves unlearning a taken for granted, tacit set of values and behaviours, and relearning a new set. The taken for granted nature of how to act in such situations makes unlearning difficult. One's proficiency in using model 2 can be indicated by an increasing congruence between what one thinks and what one says in ways that promote problem solving. In this way, both the interventionists' and the participants' tacit reasoning may be engaged, explored and evaluated. Often, this is incorrectly interpreted as simply expressing what one thinks. Model 2 is more than that. It is about changing one's judgemental ways of thinking, not merely exposing them.

Table 4.5 Model 2 (Argyris & Schon, 1974, as cited in Robinson, 2008, p. 55)

Governing Variables	Action Strategies	Consequences
Increase valid information for all	Openness about own views, the reasons for them and their fallibility	Problem-solving effectiveness is increased through:
Enhance freedom of choice	Public testing of the adequacy of one's own and others' views and understandings	- Greater availability of information - Higher quality information
Enhance commitment and responsibility	Bilateral control of the process and content of the interaction, including the management of emotionally difficult issues	Commitment to the process and outcomes of problem solving increased Emotional issues do not jeopardise problem-solving effectiveness

Process of Learning Model 2

There are three incidents that help illustrate the progression of the researcher's ability to enact model 2 values. Enacting is different to espousing, so this section infers the researcher's theory-in-use from transcripts of what was actually said, rather than self-reports. Generally, skill in model 2 can be seen in an increasing congruence between these two columns in potentially threatening or embarrassing situations. However, as mentioned earlier, this is not simply a matter of voicing each and every judgement, but rather altering one's judgement-making processes.

The first incident shows how the researcher became aware that their actions during cycle 1 were incongruent with model 2 theory-in-use. It represents a missed opportunity to gather valid information. The second incident shows how being more empathic enabled the researcher to suspend judgement and shift their position from trying to win, to inquiring into the validity of information. The third incident shows how the researcher was able to elicit information about the dilemma faced by the teacher if he were to change his practice and to help him identify the limits

of his own reasoning. Each incident occurred in the order presented and in the researcher's opinion reflect a growing level of competency in using model 2 values in practice.

Incident 1: Recognising a Missed Opportunity

During research cycle 1, the researcher recognised an inconsistency in a teacher's actions. He had been asked to teach a reading lesson, with reference to the shared theory of reading. However, after teaching that lesson, it was agreed that there had not actually been any reading instruction. At this point in the research, the researcher was unaware of the need to record what was said in order to differentiate between the researcher's espoused theory and theory-in-use. Here the researcher can only present recollections of what was said.

Table 4.6 Recollection of discussion after a reading lesson

What was said	What the researcher thought but did not say
<p>Researcher: Let's have a look at our theory of reading. From the lesson you have just seen do you think this lesson actually taught reading?</p> <p>Teacher: Umm, yes.</p>	<p><u>There is an inconsistency between what they think is a reading lesson and what they are actually teaching. Let's hope they can see that themselves from this question.</u></p>
<p>Researcher: How? Look at our definition of reading. It has identification and understanding at the top. Did the teacher help students do this, or did they rather help them to pronounce words orally? Was it a reading lesson or an oral comprehension lesson?</p>	<p><u>This should clear it up for them.</u></p>
<p>Teacher: No, it was not a reading lesson. It was more like oral comprehension.</p>	<p><u>Good, they agree. Now I should see some changes.</u></p>

Rather than framing this as an opportunity to persuade teachers, it could have been framed as a puzzle (Argyris et al., 1985). The puzzle was ‘How can someone teach an oral comprehension lesson when they are asked to teach a reading comprehension lesson?’ Inquiring into this puzzle could have presented the researcher with information about teachers’ theories-in-use and the dilemmas they were facing when trying to modify their practice. However, in the moment that this happened, the researcher had rather framed it as an opportunity to convince teachers that what the researcher was saying about their practice was right. It was the ability to reflect on this as an error and ongoing reflection on the researcher’s actions that enabled the researcher to avoid repeating such mistakes in future interactions with the teachers in the study.

Incident 2: Suspending Judgement and Producing Genuine Inquiry

During this incident, the researcher had been discussing with a teacher why he was not implementing the NALAP. Initially, he said he did not know how to read the language well enough. The researcher found this hard to believe, because the researcher had taught lessons in this local language. If a foreigner could do it, the researcher assumed a native speaker could also. The teacher added that it was not good for a teacher to make a mistake in front of the class, because the students would lose faith in their teacher. The researcher disagreed with this also, as the researcher had made plenty of mistakes during their lessons and the students seemed okay. The conversation shifted to talking about the textbook, but occasionally came back to the NALAP programme and mistakes. When it did, the researcher would try to convince the teacher that he was worried for no reason, but he was steadfast with his decision. ‘What would you do if the head teacher told you that from tomorrow you have to teach the NALAP programme?’ the researcher asked. ‘I would request to be sent to teach another class,’ the teacher replied. It seemed there was an impasse until the discussion shifted, as seen below.

Table 4.7: Excerpt from an open-to-learning conversation

What was said	What the researcher thought but did not say
Researcher: Okay, have you tried it though? (Making mistakes in front of the students).	<u>How do you know if you have not tried it?</u>

Teacher: Yeah, I do. I have tried it once.	<u>Well, that is good.</u>
Researcher: What did you do?	
Teacher: Ah, we were having the reading based on ‘Sang, sang kanga la.’ I read the thing up to some point, I could not go further. And, one of them made mention that, ‘Oh sir, it seems once we even read this passage with Madame.’ And I said ‘okay, very nice ... Once you have read with Madame then you should know everything.’ So I said ‘once I have reached, someone should continue from there.’	<u>Hang on. Maybe he is really having trouble when he tries to teach this in the class. If he gets stuck that could be embarrassing. It would be pretty hard to keep teaching too. What could I do to help him avoid getting stuck?</u>
Researcher: What about if I was to teach you, not to teach Dagaare, but strategies for working words out. And if you came to an unknown word, if I was to teach you a collection of different strategies that you could use to work out what that word would be, would that increase your willingness to teach Dagaare in your classroom?	<u>Maybe he needs help knowing how to read, not just knowing how to teach. Let’s see if that would increase his willingness to use the NALAP programme.</u>
Teacher: Well, it will increase.	<u>Yes!</u>

This excerpt shows how the researcher was able to alter the researcher’s judgement-making process to accept the teacher’s point of view as valid. It also shows how an inquiry into the reasoning of others is hindered when the task is framed as one of convincing, but is enhanced when one can ‘reframe the situation to “give reason” or empathise with the dilemmas of the other person’ (Putnam, 1991, p. 22). It also demonstrates how the researcher’s automatic reaction was not to treat the teacher as ‘well intentioned, as having reasons for their actions, and as having the right to make informed choices’ (Robinson, 2011, p. 39). Finally, it demonstrates that ‘developing the ability to frame situations differently [in this case validating rather than winning]

is closely related to shifting toward the values and assumptions of the new theory of practice', which is model 2 (Putnam, 1991, p. 24).

Incident 3: Inquiring into Theory-in-Use and Identifying Its Limitations

The third incident occurred during one of the researcher's initial attempts at an open-to-learning conversation—a conversation based on model 2 theory-in-use—when the researcher was conducting the semi-structured interviews. It was the first time the researcher tried to use the 'teacher scenario response' interview. This was designed to uncover what led teachers to rule some teaching actions in and others out by recording their reactions to four different approaches to teaching reading. It resulted that part of the dilemma for this teacher was that he perceived there was an expectation from authority figures that he use rote teaching methods.

Researcher: Is it that you feel there is some pressure that you should be doing this procedure?

Teacher: Yes.

Researcher: Tell me about that...

Teacher: You see, you implement what you know, you use what you were taught. Though there are other things, what is in other materials, other books that you can refer in and get knowledge to apply. You see those that will come and observe your lesson, supervise your lesson, they were teachers before, and as they are coming they are coming with that same procedure to see whether or not you are following that procedure.

It seemed that despite the flaws the teacher saw with what he called 'the procedure', he did not see how he could do anything else and avoid being reprimanded. While this information helped the researcher see his dilemma clearly, the teacher and the researcher were both stuck in their own positions. There did not appear to be any way to improve the results of students if the teacher was forced to continue using a procedure that was not producing the intended results. Problems such as these require double-loop learning, a change in the problem setting, which in this case questioned the teacher's desire to please supervisors if it prevented him from improving student outcomes.

Table 4.8: Excerpt from a ‘response to different teaching approaches’ interview

What was said	What the researcher thought but did not say
<p>Researcher: The children that you have at the moment, they are managing to succeed in your opinion?</p>	
<p>Teacher: Yes.</p>	
<p>Researcher: So, is that the reason why you have not before in the past seriously tried a different approach?</p>	<p><u>Is this the reason why he has not seriously trialled alternative teaching approaches?</u></p>
<p>Teacher: No. That is what I said that you have difficult teachers. In one of the classroom there are times I do not strictly follow this. But most of the times, you see, it is good. The other thing it is good for you as a teacher to know your students. To know their level of understanding.</p>	<p><u>It seems like he is saying that teaching should start from, and build on, what the students already know. I agree with what he is saying, but I think that this is not what happens when teachers follow the procedure. I wonder if he is aware of this contradiction and what he thinks about it?</u></p>
<p>It is not only P1 or any of the lower classes, but wherever I am I do not just go in there because, there are time we are providing extra class and other things. I do not go in because you give me the topic. No, no, no. I link something to that topic so they will find it easy to understand. I do not just go straight to, I’m referring to the higher (classes), ‘Oh, I want you to come and treat this topic with us.’ You see it. I do not just put the topic there. No, no. You know, I always define that as the transfer and application of knowledge. They</p>	

are linked, you see? So, you have to start from somewhere and link till they understand. So it is good for you to know the students you are teaching, so you know where to start.

Researcher: And I agree with that, but I think that the procedure does not do that. You just come in, you see the textbook, they just call after you. You do not have to know where your students are at.

I agree with your ideas about how to teach, but I do not think that using the procedure allows you to do that.

Teacher: No, no, no (quietly). This procedure, it does not do that.

So, why do you teach in ways that go against your educational beliefs?

Researcher: So, in your own evaluation, a critical part of teaching is to know your students and to adjust what you do to suit them, so why then did you ...

Teacher: Trying to address what you do to suit them too, you may go out of this procedure. And I do not care, I do not mind actually. So at times, I do go out of this procedure

What is it that you do not mind? What do you think will happen if you go out of the procedure?

This demonstrates that rather than trying to convince the teacher that he had nothing to worry about, such concerns were taken seriously. However, the researcher questioned the value of using a teaching approach that denied the teacher the freedom to teach from the known to the unknown. This was a pivotal moment in the discussion with this particular teacher and with the researcher's ability to use model 2, because it critiqued the effectiveness of the teaching methods by the teacher's own standards of judgement. The dissonance that followed enabled the teacher to question how he had framed his problem and to reframe it by placing more importance on

achieving student outcomes than meeting the expectations of his supervisors or colleagues. This was the result the researcher sought.

Learning Model 2 Summary

These three incidents indicated a growing competence at crafting interpersonal interactions based on model 2 values as described above. The final incident indicated a degree of congruence between what was said and thought. However, this should not be interpreted as mastery of model 2 by the researcher. There were many occasions where the researcher's behaviour reverted to model 1, particularly in sensitive situations. For example, during incident 2, the researcher had attempted to persuade the teacher that making mistakes was not a big problem four times before the researcher took the teacher's concerns seriously. However, this basic competency in model 2, and an awareness of how to monitor and modify the researcher's behaviour on an ongoing basis, enabled the researcher to create several opportunities to inquire into the reasoning of teachers.

Chapter Summary

This chapter shows how the first action cycle failed to affect how teachers taught reading. It also demonstrates how the researcher identified how his own behaviour had contributed to this by bypassing the theories of action of teachers. It also shows how the researcher then began to learn how to behave in ways that balanced inquiry and advocacy, gave teachers free choice and bilaterally evaluated the adequacy of competing views. The next chapter shows the outcome of such changes by describing teachers' theories of action, how these and competing theories were critiqued and improved, and the effect that this had on how a cohort of teachers taught reading.

Chapter Five: Findings from Action Cycle 2

Chapter Overview

This chapter presents the outcomes of action cycle 2. It begins by describing teachers' theories of action and the processes that were used to validate this description. It then describes how this theory of action, as well as competing approaches to teaching reading, were bilaterally evaluated with a cohort of teachers. The chapter then examines the effect that this collaborative process had on the way teachers taught reading.

What Explains the Way Teachers Continued to Teach Reading?

Action cycle 2 marks a shift in the focus of the research from explaining the specific practice of teaching reading, to the practice of rote teaching more generally. To say that teachers were using the read and repeat strategy because it was their solution to the problem of how to teach reading is an inadequate and simplistic explanation. For example, this does not explain why they continued with the practice, despite recognising that an unintended consequence was students who could recite the text but not identify or comprehend it, nor why they did not adopt alternatives like phonics instruction. Table 5.1 explains why teachers used read and repeat by identifying the constraints that they sought to satisfy by doing so, and the consequences of their teaching.

Table 5.1: Teachers' theories of action

Problem	How to educate a class of students to read			
Constraints on solution	Follow Orders	AND cover the curriculum	UNLESS you lack confidence or ability	ASSUMING that students cannot read without the teacher
	In terms of: - recognised teaching method - using recommended resources like the textbook	Defined as the textbook	Because: - students will lose zeal in learning if they realise the teacher does not know something. - could lose face	Because: - they have missed out on the basics - students cannot/will not participate if too hard - negative feelings from exposing students' weaknesses - students may memorise the wrong answer
Key action strategies	Teachers spend most of the time during reading classes trying to help students to memorise the text and the answers to comprehension questions Teachers avoid spending time helping students learn the skills they need to engage in the reading process			
Consequence	Able to cover most of the textbook	Supervisors recognise what you do and approve of it or do not inquire further	Students generally successful at memorising text but continue to find reading independently difficult	Teachers and students save face

Results in a learning bind Teachers need to engage in double-loop learning to understand why their attempts at improving reading outcomes continue to fail, because the constraint set limits their ability to solve the problem. However, they are unlikely to discover this, because when trialling alternative practices they are likely to uncover the difficulty the students have reading. This then reinforces the perceived need to read for students to repeat. This logic ensures that teachers continue to use rote teaching methods, with the unintended consequence that students fail to improve their reading ability. This explains why teachers have been unable, and are unlikely to solve this problem on their own

Several teachers perceived that using read and repeat was a requirement within the Ghana education system. In this sense, teachers' actions were constrained by the rules imposed on them by their superiors. These rules included information about how to teach (read and repeat), what to teach (textbook) and how much to teach (whole textbook across the year). Thus, changes to one's practice that failed to satisfy these rules could result in punishment. One teacher noted that he had been advised to use this procedure by his head teacher, another noted that supervisors were looking for such procedures when they visited schools. Another teacher explained how, despite feeling that the textbook was ill matched to the needs of the students, he felt compelled to continue with it anyway.

Teacher: When I completed college fresh, I was posted to Douri. From 3 (JHS) they could not read at all. And I was forced to come back to P4 (Primary). I was using the P4 reading book to teach reading ... But we do not do these things [now] for fear that you may be victimised by a circuit supervisor.

Researcher: So fear prevents you from doing these things?

Teacher: That is it.

Thus, by using read and repeat and sticking to the textbook, teachers avoid scrutiny, criticism and potential punishment from superiors. It should be noted that this may not accurately reflect the wishes of all superiors. Teachers may have misinterpreted these expectations. However, to the extent that teachers believed it to be true, it does explain why teachers used read and repeat as their preferred approach. However, there was a cohort of teachers who appeared to reject this analysis. Several teachers did not implement a national programme that they were directed to

use. It appeared more common for people to ignore rules that they did not believe they were personally competent to implement. This enabled them to save face in front of their students rather than following the rules. The logic of these teachers' actions appeared to be 'follow the rules unless you will lose face'.

It also appeared that these concerns may be different for junior high school teachers. A head teacher commented that they were not afraid per se. Rather, they felt they were under pressure to cover the curriculum lest students be unprepared for exams or advance to the next year of JHS without the requisite knowledge. However, pressure to cover the curriculum is insufficient to explain rote teaching methods because, for example, it does not show how a strategy like read and repeat was seen as preferable to teaching phonics. Several teachers also explained that due to a lack of time and a packed curriculum, they were concerned about covering what they were required to do within the year provided. These two constraints in combination offer a better explanation for these teachers' preference of rote teaching. These constraints were then used by the researcher in an action experiment in order to triangulate these findings.

The researcher wanted to evaluate if, when confronted about a lesson where students had been unable to identify or comprehend what they read, rationalising this with reference to following the rules or competence would provide an acceptable excuse. To do this, the researcher taught a read and repeat lesson in front of a group of teachers who role-played giving feedback. They readily identified that the lesson had not produced the intended results because students had struggled to answer the comprehension questions or read aloud when called upon. The teachers were quite critical of this outcome. They started suggesting ways that the researcher could have modified the lesson. Subsequently, the researcher investigated what would happen if they justified their actions with reference to rules like following the procedure or covering the textbook. The following table describes the outcome of the subsequent discussion that took place.

Table 5.2: Excerpt from feedback about using the read and repeat strategy

What was said	What the researcher thought but did not say
Researcher: But how much should I do in one lesson? Should I read a whole story in one lesson?	<u>Okay, they seem to be telling me to break the rules, let's test this out.</u>
Teacher 1: If you are unable to finish because of time, even one paragraph it is okay.	<u>Really?</u>
Teacher 2: It is not compulsory that you read the whole passage in a lesson. Researcher: But it is compulsory that we cover the whole textbook, is not it? Teacher 1: Yes.	<u>True?</u>
Researcher: So, if I am going to break the passage into small parts over time, I will not be able to cover the whole textbook.	<u>Are you really telling me to break the rules?</u>
Feedback 2: That is one of the problems.	<u>Interesting. So covering the textbook, not the whole story is considered the rule.</u>

During this excerpt, the teachers confirmed that it is necessary to follow the rules, and acknowledged the dilemma that this caused. The researcher also acknowledged this problem and asked what they suggest the researcher should do. The following table shows their suggestions.

Table 5.3: Excerpt from feedback about using the read and repeat strategy

What was said	What the researcher thought but did not say
<p>Researcher: And is anybody presenting a possible solution to that problem?</p>	
<p>Feedback 3: I thought you would have helped them to be able to answer the question correctly.</p>	
<p>Researcher: How, what would you say to them?</p>	<p><u>This could mean lots of different things. What do you mean exactly.</u></p>
<p>Feedback 3: By telling them and giving them the, like you can make it this way ‘Drug abuse is [this] and [this].’ You should have helped them. When you asked them they were not able to answer it. You should have helped them and maybe write it on the blackboard for them to see or maybe copy into their books. When they go home they can sit down and learn.</p>	
<p>Feedback 3: If you had given them the right answer, they will send it along.</p>	
<p>Researcher: So I should have given them the right answer?</p>	<p><u>Anything else?</u></p>
<p>Feedback 3: If there’s no time.</p>	<p><u>Let me check I have got this?</u></p>
<p>Researcher: If there’s no time, give them the right answer. Does everybody agree with that advice?</p>	<p><u>Okay, so you think give them the right answer when time is limited to help them learn. To what extent is this shared?</u></p>

As shown in the table above, the teachers’ advice is for the researcher to use rote methods. This appears to be one teacher’s solution to the dilemma created by the pressure to cover the textbook within a limited timeframe. However, in interpreting the above responses, it is important to keep

in mind another factor that warranted further inquiry—that is, the teachers’ perceptions of the ability of the students.

This was explored further during a demonstration by the teacher mentioned above. This teacher had been trying to use an alternative strategy, but reverted to the read and repeat strategy halfway through the lesson. This provided an excellent opportunity to probe his reasoning. The researcher stopped the lesson and inquired into why he had changed in this way. His response was that it was due to the time constraints and that he wanted to cover the whole story. However, according to the researcher’s observations, there were no rules during this lesson, it was being conducted especially for training purposes, so this was highly unlikely to be his motivation to take over the responsibility for reading. His response seems to reflect a decision that students are unable to read without the teacher telling them first. This teacher’s decision not to use the read and repeat strategy indicates he was willing to suspend his belief that the students needed to repeat after the teacher in order to read aloud. However, his observations of students struggling to read during the lesson led him to confirm his belief that they needed him to read first. Once his belief was confirmed, he reverted to the original logic that led him to use rote teaching methods. However, it is important to remember that such a test is a self-fulfilling prophecy, because the logic used to test if students can read on their own is likely to be the very logic that has led the students to be taught in ways that reduce their ability to read independently of the teacher.

This episode explains how teachers not only practiced a method of teaching that resulted in students who could recite but not read, but why they continued to do so despite being aware of the deficiencies of this practice. Rote teaching was their solution to the problem of how to teach a curriculum that many students lacked the requisite skills to properly engage with. Further, this teaching approach prevented students from developing the skills that could enable them to engage with their curriculum, which in turn reinforced the need for the particular teaching approach in the minds of teachers. Figure 5.1 below shows the self-sealing and reinforcing nature of this logic.

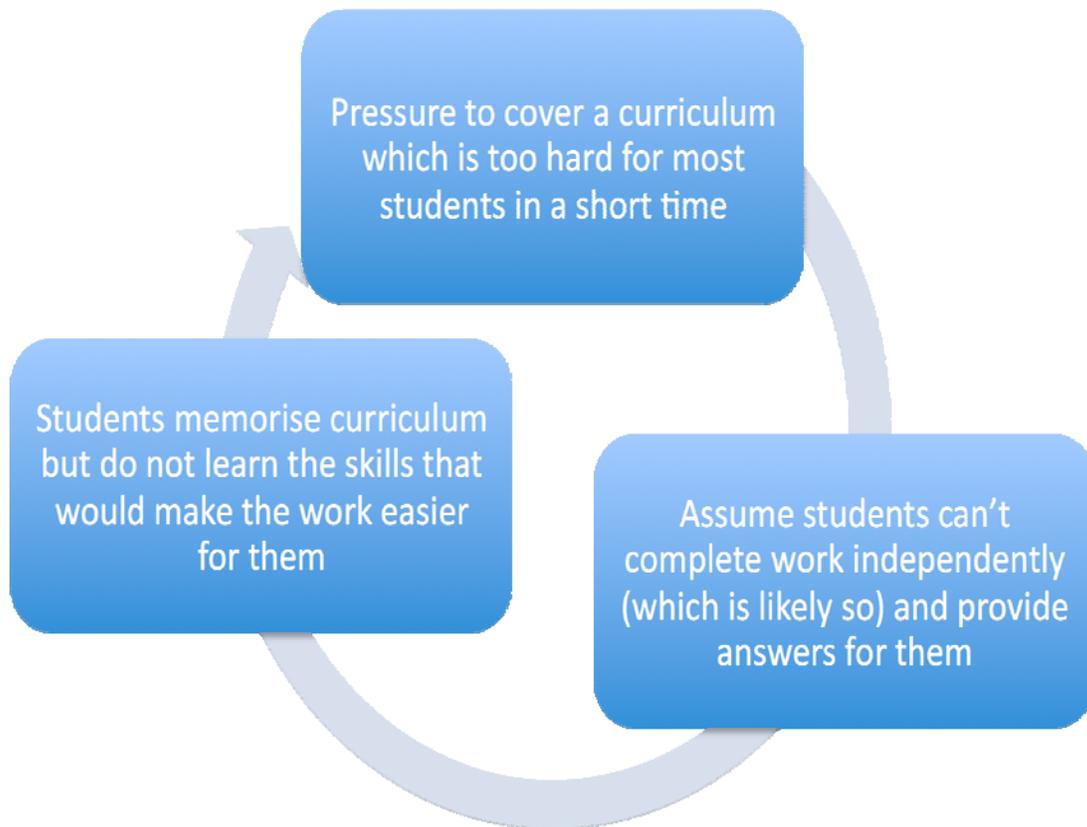


Figure 5.1: Problem cycle

To check these findings, approximately 30 teachers from a random selection of schools were presented with a scenario about a teacher who had tried a new strategy but had then reverted back to using the read and repeat strategy. Some of the replies from a random selection of primary and junior high school teachers are given below:

- Some [students] miss KG and come straight to P1, so they have missed all the alphabet work and sounds, so you just have to do reading aloud.
- They [teachers] were taking into consideration the level [of the students].
- It is better to teach using a method you are familiar with.
- Yes, it is easier to teach using a familiar method.
- Yes, it takes a long time for a new method to work, up to a whole year so they cannot always do that. The results would suffer.
- Probably simply because the children were not able.
- Children should be taught the sounds of letters in KG. However, once that has not happened, it is too time consuming to try to teach children phonics skills.

This section described the constraints that explain teachers' practices. It appears teachers are motivated to follow the rules, save face and accommodate the low reading ability of their students by taking over most of the reading process. The next section elaborates how the collaborative process was used to critique and analyse that practice, and discusses several alternatives with a cohort of teachers.

Action Research Cycle 2

Research cycle 2 aimed to engage, rather than bypass the reasoning that sustained teachers' practices. Alternative practices were presented in competition with rote teaching. All theories were subjected to the same standards of evaluation.

Theory Competition

Theory competition involved mutual learning. The previous section brought forward the practitioners' theories to explain teachers' current practices. Next, the researcher used his own theories to analyse that practice. Additionally, teachers and the researcher used critical dialogue to debate the relative adequacy of both practitioners' and researchers' theories. This was not a linear process, but an iterative one. The relevance of constraints to teachers was continually checked. The teacher scenario response interviews (see pages 52-53) were used to explore constraints and also challenge existing ways of framing the problem. Demonstration lessons were used to check whether teachers' perceptions of those methods matched their actual outcomes. Also, a ranking survey was used to check the effectiveness of each teaching method against a range of criteria (see Table 5.4). That is, to check the extent that each method addressed the constraints already prioritised by the practitioners. This survey was also used to evaluate the coherence of each approach. That is, the degree to that the practice addressed other important constraints that the current practice was not designed to satisfy.

Table 5.4 Results of ranking survey

Which teacher's lesson would:	TEACHER A (read and repeat)	TEACHER B (Reading- to-learn)	TEACHER C (Phonics)	TEACHER D (Language Experience)
1. District Education Office want you to do?	11	12	18	9
2. Best develop students' ability to identify words?	13	12	10	15
3. Help students most when it came to a problem?	8	13	16	13
4. Involve students in the lesson?	8	8	14	20
5. Make lessons enjoyable?	8	9	17	18
6. Help students progress in ability to read?	9	12	19	10
7. Teachers or head teacher advise you to do?	11	12	13	14
8. Be a boring lesson"	17	14	9	10
9. Develop English speaking skills?	7	11	16	16
10. Develop students' fluency?	11	11	14	14
11. Teacher training college support?	13	15	11	11
12. Reduce fear?	7	8	16	19
13. Develop spelling skills?	8	11	13	18
14. Develop composition skills?	10	8	12	20
15. Best match the children's ability?	8	10	16	16
16. Make children most confident?	7	12	15	16
17. Make children most attentive?	7	9	16	18
18. Make children most happy?	6	9	17	18
19. Be approved by MOE?	15	14	14	10
20. Be the best?	7	9	18	16
21. Cause you to send your child to which teacher?	7	12	17	14
22. Best control the students?	6	10	15	19
23. Help children learn what new	9	12	16	13

vocabulary means?				
24. Help children remember new vocabulary?	12	12	13	13
25. Be the most common?	17	13	12	8
26. Be the most comfortable to imitate?	10	12	16	15
27. Require the least work?	20	14	10	6
28. Help the teacher get the best exam results?	6	15	14	18
29. Help the teacher have the most control?	9	14	17	20

Teaching Method A

Teaching Method A was based on the read and repeat strategy commonly observed in Ghanaian classrooms. Some teachers remarked during interviews that this was what was expected of them. Others remarked that they had used this strategy when the ability of the students was very low. It is interesting that teachers produced different responses when indirectly asked to reflect on teaching approach A, compared to when they were asked directly why they used read and repeat. Direct questions produced responses such as ‘It is how to teach reading’ or ‘It teaches children to pronounce best’. The results of post-lesson discussions and the survey, however, clearly indicate that this process was used to satisfy the expectations of superiors and accommodate the low ability of the students.

Demonstration lessons and post-lesson discussions showed that teachers may have misinterpreted some of the expectations of their superiors. For example, not all supervisors expected teachers to follow this formula. The supervisor who participated in this study and other superior officers agreed that teachers were not bound to this procedure. However, they did confirm that teachers were bound to the textbook and needed to complete as much as possible. Using the read and repeat strategy was considered an effective means of covering the textbook given the limited timeframe.

However, the survey showed that this was not regarded as a very effective means of teaching the curriculum. Teacher A was regarded as the least likely to receive good exam results on the

survey. In fact, Teacher A was generally ranked last against a range of criteria, including involving students in the lesson or teaching the students to read, compose or speak English. The only areas in which Teacher A was regarded as effective were meeting the expectations of the superiors, doing the least work and running a boring lesson.

It appeared that the teachers' own evaluations questioned the coherence of the most common solution to how to teach reading. Teachers were challenged to demonstrate how 'following the rules' was more important than 'teaching reading or writing'. Although this line of reasoning had worked previously, as seen in incident 3, further attempts had mixed results because the researcher inadvertently reverted to model 1 reasoning.

Table 5.5 Researcher Reverts to Model 1 Values and is less Influential

What was said	What the researcher thought but did not say
Researcher: So, imagine that I am a supervisor and I come and tell you that you have to teach in a certain way, but you do not believe that the way I tell you will work. What would you do?	<u>Come on, it does not make sense to keep obeying a stupid rule!</u>
Teacher 1: Well, I will do the right thing.	<u>Huh? Do what the supervisor says? No way!</u>
Teacher 2: Though it will be to the detriment of the children!	<u>That is right. At least someone can see sense.</u>

Teacher 1 used the term 'the right thing' to refer to what he has been told to do. Unfortunately, during discussions with this teacher, the researcher was unable to put model 2 theory-in-use into practice. The consequence was a growing polarisation between views. The teacher continued to reason that he should do what he was told, and the researcher reasoned that he should not if it was failing the children. Although this was not the intended outcome of such actions, it serves to illustrate the difference that model 1 and model 2 theory-in-use can have in conversations. Previously, when guided by model 2 values, the researcher was much more influential. However when discussing the same dilemma following model 1 values, the teacher and the researcher

continued to defend their position, repeating the same arguments until reaching a resolution became unlikely.

Teaching Method B

Teaching method B was based on a combination of explicitly teaching students comprehension strategies and the reading-to-learn approach. Teachers were unsure about this approach and initially questioned its adequacy because students were not involved in reading aloud during the lesson. They challenged the coherence of this solution. They saw that it did not adequately prepare students to read text aloud, or result in fluent reading. The demonstration lesson confirmed for the teachers that students did not learn how to pronounce words fluently during the lesson. However, when they saw this method in practice, they became more aware of the benefit of supporting students with strategies to comprehend the text. This had not been a major part of their problem framing process previously.

Although the demonstration indicated how reading comprehension could be improved, the results of the effectiveness survey indicated that teachers continued to value fluency over comprehension. For example, teaching method C, which taught the students phonics, was regarded by most teachers as achieving better exam results and more likely to help the students learn to read. There was almost a consensus between the teachers, however, that this method best developed students' ability to identify words. The teaching method did not particularly stand out against any other criteria.

Teaching Method C

Teaching method C was based on teaching students the relationship between letters and sounds, also known as phonics. During the interviews, most teachers regarded this method very highly. It appeared that this was perceived as an improved version of teaching method A. Teachers appeared to believe this method satisfied the expectations of supervisors as well as developed the pronunciation of students.

The demonstration lesson confirmed teachers' perceptions of the teaching method. Teachers thought that this approach would be welcomed by supervisors and helpful for students. That is, the solution satisfied most of the constraints they currently valued. However, it did not appear to support students' capacity to comprehend what they read. This concern with the coherence of a solution that emphasised fluency and neglected comprehension was only shared by one other teacher in the group.

In the survey, teaching method C was regarded as the most effective at teaching students to read, the best in general and supported by the District Education Office. These findings indicate that this method should be explored further within the Ghanaian context. However, this approach was also considered to involve extra work in comparison to method A. Although this was not a significant factor for the teachers involved in this study, who were voluntarily participating in the project during their holidays without financial compensation, there were comments that indicated some believed many of their peers were not interested in working harder. This constraint was not discussed with other teachers because, despite a growing capacity with model 2 strategies, the researcher did not feel comfortable exploring the reasons for behaviour that the researcher described as lazy. The researcher did not know what to do if they just did not care.

Teaching Method D

Teaching method D was based on the language experience approach. This was initially perceived as being too difficult for most students to handle. The demonstration lessons showed that rather than struggling with the lesson, students received enough support to overcome several challenges. Teachers were surprised that by the end of this lesson, students had composed a piece of writing and were able to read it. Further, they noted that students had enjoyed the lesson. The level of participation in the lesson (they had learnt to make a paper aeroplane) had been high and they were talking about it on their way out of class. Although most teachers commented approvingly, it still did not appear that they perceived it as a solution to the problem they faced.

In the survey, teaching method D rated very highly on many of the criteria, such as reduce the fear of the students, increase participation, improve composition skills, children are most happy

and attentive and the best way to control the class. However, the method was rated poorly against criteria such as approved by superiors or do the least work. It seems that teachers thought that because the teaching method had not used the textbook, despite being an effective means of teaching reading, it would be perceived as inappropriate by superiors. As it was not an effective means of satisfying this constraint, it was rejected by the teachers.

Summary

This section demonstrated a process of theory competition. Theory competition was an improvement on lesson studies and content-based PD because it evaluated practitioner and researcher theories against constraints valued by teachers and researchers. Teachers were actively encouraged to indicate where alternatives did not meet any of the constraints that they valued, rather than persuaded that those constraints were irrelevant. This prevented the researcher providing teachers with a solution in need of a problem, and the adequacy of alternative practices was debated. Also, the grounds for rote teaching were accepted, but not taken for granted. In this way, learning was mutual, because teachers learnt how their theories may be improved, and the researcher learnt how their theories could be modified to meet contextual constraints.

Lesson Observations Before and After Action Cycle 2

The effect of action research cycle 2 is also examined through case studies that indicate how teachers taught before and after their involvement with the research.

Pius

Pius was in his late 30s and working as a part of the National Youth Employment Program. As mentioned previously, this means that he had no formal teaching qualifications. However, he seemed to have an ability to develop positive relationships with students, an interest in learning and a willingness to try alternative methods.

On the day of the baseline observation, Pius appeared nervous but organised. He indicated that he was taking a reading lesson from the textbook, and expected the majority of the students to answer at least three of the four comprehension questions correctly. He was not disappointed by the results, as most students reached the goal he had set for them. He started the lesson by reading the key words for the students to repeat, then explaining the meaning of those words by translation or demonstration. He read the text for students to listen. He repeated this process with students repeating the words after him. Then he asked areas of the class to take over the reading, without him saying the words first. After this, the whole class read the text without the teacher. Then, he translated the text into the mother tongue, Dagaare. Students answered the comprehension questions orally and in Dagaare. While Pius wrote the exercise questions on the board, he asked small groups to copy a section of the text. He explained to the researcher after the lesson that this was to keep the students occupied while he was writing on the board. Students presented their copied work on the board before all students were asked to answer the exercise questions individually in their books. Pius moved around the class and marked students' work.

The action research cycle engaged Pius's theory of action by inquiring into the reasons why he was avoiding implementing the NALAP programme. Pius had claimed that if he was forced to teach the NALAP programme, he would be forced to request that they move him to an upper primary class where NALAP was not necessary. Incident 2 indicates that the main barrier was his ability to read aloud in his mother tongue, Dagaare. At first, this seemed like an excuse because the researcher had read books in front of students in Dagaare. However, through critical dialogue, it was possible to find a way of addressing this problem. Subsequently, through demonstration lessons, Pius learnt several strategies for working out unknown words, such as sounding out, breaking words into syllables or thinking what word would make sense coming next.

For Pius's follow up lesson, he kept quiet about what he was going to teach. At the start of the lesson, he asked two students to fetch something from the head teacher's office. They came back with a NALAP big book. Pius showed the students how to read the title by breaking it into syllables. He then read the book to them, asking them questions as he went. Pius then read the

story and the students repeated after him. This was completed twice before students were arranged into two groups and took turns reading pages. Pius then wrote a selection of words from the story on the board. He asked students to have a good look at the words, then he covered them and students had to write that word in their book. The lesson ended after students' spelling had been marked.

During the post-lesson discussion the topic of reading in Dagaare came up.

Pius: I used to dodge it. Because I did invite Madam Agnes to come and teach, to come and take over. But now, I have taken the strategy, it is more even starting to become one of my best subjects.

Researcher: Really?

Pius: Once I am a native of the tribe, so as soon as I just break the word into syllables and I was able to pronounce it, I understood it very well ... It is now becoming my best subject.

The table below shows how Pius is now confident reading Dagaare in front of the students and able to teach them to read in their mother tongue.

Table 5.6: Pius's teaching procedure before and after research cycle

Before Action Research Cycle 2	After Action Research Cycle 2
Teaching Procedure	Teaching Procedure
1. Model key words (2:30 min)	1. Discuss picture on the cover of a big book (0:45 min)
2. Read and repeat key words (1:30 min)	2. Teaches title by breaking words into syllables (3:20 min)
3. Explain meaning of key words (5:15 min)	3. Discuss what might happen in the story (0:45 min)
4. Whole class read key words (1:00 min)	4. Teacher reads the story to the students (5:40 min)
5. Model text (3:10 min)	5. Read and repeat (11:20 min)
6. Read and repeat text (6:10 min)	6. Read and repeat with discussion (10:50 min)
7. Small group reading paragraph by paragraph (6:00 min)	

<p>8. Whole class read text (2:30 min)</p> <p>9. Translate text into Dagaare (3:15 min)</p> <p>10. Comprehension questions: orally in Dagaare and English (3:00 min)</p> <p>11. Small groups copy paragraph onto paper then onto board (19:00 min)</p> <p>12. Marking sentences on board (7:00 min)</p> <p>13. Comprehension questions—written in English (20:20 min)</p> <p>14. Marking (completed individually when students finish)</p>	<p>7. Whole class is split into two groups and they take turns reading a page (7:50 min)</p> <p>8. Read and repeat key words (2:00 min)</p> <p>9. Sound out and spell key words (11:00 min)</p> <p>10. Spelling test (9:15 min)</p>
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Although the primary objective of this research is to compare the data above to see if Pius is more likely to teach students who can understand and pronounce what they read, a secondary objective is an improvement in educational practice. In regards to the first objective, the strategy that Pius used to help students learn to identify words before is the same strategy that he used after: read and repeat. Although he showed the students how to break words into syllables, and asked them to spell words from memory in the second lesson, the effect of such strategies are likely to be limited if their frequency remains on the fringes of read and repeat. Pius’s main strategy to teach comprehension appeared to be translation and discussion of the text in the local language. This strategy did not change, and appeared to work with most of the children in both cases. Thus, if the researcher were to judge the lesson on the criteria of the researcher alone, the researcher could conclude that Intervention A and an open-to-learning conversation have not helped Pius to improve his teaching practice.

However, in relation to the improvement of Pius’s practice, he has adopted a solution that enables him to follow the rules and hide his fallibility from his students, better than simply avoiding the NALAP programme. This clearly shows that where a strategy is perceived by practitioners to be an improved solution to the practical problems they face, its chance of

successful implementation is greatly increased (Ward et al., 2003). Further, it shows that without critical dialogue, Pius’s concerns could have been dismissed prematurely and he would have been labelled as resistant to change.

Matthew

Matthew was in his 40s and a circuit supervisor. He had been transferred to the district a couple of months prior to the researcher’s invitation to participate in Intervention B. There was no opportunity to collect observational data on Matthew prior to commencing the action research cycle. However, his self-descriptions and comments during the teacher scenario survey indicate that he perceived himself as similar to teaching method A, using read and repeat.

Table 5.7: Matthew’s teaching after Intervention B

Before Intervention B	After Intervention B
No data available	<p data-bbox="786 961 1040 993">Teaching Procedure</p> <ol data-bbox="834 1020 1356 1875" style="list-style-type: none"> <li data-bbox="834 1020 1356 1161">1. Use the picture on the page to predict what the story will be about ‘The two goats’ (1:20 min) <li data-bbox="834 1184 1356 1325">2. Students asked to read silently and then highlight the words they find difficult to read (5:15 min) <li data-bbox="834 1348 1356 1488">3. Students write a word they found difficult on the chalkboard (3:40 min) <li data-bbox="834 1512 1356 1652">4. Teacher explains letters are grouped into ‘consonants’ and ‘vowels’ giving examples (3:00 min) <li data-bbox="834 1675 1356 1875">5. Teaches students to build words using onset and rhyme. For example, ‘ie’ + d, t, ‘die’, ‘tie’; ‘all’ + b, c ‘ball’, ‘call’ (4:30 min)

-
6. Teaches blended consonant sounds
'br' asks students to think of a rhyme to make a word. For example, 'br' + 'idge' = bridge, 'br' + ead' = bread, 'br + ake' + brake (7:20 min)
 7. Shows students how to break the words they could not read into onset and rime to help them pronounce. For example, 'w' + 'ise' = wise, 'str' + 'onger' = stronger, 'th' + 'ought' = thought. Sometimes discussing the meaning of the words (6:20 min)
 8. Students take turns to read parts of the passage aloud. When they encounter difficulty, the teacher directs their attention to the letters (10:00 min)
 9. Students are asked to say something in their own words about the passage. They are unable to do so, so the teacher uses guiding questions (3:30 min)
 10. Comprehension questions given as homework
-

Throughout the action cycle, Matthew regularly espoused views quite different from those of the researcher. He consistently pointed out rules that different teaching methods had overlooked. For example, having more than one objective confused students, or that students should not be told to point to words as this negatively affected their fluency. This made encouraging him to raise his concerns and views more difficult. However, raising and discussing such concerns is essential to the problem-solving process.

To begin, Matthew calmly drew the attention of the students with a song. He then asked students to do silent reading. The researcher remember thinking ‘Here we go, this might be the extent to that he is prepared to try something different.’ However, the researcher was wrong. Matthew then asked students to come to the board, two by two, and to write down words they could not pronounce. Matthew then explicitly showed students how to break words into onset and rhyme and how to decode several groups of sounds. After this, he asked students to read aloud. When they had difficulty, he redirected their attention to the process they had just used, as well as some of the sound patterns they had already identified. To end the lesson, Matthew asked the students to retell the story in their own words. Most students were unable to retell anything.

The changes to Matthew’s teaching are much more likely to help students learn how to identify and pronounce words. He made the relationship between letters on the page and spoken sounds explicit, so students should be able to remember some of these patterns. Over time, they may develop their ability to apply this knowledge of letter and sound patterns to an increasing range of words. This should lead to independent readers. Although the comprehension strategy, asking students to paraphrase the story, was too difficult, this may change over time. Further, by asking students to retell the story, Matthew was able to assess the extent to which the students comprehended the text. Although they could not do so, he became aware of this problem from this activity. Such awareness is a necessary step if he is to try to resolve it in the future. That is, by doing this, he is checking the adequacy of his solution to develop comprehension skills of the students and is in a position to improve this solution in the future.

These improvements indicate that although Matthew did not agree with many of the ideas put forward during the theory competition phase, he was focussed on improving students’ ability to read independently. The lesson he demonstrated closely resembles that of teaching method C, which was regarded as the most effective at teaching students to read and was supported by superiors.

David

David was in his early 30s and was the head teacher of his school. He also taught an early primary class in a very energetic manner. As the baseline lesson began, David started by asking students to stand up, then sit down, then stand up, then sit down and so on for a few minutes. He later explained that this was to let students know that they should bring their attention to the lesson. His baseline lesson followed the read and repeat pattern with one major difference. The lesson was regularly broken up by short songs and games. David later explained that he believed that if students became too bored, they would not learn anything.

David was the teacher from incident 3 who faced a dilemma between following the rules and following his beliefs about how to teach. The baseline lesson shows how he resolved this dilemma: he implemented the approved approach and added his own elements to engage the students. However, during a critical dialogue session, the researcher asked if it would be possible to use a teaching approach that was engaging in its own right. That would allow him to ensure the students were not bored without the ongoing interruptions to their reading lesson.

One of David's lessons was video recorded after this critical dialogue session. He did not use read and repeat and did not interrupt the lesson with games every 10 minutes. Rather, he told the students a folk story, and then ran a spelling activity. He informed the researcher after the lesson that he had been thinking hard about how to teach as a result of the critical dialogue. He said he knew he could not just come in and teach how he had been. He reasoned that he should tell them a story because they usually like that. Additionally, he had decided to include the spelling activity because he had used it before and he knew that students were likely to remember how to spell and read the words from that activity in the future.

Table 5.8: Comparison of David’s teaching methods

Before Intervention A and B	After Intervention A and an Open-to-Learning Conversation	After Intervention B
Teaching Procedure	Teaching Procedure	Teaching Procedure
1. Game (0:15 min)	1. Teacher explains	1. Discuss the picture
2. Students identify objects in a poster (1:35 min)	lesson procedure (1:40 min)	(0:40 min)
3. Identify picture cards in English and Dagaare (3:35 min)	2. Read and repeat key words (3:45 min)	2. Teacher reads the story to the students (2:10 min)
4. Write and model pronunciation of the words from the pictures on the board (6:00 min)	3. Demonstrate meaning of new vocabulary (14:10 min)	3. Teacher rereads the story and the students record words they do not think they cannot read on a small slate board (6:30 min)
5. Read and repeat key words (2:35 min)	4. Tell folk story in English (5:40 min)	4. Teacher scribes words students chose onto the blackboard (3:20 min)
6. Read, repeat and translate to Dagaare (3:25 min)	5. Tell folk story in Dagaare (5:20 min)	5. Students draw a grid (3x2) in their exercise books, and select six words from the list and write in the grid (3:00 min)
7. Game/song (0:30 min)	6. Oral comprehension questions (2:35 min)	6. Students collect six stones from outside the class (1:00 min)
8. Read, repeat and translate to Dagaare (4:05 min)	7. Spell ‘hunter’ when looking at the board, then turn around and spell—individuals then whole class (11:25 min)	7. Teacher reads the word list to the class
9. Short game/song (0:30 min)	8. Students spell ‘hunter’ in their book (3:30 min)	
10. Read, repeat and translate to Dagaare (2:00 min)	9. A student writes ‘hunter’ on the board (0:50 min)	

11. Game/song (0:35 min)	10. Repeat steps 7 to 9 for 'spider' (9:40 min)	(1:10 min)
12. Model initial sounds of the words and bring students with the picture of those words to the front of the class (14:30 min)	Was going to continue with other words but I asked him to stop due to time	8. Teacher reads the words at random and students place a stone if a word on their board is called out, playing bingo (8:10 min)
13. Game/song (1:10 min)		9. Students are invited to come out and call the words that they wrote on their boards. When they have difficulty, the words are broken up into their sounds and students are supported to pronounce them (5:37 min)
14. Continue with initial sounds as above (23:30 min)		10. Teacher reads the story to the class again (1:55 min)
15. Short game/song (2:05 min)		11. Students invited to read. Teacher checks reading by asking students to point to words periodically (9:00 min)
16. Continue with initial sounds above (5: 15 min)		
17. Student exercise (22:35 min)		
18. Marking (Completed individually when students finish)		

As the action research cycle progressed, it became apparent that David no longer saw 'the rules' as a legitimate reason to use rote methods. His contributions to discussion were thoughtful and

indicated a willingness to think of solutions that were outside the norm. For example, in response to the dilemma of teaching the curriculum within the limited timeframe, David suggested that rather than giving students the answer to memorise, they could be taught how to answer questions by showing them how to locate the information in text. The idea of teaching students how to get an answer represented a significant departure from the norm.

David transformed his final reading lesson into a game. He started by reading through the story. He did it a second time and asked students to list words they could not read. He then listed these all on the board. Surprisingly, students were then asked to go outside and collect nine stones. When they came back, David showed them how to make a bingo board. Students selected nine words and played a game of bingo. After the game, the teacher read the story again. A couple of students chose to read aloud also.

The primary objective is to determine whether or not David was more likely to help students learn to identify, pronounce and comprehend what they read after the action research cycle than he was before. Initially, in order to help students identify words, David used the read and repeat strategy. After Intervention B, he conducted a variety of activities designed to help students observe and memorise the words they read. The researcher is not sure as to whether this change is more likely to help students identify words, because it is not clear if it helps students better understand the relationship between the letters on the page and the sounds they make. It would take further trials to see if students were able to work out these relationships from these methods. The results are similarly unclear in relation to comprehension because David's teaching strategy is unknown to the researcher. Thus, if David's practice were evaluated solely on the terms set by the researcher, it would not yet constitute an improvement.

However, if David's own criteria were used for evaluation purposes, there is some improvement. David's main concern about following the rules had previously led him to teach in a way he considered boring. Due to the modifications to his practice, children spent more time participating in reading activities rather than unrelated games. This should result in some improvement in students' reading outcomes by comparison. Further, by questioning the justice of following such rules and placing more importance on engaging students, David was able to come

up with more interesting methods of teaching, independently of any help or advice. In this sense, David's improved solution is a result of modifications that he made to his constraint set, rather than simply a more effective means of meeting predetermined constraints. If David is able to question his own problem framing in future problems, then he is likely to significantly increase his potential to solve those problems.

Why Did Action Research Cycle 2 Have an Effect?

Action research cycle 2 had a more significant effect on teachers' practices for two reasons. First, because it sought to check whether or not alternative practices were perceived as a solution to the problems teachers faced when meeting the external pressures put on them (Ward et al., 2003). Second, it employed a theory of interpersonal effectiveness, model 2, which helped raise dilemmas to teacher change, rather than bypass them, and negotiated solutions to those dilemmas (Argyris, 1990; Argyris et al., 1985; Argyris & Schon, 1974). Alternative solutions were considered competing theories rather than something that teachers should be persuaded to do. Ways of checking the accuracy, coherence, effectiveness and improvability of those theories were established between researchers and teachers. The increased availability of valid information and bilateral control over the problem setting process resulted in more effective and more committed problem solving (Argyris & Schon, 1974; Robinson, 2008).

Chapter Summary

This chapter described the two action cycles employed by the researcher as an intervention following critical reflection using action research and the outcomes of analysis obtained by using methods such as observations, semi-structured interviews and surveys. Action research cycle 1 facilitated teaching activities that engaged teachers in reflecting on their practice and advocated an alternative approach to teaching reading. It was found that engaging teachers in reflection did not affect their existing practice or, more specifically, the desire to use the read and repeat strategy, because teachers were unable to think of better solutions to the practical problem of how to teach because of the way that they had framed the situation.

Similarly, reading to learn—the technique that the researcher introduced—was rejected because it did not address all the constraints that made up the problem frame pertaining to the teachers' world views. Although these strategies introduced by the researcher were aimed to engage teachers in learning, they actually prejudged the suitability of some practices and bypassed inquiry into why teachers were using rote methods in the first place. Issues of teacher responsibility were considered by teachers as a closed subject. Further exploration of the constraints indicated that the researcher's theory-in-use, which resembled model 1, contributed to the hesitation demonstrated by teachers to discuss the topics openly and transparently. Subsequently, action research cycle 2 explored the use of an alternative theory-in-use, called model 2. When acting on the basis of values, such as seeking valid information, openness and free choice, the researcher was able to inquire into the reasoning that sustained teachers' continued practices of the read and repeat strategy, even when they acknowledged that this strategy failed to teach students to identify or comprehend what they read.

During these demonstrations, the researcher placed teachers' current theories in competition with alternatives and all were subjected to the standards of theory evaluation—accuracy, effectiveness, coherence and improvability—qualities that are applicable to the context of the classroom and teaching practice in a situation like this. The results show that the action research cycle based on these principles did affect teachers' practices. All four teachers observed made changes that were considered improvements by the researcher and the teacher under the studied circumstances. The findings indicate that the kinds of processes used during action research cycle 2 were much more effective at affecting teaching practice and changing teacher behaviour and pedagogy. This was despite the fact that action research cycle 2 was much more limited in regards to time.

Chapter Six: Discussion and Conclusion

Overview

This chapter brings together the main research findings in the context of the research question and discusses the implications of the findings for improving the ability of students to pronounce, identify and comprehend what they read in northern Ghana. In particular, the chapter addresses how PD can affect teachers' practices and why teachers use rote teaching. The chapter discusses the strengths of PBM compared to other strategies. These strengths are highlighted using an example of the changes Pius made to his teaching, as described in the previous chapter. It also highlights the limitations of the research and areas for further research. The chapter ends with some concluding remarks.

How Can PD Lead to Better Reading Outcomes?

The main question investigated in this thesis is:

How can PD affect the teaching practice of a cohort of Ghanaian primary teachers so that they are more likely to teach students to identify, pronounce and comprehend what they read?

Due to the small sample size, the findings are not intended to be generalised to the wider population. However, they may be useful for professional developers on a case by case basis, particularly to the extent that the teachers they work with reason in similar ways to the way teachers in this study have reasoned.

First, this study found that the cohort of teachers studied used rote teaching as a means of meeting the expectations of their superiors in terms of covering the textbook, while also accommodating the low ability of many students. Teachers used rote teaching methods regardless of their class size and previous level of training, even when they could demonstrate they were capable of using alternative approaches that they regarded as better suited to the

students' ability levels. However, they generally continued with the rote method due to perceived pressure to do so, or at least to follow the textbook.

Second, the study indicates that using PBM is probably a more effective means of improving this cohort of teachers' practices than conducting lesson studies or demonstrating the reading-to-learn approach. The limited effect of conducting lesson studies and demonstrating the reading-to-learn approach was because alternative practices did not address the key constraints that informed how teachers thought they should teach. Conversely, PBM not only aimed to explicate these constraints and seriously consider ways of addressing them, but also challenged the adequacy of some of the constraints when necessary. Additionally, it described a theory of interpersonal effectiveness that made discussing issues such as teachers' competency less threatening and more productive. In this way, PBM neither prejudged the adequacy of alternative approaches, nor merely described why teachers were using current methods, but was guided by evaluative criteria designed to help teachers address the problems that concerned them.

Finally, the study suggests that these findings are largely due to the flexible nature of action research, and the ability to respond to unforeseen lines of inquiry. Had this research only consisted of action research cycle 1, it would not have been able to contribute to an understanding of why these teachers used rote teaching, nor how the reasoning that sustains these practices may be opened to change.

Forms of Personal Development

It is worth considering how PBM compares with other approaches as a means of teacher PD. However, this section is not intended to comment on the effect of PBM in comparison to the other strategies in general, but rather to summarise which approach is more likely to result in change in the circumstances particular to this study.

First, in comparison to strategies that focus only on demonstrating alternative methods of teaching (McDevitt, 1998; O'Sullivan, 2001; Sifuna & Kaime, 2007; Wedell, 2005), PBM compares favourably. While these strategies assume the superiority of the alternative methods

being demonstrated, they do so against criteria that are likely to be different from those teachers use to judge the adequacy of their practices. Subsequently, alternative practices that do not compare favourably against the criteria set by the teachers are likely to be ignored or misapplied (Cousins & Leithwood, 1986; Nisbet & Broadfoot, 1980; Timperley & Parr, 2005). PBM recognises the need to evaluate theories using criteria that include how practitioners themselves have framed the problem of how to teach and set appropriate teaching strategies.

The changes that Pius made to his teaching is an example of how PD can benefit from recognising how practitioners frame the task of how to teach (see Figure 6.1). When he was given support to teach in ways that enabled him to save face in front of the students, he was willing and able to implement the NALAP. Previously, his training had targeted only his pedagogic knowledge (Shulman, 1986). This had not provided him with the tools necessary to address his concerns about losing face, and subsequently helped him to justify his lack of implementation. However, when the criteria he used to judge the adequacy of his actions were taken seriously by the researcher and he was supported to decode words accurately in front of the students, he was more willing to take responsibility for his actions and began trying to use the programme. The following figure shows how addressing Pius's concerns about losing face by improving content knowledge helped him adopt a new practice. This is significant because one of the assumptions that the researcher initially made was that it was teachers' pedagogical knowledge that was limiting their practice. When the research uncovered that it was mainly the teachers concern with saving face, and that improvements in teachers' content knowledge would help address these concerns, the teacher involved was much more open to change.

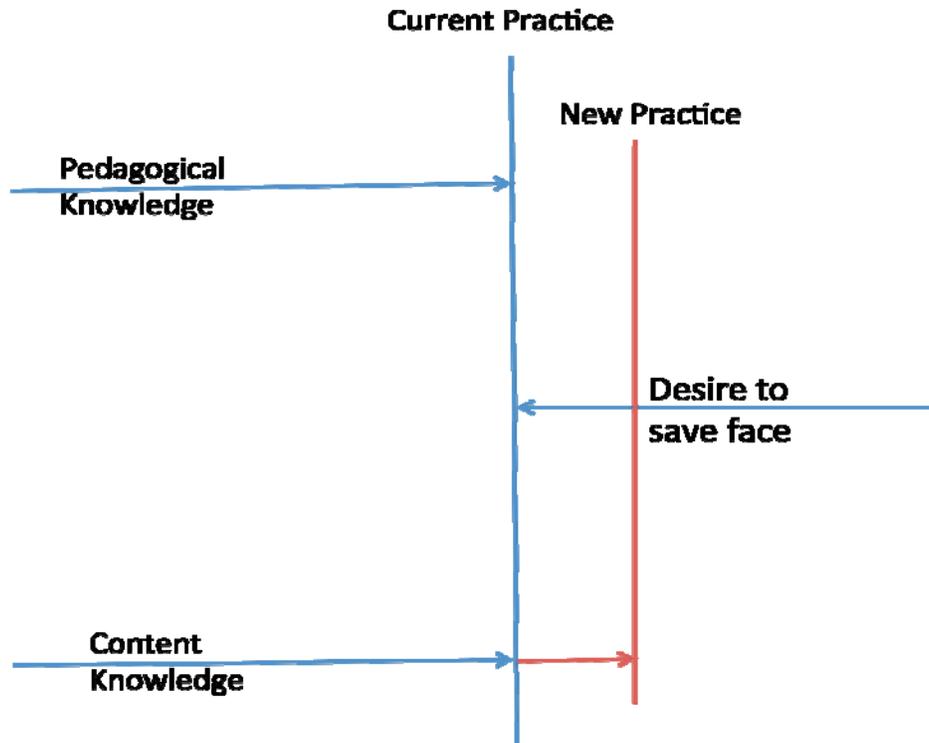


Figure 6.1 Pius's teaching

Second, this study indicates that under the conditions described in this study, PBM compares favourably against facilitating a problem-solving process such as lesson study (Coe, 2010; Lewis, 2002; Ono & Ferreira, 2010; Saito et al., 2008). This finding supports the assertion that Ghanaian teachers lack the autonomy and agency to engage in such processes (Akyeampong et al., 2006; Pryor, 1998). The findings of this study also appear to agree with those who indicate that PBM may be able to improve the agency of teachers (Pryor, 1998). Perhaps this is because PBM provides a means of resolving competing ways of framing a problem that alternative educational research approaches do not, such as the ladder of inference in Figure 6.2 (Robinson, 2008; Robinson & Lai, 2006; 'Systems Thinking in Schools', 2012).

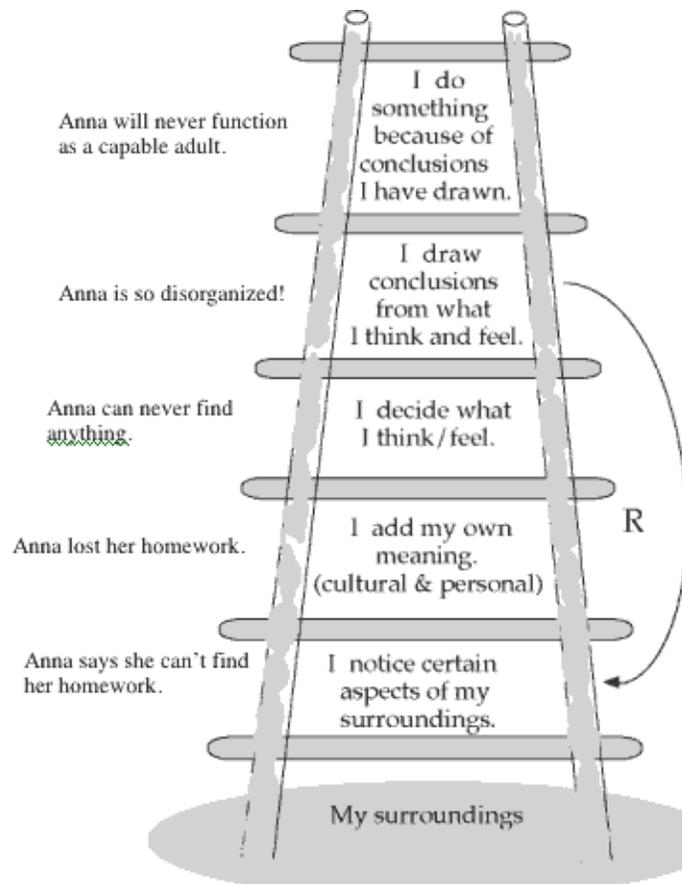


Figure 6.2: Ladder of inference ('Systems Thinking in Schools', 2012)

The example shown in Table 6.1 illustrates how the ladder of inference, used by PBM researchers, helps to resolve differences of opinion in a productive manner. The ladder of inference is a tool that can help individuals slow down the way that they attach meaning to what they observe which helps them uncover errors in their thinking and their mistaken assumptions. The example has already been presented in the findings chapter, but is presented again here to show why PBM is more likely to lead teachers to change their rote teaching practices. Table 6.1 shows how teacher 1 perceived his job as doing what he was told, whereas the researcher and teacher 2 perceived teachers as responsible for teaching reading. In order to resolve this conflict, it is necessary to determine the validity of these opposing frames. Indeed, if teacher 1 is correct and he follows the advice of the researcher, he could open himself up to punishment. However, if the researcher and teacher 2 are correct, the teacher could be neglecting his responsibility as a teacher. This issue can be resolved by checking the accuracy of these competing frames, with reference to directly observable data, using the ladder of inference.

Table 6.1 Competing ways of framing the role of teachers in Ghana

What was said	What the researcher thought but did not say
Researcher: So, imagine that I am a supervisor and I am come and tell you that you have to teach in a certain way, but you do not believe that the way I tell you will work. What would you do?	<u>Come on, it does not make sense to keep obeying a stupid rule!</u>
Teacher 1: Well, I will do the right thing.	<u>Huh? Do what the supervisor says? No way!</u>
Teacher 2: Though it will be to the detriment of the children!	<u>That is right. At least someone can see sense.</u>

Chapters 4 and 5 showed that shifting from one’s largely automatic judgement making processes in the form of model 1, to the more difficult task of checking the accuracy of one’s interpretations, in the form of model 2, can be a more effective mode of negotiating ways that teachers can change their teaching. The focus of the model 2 conversations is not to persuade someone that your point of view is right or desirable, but to establish a means of determining the relative adequacy of competing views. This is more productive when faced with competing points of view compared to the common approach, which generally advocates one’s own view and, in the face of resistance, advocates harder (Argyris, 1990; Robinson, 2011). It is worth remembering that where differences of opinion arose during this research, such as the competing perception of a teacher’s role, seen above, these issues were only resolved when the researcher was able to put model 2 strategies to use.

Interpretation of Rote Teaching

It is also worth comparing the interpretation of teachers’ use of rote methods presented here with interpretations found elsewhere in the literature. In this way, the interpretation presented here can be further checked for disconfirming data. First, to compare with those that list large class sizes and lack of resources as causal factors (Akyeampong, 2004; O’Sullivan, 2001; Sayed, Akyeampong & Ampiah, 2000; Sifuna & Kaime, 2007). This study observed that rote teaching continued in classes with as little as 10 students. Further, in both the schools in this study, there

was a good range of visual teaching aids that were a part of the NALAP programme, but teachers chose not to use them. These observations cast doubt of the importance of such factors.

Second, to respond to those who claim rote teaching is caused by oral and behaviourist teaching traditions (Akyeampong et al., 2006; Jessop & Penny, 1998; Tabulawa, 1997). This is unlikely given that those traditions were generally more interactive than teachers' use of rote. For example, elders used to tell stories and then provide opportunities for students to ask clarifying questions. After students had exhausted their questions, elders then asked several of their own questions to check the level of comprehension of the story. Such a process was concerned that students learn the lesson from the story. It was observed during this research that even when folk tales appeared in the textbook, students often failed to comprehend what the story was about and the teacher's main focus was that they learn to pronounce the words correctly. If teachers were guided by their traditions, it seems these stories would provide them with an opportunity to follow the process described above; however, this is not the case.

Last, to respond to claims that teachers' desire to maintain authoritarian control over the classroom ensures their continued use of rote teaching (Akyeampong et al., 2006; Dull, 2004). Although this is likely to restrict the use of student-centred methods, such as group work, it does not explain why there were teachers who used games, but only as additions to the standard lesson format that followed the rote teaching pattern.

There is another possibility: that teachers are simply replicating what they have seen others doing, and what they have done many times before. In these cases, although teachers cannot afford the time to approach every lesson as a fresh attempt to solve the problem of how to educate, these routines can be understood in terms of teachers' previous problem-solving efforts (Robinson, 2008). This does not explain why teachers would agree in principle that alternative methods are better, but fail to implement such alternatives in practice. Rather, this is explained by identifying how teachers' current practices better suit the criteria they set as important in the problem of how to teach. However, the factors presented here indicate that what other teachers are doing, especially head teachers or supervisors, does factor highly in what teachers ultimately end up doing themselves.

This research developed an interpretation of rote teaching as a habitual response to curriculum beyond the capacity of many students. The research validated this interpretation by showing how the explanation presented here withstood the researcher's attempts to find disconfirming data from the teachers' actions and the literature. The description of teachers' theories of action was modified several times as disconfirming data arose. For example, it initially included the constraint 'conform to the norms of peers'. However, interview data did not support this. However, data did support 'follow the rules'. Further, although the literature described here presents alternative explanations, these do not appear to account for or describe the reasoning that leads teachers to continue with rote methods, but rather identify factors that exist in the setting. This does not mean that these factors cause teachers to use rote teaching, and these examples also do not appear to provide evidence that contradicts the theory of action presented here.

However, one failing of this research is that the possibility that some teachers' actions may simply be unrelated to concerns about the outcomes of their students was not pursued more vigorously. Teachers may simply want to collect their paycheck and do as little as possible in the process. These issues warrant investigation.

Limitations

There are several features of this study that limit their applicability to the rest of Ghana. These were limitations related to the sampling technique and the sample size. First, all participants were purposefully selected because of their interest in improving their teaching practice through in-service training. Thus, it is unlikely that these results can be generalised to teachers that show significantly less interest in developing their teaching craft. Second, the small sample size could also affect whether or not studies of the wider teaching population would produce similar findings.

A study of less than 10 teachers is unlikely to be representative of the wider population that would engage with the PD activities described here. If this research had been able to collect data

from other geographical regions within Ghana, or perhaps other countries in Africa, this could have confirmed or disconfirmed the extent to which these findings could be generalised. Unfortunately, this was beyond the scope of this research. However, accounts of teachers' actions in terms of the use of rote methods from projects in Namibia and Kenya (O'Sullivan, 2002, 2004; Sifuna & Kaime, 2007) are remarkably similar to those observed in Ghana. What is lacking in these studies that limits potential for comparison is information about what motivates or constrains those actions.

Opportunities for Future Research

Given the limited use of PBM in the context described here, there are numerous possibilities for future research into this area. Unfortunately, action cycle 2 was relatively short, though highly effective. Future research could explore the effect of PBM over a longer period. Second, although there are numerous accounts that indicate that teachers' practices are remarkably similar across many African classrooms (Akyeampong et al., 2006; O'Sullivan, 2002, 2004; Osei, 2006; Pryor, 1998; Sifuna & Kaime, 2007), there is no evidence to suggest that what motivates or constrains these actions is also similar. Further research could determine the extent to which this is the case, and hence the extent to which the strategies presented here may apply to other settings.

Implications and Areas for Further Consideration

Although the small sample size limits the generalisability of these findings, they suggest several areas that may warrant further consideration if the poor reading outcomes of many Ghanaian students are to be improved.

- It appears that many students lack an adequate understanding of the relationship between letters and sounds. There are two possible courses of action. The early childhood classes that are expected to teach these relationships could be more closely observed to discover how this happens. Or, the reasoning that directs all other teachers to avoid addressing these gaps could be better understood.

- Although prejudging the adequacy of teaching methods makes supervision and teacher evaluation easier, this is unhelpful if those teaching methods do not actually help teachers achieve the intended consequences. These need to be periodically checked.
- NGOs that take a stance that seeks to persuade teachers of the advantages of student-centred learning could benefit from first analysing why teachers are not using such methods in the first place.
- At the time of the study, the teachers from northern Ghana involved in this study did not appear to be ready for PD that targeted the pedagogical knowledge of teachers. This is partly because they were used to following orders rather than taking initiative. However, they may find it useful to build their skills in negotiation. Teachers are currently stuck between ‘doing the right thing’ (following orders) and ‘doing the thing right’ (teaching students). Cultural and organisational norms sometimes prevent teachers from providing feedback that conflicts with the opinions of superiors as this may be interpreted as disrespect. If teachers were supported to use critical dialogue (Robinson, 2008; Robinson & Lai, 2006), they may be more able to raise their concerns about the directives of superiors in a respectful manner.
- As noted previously, model 2 strategies may appear simple in theory, but are quite difficult to put into practice due to the natural speed that enables most people to make sense of, and judge, their surroundings. This may create barriers for those interested in further pursuing the usefulness of PBM in Ghana.
- It is worth investigating the effect that an organisational culture which values obedience over initiative has on the persistently poor reading results.

Concluding Remarks

Changing teaching practice is a complicated matter in any context. However, it is made more complicated when change agents are introduced to situations that they do not fully appreciate nor comprehend. Their ability to comprehend the situation is made more difficult by the fact that they will be treated as privileged visitors rather than normal, everyday workers.

This research was initiated in order to support the aim of the researcher to bring about improvements to the way education was conducted with a cohort of Ghanaian teachers. It focussed on the difficulty students had with reading in particular. Although well intentioned, the initial response, which was to consult the literature on how to teach reading effectively and present this to teachers, was unsuccessful. The problem was that the researcher assumed that teachers' actions were their solutions to the problem of how to teach. In reality, and often unbeknownst to the teachers, their problem frame was more complicated. For instance, teachers' actions were designed to match their understanding of their job, which was often related to what they were told to do. Often, what they were told to do was implicitly rather than explicitly understood. Some teachers, who realised that framing their job this way led them to neglect the development of their students, were prepared to modify their problem frame, others were not.

This research has explored approaches to PD, such as training teachers in alternative methods, supporting their ability to collaboratively problem solve and inquiring, on the part of professional developers, into why teachers teach as they do in the first place. Although all of these approaches have their merits, the usefulness of alternative methods and reflective problem-solving approaches cannot be predicted without an understanding of why the situation exists in the first place. Thus, it seems prudent that the first step for professional developers who wish to affect teaching practice in Ghana is inquiry into the factors that sustain the status quo. This inquiry can assist interventionists to learn more about the kinds of knowledge teachers require if they are to implement alternative practices that may lead to better student outcomes.

Knowledge that enables teachers to change is not necessarily pedagogical knowledge. In order to help teachers act in different ways, teachers may require knowledge that appears, at first, unrelated to the task of teaching. This study demonstrated that, in this case, teaching teachers how to negotiate with a supervisor, or enabling them to save face might lead professional developers to become more influential.

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Appendices

Appendix 1- Ethical Approval



HUMAN RESEARCH ETHICS COMMITTEE

MEMORANDUM TO: A/Prof N Taylor, Mr A Peeters & Dr A Kuyini-Abubakar
School of Education

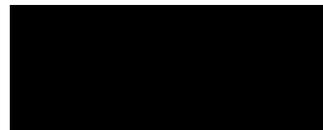
This is to advise you that the Human Research Ethics Committee has approved the following:

PROJECT TITLE: Pedagogical change in Northern Ghana: A case for lesson study?
APPROVAL No.: HE10/220
COMMENCEMENT DATE: 08/04/2011
APPROVAL VALID TO: 08/04/2012
COMMENTS: Nil. Conditions met in full.

The Human Research Ethics Committee may grant approval for up to a maximum of three years. For approval periods greater than 12 months, researchers are required to submit an application for renewal at each twelve-month period. All researchers are required to submit a Final Report at the completion of their project. The Progress/Final Report Form is available at the following web address: <http://www.une.edu.au/research-services/researchdevelopment/integrity/ethics/human-ethics/hrecforms.php>

The *NHMRC National Statement on Ethical Conduct in Research Involving Humans* requires that researchers must report immediately to the Human Research Ethics Committee anything that might affect ethical acceptance of the protocol. This includes adverse reactions of participants, proposed changes in the protocol, and any other unforeseen events that might affect the continued ethical acceptability of the project.

In issuing this approval number, it is required that all data and consent forms are stored in a secure location for a minimum period of five years. These documents may be required for compliance audit processes during that time. If the location at which data and documentation are retained is changed within that five year period, the Research Ethics Officer should be advised of the new location.



08/04/2011

Jo-Ann Sozou
Secretary/Research Ethics Officer

A11/100

Appendix 2- Pre-Observation Semi- Structured Interview Questions

The questions below formed the basis of an initial discussion with teachers prior to observing their lesson to determine what factors had led them to teach as they had.

1. What do you have planned for today?
2. What are the steps in the lesson?
3. Where did this lesson topic come from? Have you done it before? What led you to teach this?
4. How is the lesson today related to yesterday's lesson? How will it relate to tomorrow's lesson?