



THE REFLECTIVE AND COLLABORATIVE PRACTICES OF TEACHERS IN
GHANAIAN BASIC SCHOOLS: A CASE STUDY

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DECLARATION

I declare that this thesis is the product of my own work, which has not, whether in the same or a different form, been presented to this or any other university in support of an application for any degree other than that for which I am now a candidate.

Signed:.....

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January, 2011

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ABSTRACT

With advances in using the teachers' classroom as the foreground for teacher improvement, reflective and collaborative activities have been increasingly used in a variety of professional development contexts. It is widely held that reflective and collaborative activities are conducive to helping teachers to develop a positive attitude towards questioning their teaching for themselves and others as well as empowering them to have control over their professional development. It is in this view that I developed an intervention process to explore what happened, when teachers within one school were given an opportunity to engage in a planned series of critical dialogues relating to their own classroom teaching. The study also explored how the teachers use the Intervention Process to develop their thinking about their practices.

Using a case study approach, the IP that 'sit' in experimental research, action research which was more qualitative in nature was conducted in one school from, February 2007 to July 2007. Four mathematics teachers purposely and through theoretical sampling techniques were selected in a school considered to be a fair representative of basic schools in Ghana. The field research included interviews and reflective dialogue. Findings from the case study were presented and analyzed for their significance.

Key issues identified by the thesis include: the IP creating a conducive environment for reflective and collaborative practices, teachers developing rich and deep reflective dialogue, which provided them with opportunities to systematically and rigorously diagnosing their practices and socio-cultural influence in developing deeper discussions. In addition, the IP provided the participants' with detailed ways of reflection.

Based on the evidence from the data, I have argued, among others, that the IP promoted individualised and collaborative learning. The prevailing socio-cultural

elements in the immediate environment supported a rich and deep professional dialogue as a tool for understanding and dealing with on-the-spot professional problems and supporting critical thinking that includes taking account of social, political and cultural issues as a process to analyze competing claims and viewpoints. Recommendations for policy recommendation and potential areas for further research were also made.

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LIST OF ABBREVIATIONS

| | |
|--------|--|
| CBI | Cluster-Based In-service training |
| DANIDA | Danish International Development Agency |
| DFID | Department for International Development |
| GES | Ghana Education Service |
| GNAT | Ghana National Association of Teachers |
| GOG | Government of Ghana |
| IDA | International Development Association |
| IIEP | International Institute for Educational Planning |
| ILP | Improving Learning through Partnership |
| JICA | Japan International Cooperation Agency |
| MOE | Ministry of Education |
| MOESS | Ministry of Education, Science and Sports |
| QUIPS | Quality Improvement in Primary Schools |
| SBI | School-Based In-service training |
| TOT | Trainers of trainers |
| UEW | University of Education, Winneba |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| WSD | Whole School Development programme |

CHAPTER ONE

BACKGROUND TO THE STUDY

1.0 Introduction

Both developed and developing countries are engaging in serious and promising educational reforms. Most importantly professional development of teachers has been given much attention because teachers are considered as significant key change agents. In view of this, teacher professional development (PD) activities are growing and considered challenging areas that have received a great deal of attention. Therefore, it is my belief that the need to undertake research into teachers' professional development is urgent, as will be explained in this chapter. I shall also explain my interest in the research topic.

In response to the desire for change, various models are employed and have moved more towards emphasising teachers' collaborative professional practice that is open for inquiry (Leat and Lin, 2003). The sharing of knowledge from the collaborative activity between teachers enables greater access to learning that is tied to their actual work. The trust for collaboration has taken an international dimension. For example in Australia an Innovative Links Project in which teachers in schools and universities work on research and implement practices shows that teachers associated with this project developed skills and competencies that have enhanced their PD, such as learning, participation, collaboration, co-operation, activism and research (Sachs, 2000; UNESCO IIEP, 2003). In Britain, the General Teaching Council for England advocates that the bases for raising schooling standards lies largely in 'collaborative inquiry and open, active professional learning' (GTC, 2002; Leonard and Leonard, 2003). Similarly in developing countries like Nigeria and Kenya, efforts are being made for teachers to collaborate to discuss their practices (the Commonwealth of Learning, 2001). Even though such practices have had significant results which show that teachers improve mainly, it cannot be done without teachers reflecting on their teaching and discussing teaching issues with colleagues (Tigelaar, Dolmans, Meijer, Grave, and Van Der Vleuten, 2008).

Further advocates for this interaction trend think for effectiveness teachers need to inquire into their practices. Day (1996) for example, advocates that there cannot be effective collaboration without reflection since the willingness of teachers to engage in collaborative experience is a characteristic of a reflective teacher. Again Pontefract and Hardman (2005) have called for teacher development strategies in which teachers can explore their beliefs as well as reflect on their classroom practices. Countries and projects that engaged in reflective and collaborative practices have all indicated that teachers need to engage in inquiry of their practices since they developed more complex views of beliefs, teaching practices, both in-service teachers through inquiry (Adalbjarnardottir and Selman, 1997; UNESCO, IIEP, 2003) and in pre-service teachers (Freese, 1999; Robinson, 1999; Morey, Nakazawa and Colvin, 1997). The emerging consensus is that the quality of education in schools can be improved by teachers working together on classroom-focused inquiries (Hopkins, 2000). This has led to policy makers, especially in the United Kingdom emphasising on promoting teacher collaborative inquiry.

These trend has given rise to suggestive evidences in literature that support the idea that generally PD activities require teachers to reflect on their daily activities and share their reflections with colleagues who will, in turn, give them feedback. Therefore, professional activities need to move away from the traditional provision of information to teachers during PD activities to more reflective and collaborative activities (Palincsar, Magnusson, Marano, Ford, and Brown, 1998; Gewirtz, Mahony, Hextall and Cribb, 2009). Although a significant number of developed countries have long embarked on reflective and collaborative activities for developing their teachers, in Ghana the move to using this strategy seems to be at its infancy stage and therefore needed much attention. To get a better view about this assertion, the next section explains the PD attempts in Ghana.

1.1 Setting the Context of the Study

1.1.1 Attempts in Teacher Development in Ghana

A four week period of teaching practice had been the norm for the Initial Teacher Training College and the universities training teachers in Ghana. Teaching practice used to be twice for the period of training until changes in 1998 (MOE, 1998). A major reform recommended a change in initial training for teachers to the form IN-IN-(IN)-OUT scheme where teacher-trainees spend two (three) years at college (university) and do academic work and the last year practicing the skills of teaching outside their colleges.

The 1987 reforms saw a complete overhaul of the educational systems and had the Ghana Education Service partnering other institutions like: the Teacher Training Universities in Ghana, the University of Leeds, development partners like United Nations International Children's Educational Fund (UNICEF), the Department for International Development (DFID) of the United Kingdom, the World Bank, the United States Agency for International Development (USAID) and the Danish International Development Agency (DANIDA), to develop multiple intervention programmes, more especially, for the basic school level teachers to update their skills. An evaluation report by MOE (1998) indicated that the attempt fell short of the national expectations. By 2002 another reform ushered the education system into a new phase of re-evaluation and change. Regarding teacher change, the emphasis was the development of competent, committed and dedicated teachers will have the capacity to:

- applying, extend and synthesise various forms of knowledge
- developing attitudes, values and dispositions that create a conducive environment for quality teaching and learning in schools
- facilitating learning and motivate individual learners to fully realise their potential
- adequately preparing the learner to participate fully in the national development effort (MOE, 2002)

Major models adopted and still being used in most teacher development activities in Ghana includes: The Lecture/Cascade model and the Site-based model. The use of these models have and continue to set agendas for debates, discussion, conferences, memorandums and several proposals recommending models that have the classroom as the foreground for teacher change. According to the critics, these models on paper require the teachers to engage with some sort of collaborative activities, however, the providers of the INSET programmes using these models do it by the 'Lecture method' (Amoah, 2002). Lead presenters of most of the PD activities only provide information without much collaborative inquiry interaction on their practices. The prescriptive way information is delivered influences the teachers' prescriptive instructional practices. This underscores the type of training which see teachers engaged in '...explaining factual information from the prescribed textbook and tested students they could recall information contained in the reading text' (Akyeampong, Pryor and Ghartey, 2006 p156).

From the evolving debates came the recommendation requiring other forms of models to retrain teachers in both the basic and secondary levels of the education sector. The calls were in line with the global agenda of 'Education for All' which was a theme in the Jomtien Conference and this saw the World Bank providing credit facilities to restructure school systems including teacher training (World Bank, 2004). Following on from the restructuring, the inclusion of the various committees notably 'School Management Committees', 'Parent-Teacher Associations' and local committees drawn from organisations and immediate environment of the schools became common.

The criticisms coming from stakeholders, the public, including the press, and all targeting the teachers, resulting in more attention given to restructuring and reinforcing professional development activities which were community based.

The new direction saw the introduction of the Whole School Development (WSD) school project in 1998 with a policy:

to improve the quality of teaching and learning in basic schools, encourage community participation in education delivery, and to promoting the competencies of teaching and learning through school-based in-service training (MOE, 1999 p2).

This WSD programme was the MOES/GES classroom-focused basic-education strategy to achieve Free Compulsory Universal Basic Education (fCUBE) objectives. The project brought both the School-Based INSET (SBI) and Cluster-Based INSET (CBI) models of INSET which were used to build capacity among teachers to improve the quality of their teaching and learning, and provided policy initiatives to improve quality of teaching (GoG-DFID, 2004). Among the numerous achievements of the WSD were:

- establishment, and training, of District Teacher Support Teams (DTST) in 60% of districts to provide valuably support towards the implementation of INSET, and
- identification and training of Curriculum Leaders (CL) and head teachers to support the SBI and CBI model of INSET. (JICA report, 2006).

In addition, the projects aimed to get the teachers engage with their colleagues to develop their understanding and to reconstruct their classroom practices both internally and externally. However, policy decision and implementation difficulties, encountered financial difficulties as the process was donor-driven, led to low attention.

With the government more determined to structure in-service activities, INSET was institutionalised. Debates on previous INSET activities were directed toward how the activities did not focus on continuous development and growth of the teacher, and were mostly on an ad-hoc basis to address certain problems (GES, 2000). Furthermore the INSET programmes targeted almost the same people and sometimes teachers were confused with the associated numerous approaches and methodology (JICA, 2006). Besides, there were no follow-up programmes to maximise their impact in improving the competencies of teachers. The institutionalisation of INSET therefore was to provide the necessary support to plan,

implement and sustain INSET activities within schools in order for primary school teachers to improve in their teaching delivery as well as to develop a structured and replicable INSET model for primary school teachers in Ghana. The institutionalisation project was therefore taken up by Teacher Education Division (TED) with support from JICA.

JICA had a comprehensive INSET programme. It had three levels in the INSET structure (see Appendix F) that brought policy makers, and implementers involved in the training. Within the structure reflection and collaboration practices are more recognised in the INSET activities. The recognition seemed to place more value on standards in INSET. However, at the implementation level (level three from the Appendix F) it appears to follow the traditional Cascade method as well as official control on all its activities. However with the global trend of recognising deeper understanding of teachers pedagogical conception and its impact on their practices which requires analysis based on teachers reflective conversation on their classroom teaching scenarios, getting a process that can address this trend was appropriate and forms the basis for this study.

1.1.2 Professional Development in Ghana: Issues for research

In Ghana, providers of PD to teachers at the basic level are quick to draw superficial conclusions about teachers acquiring competences after going through PD (GES, 2002). Many concerns were raised to this effect. Analysis of the concerns relates to the following fundamental issues:

- The failure of the providers to develop supportive models to help teachers interrogate and understand their instructional practices from instances within their own classroom context.
- The programmes do not allow teachers to have access to their own and colleagues' classroom experiences as a way to identify differences and similarities between the experiences which will guide the input into professional development, in terms of (i) what to focus on, (ii) determining the guiding principles for professional development activities and (iii) if there is the need for any external support; and

- How teachers can develop deeper understanding of their pedagogical conceptions and how these are shaped via teaching scenarios in their classrooms (Amoah, 2002)

These important issues reflect key debates on designing effective professional development processes. There have been few suggestions put forward from the debates and includes an effective continuous teacher development process that will be devoid of incompetent lead presenters (GNAT, 2002), teachers need support from their schools since very little support, if any, is available for the professional development of teachers in our schools (Abboa-Ofie, 2010). Building upon this, Abboa-Ofie said:

...it is important that stages that teachers pass through during their professional development be identified so that teachers can be helped and encouraged to move through the developmental process.

Another suggestion relates to advancing the Ghanaian communal cultural principles to support teachers in discussing their practices (Owusu-Mensah, 2006). Owusu-Mensah's (2006) argument was premised by the fact that Ghanaian culture recognises everyone within an environment as the 'brother's keeper', and the problem of an individual is the problem of all in the community. This communal attitude involves debate and negotiations where the individuals wrestle with ideas to develop better understanding, share ideas and learn from each other collaboratively. Consequently, teachers can develop such characteristics and use their immediate colleagues within the environment to engage themselves to discuss their problems. Such an undertaking supports suggestive evidences in literature that resonates and reflects teachers professional and classroom realities when they engage in critical reflections on their practices with their colleagues. Implicit in this understanding is the fact that teachers' classroom practices are found as a function of their personal socio-historical past, beliefs, school culture and values (Wideen et al., 1998; Scribner, 1999).

Some educational experts have observed that it is not just engaging teachers in reflective and collaborative activities that can readily improve their practices, instead how the activities impact on their teaching is what is required. Teachers

need to see how the activities promote new opportunities for growth, exploration, learning and development (Villagas-Reimer, 2003 p5 in UNESCO IIEP, 2003). As the literature suggests, there are many dedicated and devoted teachers who work hard under demanding conditions and who need PD opportunities, but it is the impact of such PD activities that is more important (Guskey, 2000; UNESCO IIEP, 2003). This is really important because such activities have strong links with teacher development and school improvement (Rareiya, 2005).

As a consequence, getting the opportunity to go through the reflective and collaborative activities, one needs to look beyond engaging in the interactions. Instead it is important to consider how richly and deeply they can engage with the dialogue. Rareiya (2005) therefore thinks there is the need to ‘...develop in teachers the disposition to interrogate their unidentified knowledge about their practices. Without this, the teachers are more likely to be engulfed by the demands of teaching as usual and less likely to interrogate the ways they read and experience their practice’ (p331). This suggests that diagnosing their practices is important to help teachers understand their practices as they could learn in new ways from such interactions.

It was therefore important to explore the impact any developed activity has on participants which is underpinned by PD principles of the teachers who engage with the process. As Campbell, McNamara and Gilroy (2004) point out, there needs to be a process where teachers can research their own practice so as to come to a better understanding of the values they are relying on to inform and improve that practices. Thus it is crucial to examine how a developed PD process, from the views of those engaging in the process, can promote an interactive environment where the participants can share their views on the effect of their thinking about their practices. Furthermore Campbell, McNamara and Gilroy (2004) point out that the process will help teachers bring their tacit knowledge to the surface by thinking through one’s actions as one is producing them in the thick of their professional situations. This suggests that the process by itself cannot

change the practices of the teachers, rather it is about the way the process supports them to engage in a quest for an understanding of their practices and helps them to develop the ability to take control of themselves and their PD (Rarieya, 2005) that matters. Thus in this study, I was interested to, as an impact, find out what factors contribute to promote a conducive reflective and collaborative environment for teachers to engage in developing better understanding of their practices.

Another issue that this study considers impacted on the teachers and considered very important is the development of rich and deep dialogue about their practices. It is recognised that the acquisition of specific pedagogical skills and knowledge are important ingredients to teach. This has little practical value unless they are integrated into the context of real classroom practices. To be able to understand one's classroom practices, many educators have recommended that teachers need to engage in reflective dialogue about their practices. Thomas and Montemery (1997) posit that teachers who engage in reflective dialogue open up their teaching to the public through talk and encourage them to view others' perspectives. This can motivate teachers to know more about their practices when used as a PD activity. However, in the Ghanaian educational terrain, teachers did not seem motivated to attend PD activities. The simple reason is the fact that what is learnt either does not have immediate impact on their teachings or might have been redundant to their work (Kankam, 2005). Most often, from my experience, field supervisors referred to as 'circuit supervisors' relay any identified need to their superior officers, who in turn refer it to the professional development providers. The programmes developed do not encourage teachers to engage in reflective conversations and a considerable gap and delay is the issue standing between the needs identification and the preparations made to attend to these needs vis-a-vis their teaching. The question therefore is how can a PD process be designed so that teacher can engage in continuous reflective conversation about their practices such that their needs can be met more immediately?

Aside from getting the immediate response, the PD process is about how deeply and richly the interactions can be. It has been argued that such dialogue creates a level of understanding about the constraints of one another's practices and gives the teachers engaged in the reflective dialogue an opportunity to bring their expertise to an endeavour that is potentially enriching to all involved (Rareiya, 2005; Morrison, 1996). Hatton and Smith (1995) have also pointed out that reflective dialogue allows teachers to think and resolve an issue which involves active chaining, a careful ordering of ideas linking each with its predecessors. Within the process, consideration is to be given to any form of knowledge or belief involved and the grounds for its support. Although it is difficult to establish hard empirical evidence to support this view in Ghana, there appears to be good grounds from the cultural set up point of view of the Ghanaian people that the use of the underpinning communal spirit and the manner in which individuals wrestle and interrogate their views (Owusu-Mensah, 2006) could serve as an enabling process to develop rich and deep professional dialogue. Thus, this research set out to investigate whether a cue could be ascertained as to how the support of the cultural norms used in discussions could be a step in the right direction to get teachers to discuss their practices if that was not happening.

Another issue arising from the use of reflective and collaborative activities that guides the development of understanding is about the thinking of participants regarding their practices. Hatton and Smith (1995) believe that reflective thinking generally addresses practical problems, allowing for doubt and perplexity before possible solutions are reached. Thus, in any interaction based on discourse about their practices, teachers consciously think and modify their practices whiles discussing them. It is through this that teachers can understand their intentions and outcomes of their practices. However, it has been argued by Rareiya (2005) that this cannot happen instantaneously upon lesson demonstrations, rather there are certain factors that need to be addressed by teachers as they look critically at their classroom practices or when thinking of better ways to do things. From the premise set by Hatton and Smith, as well as Rareiya, it could be argued that teachers need to engage in some thinking processes as they discuss their practices to de-

velop understanding and how to change their ways of doing things. Teachers thus will have to think about how to deal with on-the-spot professional problems, analyse competing claims and viewpoints, systematically and coherently organise their thoughts and engage in critical thinking that includes taking account of social, political and cultural issues. Thus, the research set out to explore how an intervention process can be developed to ascertain whether the Ghanaian teacher can develop such thinking processes, and if it was not happening, why.

The above issues form the basis for the study and may be underpinned by the Ghanaian educational culture, but the broader literature in chapter two will be used to support the argument of the thesis which is about whether through a rigorous and unusual intervention where teachers question and interrogate their practices using their reflective and collaborative practices can support their development.

1.2 My Background and research interest to model a teacher development process: My Perspectives

The general course structures of the University of Education, Winneba, where I presently teach, is modelled around the IN-IN-IN-OUT programme and have both reflective and collaborative practice components. Prospective teachers spend the first three years on the university campus where they are taught formal teaching principles. In the last year, the 'OUT' programme allows student teachers to put into practice what they have learnt in the first three years in a school outside the university campus. Aimed toward developing and practicing reflective skills is a taught course (UEW, Students Internship Handbook, 2002) in the first three years of teacher preparation whilst the collaborative practices aspect is developed during their practice teaching, at which time student teachers interact with mentors to develop such practice. The cohort of the study sample has, as part of their undergraduate studies, been introduced to reflective and collaborative practices.

Building on the literature on professional reflection, especially the work of Donald Schon (1983), I have always advocated for an appropriate PD model that would enable teachers to reflect, as teachers, improve through reflecting on their teaching and discussing teaching issues with colleagues (Tigelaar et al., 2008; Jung et al., 2005). Moreover, the quality of reflection is enhanced by exchanging experiences and ideas with others (Tigelaar et al., 2008; Bereiter, 2002).

The structure of PD activities in Ghana rely solely on ‘trainer-of-trainers’ (TOT) strategy, despite the fact that recent global professional development models seemed to favour PD based on reflection. Resource persons selected to implement professional development programmes normally meet to collaborate, reflect and develop appropriate resources before any such activity, but one intriguing thing is that as a resource person any time the idea of reflective and collaborative issues are suggested to be used, the other resources personnel speak out against it. The reasonable explanation is the fact that the teachers do not have much insight in the use of their reflective and collaborative practices to support any change process. But it is this my belief which supports Barnett and O’Mahony’s (2004) assertion that ‘when school leaders are attentive to building a culture of reflection, where daily interactions and deliberations focus on teaching and learning, then meaningful school improvement will occur’ (p503). This I see to be more influenced by the culture of the teachers and I think emphasising the immediate cultural influence on the individuals can help develop understanding about how the individuals react to situations. My thinking has greatly influenced the way I emphasised reflective practices in the few instances I had the opportunity in my work as a resource person. The resultant effect was a great difference in the way the participants engaged with reflection and collaboration and how useful they found the exercise. As a result, I always, in my small way, emphasised reflective practices in my teaching paying particular attention to the prevailing cultural issues in professional development activities.

The issue of considering cultural influence was further strengthened during the pilot study of this research where an interesting scenario emerged. The participants' involvement in the planning, selecting what to focus on in the process, and to have autonomy to develop the process outline saw the participants more devoted, committed and punctual at all meetings. The participants engaged as a community, where the problem of anyone is the problem for all, hence they collaboratively solve such problems. Such behaviour saw them supporting each other as they shared ideas as a community (Owusu-Mensah, 2006; Kyekye, 1997). Such devotion and dedication from the participants, as well as the collaborative tendencies, contributed greatly and strengthened my belief to develop a strategy which will commit the participants to the study. To ensure uniformity and a well organised interaction among the group members, the participants in agreement, decided to develop rules to govern their interaction and most of all, to get someone to oversee their interaction in terms of managing resources as well as their interactions.

The issue of large class sizes and attending to the adopted beliefs of students are challenges I encountered integrating reflective practices in my teaching work at the university. As I tried to integrate the principles underlying reflection into my teaching, and for the students to develop new strategies for their future teachings, the problem of continuous observation and direct contact with the student teachers to ascertain the development of the skill, even though attempts were made to get them into smaller groups, was one of my biggest challenges. These students come to the university having had prior training through the 'traditional' lecture method. Thus they felt reluctant to adapt to the new ways to which they are being introduced. Such unsurprising behaviour is what Gallimore and Stigler (2003) echoed that over time, teachers routines are taken for granted and become embodied in beliefs about what is right and proper. But the few who tried to adopt the new strategy expressed satisfaction and suggested for its inclusion in other training programmes. This gave me a better picture and informed me of what to do, especially the size to use as well as trying to redirect their somewhat entrenched behaviours towards change.

Another area of concern that emerged from my reading was the rate of absenteeism on the part of teachers in professional development activities. Closely related to this was the challenge of using classroom experiences or teachings as the focus for discussions. Whilst still clarifying the focus of my study, the readings of Galimore and Stigler (2003) which highlight the use of teachers' teachings in the classroom as the basis for effective teacher change, enabled me to settle into this study using a school-based, practical activity. They ask 'how will teachers ever be able to envisage and implement alternative practices if they seldom see any?' (p27). And from this I realised that much more is needed to be done to develop reflection and collaboration, especially with teachers from the University of Education, Winneba. My biggest challenge would be how to get teachers to visit and observe others in their classroom in spite of their already heavy work schedule. However, this might not be necessary and a suggestion for the use of video was made. Emphasising the need for videos one student said:

The understanding I had from the discussion to me is very important and if the programme can be used whiles we are on the field it will benefit me very well
(Basic Education Mathematics student)

My shift from the quantitative to the qualitative paradigm orientation also influenced my choice of study. Studies in teacher education in Ghana are predominantly quantitative in nature (Akyeampong, 1997). In considering my initial quantitative belief in research vis-a-vis how best to investigate teachers developing better understanding of their teachings as well as their developed values in their teachings, I realised that I had to shift to settle on using the qualitative option in order to deeply explore how teachers can question, interrogate and develop better understanding of their practices. In addition, being able, from their own intuitions, to be committed and motivated to engage with their colleagues, does not lend itself readily to quantitative or experimental study especially when human beliefs are concerned and again when they are to develop 'artistry' to their practices (Schon, 1983) to perform effectively. These therefore informed me about how to get a method that will fit in with my beliefs and values. To be able to attend to these personal and individual processes, and being aware of the subjective views that could take precedence in the research, I opted to use the qualitative strategy.

The literature about professional development, especially the writings of Day (1999), Guskey (2000) and Bell and Gilbert (1996), actually opened and immensely enriched my understanding of teacher professional development. The deep insight gained from the readings greatly influenced my desire to embark on the study. More importantly, out of their numerous suggestions, is the development of an effective professional development model that links the reflective and collaborative practices of teachers. This background information triggered my interest to include reflective and collaborative practices to investigate how teachers can develop skills to understand their practices in their own context. I was also interested in the extent of their reflections in recognition of the fact that Hatton and Smith (1995) have come out with levels in reflection. My interest was to utilise such an idea in exploring the extent to which the teachers can be engaged with the interaction in order for them to understand their practices and also as a strategy for professional development.

Another practical experience by the participants during the pilot study was about time and timing of the activities in the pilot programme. The participants' observations confirm and strengthen the idea of time and timing as an important requisite in professional development programmes developed by Fook and Gardner (2007). The quick feedback response on their immediate lesson they received proved to be an effective way to handle their next lessons, as the feedback information helped them prevent any recurring problems. This strategy became an everyday informal conversation topic among them and influenced the way I need to negotiate and stagger the activities of the study between their formal teaching schedules.

The completion of the study and the accompanying findings and its dissemination to the wider audience will induce further discussions on developing and using models in supporting teachers to understand their own practices. To this end, the interest I had was twofold. My first aim was to explore how teachers can be supported to use their own classroom experiences to understand their practices. Sec-

ondly, it was to use the results in a more realistic way to suggest how teacher change can be supported. These aims run through the description in the thesis.

1.3 Statement of the Research Problem

From the background given above, the problem identified for investigation in this study is how an effective professional development process can be designed in the Ghanaian context that strengthens teachers' reflective and collaborative practices.

As stated earlier the past thirty years have seen numerous interventions to support teachers to change in response to global changes. But it appears the needed support to help teacher change to meet this responsibility is not adequate. Consequently, numerous concerns and demands from the Ghanaian populace, including teachers themselves, are directed in developing a process that can support the development of responsible and dedicated teachers who will fit into the ever increasing challenges in education. The major concern from teachers is the inability of the planners of professional development activities to effectively plan and implement a process effective enough to support continues teacher change (Akyeampong, 2004). The implication here is that either the appropriate requisite skills could not be developed from the training, or teachers do not understand some of the basic concepts/skills of their practices as they are found implementing the same skills learnt differently in their respective classrooms. Even though other factors could contribute to the concerns, this study sought to investigate whether if a model designed around teachers' reflective and collaborative practices can support and strengthen their skills for them to understand their classroom practices.

1.4 Rationale

As stated earlier, this study does not seek to change the notion of professional development in Ghana, but the intention is to explore how teachers can under-

stand their practices or describe their practices. The study in general will focus on

- how teachers share their expertise to understand and learn new ways about what is happening in their classrooms
- the support teachers need that can influence their thinking about their practices through an activity effective enough to explain their teachings in their classrooms

1.5 My Research Question

As has been argued in 1.1 and 1.2, professional development projects have provided considerable evidence that the kind of learning that leads to fundamental change in teaching occurs over a long period of time, with extensive support and multiple opportunities to experiment and reflect (Loucks-Horsley, 1997). By comparison, the ad-hoc nature of INSET in Ghana normally raises a lot of questions regarding the impact of such courses on teachers' grasp of subject discipline, knowledge methodologies and subsequent classroom practices (Akyeampong, 2004).

In view of the demands for change in teachers' practices worldwide and in Ghana in particular, the purpose of this study is to use an intervention, which is a close study planned to explore what happens when teachers within one school are given an opportunity to engage in a planned series of group activities and discussions directly related to their own classroom teaching. This is based upon video recordings of mathematics lessons, which they had taught. The main aim is to enhance teachers' ability to step back from their practices, engage other helpful personnel in a collaborative manner to develop better understandings of the key issues about teachers' classroom practices and subsequently introduce changes into their practices. In effect, I am trying to develop an investigative model that will, among other objectives

- support teachers to develop inquiry skills
- encourage collaborative support activities within a single school
- be sensitive to local factors and contexts

In relation to the above the general issue to be explored is ‘the reflective and collaborative practices of teachers’. This general issue will be examined in the context of basic schools in Ghana as follows: ‘The reflective and collaborative practices of Ghanaian teachers: a case study of mathematics teachers in a Junior High School’.

The following major issues will be explored in the study: Is it possible to get teachers to participate in a short term collaboration based upon a series of reflections on videos recording their own classroom practices.

Specifically the following will be explored:

- What was the impact of the intervention on the teachers?
- How did the teachers use the Intervention Process to develop their thinking about their practices?
- Is it possible to use this intervention in another setting?

Answers to these questions were to be found through an investigation of how teachers can individually and collaboratively learn if an effective reflective and collaborative environment is provided, how the prevailing socio-cultural elements in the immediate environment supported rich and deep professional dialogue and how the intervention provided an opportunity for systematic and rigorous auditing of their practices. Also the intervention explores the various ways teachers reflect on their practices during discussions on their practices.

1.6 Significance of the Study

Teacher quality has been a growing concern of all stakeholders in education and this call for adequate investigation into other forms of teacher change activity. To address the challenges in providing teacher quality the Free Compulsory Universal Basic Education (fCUBE) was introduced and seeks, among other things, to improve the quality of teaching and learning. However, it is to the disappoint-

ment of stakeholders in Ghana that, teacher quality has still not been addressed since it is perceived to be a contributory factor to poor students' performances in schools (Kankam, 2005).

Teacher change activities, especially INSET, have been organised severally in Ghana to improve teacher performances. International literature has shown that teachers who engage in reflective and collaborative professional development activities improve in their practices. I was therefore motivated by my personal interest as a teacher educator to explore what happens when teachers within one school when given an opportunity to engage in a planned series of critical reflective dialogues related to their own classroom teaching can support them to improve upon their practice.

The outcome will provide relevant information in relation to the benefits of reflective and collaborative practices. This can therefore call for an intervention in the pre-service and in-service teacher change activities to improve teacher practices.

It is also my hope that by making the research report available to educators and policy-makers who are responsible for developing teachers, it could act as a catalyst for ensuring that innovations are actually needed to help manage the complex nature of teaching. Alternatively, at the very least, it could raise curiosity regarding teachers' attempts to understand their practices.

In Ghana, the absence of hard research or concrete evaluation evidence on any reflective and collaborative studies makes this study justifiable in the sense that it will provide insight into a new approach for teacher change for future improvement. Finally the study may expose areas for further research for improvement of teacher trainees which will impact positively on teaching and learning. The study also acts as precursors to support Ghanaian teachers use and develop a reflective

and collaborative practices culture to support, have authority and control of their development, which is now an international focus for teacher development.

1.7 Definition of Terms

Reflection: The processes where one interrogate his/her actions and practice in a continuous manner to identify limitations in one's actions and try to resolve them. The change can either be in daily practices or knowledge acquisition.

Reflective teaching: A tool for understanding and utilising the relationship between teaching context, teachers' personal and professional disposition, lesson planning, implementation and evaluation.

Reflective practice: The process of reflecting on an action to find the possibility to change some of the skills involved in the action.

Reflective conversation: The discussions that involved how teachers, after watching a playback action of their practices, deeply mulled over it to achieve better understanding, present it at dialogue, for others to also analyse to develop better understanding.

Critical Friend: Colleagues of teachers teaching the same subject in the same school.

Collaborative Practice: The processes through which critical friends meet to mutually and beneficially share their reflective views about theirs and others teaching actions.

Reflective and Collaborative practice developing practice with the aim to look carefully at what happened, sort out what is really going on and explore in depth in order to improve, or change something for next time.

Intervention process the process developed that supported the teachers to engage in reflective conversation about their practices.

1.8 Structure of the Thesis

Chapter one is the background and introduction to the study. The chapter aims to put the study into context. It describes professional development with particular references to the Ghanaian context and the issues it raises for the research. The chapter goes on to give a brief account of my background and research interests to investigate how teachers can develop better understanding of their classroom practices. Significance of the study, definition of terms and thesis outline are described.

Chapter two explains the way teachers understand professional development (PD) and the issues they raise. In-depth description of the research concept is given and the various relevant issues related to the study. An argument is then developed to justify the need for the intervention model developed for the study.

Chapter three explains why I planned to implement the intervention process model developed. It continues with discussions on how the intervention process was implemented. The analytical process of selecting the participants and their involvement in the study is catalogued in the data collecting process. Ethical issues, my role in the study, authentication of the data, analysing the data as well and the limitation of each process are discussed.

Chapter four presents how the intervention process (IP) impacted on the teachers. Issues highlighted include the factors that provided an effective environment for reflective and collaborative practices, developing rich and deep professional dialogue, learning from different ways and the influence of the prevailing cultural norms in the immediate environment to support the development of better under-

standing of their practices. The chapter also presents brief description of each of the participants.

The central question of how the teachers used the intervention process to develop their thinking about their practices forms the basis of the fifth chapter. Both within and across case analysis was used to explain how the group changed in the way they reflected and collaborated. Individual differences in the way they reflected and collaborated are discussed.

The last chapter presents the summary of findings and conclusion, implications of research findings for developing teachers' personal and professional lives, problems associated with changing practices, lessons from the case study, wider implications of the research findings and recommendations for teacher development and the general issues emerging from research for policy considerations and ends with issues for further research.

1.9 Summary

In this chapter, I have begun to develop the case for how teachers can explore their practices when activities are located in their classrooms through an intervention process. The interest I developed from the readings of international literature on reflective and collaborative practices, motivated me to develop the intervention process to support teacher to explore and understand their own practices from their classrooms. From the discussion so far I have also argued for the need for a process where teachers can have the opportunity to use their reflective and collaborative skills to question and support their own change practices in Ghanaian schools. I will therefore explain in the next chapter how reflection and collaboration and workplace learning can be of importance if teachers are to be engaged in activities located in their classroom. This then can be used as a baseline exploration to find out how teachers in general can benefit from such an intervention.

Finally, I have to consider some of the challenges which might arise from the course of the study as the circumstance changes and as well as how the process progressed. The following chapter therefore explores how the concept, professional development, cultures of schools, teachers and professional development, reflection and collaboration are used in teaching context.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE

2.0 Introduction

Having articulated why I am embarking on this study, the chapter looks into how a PD activity can be modelled to support teachers in their workplace. The write up will consider in brief general issues that promote PD, but much emphasis will be put on reflection and collaboration which to me if given much attention can help to support teacher change in their workplace. The chapter is structured into six sections. First, it focuses on the notion of professional development (PD) followed by the professional context of schools, classroom and teaching and PD activities in Ghanaian Basic Schools. The third focuses on reflection and collaboration. The discussion in this section is on how the two terms have been conceptualized and how practices are developed from its use with their related fundamental issues. The fourth section explains how the framework for collaborative and reflective practices can be developed and used as a practice for change. The fifth, describes the development of practices and how theories underpinning practice development influences the practice development and the last section is the summary of the chapter.

2.1 Professional development (PD)

2.1.1 The Notion of PD

From the ideas of Day (1999) and Guskey (2000), PD presents ongoing, long-term planned learning activities to support teacher change. In their views, teachers need to reflect on their practices, learn new things relating to their practices, and also be able to cope with the challenging situation affecting their practices in a well organized system. Supporting this view, the UNESCO IIEP (2003) document, Villegas-Reimers (2003), Campbell, McNamara and Gilroy (2008) have pointed out that some PD activities are founded on theoretical models, reflective ideas, collaborative exercise, and are also perceived as a process that takes place within a particular context. What I can infer and conclude is that collaborative and

reflective exercise can occur in different PD contexts to develop professional learning, skills and attitude.

Even though PD activities need to be structured along some thoughts relevant to what the PD intends to rectify and become effective, preparing activities based on the following principles is what Campbell, McNamara and Gilroy (2008) think can provide a good quality activity:

- PD needs to be supported as an integral part of raising standards of teaching and learning.
- Learning from experience is not enough
- The value of the interplay between life history, current development, school contexts and the wider social and political scene
- Content and pedagogical knowledge cannot be divorced from teachers personal, professional and moral purpose
- Active learning which encourages ownership and participation

Implicit in the above precepts is the notion that PD takes many forms, from solitary, unaided, daily reflections on experiences to working with more experienced or knowledgeable practitioners. In addition, if teachers form part of the PD activity, they need to be observing and be observed, engaging in professional discourse and attendances at workshops, courses and conferences.

From the precepts, developing a habit of reflecting on one's experiences and collaborating with others to discuss teaching actions seemed more desirable. As stated in 1.0, and from results from studies based on reflection and collaboration, there are indications that teachers develop a more complex view of beliefs and teaching practices, both in in-service teaching (Adalbjarnardottir and Selman, 1997; Clarke, 1995; Geddis, Lynch and Speir, 1998) and in pre-service teaching (Freese, 2006; Robinson, 1999), which support them to improve their teaching skills. I can therefore reasonably conclude why emphasis is now being put on the formation of both reflective and collaborative activities in PD. The following section explores in details the different facets of reflection and collaboration.

2.1.2 The Professional Context of schools, classroom and teaching, and PD activities in Ghanaian Basic Schools

Ghana, formally Gold Coast had her independence in 1957. Currently the population is about 25 million (GSS, 2010). The country with diverse societal cultural values, is the first sub-Saharan African nation to gain its independence and is considered the most politically stable African country in terms of governance. The country has 10 administrative regions, subdivided into a total of 138 districts, with each district responsible for the management of schools within it.

Ghana's diverse societal cultural dimensions tend to pose challenges to educational policy formulation and implementation. Political and cultural issues both influence educational policies relating to schools, teachers and teaching, and PD cultures (Oduro 2008; Zame et al., 2008). In particular such factors influence opinions about what classroom, school work and PD activities should involve. Many believe that intellectual development modelled along lines that show features of the Western type of educational culture, has become the core focus of educational policies and this is seen to rival the traditionalist view which emphasises the 'good behaviours' which are an integral part of Ghanaian culture. Generally these two cultures are found to coexist to form a complex dynamic within classroom, school and PD activities. This has led to debates as to which among the two sectors that is the Ministry of Education (MOE) and the Ghana Education Service (GES), have the greatest influence in controlling teacher change activities.

On paper, the MOE is mostly responsible for enacting educational policies within the context of any ruling party's manifesto. The GES on the other hand has a role to provide technocrats mandated by law to implement educational policies. While the MOE places political interest high in matters of educational policy-making, the GES seeks to ensure a non-partisan professional approach to educational policy implementation. However, in practice, the political power influence of the MOE on any educational activity has often undermined the non-partisan orientation of the GES in terms of policy implementation and decision-making. Schools,

teachers' classroom and teaching, and PD cultures within schools are thus controlled by these authority and power dynamics. This trend adversely affects the GES's quality education implementation strategies and subsequently influences various cultures.

With the political context influencing every aspect of decision making within the MOE and the GES power politics, building a schools', teachers' classroom and teaching, and PD cultures need support from the two bodies and requires skills in tactful lobbying backed by trust-building and the willingness to make the gatekeepers (MOE and GES) feel a sense of recognition and importance (Oduro, 2008).

2.1.2.1 School Culture

There have been various views expressed on the nature of school culture. For example, Elliot (2009) asserts that the ideological orientation of schools, national aspirations, and societal influences dictate professional culture in schools. Peterson and Deal (2002) also think every school has its own distinct and unique culture of a complex set of rituals, folkways, and values that shape behaviour and relationships. Further individuals within the environment need to develop a cordial and congenial environment where they strive to manage tension, develop norming to ensure clarity of purpose and directions are established. Within Ghanaian schools, the various strands of what constitutes school culture include features of the western education culture and the influence of the prevailing societal cultural dimensions (Akyeampong et. al., 2006).

In Ghana both the Western type of school culture which is seen to ensure a pragmatic approach to school effectiveness and improvement, and societal deep rooted cultural dimensions influences school culture. These dictate how teachers collaboratively work together with their immediate colleague across a range of roles as well as how they recognise their worth within the schools (Oduro, 2008; Owusu-Mensah, 2006).

However, it is not easy to draw a sharp line between the influence of the dual culture and political milieu in the day to day activities of the schools. Although there is little research in the Ghanaian literature about specific cultural influence on developing school culture, what happens in the Ghanaian schools is that of higher authority and power distance considered normal which reflects an acceptance of an unequal distribution of power without questions (Oduro, 2008; Richardson, 2004). High value therefore is placed on the practices of authority and power of school heads and this contributes a clear distinction between the head and the other staff. A head of a school that cherishes collaboration therefore has a greater influence on school collaborative culture which are upheld and managed in the wider school context.

Even though, attempts are made to support the two cultures to cohesively coexist, the diverse cultural values tend to pose challenges to reflective and collaborative activities (Oduro, 2008). Whereas intellectual development is often the focus of debates on educational issues, the societal cultures also lay emphasis on character development through communal spirit, since 'good behaviour' forms an integral part of Ghanaian culture (MacBeath, Swaffield, Oduro, and Bosu, 2010; Owusu-Mensah, 2006; Kyekye, 1987). The contrasting views of these two cultures tend to create a tension as to which reigns supreme when it comes to teacher change process. However with the underpinning collaborative structures of intellectual abilities and the development of behaviours, developing a developmental activity that emphasis on reflective and collaborative activities seemed appropriate.

In view of the above, a visitor to any Ghanaian school is normally confronted with images that depict critical dialogue environment that emphasises intellectual development and 'good behaviour' among the teachers. Teachers are mostly found gathered outside their classrooms using free time to share and discuss their teaching ideas. Within the meetings mostly, the oldest and the experienced teachers lead the group, there is mutual trust, and respect for the elderly (Owusu-

Mensah, 2006), and they learn from each other. They are seen to construct meaning through interrogating their practices.

Again, there is a form of dialectic engagement where through interrogation of issues related to societal culture, some values are upheld. Such values like commitment, to respect all individuals, recognition of each others' views/potentials are upheld. Upholding such values enhances teachers' innovative practices, and the cultures developed provide fertile grounds for understanding their practice (Oduro, 2008).

Even though the picture of the Ghanaian schools are seen 'as participatory enterprise, an open society in which everybody feels that they can contribute in different ways' (Lance, 2010), the environment faces some challenges. Heads of schools' autocratic administrative styles seen to influenced by MOE's accountability principle (MOE, 2001) where heads of schools are answerable for activities within each school tends to stifle teachers initiative to engage in reflective collaborative activities with their colleagues, which therefore does not make teachers more independent for their development as they adhere, institute and implement all instructions from their superiors without any recourse (Amoah, 2002). However, the overwhelming influence of the ingrained societal norms of communal spirit sometimes allows teachers to collaboratively reflect on their practices and remain independent.

In sum, the Ghanaian schools have complex educational cultures which are merging? Western conceptual frameworks and the more practical Ghanaian cultural values that influenced teaching, learning and socialisation. Even though the heads of schools' behaviour suggests an authoritarian, conservative ideology, where debate is not encouraged, this is at odds with the espoused principles of participatory, learner-centred and enquiring pedagogy practiced in the Western world where heads of schools encourage collaboration. However, the schools' culture influenced by the staffs' societal cultural dimensions provide them with a profes-

sional culture, where a system of support for promoting quality in change process through sharing of ideas and experiences related to a particular innovation is the norm. The schools thus provide structures to support teachers to cope with new demands and expectations.

2.1.2.2 Ghanaian Classroom and Teaching Culture

Ghanaian teachers are inducted into a process that includes not simply criticism, but encouragement through recognition of their good practices in context. On the other hand, the Ghanaian teacher instils in students the image of the society, the potential of the cultural discipline of respect and mutual support for effective learning (Kyekye, 1998; Owusu-Mensah, 2006).

In the Ghanaian basic schools' classroom, a challenging issue is about the use of language in the classroom. The country has more than 50 spoken languages and dialects. The basic level education in Ghana comprises 11 years, made up of 2 years of kindergarten, six years of primary school and three years of junior high school (JHS). The medium of instruction in kindergarten and lower primary is the 'prevailing' local Ghanaian language and English, where necessary. English becomes the language for medium of instruction and the Ghanaian language becomes a subject on the timetable. Teachers therefore find this transition challenging as most students find it difficult to cope with the change, especially the use of English as medium of instructions and this impact heavily on their teaching. Teacher change therefore becomes difficult when a universal approach is adopted instead of teacher change activity located in their classrooms.

Other issues that explain the classroom and teaching culture are the attitude and learning culture of teachers, teachers' attitude to change, and the teachers' difficulty to integrate ethnic issues in their teaching practices. Teachers therefore need to be able to interrogate and understand their practices from instance within their own viewpoints normally dictated by the classroom cultures.

In the classroom, Ghanaian teachers are mostly found to exhibit prescriptive instructional behaviours, being autocratic in the classroom and expecting students to listen and memorize correct answers or procedures (Ponefract and Hardmen, 2005 Akyeampong et al., 2006). They resist reforms within their work (Oduro, 2008). They hardly give up their acquired learnt skills found unacceptable. For example, there is the belief that their competences are derived from their innate qualities. This is not surprising because as Sylvia Downs (2008) explains ‘the more skilled and knowledgeable people are, the more reluctant they are likely to be to change what they do and, sadly the quicker they will therefore fail’ (p8). These behaviours are influenced by many factors, notably; the individual self, their innate trait based on their beliefs, type of teacher training undertaken and the prevailing societal cultural dimensions in their practices (Oduro, 2008). As they try to reconstruct their problematic classroom practices using prescriptive and autocratic styles which are mostly unfavourable, it promotes anxiety and disengagement in their classrooms. Teachers therefore need to have the opportunity to have access to their practices, interrogate it and understand their practices well in order to adopt strategies appropriate for effectiveness.

However, in spite of the Ghanaian teachers’ classroom behaviours, they are often transparent in their practices, thinking and decision making. Even though, they rarely engage in conversations about their teaching and learning in an open and democratic manner (Blasé and Blasé, 2000) but when prompted to socialise, to get along with one another and subordinate personal ambition and aspiration to the common good of the collective (Akyempong et.al., 2006). This means they often remain unaware of the contradiction in some of their practices, a point that Pollard et al. (2008) claim to be a general problem of teachers. This can be argued to result from the influence of their cultural dimensions that emphasises communal spirit. Teachers are seen to grapple with a closely interlocking and self reinforcing set of perceptions and expectations as they interrogate their practices as well as monitor their teaching and evaluate the difference in their practices using tangible examples of success. The teachers thus, are seen to have huge reservoirs

of self confidence and humility, a recognition that change is a long term prospect with inevitable setbacks on the way and that they are ‘committed’ and ‘devoted’ to discuss their teachings (Oduro, 2008). This makes them less eclectic, whilst they move from one form of practice to another. The environment created becomes conducive for the implementation of any intervention readily.

2.1.2.3 Professional Development Culture

The professional development programme for Ghanaian teachers is characterised by interweaving developmental activities. Mostly PD activities focused on improving teacher competences and increasing their knowledge bases with the activities structured and organized in the ‘top-down’ formal learning approach (Akyeampong et al., 2006). Information flow is from MOE to GES and then to the heads of schools. In spite of the fact that in general instructive and prescriptive information are relayed to teachers without questioning, some teachers are bold enough to question decisions which are inimical to their professional practice. Teachers are thus given little opportunity to input into the organisation of PD activities like INSET,; hence they have less autonomy to take the responsibility for their growth.

The structure emphasises power dynamics. In the discharge of activities, strained relationships between immediate external agents of the GES, called the circuit supervisors (CS), and teachers can be seen to impact negatively on PD activities in the Ghanaian schools. Most often, the CSs are expected to provide professional support to school heads and teachers. In the process of exercising their supervisory roles, they tend to suppress teachers’ initiatives as well as reject any innovative suggestions from teachers towards their development. This can result in strained relations between CSs and the teachers as well as tension and conflicts (Oduro, 2008). The evolved environment hardly supports any reflective and collaborative activities. However, as indicated by Rarieya (2005), and Fonk and Gardner (2007), for teachers to uphold their practical skills, if they have the opportunity to engage in critical dialogue without much external influence, more reliable and effective process of developing better understanding of their class-

room practices is possible. These strained relationships can be managed by considering the ideas and views suggested by Rarieya (2005), Fonk and Gardner (2007).

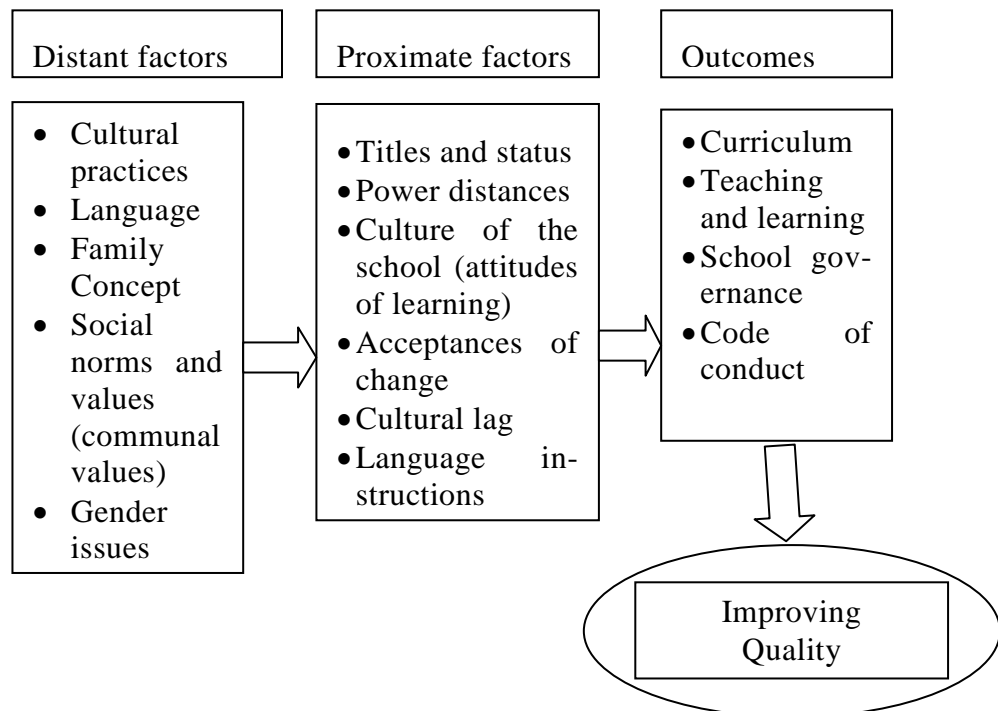
In Ghana, one feature that encourages teachers to willingly participate in PD activities is being able to accommodate additional workload to their already busy classroom workload (Akyeampong, 1997; Owusu-Mensah, 2006; Oduro, 2008). Within their own schools, they hardly visit their colleague's classrooms to learn from their practices as they try to avoid any extra workload. The few who are able to visit their colleagues engage in discussions that relate mostly to difficulties they identified by depending on their retentive memory during their discussions. Therefore, as has been argued by Rarieya (2005), and Fonk and Gardner (2007), locating any PD activity in the classroom that involves critical dialogue is good, so the Ghanaian teachers' problem of not being able to visit their colleagues classroom need careful consideration. Even though the Ghanaian is observed to have the passion to self develop (Owusu-Mensah, 2006) to support these teachers seemed possible through the use of videos which are widely accepted (Gallimore and Stigler, 2003; Sherin and Hans, 2008) to present a conducive environment for reflection and collaboration as far as teacher learning and change are concerned. With teachers considered as professionals who can directly check, change and adjust their own personal and professional beliefs, views, expectations, ideas, and experiences when they engage in critique over their practices, where multiple perspectives form the discussing medium, using videos is preferable. Videos provide avenues where behaviours recorded are natural, elicited, staged in a more authentic manner (Pink, 2001). Therefore if used in PD activities that are located in the classroom, they can support the identification of expertise of the teacher by capturing the complexities of classroom interactions, which can be used in context to allow the teachers time to reflect on these interactions in new ways (Sherin, 2001; Sherin and Han, 2004). This can lead to adopting different perspectives each time if watched repeatedly in order to gain deeper understanding. Teachers will thus have the opportunity to notice aspects of classroom interaction of which they may not have been initially aware, either

when the event originally took place or viewing the video segment the first time of their classroom (van Es and Sherin, 2005). Emphasising this, Sherin said;

Watching video affords the opportunity to develop a different kind of knowledge for teaching – knowledge not of “what to do next”, but rather, knowledge of how to interpret and reflect on classroom practices (2003 p17).

With these characteristics of video culture using it in any teacher development activity can support any environment where reflective and collaborative tendencies are upheld like the Ghanaian cultural environment. Integrating the use of videos and the cultural dimensions of the Ghanaian teacher therefore can promote effective reflective and collaborative exercises, even though the use of videos is not popular in Ghana with reference to PD. In sum, generally cultural practices weigh heavily on the way things are done in schools as found in figure 2.1 below

Figure 2.1: MacBeath, Swaffield, Oduro, and Bosu (2010). Perspective of the Cultural Environment of Ghanaian schools.



Source: MacBeath et. al. (2010): *Developing Leadership for Learning in Ghana: opportunities and challenges*

The above figure indicates how cultural dimension of the Ghanaian community has some influences on the behaviours in school, classrooms and the PD culture within schools and between schools and within the whole of educational setup. These are deemed an acceptable code of conduct in schools. This culture impacts heavily on learning and teaching processes, as well as school governance which are normally underpinned by authority and power dynamics. The interactions between the factors indicate a cultural lag which is the time within which change becomes acceptable, even though the Ghanaian teacher tends to resist change or reform at times which must be acceptable.

2.2 Reflection and Collaboration

2.2.1 What is Reflection

The interests developed towards reflection, especially in teaching and beyond, have resulted in large numbers of definitions about reflection. The following are some of the definitions that have been put forward to interpret it.

Boud, Cohen, and Walker (1985) define reflection as a generic term for those intellectual and effective activities in which individuals, who are active participants, engage to explore their experiences that lead to new understanding and appreciation. Husein (2007) however, provides a description of the process of reflection and reflective practice that I find interesting because it elaborates on the possibilities to help individuals develop a habit to change practice. His interpretation provides more of a process than definition when he explained that individuals interrogate their actions, they deliberate on the inherent dimension of their experiences and make meaning out of them as they describe, analyze, evaluate, draw on theoretical concepts or on previous learning experiences to develop understanding about their practices and also provide an action plan for future experiences.

Dymoke and Harrison (2008) explain reflection as the capacity of the individual to think thoughtfully and deeply, to remind one of past events that are relevant to an identified event and to consider alternative courses of action needed to be sustained overtime.

From these descriptions of the term reflection, one could conclude that reflection is primarily the processes where one interrogates his/her actions and practice in a continuous manner to identify limitations in one's actions and try to resolve them. The change can either be in daily practices or knowledge acquisition. Secondly, it is perceived as a process through which one thinks and questions his/her practices in an attempt to develop in-depth understanding of his/her practices. Finally it is an analytical process through which one can understand how theoretical concepts about teaching can be examined in practice. Such descriptions also suggest that it is a term with broad meaning but focuses on how one question his/her practices as one mulls about their practices.

However, there are some negative influences of reflection. Minott (2006), Boud and Walker (1998) and Boud (1999) have pointed out the main negative effect to be about getting an appropriate context for teaching reflection and learners' acquisition of knowledge. They further confirmed that reflection can take place without learning. In addition, Bell and Gilbert (1996) have also pointed out how problematic it is to provide opportunities for a range of activities to reconceptualise thinking which underlies practices through reflection.

From the views above, I can infer that there are issues about reflective thinking and reflective actions. This being the case, and for the sake of this write-up and putting the two issues together I will, throughout this work, refer to reflective thinking as the process where one interrogates his/her actions and practice in a continuous manner to identify limitations in one's action and try to resolve it for a change. The change can either be in daily practices or knowledge acquisition.

On the other hand, reflective practice is the process of reflecting on an action to find the possibility to change some of the skills involved in the action.

As stated above, due to the broad meaning given to reflection, others in their attempts to define it rather consider it as a model. Explaining what a model represents, Cowan (2006) thinks that;

Models attempt to represent main features as we perceived them, and usually do that in relation to a particular context, they do not necessarily embody absolute truths; so they are restricted in their subsequent applications

This certainly brings to mind that a reflective model can assist to justify an individual's reflection process about an event, and secondly helps such an individual to develop sustainable different skills which can enable the one question their taken-for-granted assumptions and develop better understanding about existing behaviours/practices.

Volumes of models on reflection have been developed by experts as reported in literature. Some are specifically designed for specific focuses while others are versatile and can be used in multiple ways. Ghaye and Lillyman (1997), whose contributions to health education are remarkable, have come out with some features that I deemed relevant to the study and need to be considered. Among the features from their standpoint are that a reflective model needs to:

- Help individuals to learn from experiences
- Enable the development of knowledge and to make tacit knowledge more conscious and explicit
- Enable the individual to develop a greater understanding of their practices allow the effects of the actions of the individual on their situation to be made explicit.

These ideas by Ghaye and Lillyman support models that allow teachers to discuss and analyze their classroom experiences as they identify shortfalls in their practices and think about how to resolve and take actions on future occurrences. Ghaye and Lillyman ideas, to me are a way within an interaction, where teachers

can mull as they dialogue on over their practices to understand their classroom practice. Discussing a model that can support any methodological and conceptual issues needed to help develop reflective practice is therefore crucial, hence the following model is discussed to give such support.

Figure 2.2: Pollard, Anderson, Maddock, Swaffield, Warin, and Warwick (2008): Key Stages of Reflective Process



Source: Reflecting Teaching: Pollard et. al. (2008 p18)

This model sees reflection as a process, where activities are principally planned and provision is made to act. This is followed by monitoring, observation as well as collecting data on actions and feelings. Evidence gathered is then analyzed and evaluated for sharing, making judgments and decision making. This leads to revising policies, plans and a provision for the start of the process again. The process is dynamic and intended to lead, through successive cycles or through a spiralling process, towards high quality standards. It is consistent with the notion of reflection and provides essential clarification of the procedures for reflective practices.

In gathering and evaluation evidence, Pollard et. al. have four key skills;

- Reviewing relevant and existing research: learn as much as possible from others
- Gathering new evidence: relates to essential issue of knowing what is going on and forming one's own opinion. It is concerned with collecting

data, describing situations, processes, causes and effects with care and accuracy. Two sorts of data that are particularly important are objective data-description of what –people actually do, and the subjective-how people feel and think about their perspectives. Collecting such data needs considerable skills since practitioners may be enquiring into their own practice.

- Analysis: demonstration of skills is needed to address the issue of how to interpret descriptive data. Such ‘facts’ are meaningless until they are placed in a framework that enables a reflective practitioner to relate them with another and to begin to theorize about them; and
- Evaluation: these skills are involved in making judgment about the consequences of an action as a result of practical enquiry. Evaluation in the light of aims, values and the experiences of others enables the result of an enquiry to be applied to future policy and practices.

What I can infer from the above view is that individuals engaged in reflective practices need to be able in a way engage in dialogue as they:

- recount an event, they must consider what happened prior to and during this event by identifying their usefulness and their effect on their practice and on themselves. They thus need to ask themselves with the one word question: *What?*
- attempt to understand why the event became apparent, they determine what they learned about the situation. To do this they need to ask the question: *So What?*
- anticipate future actions and consequences as they determine what they will do similarly and/or differently. This they need to question themselves with the phrase *Now What?* From this they need to be objective and see how such objectivity addresses the development of knowledge, skills and understanding and what is achieved.

Through this they will have expectations about changes in their attitudes, values, and beliefs. In addition they can develop insights about what informed their deci-

sions especially about the relationships between their professional practice and their learning patterns.

The conclusions that can be drawn from the above model are that; firstly, it is a cyclical process in which reflective thinking and actions are intertwined as one uses his/her implicit thoughts to provide actions that are the outcome of analysis of situations. Secondly, such behaviour can easily be observed since individuals have to express their thoughts through language as they dialogue.

Developing thinking and thought which can be expressed through language provides support for the inclusion and influence of culture on the individuals' abilities in reflecting. Such awareness created will inform them in the way they have expanded (in depth and breadth) about their activities. The understanding here is that, for effective reflective activity, engaging in reflective dialogue (explained in 3.5.1.2) is crucial. If this is done well, teachers, by the nature of their work, can acquire knowledge necessary to support their reflective skills in their teachings and this forms the discussion in the next section.

2.2.1.1 Conceptualizing reflective practice

The origin of reflection is traced to the principles underlying the philosophical writings of Dewey in the 1930's which focuses on the use of pragmatic approaches to solving problems. He subsequently, came out with the following five key stages to support individuals to resolve any identified problem:

1. suggestions, in which the mind leaps forward to a possible solution;
2. intellectualization of the difficulty or perplexity that has been felt (directly experienced) into a problem to be solved, a question for which the answer must be sought;
3. the use of one suggestion after another as a leading idea or hypothesis, to initiate and guide
4. the mental elaboration of the idea or supposition (reasoning, in the sense

in which reason is a part, not the whole of inference); and

5. testing the hypothesis by overt or imaginative action (Dewey, 1933)

Based on these stages, he captioned reflection as a ‘thinking processes’ and defined it as

involving not simply a sequence of ideas, but a consequence-a consecutive ordering in such a way that each determines the next as its proper outcome, while each outcome in turn leans back on, or refers to, its predecessors. (Dewey, 1933, p. 4)

Dewey’s writing saw reflective thinking as a pragmatic process to solve everyday problems and issues that one comes across in the real world situation. Emphasizing on the five principles, Dewey advised that the only way to develop such a habit was to engage in activities in the real, practical situation where such a habit will be developed as one organizes his/her ideas to attend to difficult situations. His thinking which has given rise to the idea of reflective practitioners is what current thinkers of teacher change activities believed can be adopted when it comes to considering changing practice. It is therefore necessary to have some distinction in conceptualising how Dewey looks at reflection and how Schon (1983, 1987) through his seminal work conceptualizes reflective practices that forms the discussions in the next sections.

2.2.1.2 Schon’s (1987) Seminal work and Practice Development

Donald Schön (1987) published a book entitled “Educating the Reflective Practitioner” in which he advanced how practitioners engage in their practices as they work. Schon started his discussion with a metaphor about an idea of ‘high ground’ of theorizing about professionalism and the ‘swampy lowlands’. He posited that professional knowledge in the high ground can be researched, explained and made more applicable, whereas in the swampy lowlands it is difficult to explain how issues concerning, for example teaching in the classroom, are difficult to explain. Teachers who come together to discuss their teaching practices therefore face a herculean task since it will be difficult to straightaway put in practice what is learnt.

The foundation of developing knowledge which Schon described as ‘Technical Rationality’ makes practitioners instrumental problem solvers suited to a particular context. The understanding is that the practitioner should possess the requisite research skills to undertake research activities in a rigidly sequenced manner, forgetting that every problem has a unique way of being solved. Solving a problem this way looks complex, considering the fact that practitioners sometimes rely on their historical backgrounds as well as environmental factors to consider many alternatives before getting the ‘best fit’ to solve the problem. Developing research skills as posited by Schon, means reflection has some methodological implications as discussed in 2.5.1.

Schon admitted that personal identity and political/economic perspectives determine how people see a problematic situation. Most of the time practitioners hold conflicting views about a problem and are seen to argue by using such conflicting frames to frame and reframe a problem in an attempt to solve it. All these point to the fact that in resolving a problem, whoever is solving the problem is ushered into a state of confusion and uncertainty about how to solve it. The individual therefore needs to adopt a strategy that will see him/her integrate into the process before any change can happen in the swampy area. Integrating into the process requires other external influences like cultural factors since analysing one’s thinking relates to the values and beliefs of such individual. To develop such a skill needs interpretation about how reflection has been categorized, and this forms the discussion in the next section.

2.2.1.3 Categorizing Reflection

Schon (1983, 1987) has suggested two principles: reflection-in-action and reflection-on-action as reflective processes practitioners use in their practice. In his view,

Seeing-as is not enough. However, when a practitioner sees a new situation as some element of his repertoire, he gets a new way of seeing it and a new possibility for action in it, but the adequacy and utility of his new view must still be discovered in action. (Schon, 1987, p68)

This introduces the idea of individuals/teachers developing a practice as they experience the messy and complex problems in their workplace and how quickly they apply their acquired and tacit knowledge to resolve them. Resolving to create a unique situation, which Schon (1987) thinks is reflection-in-action enables the individual to compose a new situation, in a continuous manner, and this enables the individual to develop a behaviour which can be referenced to at any time in the course of their work.

If teachers are to develop a reflective practice habit within their environment, then it stands to reason that the teachers' value system is going to have a significant influence on the way they analyse issues. The inference is that a teacher will be able to, as an example, use his/her professional knowledge acquired through training as well as his/her immediate environment, to resolve any identified problem as the action progresses. Teachers therefore will have to use all their capabilities, including their beliefs and how they think about the action, to compose a new situation. Such behaviour sometimes is linked to the cultural tenets of the individual. For example, in the Ghanaian set up, the communal spirit about 'doing it together' (Kyekye, 1997) can influence how the teacher thinks and develops new ideas.

The second principle of Schon (1983/1987) is 'reflection-on-action' which occurs both before and after an action. This usually involves thinking through and analysing a practice in a situation removed from the actual action. What can be deduced from Schon's explanations is that reflection-on-action is a thoughtful activity, where there is analysis, reconstruction and reframing of ideas about an activity for the purpose of planning for future practices. This means any reflective practice should become more associated with a structured and more deliberate procedure. In other words, teachers need to use their professional and practical knowledge base to identify differences and similarities in their actions (Dymoke and Harrison, 2008; Pollard et. al., 2007). The idea therefore is that discussions and dialogue are allowed, for example dialoguing on teaching actions with others,

with the sole aim of soliciting for feedback that can support effective practice. By this notion, teachers within a community can collaboratively organize their activities (Wenger, 2006) in a systematic way in an attempt to analyze their teaching actions and synthesize and reconstruct what they see and do. It is therefore necessary to effectively develop such a practical aspect of reflection that can advance what is learnt to achieve a more in-depth understanding. To do this, according to Day (1999), effective reflection is possible through collaboration. The next sections therefore explain how collaboration has been conceptualised.

2. 2.2 The Meaning and Conceptualising Collaborative Practice

Generally, collaboration as discussed in literature is mostly referred to as a process. Each author tries to conceptualise collaboration as they interpret it by relating it to the processes of collaboration. Therefore, I shall attempt to discuss some of the views relevant to this study.

Matttessich, Murray-Close, and Monsey (2001) have it that

Collaboration is a mutually beneficial and well-defined relationship entered into by two or more organisations to achieve common goal. The relationships includes a commitment to mutual relationship and goals; a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards (p4).

Roschelle and Teasleys' (1995) broadly offer a description of collaboration as:

a process by which individuals negotiate and share meanings relevant to the problem-solving task at hand.... collaboration is a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem

Fielding, Brag, Craig, Cunningham, Eraut, Gillinson, Horne, Robinson, and Thorp (2005) on the other hand explain collaboration as a process that persuades people to give innovations a try that often permanently change their attitude.

On their part, Pollard et. al. (2008) gave a more interesting description which is underpinned by reflective actions when they said,

collaboration as a process for the development of a culture that has a purposeful agenda to enable group members understand events or actions through negotiation and sharing of ideas about the action, in making it more relevant to solving problems, aims are to be clarified, experiences are shared, language and concepts for analyzing actions are refined, the personal insecurity of innovations are reduced and evaluation becomes reciprocal (p41).

Before the description of collaboration by Pollard et. al., (2008), Huxham and Vangen (2005) have pointed out that the different meanings given to the concept sometimes create confusion hence they think that collaboration need to be limited to a particular aspect of interaction. In their opinion there need to be commitment, and more openness. The activities and discussions need to weave values and self of individuals into the culture developed.

The above descriptions provide what collaborative practice should be. However, how the process should be organized to facilitate habit formation in order for the collaborative group to develop insight into the activities, were not explicitly made, because it is a known fact that not all interaction activities can be called collaborative activities (Huxham and Vangen, 2005; Fiedling et. al., 2005). The above views provide strong evidence that, conceptualising collaboration seemed difficult, rather conceptualising collaborative practice can be more appropriate.

Added to the above, Neil and Morgan (2003) advocate the importance of collaboration in education when they said:

As well as developing the inner self it is helpful to focus on working with others, developing the interactive self as it were. Collaboration in general is seen as a positive arrangement in educational circles (p59)

This view, explains the importance of developing collaborative habit in education. Even though they emphasised on interaction, they stressed on the difficulty of establishing and maintaining it. This reinforces Fielding et. al. (2005) view of establishing collaborative environment when they explain it as a messy frustrating, conflict-ridden and time consuming business that needs to be developed based on perseverance, empathy, a common focus, equity and trust.

Another attempt that has been made was by Engeström (2007), who emphasises three-level notion of interaction to explain collaborative practice. These are;

- coordination,
- cooperation, and
- reflective communication.

The emphases illustrate how interacting individuals try to reconceptualise their interaction through the reflective process approach. Participants who continuously engage in collaboration, from the last level can progress as through reflection resolve challenges. Teachers who develop collaborative habit have it embedded in their daily activities and can gradually help them progress as they participate within the communities they find themselves (Wenger, 2006).

The question that arises from the foregoing views expressed is whether any of the above authors provide models that see collaboration linked to reflection. Drawing on Fook and Gardner's (2007) definition of a model as a less abstract form of a theory which represents structural relationships among key concepts, Pollard et. al.'s (2008) and Mattessich et. al.'s (2001) explanations of collaboration provide features describing reflective collaborative practice model. Their views present how reflective and collaborative elements are configured in an interaction and support Day's (1999) view that reflection and collaboration are generally intertwined hence the two concepts need to be discussed together. The analyses of the rest of the authors are, arguably, limited to a description of only the elements making up these concepts. Despite this observation, all the analyses provide useful guides for discussing reflective and collaborative process.

Also, a comparative analysis of the range of issues outlined by the above authors reveals two key issues which are worth commenting on. Firstly, interaction and reflective conversation permeates the lists of the various writers. Secondly, the conversations need to focus, which is a recent development, on a topic/subject or teaching practice where in-depth understanding is what is required. It is therefore

appropriate to get a framework within which the two concepts can be referenced when discussing them.

2.3 Framework for Reflective and Collaborative Processes

Miles and Huberman (1994 p18) explain conceptual framework as follows:

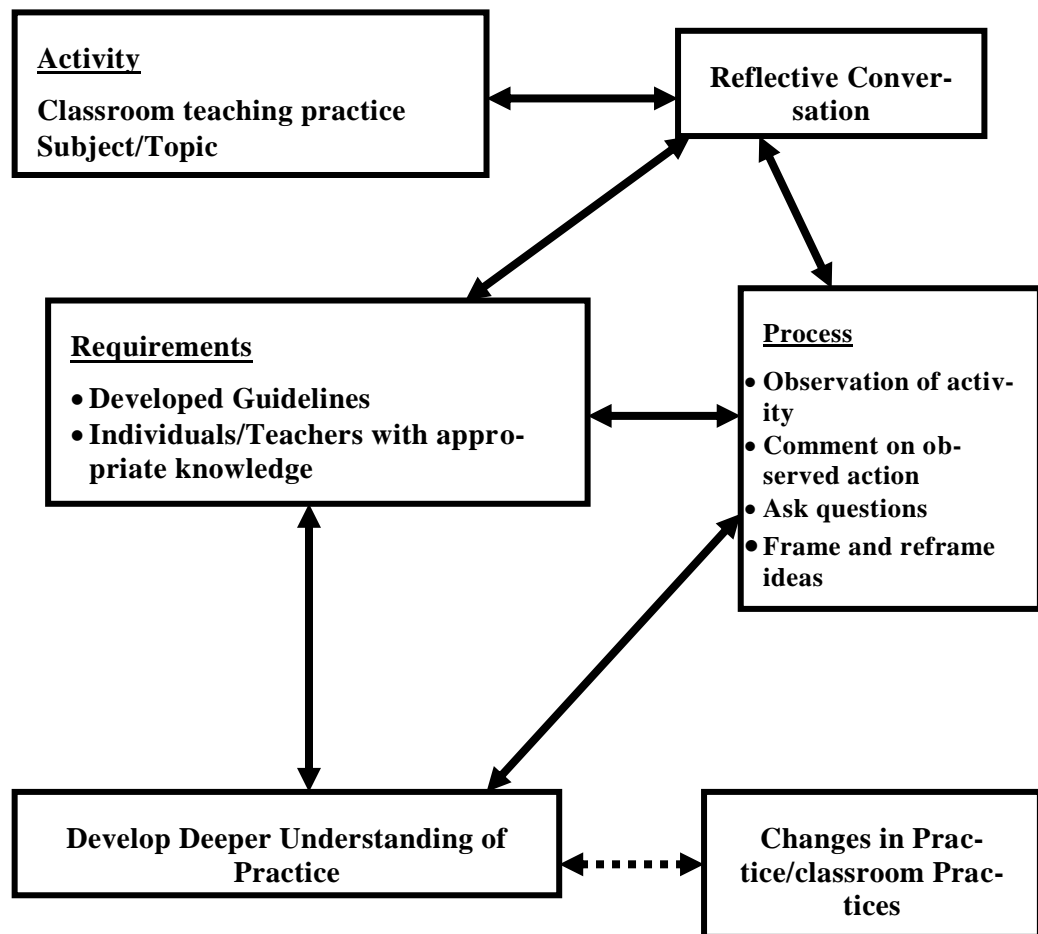
A conceptual framework explains either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them. Frameworks can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal.

According to these authors, a conceptual framework acts more or less as the current version of the map of the territory where the research is being investigated. It can therefore be conceived as the navigational map of the researcher.

Hatton and Smith (1995) posit that when there is reflection, there is the use of technical skills framework as a means of analysing teaching events as well as providing reasons for what took place. They therefore suggest that a theoretical framework for reflection depends upon its purposes and focus. The importance of formulating such a framework, as they pointed out, is to help individuals think, and question their practices as they sought to develop insight of their practices.

On the part of Mattessich et. al. (2001), the contexts for professional practice change based on collaboration, facilitate individuals' action plans and develop a systematic review process. Consequently, developing understanding is embedded in the social process of knowledge construction rather than as a solitary endeavour. From such explanations using the ideas put forward by Schon (1987), Mattessich et. al. (2001), Pollard et. al (2008) the main interactive practices that individuals are expected to use to understand their practices necessary enough can be found in activities that are underpinned by reflective and collaborative principles. A framework in that direction could therefore be simplified as illustrated in Figure 2.2, which is a combination of ideas discussed in sections 2.3 to 2.6.

Figure 2.3: Reflective and Collaborative Practices Process to Understand Practice



The focus of the explanation of the framework emanating from the ideas in reflection and collaboration is described as follows. First, the main reflective idea is about how teachers or individuals can think about their practices through discussions with the locus in their classrooms. This means the reflective collaborative discourse is a necessary interaction for teachers to develop an insight into their practices. Secondly, the interactions provide teachers the opportunity to question their practices to unearth some of their unidentified skills and knowledge. Teachers can therefore have the opportunity to control their change process since for example, the Ghanaian teacher always take part in PD activities that are designed by the PD providers. They, thus, do not have any input into their development.

Thirdly, the process allows teachers to use their acquired knowledge to justify or explain any action observed. They identify critical incidents, frame and reframe what they observe and reflect and question the occurrence of such practice to develop a deeper understanding. This is where differentiation between group members occurs seeing the group as a unit with individuals and groups developing practices and learning that are expected to happen.

The framework provides an avenue for designing PD activities to reflect the contemporary prevailing context where better understanding can be developed from challenges met in the classroom. It also provides opportunities for teachers to be able to think constructively about their practices in order to use socio-cultural elements in the immediate environment that support a rich and deep professional dialogue as a tool for understanding and dealing with on-the-spot professional problems, and supporting critical thinking that includes taking account of social, political and cultural issues as a process to analyze competing claims and viewpoints. This, therefore, leads to the question of how evidences have been gathered to support and reflect on the importance of reflective collaborative exercise as a way to develop a deeper understanding of practices. This cannot be discussed without looking at some of the fundamental issues relating to both reflection and collaboration and which is the subject of discussion for the next section.

2.4 Fundamental Issues associated to Reflection and Collaboration

The purpose of this section is to discuss some of the key issues and empirical studies in the area of reflection and collaboration.

2.4.1 Issues associated with Reflection

From Schon's (1987) classification of reflection, a common issue relating to teachers is the fact that his seminal work was developed around some professions. Behaviours that can be used during reflection-in-action to him are intrinsic, hence these can only be realized after the action has been performed. On the other

hand, on reflection-on-action, the explicit nature of it makes its use in teaching possible. This is so since actions can be observed and necessary dialogue held on it. The architect had a visible and manipulable object to contend with and use it. In the case of teaching, even though observations serve a practical way through which reflection can be facilitated, the complex nature of the teaching actions makes it difficult getting an appropriate interface that can promote effective reflection-on-action. Hence in this study, videos considered an interface that facilitate the teachers' use of reflection-on-action (Sherin and Hans, 2009) were considered.

The seminal works of Schon have attracted much attention, culminating in many reviews from different authors. Areas that have come under vigorous attack include time frames and methodological issues within which both actions need to occur. The reflection-in-action requires an immediate response unconsciously as one solves an identified problem. The implication here, as seen by many authors including, Hatton and Smith (1995), Fook and Gardner (2007), is the fact that the individual is competent enough to do this reflection. But reflection, as stated earlier, is for the one to step back to look at the issue before attending to it. The reason for a time scale being crucial stems from the fact that 'technical reflection' is based on the assumption that individuals are competent enough to evaluate the effectiveness of any action almost immediately. However, this is not the case in most instances where knowledge is being acquired. Therefore, there is the need for some deliberation over an extended period of time about the purpose of the action to be implemented (Gore and Zeichner, 1991; Smith and Lovat, 1991). To me, such deliberation among complex issues needs careful planning in the sense that if teachers are to use such a strategy in their ongoing activities, then they need to operate in reflection equally, which is not the case. This brings to fore the technical recommendation of different forms and levels of reflection and what can be made out of it.

The other issue which raises methodological implications is about the size of individuals engaged in reflection. Whereas Schon did not give the exact number

that need to be included in any reflective activity, others suggest a definite number. For instance, Hatton and Smith (1995) used a 'small number' of three year cohort of students Rareiya (2005) in her study used four teacher participants. Fook and Gardner (2008) on the other hand suggest a small group of eight. They further hinted that the size of the group does not matter so much. Numbers used for reflective activity is therefore relative. The present study involves teachers, is to explore and elicit in-depth understanding of issues related to their practices (Rareiya, 2005; Fook and Gardner, 2008). From the rationale of the study it is reasonable to use four participants since the focus and rationale seemed to conform to Rareiya's study.

Another fundamental issue relates to the influence of culture on reflection. The new direction of education is to produce teachers who are involved in continuous growth and learning who are adaptable and flexible. Such teachers need to be capable of seizing opportunities to develop their skills, to be creative and to take responsibility for their own work in a way which capitalises on the environmental conditions. One of such situations is the use of the immediate cultural norms. According to Kyekye (1997) culture entails a network of relationships and interpretations that involve perspectives from all orientations. Clarke and Otaky (2006) also explain culture as a way of life, a network of meanings, or a system of values and beliefs. The two explanations convey the impression that culture is a static, synoptic 'thing'. Such a conceptualization of culture lends itself to compartmentalized views which see individuals belonging to a particular culture. However through culture individuals comprehend all social, educational and political issues. The need to comprehend the presupposition of culture therefore is of critical importance.

However Showers and Joyce (1996) think some underpinning cultural norms are too threatening to some people as it requires individuals to behave in a certain manner. For instance in the Ghanaian cultural norms the oldest is mostly respected and adored by all (Kyekye, 1997). This seemed to affect reflection as

well as any reflective dialogue. Contrarily, Beijaard, Meijer, and Verloop (2004) posit that issues of culture provide a rich source for quality conversation. Within quality conversation too is the issue of quality reflection (Rareiya, 2005). Engaging individuals within a cultural orientation therefore can support conceptualizing reflection in ways to develop better understanding and rich conversation. Thus, the views and perceptions of others and each individual are both important in any reflective experiences.

On the other hand considering reflection as a process in which interpretation of any action rest in overarching context from one's subjective perspective seems to contradict at one point and in another conform to cultural processes. This has made some researchers and practitioners remain sceptical toward aspects of the cultural influence on reflection. For example due to the fact that the norms that accompany culture sometimes facilitate group working together within an environment, depending on culture to develop set of skills and techniques require more than reflection.

But Loughran and Russell (2000) think the relationship between culture and reflection triggers a shift in consciousness and self-reflection. This emphasizes the fact that in making meaning of a situation, culture and reflection are related because as individuals move from one communications medium to another and from one sensory or perceptual channel to another they try to mull over issues to develop understanding. As reflection according to Schon is about research, it stands to reason that it can be applied to influence innovation and to develop and instil the culture of innovation which is a societal ambition, and then reflection can go hand in hand with culture.

From the ideas so far, undertaking reflection in and on action require some basic skills especially with teachers. Schon (1987) believes that professions, like teaching, deal often with uncertainty, uniqueness and conflict (p157).

Continuing he said

Skilful practitioners learn to conduct frame experiment in which they impose a kind of coherence on messy situations and thereby discover consequences and implications of their chosen frames. From time to time their effort to give order to a situation provoke unexpected outcomes-‘back talk’ that gives the situation a new meaning

From Schon’s stand point on an individual developing a skill or practice, discussing their approach with others who may be more experienced is vital. The presence of the one most experienced and with the requisite skill or knowledge can support verification and testing of issues that may pose problems to resolve. In effect within an environment that includes novices and experienced people messy situations are possible.

From the above discussions, teachers discussing their practices cannot operate on the same reflection level at the same time. The differences in reflections came out due to the critiques of Schon’s (1987) categorisation of reflections. One proponent whose critique resulted in developing a hierarchical structure for progression of reflections is van Manen (1977). He proposed three levels derived from Habermas (1973) who saw reflection as a tool which could be used to help an individual to develop knowledge, or in his own terms, to develop “knowledge constitutive interests”, which is the knowledge of the type that humans adopt and generate. The levels, in order of progression that he came out with are:

- *technical reflection*, which is concerned with the efficiency and effectiveness of the means to achieve certain ends, which themselves are not open to criticism or modification.
- *practical reflection*, which allows for an open examination not only of means, but also of goals, the assumptions upon which these are based, and the actual outcomes. This kind of reflecting, in contrast to the technical form, recognizes that meanings are not absolute, but are embedded in, and negotiated through, language and
- *critical reflection*, which including emphases from the previous two, and which also calls for considerations involving moral and ethical criteria

I can infer from the above that, in reflection, appropriate and requisite skills are needed in order to discuss in absolute terms, the effectiveness of any resolved problem through a mediating element of language, as there seems to be a gradual shift in effectiveness as one move through the level. One critical issue not catered for is the socio-cultural influence of the individual's reflecting, and how it influenced reflection in the different levels. This is because critical reflection locates any analysis of personal action within the wider socio-historical and politico-cultural context (Smith and Lovat, 1991; Hatton and Smith, 1995). This, to me, has a limitation in the sense that as teachers engage in reflection, the context and the background factors can influence the outcome of any reflection activity.

From the discussions it can be concluded that reflection is considered to have multifaceted dimensions. Firstly, it can be considered how individuals mull over actions as they question the efficacy of such actions. Secondly, in the process of reflection on an action two forms of reflection reflection-in-action and reflection-on-action happen. The next dimension is about the fact that within any reflective conversation, individuals reflect at varying degrees and as such there are differentiations in their reflections at any point in time.

In this thesis, reflection has been used mainly to refer to one's ability to think and question their practices and how they develop in-depth understanding of their practices. Nevertheless, it also refers to different ways through which they can solve on-the-spot problems, understanding and dealing with on-the-spot professional problems and supporting critical thinking that includes taking account of social, political and cultural issues as a process to analyze competing claims and viewpoints. Thus it encompasses both questioning of one's practices with the sole aim of developing in-depth understanding through a rich and deep professional dialogue. These however cannot be achieved without collaboration since' as Day (1999) pointed out, effective reflection happens through collaboration. The following sections therefore explain how some studies have used both concepts.

A seminal study which seemed to place emphasis on reflection and collaboration is the work of Hatton and Smith (1995). Even though the general understanding of their work was on reflection, the methodology seemed to incorporate collaboration. After dialoguing on their practices, using the small number of three cohort year groups, they prepared their reflective dairies on their activities.

The findings focused on:

Descriptive writing-

- Not reflective. Description of events that occurred/report of literature.
- No attempts to provide reasons/justification of events.

Descriptive reflection-

- Reflective, not only a description of events but some attempt to provide reasons and justification for events or actions but in a reportive or descriptive way. Two forms:
- Reflection based generally on one perspective/factor as rationale
- Reflection is based on the recognition of multiple factors and perspectives

Dialogic reflection-

- These demonstrate a 'stepping back' from the events/actions leading to a different level mulling (or thinking over) about discourse with self and exploring the experiences, events and actions using qualities of judgment and possible alternatives for explaining and hypothesizing.

Critical reflection –

- Demonstrates awareness that actions and events are not only located in, and explicable by, reference to multiple perspectives, but are located in, and influenced by, multiple historical and socio-political contexts

In summary the study came out with levels of reflections, however the following reasons were problems that emanated from the study:

- The individual students were made to write down their reflection

- The environment was an academic context which made easy writing difficult and which inhibited their ability and willingness to reflect
- The socio-economic background of the participants inhibited the use of language
- Personal, reactive, emotional issues all using technical skills framework to analyze teaching events

Their conclusion from these was that ‘reflection is unlikely to develop as a professional perspective in today's busy and demanding world of teacher's work, and techniques fostering a reflective approach need to be provided during initial preparation’ (p38).

In another study, Rarieya (2005) used four teachers in the same school who observed their lessons and reflectively dialogued on the activities came out with reflective levels. The findings indicated that the homogeneity of the group, the immediacy of the discussions and the organized nature of the activities provided a better understanding of their practices. Focusing on the framework of Bax and Cullen's (2003) she came out with the following reflective scales:

- Unawareness: No queries raised. No critical incidents identified. A general satisfaction with things as they are
- Noticing; Simply outlines the strengths and weaknesses of lesson taught. Skeletal wording, Focus is only on the classroom.
- Making sense: Critical incidents are described, but not analyzed. Events are appropriately referred to as a discomfort and uncertainty about the process. Occasionally raises macro issues.
- Making meaning: Meaningful reflections, able to identify purpose. Explanations with principle or theory given as the rationale. Can also identify issues at the macro level.
- Transformative: Restructured learning and ability to see its applicability. Issues looked at from both the micro and macro levels. Issues looked at from various dimensions-ethical, moral, political, etc. Rationale and pur-

pose of actions and beliefs given the teacher's ability to engage in reflection for improvement was found to be possible and will be sustained when the teacher is open-minded, wholehearted, responsible, willing to take risks and has access to alternative ways of teaching.

The study provided the teachers with the opportunity to reflect on their practices collaboratively. She emphasised the influence of a reflective coach as being very crucial in such reflective activity. There were also criticisms about this approach mostly related to how the teachers relied on their mental images during the reflective dialogue. Apparently, the teachers could miss out on some of the action and it would have been better if an interface like the videos could have been used to record teaching episodes for the reflective dialogue, since it has the advantage of storing, retrieving and replaying (Sherin and Han, 2004).

Comparing the two studies, it could be realised that they both used a facilitator and reflective dialogue in the data collection process and both came out with reflection levels. What makes the two different is due to the fact that whereas the first used different year groups for the study, the later used the same teachers in the same school. Again the first emphasised on written report. However in their interactions, other forms of reflections could have occurred if someone was studying their reflections. Results in the second study were based on the researchers' interpretation on how the participants reflected during the reflective dialogue. The contrast between the two can also be looked at from the fact that even though within any discussions, individuals express their views using their unique skills, the tendency for one to have different reflection trajectory is possible. Therefore the question that came up is what will be the individuals' reflection state from the start of any discussions and at the end of such discussions. This provides good reasons to find out how individuals change in their reflections as they engage in discussions.

In relation to the present study, it can be argued that while the findings by Hatton and Smith (1995) and Rareiya (2005) throw light on students' and teachers' re-

flective levels, the study was conducted in the USA and Pakistan contexts and might not be applicable to Ghanaian context. For example each of the studies had a different rationale and could not generate any general principle to guide reflective processes. Secondly, whereas the scope of the study was limited to student teachers in the case of Hatton and Smith and teachers in the case of Rareiya who had no experiences in reflection, the present study assumes a broader focus by covering practicing teachers who have prior knowledge about reflection.

In conclusion the studies have clearly shown that, within any reflective activity, participants move along different levels of reflection. The reflective differences result due to the methodological and conceptual orientation adopted for the study. Despite the inability of the studies to generate any general principles to guide the process of reflection, there are certain practical issues which emerged from the studies and which are worthy of consideration here. For instance, the fact the data supported van Maren (1977) findings points to the need for identifying how reflection processes can be identified to encourage individuals to dialogue with their colleagues and how rules can be developed to guide their conversations. This has implications for developing reflective practice.

2.4.2 Issues associated with Collaboration

Historically, collaboration has existed in communities where cooperation has been the pattern of interaction with each member having a role to play in the community (Mattessich et. a., 2001). To realize the expectation of the group, some underlying factors, like societal norms, mediate the process. For example in Ghana, the communal tendency of the people have encouraged people to meet, deliberate, verify, develop shared responsibility to any activity as well as take decisions that are binding on the group (Kyekye, 1997). Such historical ways of living have permeated all the lives of the individuals, including teachers. Considering collaboration in this way shows that the collaborative group is a community that is perceived as reliable and competent in realising their goals.

A clear distinction between cooperation and collaboration can give direction to how collaborative activities could be managed. Fielding et. al. (2005) attempt to explain the distinction between the two terms by saying cooperation emphasises on specialized role interaction while collaboration emphasises equity, commitment and sharing, but the two tend to be used interchangeably. The unclear nature of the distinction has culminated in varied views from numerous authors about the phenomenon of collaboration and has led to a wide range of factors associated with developing collaborative activities.

Another issue relates to how manipulable objects can help develop sophisticated skills in sharing of knowledge. One of such authors is Crook (1994) as reported in the work of Lipponen, Rahikainen, Hakkarainen, and Palonen (2002), who share the view 'that there is a developmental line from children's secondary intersubjectivity and symbolic play to sophisticated reciprocal understanding and shared knowledge. In children's symbolic play, the material world plays a crucial role in coordination of play activities and in creating a shared framework for collaboration' (p73). Further, they said technology used for educational purposes support users' cognitive activities by providing advanced socio-cognitive scaffolding, as it offers many ways to structure discussion to create collaborative representations. This view explains the fact that manipulable objects can facilitate and needs to be given much attention. It is in this view Gallimore and Stigler (2003) has advocated the use of a video interface in developing knowledge in practice.

Furthering the argument for using resources materials to facilitate collaboration, videos are seen to be a very popular interface for classroom research, and are also considered to facilitate collaborative activities. Sherin and Han (2004) point out how it is able to make available issues salient to teachers about their classroom actions for discussion. It offers opportunities for teachers to teach publicly and allow time for questioning, comments, and elaboration from groups of supportive peers. However, they posit teachers use it in collaborative activities for evaluative purposes. What is most important is how teachers can use it to facilitate their understanding of their practices. Using it intensively might produce

difficulty in bringing genuine collaboration and knowledge construction as most individuals cannot work without it. Again, if it is used as a referent anchor, which is pronounced mostly in written communication, the tendency to explicate ideas without the medium may be difficult since messages create context and grounding which, face-to-face, will find it difficult to achieve (Sherin and Han, 2004; Lipponen et. al., 2002).

Developing a collaborative process has been found to be problematic. Significantly in collaboration, tension, combating, agreeing and disagreeing seem to permeate the interactions. These occurrences make collaboration process very complex. And the development of a culture to attend to this makes collaboration essential and, as Day (1999 p80) points out, 'Collaboration will occur if it serves the interest of the group'.

The understanding here is that developing a collaborative culture is as essential as the process itself. However, Day (1999) has suggested that it is likely to be spontaneous, voluntary, development-oriented and in which teachers exercise discretion when initiating tasks or responding to external demands. Although teachers have professional knowledge about what happens, and depending on the situation in which individuals or groups find themselves in the group, it can be argued that for teachers to respond to any action within the group, much will depend on the knowledge, personal beliefs and the individual's view about the group members. This will highly influence what the person says or contributes to the group's activities. How comfortable and maybe satisfied the one may be will determine his commitment, honesty and motivation to working with the group which invariably will influence what type of community that is formed. The underpinning rationale for this study therefore was to get teachers who are committed to the process.

It is to achieve effective collaboration that Campbell, McNamara and Gilroy (2008), Fielding et. al. (2005) and Day (1999) believe that in collaborative activi-

ties, collaborative partners need to build on the groups' and individuals' personal knowledge or their collective backgrounds. Further, the members' prior achievement abilities, experiences, dispositions and attitudes to form professional relationships within and outside the workplace are important. These need to focus on the improvement of practice, as the share professional reputation, values and beliefs and sometimes use them to develop a rich and deep educational and professional discourse.

However, there are some limitations. Notably amongst them include (a) long-term relationships that sometimes easily break up, or become weaker rather than being strengthened, (b) being challenging as practitioners can develop common understandings that are less permeable to critical insights, all the more so because they are shared. With the above background, the issue is how participant in the current study, can with their ingrained values and beliefs, engage in very innovative dialogue about their practices.

Developing a non-threatening environment to support trust and maintain confidentiality, avoiding corrosive effect of completion as argued by Dillenbourg (1999) is very crucial for collaboration. However, Neil and Morgan (2003), and Farrel (2001) believe that equity is one of the characteristics that improve collaboration, but is usually absent within collaborative group where suppression of views by super-ordinates tends to alienate the members from the activities. To avoid such tendencies, role adoption where individuals have in-depth knowledge about any issues, which is seen to be used in summarizing loud issues, seek accuracy, seek elaboration, extend answers and probe questions in social activities like collaboration (Roseth, Garfield and Ben-Zvi, 2008), allows for critical questioning (Abbey, 1997), and which assist teachers to critically examine the values of reordering, and reinventing their identities and structures (McGee, 2007) is very crucial. This supports developing a conducive environment. Inferring from this selected importance, role play is the development of identities within the collaborative group it is very crucial, to give preference it issues related to identity

of the individuals within the collaborative community as it helps to determine how the individual reacts to situations or to the activities within the community. People are bound to offer specialized and very innovative and important information necessary to improve developing knowledge that is worthwhile other than taking such information for granted. With such an effect of roles within collaborative activities, Fielding et. al. argue that role adoption impinges negatively on cooperation and collaboration. But for expert contribution and in-depth knowledge to specific issue, the adoption of roles is crucial (Roseth, Garfield and Ben-Zvi, 2008), and needs to be integrated with mutuality such that consensus-building forms the binding principle among the participants.

Effective communication is another factor considered very vital in a developing collaborative process. Communication encourages willingness, cooperation, mutual support and sharing of views (Schon, 1987; Engeström, 2007; Burgess, 2002; Rarieya, 2005; Dymoke and Harrison, 2008). Communication becomes crucial in such collaborative activity, in that the information that is given will have to depend on how it is said, what was said, where it was said, who is saying it, and why what is said is said. The kingpin of the collaborative activity is to develop and so answering these questions becomes crucial.

In summary, the collaborative process can be developed variously. The type of process depends on the aim, individuals and facilitators relevant to the aim of the activity. However, in using such factors, much depends on the cultural underpinning of the individuals as well as on their identities.

2. 4.2.1 Model of Collaboration

Various researchers have given their views about what needs to be considered in collaboration. Osterman and Kottkamp (1993) link collaboration to reflective practice. They believed that activities within the interactions need to be structured in a cyclical, consistent and repetitive manner. Each of the activities needs to dovetail into one another where ideas can be consistently and coherently

linked. What they do not clearly state is the facilitators' belief about the collaborative process. This is because, as stated in the earlier part of this chapter, the beliefs of the individuals shape the development process individuals go through. Huxham and Vangen (2005 p5) emphasise on 'developing a well-stated appropriate working processes and resources'. Thus for Huxham and Vangen without these processes and resources, effective collaboration is a mirage. What Huxham and Vangen did not make clear about the process is the background information of the individuals involved. This, however, does not suggest that there cannot be any effective collaboration. The point being made is that the collaborative process cannot happen without individuals, and their background experiences is more important if the process is to result in developing a habit which can be used variedly to change their behaviours (Fook and Gardner, 2007). For example, Mattessich et. al. (2001) point out that, in developing a collaborative process, the principles and procedure need to emphasize on continuous monitoring. In addition, the vision and goals of the group needs to be reviewed regularly and revised if appropriate. The phenomenon has therefore become a subject of both theoretical and empirical concern. The following section will therefore discuss a theoretical model on collaboration and its related issues which are major concerns of this research. It must be pointed out that the model is not to be tested empirically in this study but to form the theoretical basis for the discussions of the findings on the collaborative processes.

The theoretical model to be discussed is the work of Mattessich et. al. (2001). Even though Mattessich et. al. theoretical description deals with collaboration between organisations worldwide, and not specifically teaching, it has a major influence on theory and research in collaboration. Apart from providing comprehensive discussion of the factors promoting collaboration, Mattessich et. al.'s contribution was borne out of their concern for developing an appropriate pace of development. Their work was borne out from the ideas of Mattessich and Monsey (1997) on community building. They think to develop a collaborative process requires an environment, membership characteristics, process and structure, communication, purpose and resources. Their model is summarised in Table 2.1 below.

Table 2.1: Matttessich, Murray-Close, and Monsey (2001): Model of Collaboration adopted from Collaboration: What makes it work

| Factors | Descriptions |
|----------------------------|--|
| Environment | History of collaboration or cooperation in community Collaborative group seen as a legitimate leader in the community Favourable political and social climate |
| Membership characteristics | Mutual respect, understanding and trust Appropriate cross section of members Members see collaboration as self interest Ability to compromise |
| Process and structure | Members share a stake in both process and outcome Multiple layers of participation Flexibility Development of clear roles and policy guideline Adaptability Appropriate pace of development |
| Purpose | Concrete, attainable goals and objectives Shared vision Unique purpose |
| Resources | Sufficient funds, staff, materials and time Skilled leadership |

As can be seen from Table 2.1, these factors combine to produce effective col-

laboration. The environment is very crucial since the background information related to collaboration is crucial as well as the political and social climate. The calibre of members making the collaborative group is also important as their characteristics become predictors of the reflections of the individuals' self interest and the extent of their compromises. Further, the flexibility and the pace of development of the process structure are very important as the participants need to develop at their own pace. The members also need to have a unique purpose and shared vision for their interactions, and finally, appropriate and relevant resources are prerequisite.

In an attempt to justify the need for collaboration, Mattessich et. al (2001 p30) posit that 'collaboration is only a tool, and like any other tool, it works well only when applied to an appropriate task'. What the model suggests here is that depending on what you intend to address, a combination of these factors can be more appropriate to adopt.

The appropriateness of the task which the above model emphasizes makes it very relevant to the present study, which examines in part the collaborative processes teachers goes through in discussing their practices. The relevance lies in the fact that even though the model is not specifically for reflective collaborative processes, it clearly argues that there is the need for a favourable political and social climate. In the study, the social influence of culture on their interactions becomes very crucial here. It can be argued in the study that in the reflective and collaboration process teachers engaged in it to encapsulate the factors in this model of collaboration.

A number of studies have identified various elements related reasons associated with collaboration. These include the establishing of relationships (Fielding et al., 2005), well-stated appropriate working processes and resources (Haxham and Vengen, 2003), mutual trust (Burgess, 2002), discussions of pedagogical issues (Sherin and Han, 2008), learning, participation, cooperation, activism and research (Sachs, 2000).

Fielding et al. (2005) studied the processes and factors of transfer of good practices. They researched three clusters of schools within the Excellence in Cities programmes in Liverpool, Manchester and London and found out that the importance of establishing strong relationships among teachers in their collaborative processes. Even though this was not the major reason identified in the study, it is significant as far as this study is concerned. In most developing countries like Ghana, significantly the development of collaborative practices and for those matter strong relationships between teachers has not been much developed. Therefore if there are processes that can support teachers to establish such relationship, as suggestive literature indicates, the teachers stand to develop a better understanding of their practices. Closely related to the degree of difficulty in establishing stronger relationships is the issue of the use of authority to suppress views expressed, as was the case in Harjunen's (2009) study which said authority relation is rooted in personal orientations and experiences that tie the superordinate, that is the one 'in authority', to the subordinate who is 'under authority' and can prevent a consensus building.

Well-stated appropriate working processes and resources have been found to be some of the factors influencing collaboration (Haxham and Vengen, 2005). Huxham and Vangen (2005), in a discursive study to manage tension as they identify and explicate a number of areas where tension is likely to happen, selected the managerial aspect of their meeting with the assumption that developing insight usually creates tension which may be inherent. Through a process of clarification and explanation, and organizing the data under levels, they teased out negation of, or problems with, commonly espoused statement of good practice. In analyzing the data, they navigated through it in details while searching for literature at any level of the data since there was no initial literature to the study. The consensus of good advice was discussed in plenary sessions and introduced to the participants. As they continued to interact, new themes emerged on the understanding of tension in the light of new data, and more theoretical understanding was

developed by the 400 participants. Emerging theories were subjected to wider scrutiny but did not end there but could be continued to develop the attitude.

Sherin and Han (2008) organised a video study that focused on discussion within group interaction on pedagogical issues. They found out that there were changes in how the teachers discussed issues. The initial interactions focused on how the four participants raised pedagogical issues for the group to consider. Later, the teachers began to focus on issues concerning student conceptions. In terms of pedagogy, there was an initial tendency for the teachers to suggest alternative strategies. Later, however, it was more common for the teachers to try to understand the teaching strategy that was used. In addition, the teachers began to connect their analyses of pedagogical issues with their ideas about student thinking. The behaviour of the teachers relates to Mattesich et. al.'s model where they sought to address unique consensus.

From the studies discussed above, the picture that seems to be emerging is that the reasons for developing collaboration fall into two main categories. These are those related to establishing relationships and those relating to getting appropriate working processes and resources. These factors interact with the participants characteristics, environment, the purpose identified by Mattessich et. al (2001). Added to this is the issue of a facilitator and guiding principles and rules making the interactions very complex. Despite this complexity, it is clear from both the theoretical model and the empirical studies that the process activities facilitate collaboration.

Based on the theoretical and empirical conviction of the potential collaboration developing better understanding of teachers' practices, one of the research questions which the present study seeks to address is the impact of developing a collaborative process on teachers. Additionally, it is evident from the review of studies that very little is known about the reflective and collaborative practices in West Africa especially in Ghana. It is therefore hoped that this study will go a

long way to contribute to developing reflective collaborative practices in general and particularly in Ghana. Developing reflective and collaborative practices form the next topic for discussions.

2.5 Using reflective and collaborative practices as an intervention

As articulated in chapter one, the use of reflection and collaboration as professional development activity is closely related to how teachers can understand their practices in order to develop. Despite the growing interest in the use of reflection and collaboration as a PD activity, little is known about the reflective conversation processes teachers go through which support them to understand their practices. Understanding teachers' practices requires a more sophisticated effort and more patience than is customarily acknowledged or allowed. Based on this view, and coupled with the influence of reflection and collaboration on one's behaviour, using it as an intervention process can be a better option.

Fielding et. al. (2005) think that practitioners can develop a common understandings that is less permeable to critical insights, all the more so because they are shared. To them

much of what is important and rich in professional knowledge and practice lies beneath the surface of professional awareness and is very hard to access (p31).

They argue that 'the products of a lengthy and thoughtful process of practice development, such as teaching packs or schemes of work, sometimes appear thin and even meaningless when presented to outsiders who have not been party to the tacit understandings underlying them' (ibid). These views expressed by Fielding et al. therefore require setting up an intervention process in order to get teachers share their views in order to develop a better understanding of their practices.

Sharing their views within a relationship context may enable each other within the interaction to get a feel of what is said from what observed. This will then make each person within the discussion group be better able to make a decision about what seems promising and how all might engage in a similar work in the

different context within their school or environment. The decision made could be arrived at through how they developed their thinking about what they observed, said and did collaboratively. Without engaging in such reflective conversation, it may be far harder for teachers to understand where they are coming from, how useful the acquired knowledge is and how practical such knowledge can be put into fruitful use.

From the previous discussions focusing on the reflection and collaborations and from the discussion in 2.2 on PD, what is noteworthy in all these is about how success and satisfaction can be developed from using these concepts (Tigelaar, et. al., 2008) as a way by which PD activities can take the issues of reflection and collaboration into account with the locus in classroom action. This approach, which Tigelaar et. al. argued about, allows teachers to improve mainly by reflecting on their teaching and discussing teaching issues with their colleagues. This suggestion is consistent with the arguments that reflection and collaboration is about more than just analysing practice; it is about supporting teachers to understand their practices as they mull over what they see and how they develop alternatives to improve their practices (UNESCO IILP document, 2003; Villegas-Reimer, 2003).

Other researchers like Richardson and Placier (2001) have indicated that teachers co-construct their understandings of innovations by informally collaborating and learning from each other as they reflect on their experience. Further, they claimed that teachers perceive and draw on a variety of personal and professional experiences and other explicit knowledge to explain their professional performances. But Jurasaitė-Harbison and Rex (2010) think that teachers have limited opportunities for interactions, hence they rarely engage in knowledge transfer. In view of this, using classroom actions during reflective discourse on the actions seemed to motivate teachers to use the opportunities to create reflection-collaboration culture that can support their growth professionally and this enables them to survive in the profession to which they passionately adhered.

The demand for accountability in schools have seen school teachers being forced to become far more reactive to external demands, rather than taking a thoughtful, proactive approach to their work. In spite of these demands on schools and the rapid pace of change, developing an effective teacher will only occur in a culture of reflection and collaboration for teachers. In view of this developing a reflective and collaborative culture is vital.

Teachers need to have a greater sense of shared responsibilities. This means they need to engage in frequent conversations about teaching and learning (Blasé and Blasé, 2000). In developing frequent conversation culture, Peterson and Deal (2002) indicated every school has its own distinct and unique way of developing it. They further said each school has a culture of a complex set of rituals, folkways, and values that shape behaviour and relationships with the school. In developing a team of collaborators within schools, there need to be cordial and congenial atmosphere in order to manage tension as well as developing norms. This will support the giving of clarity of purpose and directions to establish how members learn to work together.

The group will have to focus on *what*, *now what* and *so what* questions. This process need to encourage teachers share their desired outcome. They need to focus on reflecting on their thought processes on instructional practices and activities that enhances developing effective understanding. Through such culture teachers can uncover the desired future of their practices and how their actions can contribute to their vision which is described by Barth (1993) that a community needs to share vision and what members would like to see their organization become. Getting a better understanding can be developed if teachers are given the opportunity to have a critical dialogue of their classroom practices.

Villegas-Reimers (2003) believe that the overwhelming majority of reflective and collaborative programmes are designed as a matter of searching for appropriate

PD models. These numbers of strategies or models are being used worldwide to improve teacher performance. These varieties of models are made up of the traditionally organised PD activities which occur through educational innovations in organised systems like workshops, presentations or projects and those that sometimes focus on within-schools teacher learning. The later are often referred to as work-place learning activities or informal learning which occur through interactions among teachers and their reflections upon their practice, sometimes planned and often by chance.

A number of studies have demonstrated that interventions can provide opportunities for teachers to share their thoughts about their practices. Notably among them are:

- intervention that saw teachers regarding observations and assessment of their work as an opportunity to grow and develop in their career, rather than as something to be fearful about (Wang and Seth ,1998),
- teachers became more reflective of their practices, and provided significant opportunities for children to do the same (Adalbjarnardottir and Selman, 1997),
- content of the experiences, the processes by which the professional development will occur, and the contexts in which it will take place (Ganser, 2000).

Despite the above evidences of the effect of intervention from reflective and collaborative practices, Wayne et. al. (2010) argue that interventions frequently have unexpected outcomes where there are outcome mismatches, even in the face of ‘better’ planning and increased monitoring and accountability. Shehu (2009) also explains that mostly interventions designed in PD are measures to create a learning space. However, there seemed to be ‘Intervention fatigue’. This arises from the fact that many of those who attend intervention workshops have seen it all before and may be sceptical, or suffering from innovation overload and workshop fatigue, hence the need for short term intervention which needs to be frequently

held, and to be more durable and classic which have produced limited results. This therefore requires developing an intervention for optimal effect and how to establish their effectiveness.

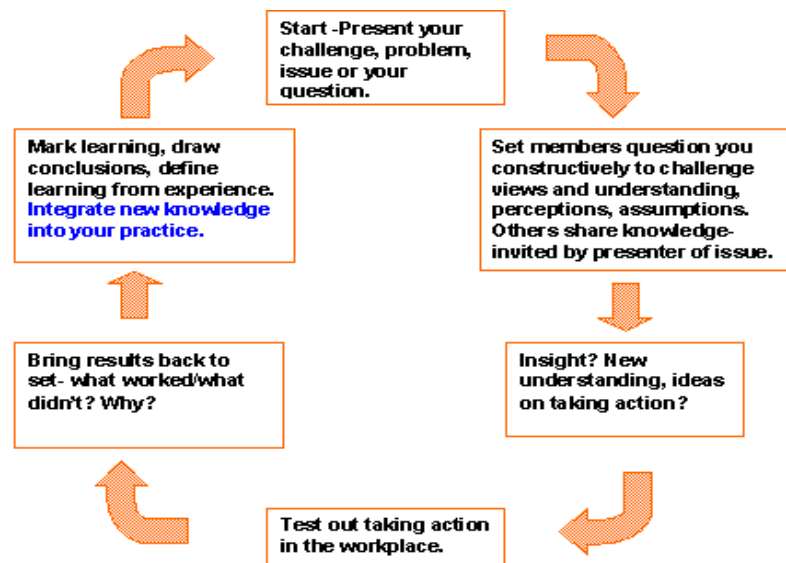
Developing an intervention that can support teachers to understand their practice therefore needs to be organised through actions learning processes as can be found in Figure 2.4.

Action learning is a concept originally developed by Reg Revans in the late 1930s and was initially a UK phenomenon. Revans (1980) had this to say about action learning;

The central idea of this approach to human development, at all levels, in all cultures and for all purposes is, today, that of a set, or small group of comrades in adversity, striving to learn with and from each other as they confess failures and expand victories...

The concept is premised that individuals (learners) develop ‘questioning insight’ using their experiences from their work to find solutions to problems related to their work (McGrill and Beaty, 1995, 2001; Revans, 1980; Stark, Spirito, Williams, and Guevremont, 2006). Learning from this model, which is cyclical in nature, begins from identifying and implementing courses of actions, monitoring results, refining action and testing. Stark (2006) have stated that it is an emergent process, whereby hidden assumptions and implicit value choices come to the surface and the learner learns new ideas, skills and attitudes.

Figure. 2.4: Action Learning Cycle process



Source: www.natpact.nhs.uk/images/upload/als1.gif. Accessed 20/04/2010

This model starts with identifying the problem or challenge. Members set themselves questions to challenge any view expressed and to develop insight to new understanding of issues. The interrogation of issues leads to testing out actions of observers' behaviours with the result culminating in developing a better understanding of behaviours. Usually a facilitator or supporter within the interactions provides the necessary support to increase cohesiveness, confidence and commitments among the members. This model may help teachers to develop better practices in the workplace in a reflective manner as the process is designed along the reflective model outlined by Pollard et. al. (2008).

2.5.1 Teacher thinking and intervention

Four paired key reflection issues from Dewey's ideas seem to come out and relate how problems can be resolve frequently as they appear. The ides seemed to relate to how reflection is classified as thought process about an action, or is more tightly linked to actions as explained by (Hatton and Smith, 1995). The second relates to whether reflection is problem-cantered or not (Hatton and Smith, 1995). The concern here is how consciously one reflects and takes account of wider his-

toric, cultural and political values or beliefs in framing and reframing practical problems to which solutions are being sought with a 'critical friend' (Fook and Gardner, 2007; Hatton and Smith, 1995). The third issue is about how reflection is considered a thinking process. The question that arises is 'does Dewey's idea provide avenue for one to develop the capacity to reflect-in-action?' (Schon, 1983; Hatton and Smith, 1995). And finally consider reflection as developing the capacity to organize thoughts as one reflects-in-action whiles discussing issues (Schon, 1983; Hatton and Smith, 1995; Rareiya, 2005).

The above issues seemed to support the fact that there is a wider agreement that reflection is a special form of thought (Rareiya, 2005). This has been recognized to be effective to resolving challenges through collaborative actions (Bennet, 1999; Fielding et. al., 2005). This support Mattessich et. al.'s (2005) and Hatton and Smith's (1995) assertion that 'reflective action' and 'collaborative actions' are processes of addressing identified challenges and finding solutions once problems had been thought through and discussed. Clearly this to me has led to most writers showing concerns with reflective conversation/ dialogue to identify problems, reflect and question the occurrence to develop new insight as well as modified practice (Gore and Zeichner, 1984; Rareiya, 2005). It is this that can be explained in the light of persistent and careful consideration of practice where knowledge and beliefs, show of attitudes of open-mindedness, responsibility, and wholeheartedness form the enabling conditions for interactions (Mattessich et. al., 2001).

Schon (1983, 1987) posits that reflection can be used as an inquiry process for resolving on the spot problems, rather than attempting to apply scientific theories and concepts to practical situations. He however thinks that professionals have to frame and reframe the complex and somewhat ambiguous problems they face, test out various interpretations, and then modify their actions as a result. His writing about 'reflection-on-action' and 'reflection-in-action' as have been discussed strongly advocates for conscious thinking during practice that includes making de-

cisions. Such decision need to be deliberated upon with colleagues.

Considering reflection as addressing problems, there seemed to be some consensus regarding the use of reflection to mull over a problem to finding solutions (Hatton and Smith, 1995; Fook and Gardner, 2007). This requires the use of appropriate questions raised to find out whether solving problems should be considered an inherent characteristic of reflection. This is what Fook and Gardner (2007) argue regarding thinking through reflection by teachers about their practices which sometimes can be done through dialogue. They believed that such ‘thinking must simply be meaningful or significant to the participants’ (p51). This can be seen as involving processing events during dialogue among the group for the purpose of developing insights, in terms of a clearer understanding of the relationships between what took place, the purposes intended, and difficulties which arose viewed within broader cultural or professional perspectives (Hatton and Smith, 1995). This to me have an edge over other reflection processes like the use of journals or group discussions on experiences, deliberately directed towards the solution of specific practical problems rather than developing understanding of the action observed.

As discussed in 2.5, through critiques of reflection, there have been some hierarchical outlines of reflection by Habermas (1973), van Manen (1977), Hatton and Smith (1995), Rareiya (2005) and a host of others. Significantly, Schon’s framework is able to incorporate all levels or kinds of reflection and can be more effective when done collaboratively (Day, 1999). Schon’s *reflection-in-action* and *reflection-on-action* involve thinking processes with reflection-in-action, characterized with intuitive knowledge derived from professional experience (Hatton and Smith, 1995) through engaging in a reflective dialogue with oneself and others to develop insight into events (Rareiya, 2005).

While different contexts in the teachers’ classroom may lend itself to discussions that see more to one kind or level of reflection than another (Hatton and Smith,

1995; Rareiya, 2005), it is important that the thinking of the teachers should not be viewed as an increasingly desirable hierarchy rather it should be seen as trajectory of reflection. While there have been claims about the benefits of the approach of reflective levels (Hatton and Smith, 1995; Bax and Cullin, 2003; Rareiya, 2005), little research evidence has been presented, and the levels of reflection did not emphasize teachers thinking much. Nonetheless, it may constitute a basis for providing tools which will enable other forms of reflection to develop.

2.5.2 Facilitator support for the Reflective and Collaborative Intervention Process

Ben (2005) thinks that during discussions, ‘when the focus is on asking instead of telling, listening and building consensus, facilitation are the essential skills for anyone working collaboratively with others’ (p1). Day (1999) has also explained that teacher change activities can be modelled around teachers working alongside colleagues in programmes designed to meet specific needs over an extended period of time. He claimed that this model focused on the most effective means of achieving classroom change. For effectiveness there is the need for managing the activities within the interactions. This therefore calls for a facilitator.

There is suggestive evidence that through PD activities, facilitators play valuable and important role in reflective process (Heller, 1999; John and Swales, 2002; Le Fevre and Richardson, 2002). John (1994) on the other hand thinks facilitators encourage the process of “guided reflection” to support reflective practices, since reflection is “profoundly difficult to do without expert guidance and support”.

Several studies that thrive on reflection and collaboration have acknowledged the presence of the facilitator. Sherin and Han (2009) for example said the facilitator adopted various roles, some of which are more managerial in nature and others more evident in a video-based reflective and collaborative activity. Rareiya (2005) has it that a reflective coach helped teachers to develop the inclination to reflect when they engaged in any reflective dialogue. Fook and Gardner (2007)

also feel that facilitation in critical reflective activities is very important. All these views and findings confirm the need to have a facilitator in any reflective and collaborative activities.

2.5.3 The need for ground rules towards the Reflective and Collaborative Intervention

Burgess (2003) posits that to encourage collaboration, there is the need to share, cooperate and give mutual support to colleagues who are considered helpful. Within any collaborative activity, a culture is created. It is this culture that motivates and facilitates any collaborative discussions among the members. Accompanying this culture are rules. Wegerif, Mercer, and Dawes (1999) advocate for rules, both implicit and explicit, since they provide opportunities for quality discussions. This idea came through as Person, Kreuz, Zwaan, and Graesser (1995) have argued for conversational rules during group discourse. This was to draw the attention of discussing groups that conversations are governed by the cooperative principles in addition to the quality and relevance of the rules.

Within any teacher interaction, tacit ideas, implicit rules and traditional beliefs prevail, and the participants' ability to effectively engage in the interactions resides in how effective they manage such rules. The rules support the description behind social practice in terms of inter-personal orientations (Wegerif et. al., 1999). Further Wegerif et. al, (1999) explain that rules and their orientations inform the type of dialogue from within, specifically those rules and orientations which serve to maintain a free and open encounter between different perspectives and ideas.

One important issue associated with ground rules is that in critical dialogue, rules serve to bind the group, share information together and construct knowledge (Wegerif et. al., 1999). In their study, they identified ground rules as prerequisite to generative power of the interaction as opposed to an emphasis on the prior dispositions and views of the participants. The ground rules they saw were instru-

mental in helping to solve reasoning test problems when children worked in groups, and secondly that the coaching was effective in leading to the production of more exploratory talk.

During conversation, ideas and information are certainly shared and joint decisions may be reached. Therefore explicit reasons for claims that need to be given and challenges offered with reasons, as well as the consideration of several alternatives before a decision is reached. In any interactions where explicit reasoning is required, the linking of incidence to discussions to develop consensus in a negotiating environment require both overt and tacit rules (Pollard et. al., 2008). Pollard et. al. further posit that ‘awareness of tacit rules are very important since..... unawareness of rules and understanding is likely to produce a negative response because actions which is regarded as incompetence or unfair will almost inevitably be made’ (p151)

Even though some studies have been conducted on the use of ground rules, not much have been done using reflective and collaborative processes. A close social affinity, such as friendship among group members, need the support for the establishment of good working relationship, as they do not need to negotiate the rules of collaboration (Wang, 2009). Mercer and Wegerif (1999) argues that a clear structure of ‘ground rules’ needs to be provided in order to prepare children to engage in genuinely exploratory talk in classrooms and that children need support in developing the skills necessary for such collaboration in order that the resultant talk can, in his terms, be portrayed as a ‘social mode of thinking’ (p. 374). The above views provide some strong support for the need for ground rules in any interactive activities.

2.5.4 Individualized and Group learning

One key issue in exploring teachers’ reflective and collaborative practices is about how within the interaction organisation, each member of the group change

in the way they understand their practices. There are many theories and views to how individuals learn within an interaction.

Argyris and Schön (1978) talk about 'organisational learning as not the same thing as an individual learning, even though individuals who learn are members of the organisation' (p9). Continuing, they said 'organisations are not merely collection of individuals, yet there is no organisation without such collections. Similarly, organisational learning is not merely individuals learning, yet organisational learning is only through the experiences and actions of individuals' (ibid).

The emphasis of this theory is on *theories of action* that can be further be divided into firstly, an espouse theory (what they say about what they do), and secondly theories-in-action (what a person knows more than what he/she can say) which is tacit in nature and determines the organisational identity and continuity (Argyris and Schön, 1996).

In an organisation or within a group, individuals make attempts to change their behaviour as they create images of themselves and of the organisation. What they do is

describe themselves and their own performances insofar as they interact with others. As conditions change, they test and modify that description. Moreover, others are continually engaged in similar inquiry. It is this continual, concerted meshing of individuals' images of self and others, of one's own activity in the context of collective interaction, which constitute an organization's knowledge of its theories (Argyris and Schön (1978, p16).

Argyris and Schön (1978 p18) posit that 'if members of the organisation respond to changes in the internal and external environments of the organisation by detecting errors which they then correct so as to maintain the central features of organisational theory-in-use' this is what they call single-loop learning. Even though they challenged the cognitive enterprise which is limited to the individual's private inquiry, in order to make it more acceptable, there must be public representation of external reference to which individuals can refer.

They believed that organisational theory-in-use is constructed through inquiry. And in order for organisational learning to occur, discoveries, inventories and evaluations must be embedded in organisational memory. This is encoded in the individuals' images and the shared maps of organisational theory-in-use from which members will act since if these coding do not occur individuals would have learnt, but organisations would not have learnt. This they called single-loop learning.

They came out with another view called double-loop learning.

This is primarily with effectiveness-that is, with how best to achieve existing goals and objectives and how best to keep organizational performances within the range specified by existing norms. In some cases, however, error correction requires organizational learning cycles in which organizational norms themselves are modified (p21)

The inference from this is that there is a restructuring of organisational norms, strategies and assumptions associated with these norms which are embedded in the images and maps which are encoded in organisational theory in use.

Teachers in a collaborative or in any interactive activity try to change their behaviours by identifying errors in their actions and correcting them through individual action plans to develop strategies, if such behaviours happen again. At times the strategies change the direction of the whole process. This type of activity permeates most teachers' actions, especially activities involving the Ghanaian teacher. It is therefore appropriate to understand and develop a process about how teachers are to analyse, evaluate and develop action plans in their effective and collaborative practices. But this need to be done, as posited by Argyris and Schön (1978) and must be done in a trustful manner and by the use of requisite knowledge both professionally and practically and be appropriate enough to help with the discussions.

However, Prange (1999 p27) argues about myths of organizational learning. This myth is about 'who question', that is, 'the way in which learning might be con-

sidered organizational'. There are those who argue that it is individuals, not organizations, who learn. Meanwhile learning is classified as the processes of thinking and remembering that take place within an individual's brain. This being the explanation for learning, then how the group can benefit from such thinking is one of the aims of this study.

Prange's idea provides some unclear issues about individual and group learning. The question therefore is 'do collective decisions initiated by all or by an individual? Does the organisation have a period to evaluate such activities or is it done concurrently with the process? The former involves following routines and some preset plans where there is greater control which may be less risky for the individual and the organization. The latter is more creative and reflexive, and involves thoughts of good reflection which are fundamental. Organisational learning therefore needs the greater involvement and support of their colleagues and the community so that decisions can be shared about what can be reasonably achieved and what should be prioritised (Eraut, 1994). In view of that, the discussion of the next theory focuses on how individuals can share views about their work.

2.5.4.1 Individualized learning process

In a processional context, Lave (1996) posits that the main task of learning is identity formation and how one develops a sense of self. Individual teachers therefore can develop their own self-identity. The issue of individualism has its central support in the notion that people have 'inner tendencies, personality traits, attitudes and values, moral principles, sense of self-worth, and that these inner tendencies determine their behaviours. This notion is based on the understanding that the individual possesses abilities for cognition and make rational suggestion or give options to develop and establish knowledge. Such responsibilities can enable the individuals to review, plan, set targets and identify strategies. This suggests that it is through reflective practice, as discussed above, that one can analyse, synthesizes and evaluate any action by themselves. One important tool that

can be relied on is through one's ability to regularly or daily reflecting. This can be done by using few basic questions which can help structure one's own reflection about how one is doing. Such basic questions as framework can include:

- How did it go? How do I feel about it?
- What went well, or okay? and why?
- How could this have been done differently?
- What should I change or work on for next time?
- What would be the first step?

This is what Allin and Turnock (2007) think will result in insights as to:

- how and why you think the way you do about teaching and learning
- what actions you took, what choices you made
- the meaning of your actions and choices
- what learning and growth has occurred
- how you can change your practices in the future

These precepts can support one clarify his/her thoughts and feelings as one explores his/her ideas and develop deeper insight into their practices. It is through this that the individualistic view of learning through reflective practice is considered and provides a useful framing device necessary to help conceptualize professional learning. This is what Dymoke and Harrison (2008) view as the process of individual action planning.

However, social psychologist believed that knowledge creation is a social product and that knowledge and ideas are intrinsically normative, determined socially through inter-individual process as societies or groups collectively come to engage in processing and developing knowledge. The process of coming to know or learning therefore can be conceptualized as a social process and can occur collaboratively. What then is collaborative learning?

2.5.4.2 Collaborative learning through reflection

Collaborative learning happens when a group of people with about the same status meet to interact and negotiate as they allow for divergent views (Dillenbourg, 1999). Such interaction can be in the form of face-to-face, interface-mediated, synchronous, and frequent in time, and in a truly joint and systematic effort. However according to Dillenbourg, the process of the organization does not guarantee group learning in unison since the process of learning mechanisms work the same as what occurs when individuals learn.

Dillenbourg therefore put forward a structure for effective group learning. This includes;

- setting initial conditions,
- one should not over-specify the collaboration contract
- a scenario should be based on roles,
- scaffolding interactions by encompassing interaction rules
- inclusion of interface appropriate to effect understanding, and
- monitoring and regulating the interactions.

The setting of initial conditions can be considered appropriate if all concerned can accommodate and use them in order to increase the probability that the same type of interaction occurs in carefully designed situations. However it seemed difficult to set up due to multiple interactions that could emerge. Issues he raised included;

- optimal group size,
- group selection-sex of group, people who share same viewpoints,
- group with same level of development;
- nature of interaction-face-to-face
- nature of interface etc.

The complex interaction between these factors during the collaborative learning requires a process that will accommodate conflictual interactions, combatorial stance and to avoid lopsided views, hence a flexible environment where individuals develop their own rules, select any relevant interface and a facilitator to perform a minimal pedagogical intervention in order to redirect the group work into

a productive direction or to monitor the progress of the process is considered ideal.

2.6 Summary

This chapter has discussed the various explanations of reflection and collaboration and their implications for developing a practice (habit) necessary to support teachers in their quest to develop their practices. It has also dealt with theories that underpin individual and group learning. It has become clear from the discussion that teachers can develop a habit through the process of reflective and collaborative practices to support changes in their practices. In view of this I will attempt to find out how teachers in the Ghanaian context can develop a habit by using reflection and collaborative practices to support their change. Each of the issues raised touched on the various ways through which such a practice can be made effective, and the limitations of any of the issues were discussed to find the best way out. An analytical framework and argument put forward to justify the need for reflective and collaborative support were given.

The framework detailed above focuses on how reflection and collaboration have been conceptualized and that will be used to analyze how teachers who are given the opportunity to use their own classroom activities as a PD model will try to change their practices, as I have investigated in the research. Even though there have been critiques about the concepts, the ideas formulated by proponents of reflection and collaboration have provided a versatile tool that supports the research. The ideas add to the variety of approaches that teachers can adopt to change their practices while they are in action in their classrooms/workplace.

What the two perspectives of this theoretical framework do have in common is the desire to explore how such concepts can form the basis upon which teachers, out of their complex and busy schedules, can use them as a potent strategy for PD activities. Whether in theory or by analysis I intend to develop a better understanding of how these two concepts can form the major component in any PD activity where classroom practice can be seen as the most probable environment

through which teachers can be helped to change their practice instead of the top-down approach employed by many development agencies in teacher change activities.

CHAPTER THREE

RESEARCH DESIGN

3.0 Introduction

This chapter outlines the research design that was developed from the ideas articulated in the theoretical framework of chapter two. The design of the intervention which is basically research based with its accompanying methods, was used to explore and study closely what happens when teachers within one school are given an opportunity to engage in a planned series of group activities and discussions directly related to their own classroom teaching, and was based upon video recordings of their mathematics lessons. The outline for the discussions in this chapter is as follows:

For a start I intend to introduce the five reasons for developing the design. I shall then discuss the three phases of the intervention process (IP). This will be followed by how I researched the IP, starting from my establishing a point of contact and identifying the superiors of participants and the selection of the participants. This will be followed by discussion of different stages on ethical issues as I sought for the participants' consent and how I treated confidentiality issues. The next discussion will be my role in this complex process, especially the management of logistics and the messy informal group discourse. This will be followed by a description of the data collection tools: semi-structured interviews and reflective dialogue discussions (RD) and the data validation strategies employed. The chapter will conclude with the discussion of the somewhat messy process of the data analysis.

3.1 Rationale for the study

This research design was borne out of my desire to study the processes teachers go through as they engage in reflective conversations about a classroom-based video intervention process of their teaching actions. This, to me, could provide an argument for its use as a PD model to support the teachers to change their prac-

tices. The process provided the teacher participants the opportunity to express their perspectives that are rooted in their beliefs, values and attitudes towards their teaching. This novel opportunity given the teachers was not just one of the breadths of research discourses rather it supported an in-depth investigation to develop a reflective and collaborative culture. It therefore makes sense to discuss the rationale for developing such an intervention process (IP).

There are five reasons which I felt provided the impetus for the development of the IP. The building of a professional culture which is more responsive and receptive to change has been the concern of many countries, and many attempts to address this has led to an accumulation of research knowledge regarding reforms in PD. In trying out these reforms, some short in-service programmes have been adopted and organised to address the immediate needs of teaching and learning in most countries. In Ghana, for example, to address some of the teachers' problems, short prescriptive INSET activities are organised and removed from the schools, but they mostly turn out not to have immediate relevance to the identified teachers' needs (Kankam, 2005). In view of this, it will be very informative if a process that will allow teachers to journey through and engage in reflective conversations about their actions in order for them to have a fuller understanding of their actions in the classroom is developed. This is because it has been argued that teachers improve mainly by reflecting on their teaching actions and the quality of reflection is enhanced by exchanging experiences and ideas with others. (Tigelaar et al., 2008; Bereiter, 2002)

Having such insights demands a method that does not just take snapshots in a process of the interaction but rather offers a continuous interpretation of behaviours that can unravel and reveal participants' emic points of view in a continuum. This to me can be done when activities are located in their classrooms because as Nomdo (2004) posits, experienced teachers often find themselves operating within a comfort zone when it comes to discussing their practices as they depend on their long years of experiences in teaching to support their 'current

practice'. Through this they are able to develop a common language to talk about issues related to their practices and also enable them take control of a variety of situations they face in the classroom. Giving the participants the freedom to unsystematically and informally engage each other in a reflective conversation on a video playback of their teaching actions using their prior experiences can offer them the opportunity to investigate the processes in which they use their tacit knowledge and experiences to collaborate and engage in reflective conversations and to individually and collaboratively learn.

Secondly, it was my intention to develop a culture of trusting, and sharing, and a process that encourages collaboration and reflection where the views expressed are rooted in the values and beliefs of the participants. In addition, if such experiences could be blended with contemporary worldwide issues to support the understanding of local issues, the teacher can be versatile. Thus a culturally-sensitive strategy can be developed to support, strengthen and explain behaviours in context of the teaching activity and support worldwide view of teaching in context. In support, Song and Catapano (2008) explain that people actively interpret the cultural issues that they meet in social contexts in ways that make sense to them and enables them to make their interpretations on their own. This therefore requires aligning the process to the cultural disposition of the group participants who usually express their perspectives rooted in their values and beliefs (Kyekye, 1997; Owusu-Menash, 2006) as they interact. With this, one important question I asked myself was how, in terms of locus of control, could I develop a methodology that will put the participants' disposition at the central point of the research. This is borne out of the fact that the Ghanaian cultural tenets is underpinned by the 'communal spirit' where each one is the 'brother's keeper' (Owusu-Menash, 2006; Kyekye, 1997). For example, within any interacting group, the oldest among the group and his/her ideas are given the utmost respect, and consensus building is the major activity and ultimate goal of the group as differences and conflicts arising from opinions expressed which has negative consequences are quickly and amicably resolved. Even though there are negative consequences with such attitudes, the behaviour portray the affirmation culture of

most African societies (Stephens, 1990, cited in Akyeampong, 1997) where attempts are made to ‘minimize points of disagreement and ...to harmonize possible conflicting perspectives’. With such cultural property, I hold the belief that if I advanced it to the frontiers of a design as a springboard to develop a collaborative and reflective conversation culture, it will allow flexibility and interactivity to promote an effective trajectory when teachers reflect. This in the end can promote rich and deep professional dialogue.

A third consideration for choosing to design the IP stemmed from the recognition that mostly a hands-off distant research approach dominates educational research in Ghana. Even though results from such studies may have a wider acceptance, academic discourses involved are not wholly representation of teachers’ actual classroom practices. It has been argued by Armstrong and Curran, (2006) that when teachers engage with their own and each others’ data in any research, they contribute to the joint construction of meaning through exploration, talking, listening, questioning and arguments. The understanding here is that if teachers’ classroom activities are explored jointly, there will be analytical transparency where both researchers’ and participants’ voices are represented in the hands-on analyses from the exploration, and this will give weight to the findings since the immediate implementation will be done in an appropriate context of the practices. Drawing from the aforementioned, for effectiveness and to understand the teachers’ discourse about their teaching actions from lesson to lesson, it is important to design a process that will give the teachers the opportunity to have a hands-on study where they will co-investigate activities with researchers to delve deep and systematically diagnose and audit their classroom practices in order to understand fully issues inherent in the way they collaborate and reflect which the study seeks to unravel. More so, as they work concurrently on the study and their formal teaching, ‘insiders’ account or participants’ experiences from the study could be translated and included into their immediate and subsequent teachings.

As a teacher educator, my interaction with student-teachers during their on-campus teaching practices and internship programmes where activities are organised around the use of video interface have shown that mainly, the unfolding discussions are grounded in the observed teaching actions and seemed to promote deeper understanding of their practices. My experience supports Sherin and Hans (2004) assertion that when teachers and educators ground discussions of thorny controversies by referring to practice captured in videos, they become more productive and less rhetorical. It is with such power that I intend to use it as a process to investigate how teachers develop their thinking about their practices. Borrowing from the ideas of Mattessich *et. al.* (2001), in collaboration exercises, if ideas are presented in a chronological order, deeper understanding results. For teachers to understand what happened to their actions and to use these understanding to inform their decisions of how to proceed depends on what they will observe in videos and use it as evidence (Putnam and Borko, 2001; Sherin, 2001) in discussions, hence my desire to developing such a video based IP.

The fifth consideration relates to the intention for the results of the study which is to support teacher change through dialogic interaction on their teaching actions and to investigate the processes in which they express their perspectives. This requires the investigator to be closer and to explore the process of interactions with the hope to get an in-depth knowledge and understanding of the teachers' actions, in order to suggest pragmatic changes that are responsive to how the teachers express their perspectives. For effective cohesion within the interaction the activities within the group need to be organised around a collective agreement of responsibilities and participation of interacting members. This is corroborated by Mattessich *et. al.* (2001) who think that any effective collaborative activity requires the development of clear rules and guidelines. The understanding here is that for an appropriate organisation of logistics within any interacting group activities, the organisational skills of the interacting group members will be crucial. Even though, the presence of someone who may be familiar or unfamiliar (depending on the person's professional and academic background) to the participants may impact on the activities, the collaborative interaction mechanics of de-

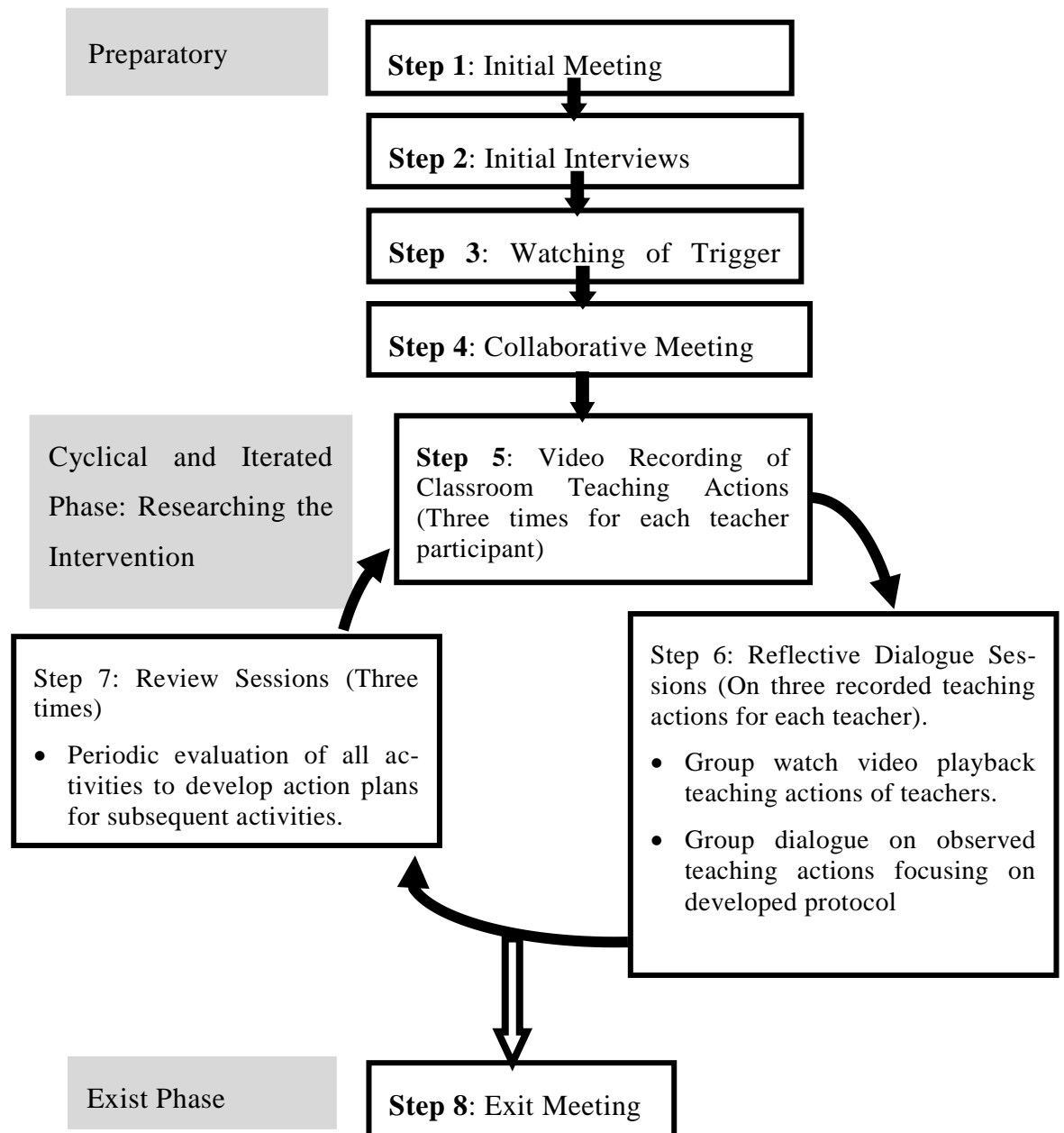
fending, arguing, confession, recollecting, recounting etc (see Table 4.1) by participants on observed actions, demand a close contact to activities in order for the person to be able to rationalise and give a ‘thick description’ about what transpires.

From the aforementioned five reasons, I took a decision to develop the IP as a strategy that would not only add to the already known ways to help Ghanaian teachers change their practices, but also in response to calls for more pragmatic approaches to understand teachers teaching actions. To let readers know the structure of the IP, the following section provides an outline as explained in Figure 3.1.

3.2 Description of the Intervention Process (IP)

The IP has three phases. The first is the preparatory phase and includes the following four steps; initial meeting with the participants, initial interview session, trigger film session and the collaborative meeting to develop protocol and ground rules. The second phase is the cyclical and iterative action phase and includes video capture sessions, Group discourse on video captured teaching action the process of collaboration and reflection- to develop the notion of collaboration and reflection to see how they change in the process and the Review sessions discussions to make process better. The third phase is what I call the one-shot exit interview phase which is the group focus discourse (step 8) which looks at the overview of the IP. The phases are shown in Figure 3.1 below.

Figure 3.1: Intervention Process Model



To avoid a repetition of activities, attempts were made, in some cases during the fieldwork, to combine the description of the outline and activities during the researching process of the IP.

Preparatory phase

Step 1: Initial meeting

The objectives of the initial meeting were twofold: the first one was to explain the rationale of the study to the teachers (Appendix B) and the second was to get their consent for the study (see 3.3). This step is one of the stages which start the processes involved in seeking an informed consent from the participants.

Step 2: Initial Interviews

To understand where they are coming from in order to know where they will arrive at and by way of linking their past with current experiences, the biographies of participants are very necessary to facilitate the understanding of their actions. The wealth of experiences, as noted in chapter 2, is key to how participants comment, reflect and evaluate actions. For example, participants' backgrounds, and teachers' belief, according to Johnson and Hall (2007) influence instructional practices, how to react to their personal habits, how to be objective and see how such objectivity addresses the development of knowledge and skills. As changes in their attitudes, values, beliefs and insights into actions are very important for this study and analysis purposes, the information at this level gives insight to how the IP impacted on the participants.

This session is used to collect their background information. It also afforded me to collect information on how they have been reflecting. In this direction they were asked to visualise in details a lesson in their own classroom that they had been most pleased with and which they felt learning really took place.

Step 3: Showing of Trigger Film

Context in research is very crucial. Researches that 'sit' in the qualitative approach are more inclined to provide a great deal of descriptive details when reporting on the outcome of a study (Bryman, 2008). They are mostly concerned with asking 'why' questions in order to provide detailed accounts of what goes on

in a study. Pink (2003), Denzin and Lincoln (2008) have argued images or visually-oriented contexts can provide rich source of information to answer the ‘why’ question, hence an interface like the video (Gallimore and Stigler, 2003) could aid better description of actions where critical dialogue that encourages plurality perspectives is the medium of interaction in the study.

Setting the context, to me, would have been very difficult since I had never used the process before neither had the participants. I therefore had to share with the participants the process of the IP and the related literature references on reflective practices, and a thought of using different video playback teaching actions as trigger films to provide a replica context of the study. This to me was to sensitize and get the participants acquainted with varying contexts. This aided the development of protocols and ground rules that guided activities within the process, as the participants in addition to their experiences, need to be able to decide what were important to focus on during the RD.

Step 4: Collaborative meeting

Having watched trigger teaching actions, there was the need to create the accepting environment for the participating teachers as well as to develop an action plan towards the intended activities, hence this step. To avoid a reaction like ‘we did not learn anything we did not know already’ (Abraham, 2000) and for the participants to understand the impact of the IP, there was the need to set objectives for the interactions which are normally the most important parts of planning any research process. To avoid getting disappointed as well as ‘not inventing the wheel’ clear and well-thought out objectives are necessary to be developed. Guskey (2000) considers this as needs analysis, but cautions that participants should move away from identifying problems, dilemmas, concerns and wants and focus on to more objective and relevant needs. Continuing Guskey felt the needs analysis is the responsibilities of those planning such activities, which in this case, were the participants.

In the study, there was a schedule meeting between the group members to establish a supportive and non-judgemental framework for all the activities. Here participants met to decide on logistics including developing protocol for observations (for example use of chalkboard as focus for RD), set clear objectives, develop ground rules (Appendix D) to guide the local context of the implementation of the IP, scheduling the videotaping and RD meetings, and where and how to move to and from meeting venues.

Cyclical and Iterative Action Phase

Step 5: Video Recording

Video was used because of its advantage in recreating both the voice and the behaviour, i.e. the physical context (movement) of a teacher (Tochon, 2001). In addition, it serves as a useful tool in representing the complex and ever-changing contexts in which teachers have to make frequent on-the-spot classroom decisions (Sherin and Han, 2008). In researching the IP, going by the axiom ‘the next best thing to being there as well as nothing is lost’ (Abraham, 2000 p58), and for teachers to teach as well as be part of the study to discuss their contemporary teachings, the use of video to capture their teaching actions for discussions was adopted. Despite making individuals ‘freeze’ and become more intrusive, the video recording helped avoid the stressful moments of teachers leaving their classroom to visit others’ classrooms and to allow teachers to work within the confines of their normal working periods.

Step 6: Reflective dialogue (RD)

Three RD sessions cycles, covering three recorded teaching actions form the reflective resource for the group discourse. RD on first, second and third recorded teaching actions were organised, in that order, respectively. The observations and reflections of the participants own and colleagues’ teaching actions (Taggart and Wilson, 2005) gave them the opportunity to analyse and reframe their actions, especially the problematic ones, during discussions. They engaged in argumenta-

tion where positions are hotly debated and consensus negotiated which provided quality in the discussions during the reflective dialogue.

Step 7: Review session

Both summative and formative evaluation of any PD activity provides a better platform for effective decision making (Guskey, 2000). Continuing, Guskey, believes that such 'stock taking' events give better direction and keep educators abreast of the emerging knowledge base so they can continually refine their conceptual and craft skills (p72). However Guskey, citing Crandel et. al., (1986) believes that such evaluation should not see massive changes, since changing too many things too rapidly often results in maintaining the status quo.

The IP had a periodic evaluation mechanism, review sessions, of all activities throughout its duration. The review activities were held at the end of the dialogue sessions on the first lessons, the second lessons and the third lessons respectively. This was to allow the participants synthesise the multiple perspectives and thoughts, develop an action plan including suggestions and recommendations in the subsequent meetings to improve their teaching actions.

Exit Phase

Step 8: Exit meeting

This is to let the participants come out with their assessment of the process and offer suggestions for the future implementation of the intervention process. Prominent among issues that cropped up includes the following:

- Did the way they interacted relate to other experiences they had met?
- How were they going to handle such experiences differently from what took place and what would be the consequences?
- How were their experiences during the implementation of the IP? and
- Have the experiences changed the way they understood their practices?

3.3 Data collection and analysis approach and some philosophical issues for the study

After deciding to develop the intervention, a problem was about how to collect data that can provide objectivity and trustworthiness. The nature of the intervention 'sits' in both classical research and action research methodology and is given a qualitative presentation. After examining literature it became clear that differences exist between these traditions. This therefore required critical analysis to adopt a method appropriate for data collection. Classical experimental research, was considered as it relates to the quantitative research tradition which employ methods designed to confirm or refute a proposed hypothesis of social phenomenon (Cohen, Manion and Morrison, 2005). On the other hand, action research which is a reflective process that emphasises progressive problem solving phenomenon where individuals working with others in teams or as part of a "community of practice" seek to improve the way they address issues and solve problems (Heikkinen, , Hutunen, and Syrjala, 2007). Even though action research can follow the tenets of the experimental research, it is at times not pursued rigorously in a laboratory setting. In view of this, the study therefore adopted the underlying principles of both experimental research and action research.

This problem therefore lead me to consider the qualitative research where relatively little standardised instrumentation is required since the researcher is the main 'measuring device' in the study (Miles and Huberman, 1994). This tradition adopts flexible approach which reflects the different purposes of qualitative inquiry with its corresponding analysis. More especially where there can be lawful relationships within a phenomenon with the intent on theory development which Glazer and Strauss (1967) have labelled 'grounded theory'. With the study emphasising on 'thick descriptions' and demanding 'multiple compelling interpretations' (Miles and Huberman, 1994) it requires getting a more holistic approach to data collection.

With the intention to use hands-on activities, adopting qualitative research strategies was appropriate since they can take into account the perspective of the 'in-

sider' who is the researcher and also as a 'key instrument' in the collection of data process. The methodological implication was therefore to devise a tool that could attempt to link the key participant views and the context and the relationships that may be operating within the phenomenon. In addition, because of routine nature of experimental tradition, a method that could systematically collect and analyse the procedure consistently and cyclically to understand the phenomenon as a whole to provide appropriate system of theory building where the perspectives of those being researched are considered was required.

Getting the appropriate method is important since researchers adapt methods and procedures of analysis in relation to their research focus (Miles and Huberman, 1994). For example developing themes in qualitative research depends on the focus of the research as was the case of Maykut and Morehouse (1994) whose focus was to develop a holistic understanding of a social or educational phenomenon and Denzin and Lincoln (2008) who used it in the context of descriptions and explanatory categories to develop understanding of the same social and educational issues. A method that can provide *thoroughness* and *explicitness* of the data collections and ensure that the evidences gathered is based upon *rationality* and *trustworthiness* of methods (Miles and Huberman, 1994) could help make objective analysis of qualitative data (Silverman, 2006).

3.4 Researching the IP (Data collection Process)

3.4.1 Access and Participants' Selection Strategies

The choice of an appropriate study site for any research is fundamental to all researches. For validity purposes Creswell (2003) prefers selecting a 'typical' site. Even though Wainwright (1997) has raised some concerns about the typicality of a research site with regards to what constitutes a typical site when no exploration of potential sites have been carried out, Bryman (2008) thinks selecting a site needs to be done reflexively and managed according to the context specificity in such a manner that it can help access the authentic views of participants. In view of this, Wainwright has suggested the following criteria:

- Ease of access for the informants
- Whether data can be adequately recorded, and
- Whether there are any characteristics of the sites that might influence informants' testimony

From Wainwright's suggestions, which may not be sufficient, access to the study site was based on four reasons. The first is the official permission and, once on the field, the negotiated aspect with potential subjects. Some privileges, in terms of access and prior knowledge that I thought could potentially be useful in the research process, informed my choice of the school that necessitated official permission. My familiarity with the school being used mostly for researches and the selection of teachers that I wanted to use in the study were students I had either taught or were aware of my position in the school environment as a teacher educator. These would afford me insights that generally may not be available. To address such familiarity which may influence the decisions I will make about the data, there was the need for objectivity and critical reflexivity on my part. The second was, my interest in PD, especially for Junior High School teachers who were in the transition point in our educational system, and who I felt needed more school-based INSETs to improve their teachings in order for them to get better prepared and support students to continue their education. Thirdly, the nature of the study required continuous engagement of the teachers, as the study took place during the in-term period. It was therefore appropriate to stagger the RD meetings in between the teachers' formal teaching work, hence there was the need to consider the proximity of school to meeting places, and fourthly to minimize the financial constraints involved in travelling. These characteristics helped me to select which school within my university environ. Such background information was considered to be helpful to my investigation, but I had to be more proactive in devising strategies that will not make me behave as a teacher educator taking part in an INSET programme.

Having been given the permission from the District Education Officer (District head) and head of the school to use the selected school for the study, my next

concern was to select teacher participants for the study. Mattessich *et. al.* (2001) believe that in any collaborative activity, members involved need to review who to include, but in this study the responsibility was on me to do the selection. In view of this, I decided on four criteria to help me to select the members. Firstly, the teachers needed to voluntarily, on their own thinking, develop their own strategies to engage in a professional discourse about their teaching actions by setting their own agenda without taking instructions from me. Also they needed to have explicit and unspoken control over relevant issues. Secondly, because it was a classroom-based study, I wanted to focus on the experiences within one subject area so that I could have the same limited view of the teachers that was the same as mine since with my mathematics background I will be able to understand the processes mathematics teachers go through in reflective conversation better. Hence teachers teaching mathematics were considered appropriate. The difference for me was that, even though I had never taught any of them, I had observed them in their teaching practice periods and I knew how they behaved while teaching in the classroom. Thirdly, the group needed to have the capacity to continuously monitor the activities and integrate into their plan the necessity to include new members if the need arose and finally the number needed to be not so large that the process of collaboration would become unmanageable. All these were done having in mind the limited data collection period of six months.

The only three mathematics teachers (all females) were initially purposely selected with the help of the head teacher. These cohort of teachers for typicality (Creswell, 2003), were former students from the University of Education, Winneba. A fourth respondent was selected and added to the sample through theoretical sampling technique. After the transcript of the initial interview and the feedback from my presentation at a seminar organised at the University of Education, Winneba, issues related to collaboration, age and gender came out strongly and this eventually led to the selection and inclusion of a male teacher who teaches mathematics and science to the sample.

These four teachers had gone through two levels of teacher preparation institutions. The levels were the initial teacher training colleges and the University of Education, Winneba, whose responsibility is to train and update teachers' knowledge in their practices. These teachers were all teaching in the Junior High School levels at the selected school. All these teachers had on more than one occasion been involved in research studies organised in the school and with such background and being aware of teachers position when it comes to using them in any research the need for critical reflexivity was crucial when dealing with such a group. However, the nature of the study was not solely related to the approach used by other studies in collecting data.

3.4.2 Ethical issues

This research was planned in line with the British Educational Research Association's (BERA) Revised Ethical Guidelines for Educational Research (2004 p7) adopted by the School of Education, University of Nottingham and it states inter alia:

Researchers must recognise the participants' entitlement to privacy and must accord them their rights to confidentiality and anonymity, unless they or their guardians or responsible others specifically or willingly waive that right. In such circumstances it is the researcher's interest to have such a waiver in writing. Conversely researchers must also recognise participants' right to be identified with any publication of their original works or other inputs, if they so wish. In some contexts, it will be the expectation of participants to be so identified.

This section therefore addresses ethical issues in the study which includes informed consent, confidentiality and anonymity which Robson (1993) considers very useful in research.

3.4.3 Informed Consent

Informed consent according to Bryman (2008) is a

..key principle in social research ethics. It implies the prospective research participants should be given as much information as might be needed to make an informed decision about whether or not they wish to participate in a study (p694)

The inference from this was to allow the participants to decide whether to be part

of the study or not. Because as Stark et. al (2006) puts it, when participants give their consent to a study, they are empowered rather than the researcher being protected; they are assured of anonymity in order to avoid any possible harm to them. Again it is an underlying principle to avoid deception, cohesion and harm, alongside assurances of confidentiality (Heath et. al., 2004). However, Heath, Crow, and Wiles (2004) have argued that ‘informed consent is a largely unworkable process given that researchers can rarely know the full extent of what participation may entail, or predict in advance all the possible outcomes of participation’ (p 406). In spite of this criticism, it is worthy of note to understand how important it is to retain the principles of informed consent with activities that ‘sits’ within qualitative enquiry (Alderson and Morrow, 2004; France, 2004) like the IP.

From the views above, it was reasonable on my part, as a first step, to arrange a meeting with the participants to inform them about the objectives of the investigation (Step 1). A second meeting which sought to formally solicit their volunteerism to participate in the study was organised. The focus was to explain all aspect of the research and the intervention to the participants. The purpose of the discussions was in explaining the rationale of the study, especially how the group and I were to co-plan and co-investigate the IP, why it was a good idea, and also to make them become aware of the need for them to either opt out or be part as the process progressed. This second meeting ended with the distribution of the consent form to the participants to fill, and another meeting day was fixed to receive their feedback. On the appointed day (the third stage), feedbacks regarding signed consent forms were received and this led to my explaining confidentiality issues to them.

3.4.4 Confidentiality and Anonymity

The complex nature of the interactions made confidential issues also complex. The fact is that it is difficult for both the participants and myself to anticipate everything that we will be consenting to and considered as confidential. Reasons

for these are that, the video recorded teaching actions that were used for deliberations could be viewed when looking for ‘dos’ and ‘don’ts’ about teaching as well as being used as sample teaching episodes when disseminating the research outcome. This makes it difficult to protect the individuals who took part in the study. Situations like this provoke some questions about how to protect such teaching behaviours which can form the basis for any discussion and interpretation. It also has the implication when reporting the research as the researcher may not know all that may be harmful to the participants since some aspects of the teaching actions could be used as examples for change, and can also be harmful where unacceptable aspect of the teachings are made public for discussion. This is why Bogdan and Biklen (1992 p23) think that ‘unless otherwise agreed to, the subjects’ identities should be protected so that the information you collect about them does not embarrassed or in other ways harm them’.

In the study, confidentiality issues were treated under two levels. Firstly, the participants were assured of my keeping in confidence every bit of information they provided regarding their personality, and secondly, criticisms about their teaching actions, for example, issues about bad or wrong behaviours or interpretation given to unacceptable behaviours were to be discussed as an issue and not tagged to any particular individual participant even when such behaviours were being discussed outside the group. This was done to ensure that they were not unwittingly put in any undesirable position so that they would avail themselves to be part of other researches. However, regarding anonymity, they were assured that when reporting the findings no reference would be made to individual participants and that where it was necessary to quote participants, pseudonyms would be used (Marshall and Rossman, 1999).

3.5 My identity as a facilitator in the study

As one of the teacher educators who had in one way or the other met the participants during their undergraduate period, I was a ‘familiar face’ in the research process. My familiarity could therefore compromise the research validity, and so

how I managed the research process was very vital. This section explains how my role impacted on the IP.

The identity (personal) and the roles of researchers in a familiar research environment have been talked about by Cotterill and Letherby (1994) as having an influence on the research process. In their arguments, when informants can identify themselves experientially with researchers in emotive issues, fear and inhibition are minimised and they are able to engage in informative talk and empathetic understanding with the researcher. However, the researcher's background and experiences sometimes hinder openness and makes the participants become cautious in their conversations.

The understanding from Cotterill and Letherby's submission is not how the researcher manages only the research process, but that the identity of the researcher is crucial to the success of any research. My presence as a facilitator of the IP from the start seemed to heavily influence the research process. To minimise the influence I had on the process, I had to identify myself carefully with the process in order to avoid engendering frank, objective and uninhibited conversations, especially during the initial interviews.

This early identification of my influence on the process made me take precautions to minimise any obstructing hindrances that would prevent me from collecting reliable and valid data in terms of their conversations. One of the strategies I used was how I tried to engage them in informal discussions bothering on their day to day activities as a prelude to discussing their teaching actions. The benefit from such a strategy is what Hammersley and Atkinson (1993) comment on as

especially in the early days field work negotiations, it may be advantageous to find out more 'ordinary topics of conversations with the view to establishing one's identity as a 'normal' or 'regular', 'decent' person (p82)

Developing a credible role in any research process can enhance and sustain the process and make the participants willing to give out information. This I did by

consciously explaining why I had embarked on the study and why I needed to be part of the process. This was because sometimes researches involving familiar and insider knowledge of a profession like teaching may result in conflicts between what the researcher perceives to be appropriate and what the participants also perceive. Even though as recommended by Cassel (1988) in Amoah (2002) researchers need to penetrate closed access group with brute persistence and blind compulsivity, they need to 'keep pushing, and trying, and hoping, and smiling and pushing some moreand need a thick skin and certain imperviousness to rejection (p94). This study had to be managed cautiously as the participants were to, on their own, come out with whatever they thought about an action without feeling under my duress.

Another important issue is for the researcher to be sensitive to the context of the research sites and not to influence the participants in any direction that will distort their explanations. Reasons for this relate to my social position as far as the research context and the participants were concerned. Since this structure look ordinary in terms of how teachers collaborate with their colleagues especially during their leisure times, to reflect on the activities, to understand the underpinning theoretical rationale of the IP require my ability to problematize what looks ordinary in order to unravel the unthought-of issues that can induce the participants to make explicit some of their tacit knowledge. This may not make data objective, but at the same, if not well organised, may lead to already known facts. Such a role can only be done where the facilitator has firm grips of the ideas behind the concepts under investigations.

It must be understood that in any interaction, participants' familiarity with the context of the interaction carries its own advantage. It is recognised that the insider status enable privileged viewpoints which will not be available to outsiders (Mullings, 1999). Being familiar more especially with the cultural tenets, enabled me to establish cordial working relationships with the participants and greatly influenced the trajectory of the process. This is important because in a study to understand the influence of familiarity on interaction, using the study about Anlo

Ewe of Ghana by a Ghanaian Anthropologist Professor Nukunya, he reported that:

Because I was one of them and not a 'foreign intruder', the fear and suspicion which lurks in the minds of subjects and informants during social research in general were almost absent. They had confidence in me because they knew I could not 'sell them'. Many a time informants were met with 'this is a thing we don't normally divulge to outsiders, but since it is you we shall give you all the necessary help' (Nukunya, 1969 cited in Owusu-Menash, 2006).

Such observation by Nukunya which was confirmed by Dore (1994), indicates that researchers, mostly from the developed world who embark on research in developing countries often fail because they overlook the cultural values of the people been researched.

However, familiarity with the research environment has its own negative effects on research. Especially issues concerning in-depth understanding may be hindered as taken-for-granted behaviours, this normally happens due to familiarity, and can affect the degree of objectivity and the ability to observe behaviours (Burgess, 1984; Akyeampong, 1997 cited in Owusu-Mensah, 2006). Being familiar and closed to the process, due to my position as a researcher/facilitator therefore meant that I should possess varied skills in order to ensure the effective management of the process.

The facilitator, according to Ribisch (1999), has to create a conducive environment, be aware of individual's capabilities and be able to offer positive feedback. As the process progressed, even though the participants did not erect discouraging barriers against me from the onset, I tried to erase all intimidating worries, by way of creating a conducive environment, and by ensuring that my professional and academic background posed no barrier in the minds of the participants in their contributions. Ribisch believes that if this is done effectively, it is likely to make and sustain members' interest, make them willing as well as develop confidence and cooperate with me.

Power differences, perceived or real, exist in most interacting environments. To effectively manage such differences is crucial as it presents challenging situations in research fieldwork (Ganga and Scott, 2006). Such power differences occur when there exist cross-hierarchical levels, like being a facilitator, former tutor, head of department, and as well as issues related to cultural elements (e.g. age). Minimising the influence of such a characteristic was complex, but I had to continuously refer to and reread prepared ground rules (see Appendix D), as well as reiterating the rationale for the study.

Whether one can attend to others feelings, help with cooperation and ensure commitment in informal conversation, it must be borne in mind that as groups interact through conversation, and being able to practice the art, some behaviours manifest. Such behaviours like isolation, self-obsession, competitiveness where exchanges are turned into battle of win-win promote conflict and tension within the interactions. Strategies need to be mapped out to manage such behaviours. Again, in a process underpinned by conversation, managing the conversation mechanics and behaviours within such complex group interactions is crucial. But it must be borne in mind that in adopting any strategy, one must recognise that such strategies cannot be sacrosanct, but rather it is dependent on the type of problem and the context within which it is used. This therefore requires the facilitator/researcher to have a sense of being cautious about how a strategy is adopted. One of the ways I adopted during the implementation of the IP was how I followed the formal meeting procedure like welcoming participants, introducing the agenda, promptings, stimulated recalls through references to video playback evidences and asking for clarifications. This strategy, to my mind, greatly helped to relax the participants in any of the RD.

Other strategies include being salient or active during the RD. Being salient was a period to reflect on the next line of action, and being active was when my input, as far as the focus of discussion was concerned, was needed for an in-depth understanding. In addition, irrelevant side tracking were redirected and refocused during the discussions.

The discussions so far indicate that my role as a facilitator played a significant role in ensuring the effectiveness of IP; however, my role as a facilitator had same negative influence on the research process. This relates to the problem of 'the model of the expert' which Hammersley and Atkinson (1993 p75) argue that:

The model of the expert often seems to suggest that the social researcher is, or should be, a person who is extremely well-informed as to 'problems' and their 'solutions'. This may result in either lack of interest in the study because they may feel they have nothing to contribute in the face of the expert.

In solving this problem, I constantly reiterated the fact that I was also learning from the study like them but I was only there to support their activities and see how we could develop our practices. This approach is in line with a suggestion by Marshall and Rossman (1999 p85) that:

Researchers benefit from carefully thinking through their own roles, because most participants detect and reject insincere unauthentic people. In addition, researchers may have to teach the participants what their researcher's role is. They should describe their likely activities while in the setting, what they are interested in learning about, the possible uses of the information, and how participants can engage in the research.

Another problem relates to the issue about 'expert' where they thought I had all answers to their teaching problems because I was a teacher educator. To minimise this problem, I heeded to the advice given by Marshall and Rossman (1999) to constantly remind them of my research role.

The complex nature of the IP presents a very challenging environment, hence researchers need varied complex skills to organise such a study. My background had both positive and negative influence on the study. Positive, because it enabled me to decipher actions in-depth to offer appropriate options and negatively because the participants felt the process was an evaluation activity, hence I had to strategize to diffuse such a perception. Again, the complex group dynamics influenced the RD. Bens (2005) thinks that such a characteristic greatly influences conflicts and tension. To attend to these promptings, being both active and dormant depending on the context of discussions, organising meetings, transporting the participants to and from meeting places, controlling video mechanism and

offering meals, asking participants to adhere to the developed ground rules, respecting each other's views, and counselling functions during the study were how I facilitated the IP.

I believed that by effectively managing the relationships with all the participants, my familiarity which could colour or skew my judgement or impose any control or authority on the data could be minimised. This notwithstanding, if an outsider had conducted this research, he/she would have encountered other problems that may not be privy to me. I acknowledge information from local studies that guided my organisation and added value to the role that I played.

3.6 The Methods and Data Collection Process

After carefully considering the research questions, the nature of the data needed for the analysis and the prevailing conditions on the research field, it became evident that the best way to collect adequate data from researching the IP would be through narratives of their background history and their thoughts about the teaching actions observed. In view of this, I became convinced of the usefulness of semi-structured interviews and a reflective dialogue (RD) was appropriate in my attempt to gather the data needed for this investigation. Semi-structured and RD were adopted as they have the advantage of making the participants express their own opinions and views in a way that was meaningful and provided an opportunity for them to reflect. Secondly, it also gave me the opportunity to seek for clarification and details and in same way challenge them on the authenticity of their opinions. Even though the semi-structured interview provided some data, the RD served as the kingpin in data collection.

3.6.1 Procedure for Data Collection

In order to aid the reader to understand how data was collected while researching the IP, the following table presents activities involved. The data collection period span the period from February, 2008 to July, 2008 as found in the Table 3.1 below.

Table 3.1: Timeline for data collection Process

| Periods | Focus of investigation | Activity | Purpose |
|--|---|--|--|
| First week of February, 2008 | Participants | Interviews | Background information of participants |
| First week of February, 2008 | Participants | Collaborative Meeting | Develop protocol and ground rules |
| Second week of February, 2008 | Classroom teaching actions | First video capture | For RD |
| Third week of February, 2008 | Classroom teaching actions | First observation and RD First review session | Data from first RD |
| From third week February to second week March, 2008 | School Holidays | | |
| Third week March, 2008 | Classroom teaching actions | Second video capture | For RD |
| Fourth week March, 2008 | Classroom teaching actions | Second observation and RD Second review session | Data from second RD |
| April to second half of May, 2008 | School participating in sporting activities School break for Easter holidays | | |
| Third week of May, 2008 | Classroom teaching actions | Third video capture | For RD |
| First to third week June 2008 (teachers preparing final year student) | Classroom teaching actions | Third observation and RD Third review session | Data from third RD |

| | | | |
|------------------------|--------------|-----------------------|---|
| Second week July, 2008 | Exit meeting | Focus group discourse | Gain further insights into how the participants reveal the potential of the IP as a model of PD |
|------------------------|--------------|-----------------------|---|

Having explained generally some of the attempts I made to ensure that reliable data was collected in the IP, I now move to discuss the tools I adopted to collect data.

3.6.1.1 Semi-structured Interviews

After selecting the participants, I needed more information about them with regards to their background experiences. To allow them to express any views, beliefs, practices, interactions and concerns (Freebody, 2003) that they had, interview sessions was used for that purpose. I felt that will allow me to use follow-up and supplementary questions that were necessary to illuminate a clarification of ideas. However, using interviews according to Riesman (1993), is limited by the fact that a story being told to particular person might take a different form if someone else was the listener. Again in the words of Wragg (2002) ‘the perception of participants in a study influences what they say’.

To address these shortfalls, I thought of not using the structured interview due to its rigidity. On the other hand, unstructured interviews will allow the interviewee some flexibility and more freedom in the direction in which the interview goes. Unnecessary sidetracking seemed to affect its usage which sometimes results in time wasting within the time constraints for the data collection period. Consequently a semi-structured one was adopted as it allowed flexibility in how the interviewees’ sought to explore the meaning and perceptions about ideas to gain a better understanding relevant to a study (DiCicco- Bloom and Crabtree, 2006).

The use of the semi-structured interview had some positive influence on the participants, as I gave them a voice which sought to impress upon them that their views were greatly important to the study and that I was also interested in their ideas and experiences. Even though there was some uneasiness on the part of the participants from the onset of the interviews, the flexible nature of the interactions seemed to enhance a high level of rapport between them and I. This served to promote a stable balance in the relationships established between the participants and I. Such an established link is crucial in such a social event as both the interviewer and informant affect each other's contribution, although the effect is asymmetrical (Powney and Watts, 1987) and also very important as I explored the process through which the participants reflected and collaborated with each other.

Developing interview guide and conducting interviews

Having settled on the use of the semi-structured interview guide, I tasked myself with the following questions: how can the guide help collect data that portray reality and the development of knowledge? The question was influenced by what Miller and Glassner (2004) posit that interviews provide access to the meanings people attribute to their experiences and social worlds. I then developed the guide (see Appendix E) to give the participants some latitude to comment on issues relevant to the study (Miller and Glassner, 2004). This is in contrast to what others (Goffman, 1959 cited in Gifford, 2008) assert that interviews only allow the researcher to access tales that are created by the interviewee

As I adopted the interview guide I made adequate preparations to maximise the chances for successful interviews in order to minimize the challenges involved in elite interviews (Burgess, 1984; Cotterill and Letherby, 1994). After politely and humbly greeting the interviewee (which is very important in Ghanaian culture), I always reiterated the assurance of confidentiality and anonymity and emphasised on how records of their interview transcripts would be inaccessible to others. I then asked for reconfirmation of their willingness to participate in a second stage in-

interview in addition to requesting for audio recording of the session and a playback of the 40 minutes interviews for them to validate.

The interviews were done on days selected by the teachers themselves during the school period. Even though it was held during school time, the interviews periods were staggered between teachers' 'free periods' when the teachers were not teaching, in order to give them time for the exercise. This could have been done outside school hours, but the school term had a lot of extra-curricular school activities. For example, chosen periods were general sporting periods where school teams were being prepared and all teachers needed to be part of such activities. The interview was on a one-on-one basis. These measures, in spite of limitations like being time consuming, enabled generally successful interview sessions.

For credibility and feasibility of the interview data, it is important for researchers to check their interpretations of interview data with respondents to ensure trustworthiness. The researcher need to develop and maintain a critical attitude towards what respondents tell him/her as a way of giving credence to what people say. Checking is considered important because people's accounts, even if truthful, often contain contradictions and inconsistencies that need to be re-examined and explored. This made me to adopt some steps to validate what the participants told me. The transcribed interview data were later presented to the teacher participants to comment on. Some inconsistencies in their submissions were identified by them and subsequent changes that they suggested were made before the data were used for the analysis.

Other inconsistencies regarding their PD training were identified and that made me to contact the training officer of the district for clarification and/or corrections before the data were finalised for use in the study. This, to me, supports what Glasser (2004) have noted concerning validity checks which can be made by comparing the verbal reports of respondents with other sources. The validation process revealed that some of the information and claims made by respondents could not be substantiated, particularly issues that bordered on favouritism when

it comes to the selection of teachers to attend to INSET activities. I did not place any emphasis on this since it could not be substantiated. This way, the validity of the interview data was greatly improved. After the interviews, the next data collection tool was the RD which is discussed below.

3.6.1.2 Reflective dialogue (RD)

The complex nature of RD has led to various interpretations given to it. RD means different things to people, and is variously referred to as ‘reflection’, ‘reflective practice’, ‘teacher talk’, or ‘teacher conversation’, but in this study, I consider it as a process to investigate the reflective journey teachers go through as they talk about their teaching actions. Such talk, which is different from dialogue journals, and which is shared with others where attempts made by each teacher to access one’s thought through verbal exchanges during lively interactions, forms the focus of exchanges. So it is not an individual activity but a reflection with others who ask questions from one another, and in so doing help each other to gain insights about events. Perspectives expressed within such interactions are underpinned by values and beliefs and are done in an atmosphere of mutual support.

The intertwining nature of formal and informal conversations, within the RD presents challenging situations when collecting data with it. It is difficult to collect standardised data in respect of same variables for everyone in a sample selected. For example in the study, as some participants through talk make judgemental comments, others make offensive comments that sometimes lead to conflicts and tension within the interacting groups. However, through arguments underpinned by agreements, disagreements and consensus building, the participants shared their thought about observed actions to gain insight about events. In effect, it offers teachers the opportunity to observe their own teachings through a reflective thinking practice. This therefore serves as a ‘vehicle’ with which teachers can explore their personal and other’s interpretations of what happened in their teaching actions. Basically RD support participants to develop;

- A new understanding of actions and situations
- New understandings of themselves as teachers in relation to their cultural, political and social environment
- A new understanding of assumptions about teaching owing to the critical stance one adopts
- The development of commitment and skill to take informed actions

(Loughran, 2002; Rarieya, 2005)

The aforementioned makes RD a strategy that can promote reflective processes that scrutinize already held teachers' tacit knowledge that helps them during their teaching sessions.

As discussed in chapter two, reflection usually resides in the mind of the individual and is considered private, which makes it difficult to directly observe it. With the idea of RD, such a tacit process is moved from private activity through dialogue. This process allows participants to defend their actions (clarify issues, interpret, explain, self appraise, accept options) and also make individual teachers bring their expertise to an endeavour that is potentially enriching to all involved (Morrison, 1996). This RD facility makes it more appropriate when discussing live actions that include persons whose actions are being discussed, and who could offer explanations to participating members who find an action unacceptable and to also be able to contribute as they frame and reframe events observed in order to develop better understanding, rather than engaging in dialogue journal described as talking with oneself (Holly, 1994).

The flexibility, through which participants expressed their views, formally and informally, provoked some questions about the nature of the RD and how such a process could be analyzed by looking at the processes the participants went through. It also had some implication for its effectiveness when it comes to reflecting on actions.

The data source of the study using RD focused on issues related to teaching, either with regard to teachers' practices or thoughts about teaching and personal interaction mechanics-the processes of reflection and collaboration. In the process, the participants did not profess their opinion without considering and responding to other group members' comments. Within the discussions, the participants listened and responded appropriately to each other's views, as they paid attention to their cultural background by for example, respecting and recognizing the hierarchical arrangement of ages, as well as each others' views, which depict their own cultural behaviours. The ease with which harmony prevailed, even though could be likened to their being conversant with the cultural norms, its inclusion in the ground rules also provided the impetus for attending to their ability to respect. In fact, the process proved to be very helpful and useful and that enables them to explore the reflective reproductive processes that they moved through.

3.6.1.2.1 Process of critical dialogue and sharing of lessons

All videotaped lessons were initially watched by me. Each recorded lesson was burnt onto a CD and given out to all participants to watch using the portable DVD that had been given to each participant. After an agreed period, all the participants assemble in an arranged venue. Each of the meetings started with a playback of the recorded teaching actions. I took it upon myself to manage the user control, and the interaction with the images from the video playback. A strategy of giving equal attention to every video recorded lesson during the playback sessions was adopted.

The observation of videoed lessons was done in ten minutes chunks/segments. At the end of each chunk, discussions were held on what had been observed. Any of the participants could start the discussions. This was then followed by the sharing of views on what had been observed. Discussions on each chunk lasted between fifteen to thirty minutes and sometimes beyond this time range. Multiple views are expressed on any action/event selected for discussion. The playback sessions on the other chunks of the lesson for each of the teacher participants follow the

same process of critical dialogue. Multiple views are therefore shared on all the lessons by the participants. The views expressed were all recorded and transcribed later.

As discussed in 3.7.1, the views expressed and how the participants shared their reflections informed how the data were analysed. For instance, issues related to judgemental, unorganised, descriptive, and critical and a host of others as discussed in chapters four and five are selected to form the categories and themes for the analysis.

The RD process saw the teacher participants focusing their discussions on either subject content or pedagogy and as a focal point they either used specific examples or general knowledge about the observed action which they preferred, as the basis for their arguments. In advancing their arguments, they often used their past experiences, cited literature or an already discussed option to support their claims. For instance, under thoughts related to teaching, specific example on a subject matter, like the discussion of the concept of vectors in Aggie's third lesson found in row 6 in Table 3.2, the teachers used their experiences and cited literature to support their views about some of the RD activities. From the way the participants dialogued through using their practical experiences which were often not directed to the solution of problems (Hatton and Smith, 1995), the process of dialogue explains the journey they go through to develop insight. The RD process shows that the intention is not to solve identified problems, but the processes teachers can go through in developing better understanding of their actions socially. Such social interaction tends to bring forth more information and ideas that could be shared and perhaps result in them thinking more deeply about their actions. Such RD process if continued over a period of time can support the cultivation of the reflective dialogue habit.

The group's ability to do something different as they responded to their personal concerns about an event through RD was influenced by the use of resources, the

volume of teaching observations made, how they continuously took part in the activities and the duration of the dialogue sessions. During the RD, the ability of the participants to recall or recount actions exhibited seemed to be effective when video playback actions were made in ten minutes chunks instead of the twenty minutes chunks as initially planned. A reasonable explanation is that within the former, few actions were observed while the later presented volumes of actions. Participants were thus able to recall with accuracy behaviours exhibited in the manner they were exhibited as against selecting what they could remember in an unorganized manner from the longer duration chunks. The understanding here is that, depending on the capacity for interacting by the group members to recollect and recount, members need to be part of the planning of RD since it provides the environment for constant monitoring of their teaching actions to offer options for changes in the processes and structures in an attempt to ensure feeling of ownership.

At the outset of the RD, the environment was characterized by tension and conflict but later it became cordial. The start was characterized by the participant making judgments about their colleagues' actions, which in turn resulted in a confrontation between those whose teaching actions were observed and their 'sympathizers' who put in a strong defence for their actions. In such occurrences, consensus-building became a problem and this led to extended periods in RD sessions. Changes in attitude, in relation to the softening of stance and the building of consensus by the participants in the RD, manifested after their continuous and increased frequency in engaging with the RD activities. It is thus worthy of note that adequate time needs to be devoted when developing a reflective process in order to enhance quality in reflective talk (Fook and Gardner, 2007; Mattessich et. al. 2001). Initial impressions from the interactions point to the fact that the participants were unfamiliar with the process, hence this led to the way the participants turned the exchanges within the environment to 'battlegrounds' and created an argumentative environment. This phenomenon even though it could not happen in a dialogue journal provided rich data for the study as it showed how participants progressed through a reflective journey involving shared verbal talk.

Even though RD has been criticized as allowing complex group dynamics to influence interaction (Rareiya, 2005), it allows researchers to understand the social world of the participants. As they seek clarifications to create a “deep mutual understanding” in order to gain deeper knowledge about their practices from the outside world (Miller and Glassner, 2004), the opportunity allows them to consider numerous options. As I wanted to know about how the participants were using their tacit knowledge about the concept under investigation, I was also interested in how deeply they understood their teaching actions, because from my experience of interacting with teacher trainees, without a deeper understanding of an issue, teachers have difficulty in articulating acquired knowledge confidently. In the RD they asked questions for clarification, explanation and to develop better understanding. An answer to a question raises other questions which also in turn raises other questions. Even though other RD tolls like dialogue journal could offer a similar process, the rapidity and the lively exchanges between the participating members put this ahead of other methods. The RD thus equipped them with the necessary reflection ‘tool’ to diagnose activities and offer appropriate options.

It must be understood that, in any activity underpinned by talk and conversation, what group members say cannot be taken as the objective truth. In the RD, the use of evidences from the video playback, the capabilities of the participants to critically assess unclear and taken-for-granted views continuously in a repetitive manner provide some degree of exactness to what ought to be true about what is said. This happens as they mutually share a stake in both the process and outcome from the analysis of the situations they are confronted with. Trying to assess and validate their perspectives through the RD suggests how useful it could serve as an effective reflective process, even though it may encounter some challenging situations. In order to achieve the above, the IP focused on protocol selected by the participants (see Appendix D). The chronological order of the RD is found in Table 3.2.

Table 3.2: Summary of Reflective Dialogue activities

| Session | Activity | Teacher | Class/ JHS | Topic of lesson | Round |
|---------|-----------------------|------------------------|---------------|--|-------|
| 1 | Dialogue session | Aggie | 3 | Simple Interest | 1 |
| 2 | Dialogue session | Catherine | 1 | Finding the circumference of a circular figure. | 1 |
| 3 | Dialogue session | Lydia | 2 | Solving Simultaneous equation using the substitution method | 1 |
| 4 | Dialogue session | Oneal | 3 | Finding simple interest | 1 |
| 5 | Overview of round one | Focus group discussion | | | |
| 6 | Dialogue session | Aggie | 3 | Vectors: Finding the length of a unit vector | 2 |
| 7 | Dialogue session | Catherine | 1 | Finding the circumference of a circular figure (Continuation). | 2 |
| 8 | Dialogue session | Oneal | 3 | Transformation: Reflection | 2 |
| 9 | Dialogue session | Lydia | 2 | Expressing of Percentages of a quantity | 2 |
| 10 | Overview of round two | Focus group discussion | | | |
| 11 | Dialogue session | Catherine | 1 | Finding the area of a given figure | 3 |
| 12 | Dialogue session | Aggie | 3 | Finding the average distance | 3 |
| 13 | Dialogue | Oneal | 3 | Collecting and Handling of | 3 |

| | session | | | data | |
|----|------------------|------------------------|---|-------------------------------------|---|
| 14 | Dialogue session | Lydia | 2 | Changing percentages into fractions | 3 |
| 15 | Exit meeting | Focus group discussion | | | |

Source: Fieldwork data

3.6.2 RD Data Authentication and Trustworthiness

In researches a way is needed to assess the “extent to which claims are supported by convincing evidence” (Silverman, 2006). To be able to authenticate the trustworthiness of the RD depends on how reliable or valid the subjective nature of the discourse is treated to ascertain the strength of the dialogue.

To authenticate the trustworthiness of any data collection, Yin (2009) thinks that ‘if a later investigator followed the same procedures as described by an earlier investigator and conducted the process all over again, the later investigator should arrive at the same findings and conclusion’ (p45). In other words, do we expect to find about the same findings if we repeated the design and procedures?

The complex nature of the IP makes validating the data collected complex. Reflecting on the IP, and in support of what Silverman (2006) think I adopted three out of the five criteria for validating action research studies advocated by Heikkinen, H. L. T., Hutunen, R. and Syrjala, L. (2007) to validate the quality of the data collected. The criteria are explained in the next section.

3.6.2.1 Principle of Historical Continuity

This principle emphasises that ‘action does not begin in the vacuum, and never ends hence the researcher needs to pay much attention to the different context and tradition’ (Heikkinen, et al., 2007). In addition, the information needs to be pre-

sented in chronological and logical sequences, while attempting to establish causalities as well as disclosing the goals and objectives of the actors. Clearly, this idea seemed important when evaluating the quality of any action. However, Feldman (2007) laments about the quality of the stories that may be told, and the simplicity to which events can be put in time order and a logical sequence to demonstrate causality. He further thinks the goals and objectives with regard to evidences from the narrative are needed to demonstrate causalities and what is important. Thus, historical narration could be tainted with the cultural sentiments of the participants. This being the case, how the study answered the following questions, to me, can validate the data. ‘Were the subjects able to choose a unique way of defining themselves in accordance with the views of the surrounding community and the prevailing politico-historical conditions’? Was the study report presented in a chronological and logical sequence? Were positive outcomes of development self-evident? The following therefore answers the above questions.

The participants from the data had a unique way of expressing themselves through re-seeing and reviewing their actions by using evidences from the video playback facility. Using their experiences helped influence how they connected their histories to their current practices in new ways as they tried to modify, by framing and reframing some of their actions and comments, to arrive at a decision.

The structure of the IP, which informed both the data collection procedure and how the analysis was carried out, influenced the write-up. For continuity and better understanding of the outcome of the study, the report is organised along the trajectory of the IP, as found in Figure 3.1. For example the initial interviews gave rise to some conceptual orientations which informed emphasizing support during the RD sessions. In respect of the analysis, within-case analysis informed the across-case analysis, just as individual interviews were done before the RD. Participants own assertions, objective observations on exchanges of views, the

mechanics of accepting, rejecting or developing consensus are some evidential outcome from the study.

3.6.2.2 Principle of Reflexivity

The principle of reflexivity, according to (Heikkinen, et al., 2007), is based on the idea of philosophy, where the researcher needs to consciously reflect on his/her pre-insight or analyse his/her ontological and epistemological presumptions. Feldman (2007) agreed to the notion of researchers examining their relationships with their subjects to question their presumptions of knowledge and reality. However, he did not subscribe to a particular reflexive account being necessarily better in quality and being more truthful than any account, because clearly ‘one cannot expect to know the “ultimate truth” that corresponds exactly to an external truth’ (p28). To address Feldman’s opposing views, the IP saw a principle of critical exchanges of ideas, claims and counter claims as the participants compared and contrasted plurality of perspectives and used multiple realities, to develop understanding and knowledge, I thus presented the participants’ views, as I understood what they meant, in a systematic and coherent manner as the process outline. This validates the process because the steps in the process are mutually dependant, as activities in each are related to the other. A break, for example in the actions phase renders the process ineffective.

3.6.2.3 Principle of workability

In short, (Heikkinen, et al., 2007) believe that the workability of a study is about how the quality of the study gives rise to changes in social actions. But Feldman was concerned with how equal value was given to all interpretations by saying:

where there was the possibility to have desired outcomes, such as lively discussions or an attention to ethical problems that draw upon unchallenged or false assumptions about race, ethnicity, gender or sexual orientation that helped to maintain the status quo rather than leading to emancipation (p29)

I think what made a process to work and on what grounds is the concern for both Heikkinen, et al. (2007) and Feldman (2007). In response, firstly, the participants were empowered and emancipated from PD activities by way of developing their

own ground rules and selecting the focus for the discussions. Secondly, their ability to notice any shortfall in the teaching actions, and the way they dialogued on these actions through critical dialogue using plurality of perspectives to agree and disagree to develop consensus demonstrate its workability. Again, from the way the participants valued and trusted the outcome from the dialogue sessions and how they recycled the behaviours in their immediate teaching actions, as captured in Oneal's view as 'using the outcome of any discussion', I see new issues coming up for discussion. The aggregate of all these really gave me some satisfaction and demonstrated how workable the IP was.

3.6.4 Recording and transcribing

Two forms of recording were used in the study. The first was audio-recording of interviews and group discourse during the reflective dialogue. The other was the video tape-recording of the teachers' teaching actions.

Audio and video tape-recordings are important data recording processes that 'sit' in qualitative research. Silverman (2006) has pointed out that "transcript of such recordings, based on standardized conventions, provide an excellent 'naturally occurring' interactions, and can offer a highly reliable record to which researchers can return to as they develop new hypothesis" (p20).

Tape recording for example, according to Powney and Watts (1993)

Using the tape recorder frees the interviewee to concentrate upon the task at hand-exploring the interviews accounttruth lies on the tape, it becomes an objective fact through transcription, whilst the researchers' own understanding of what was happening and being said in the interview are relegated to unreliable data.

The above potency of the tape recorder therefore made my work of recording activities in this complex process to be less burdensome. It was able to capture all information, both relevant and irrelevant, in the rhythm with which they were made. It allowed me get back to the recorded data time and again with the assurance of all information intact.

However, the reactivity effect on the participants whose conversations were being recorded made them 'more guarded about what they say (and how they say it), especially when sensitive materials are being discussed (Vulliamy, 1990, p 105). Again gestures and non-verbal cues which were recorded by the videos could not be captured with it as during the RD some characteristics for example facial expressions (Powney and Watts, 1993) which provided additional layer of meaning, could not be captured. One major disadvantage was how a mechanical problem nearly erased all recorded interviews on the voice recording gadget.

The use of videos strongly support teacher learning; that is, observing classrooms interactions via video influences teachers' perception of classroom interactions (Sherin and Hans, 2005). Behaviours recorded are natural, elicited, staged in a more truthful manner and allow any researcher to shape the data collected (Pink, 2003).

Apart from these powerful advantages, there are limitations to the use of video images. Prominent among them include anxious moments when participants are being videotaped, lack of user-control is a limitation (Laurillard, 2002), and finally the interpretations from human behaviours is in a situational context and not in terms of applicable objectives codes. With these discussions, how the two recording devices were used in the study is described in the following section.

Audio recordings

In the study, to minimise reactive and mechanical problems, I made it clear to the participants that the nature of the interactions which was to take place needed a mechanism to capture all their utterances which may be difficult for me to do with the four of them talking at the same time. With this assurance, the compact and small digital voice recording device which did not obstruct the interview was placed at a very conspicuous place to allow their conversations to be captured. The recorded interviews were again transferred to the computer which was more convenient to transcribe. Again I complemented the work of the recorder with

note-taking. Brief notes about my impression of the interview, about my attitude and of other issues not related to the study.

I transcribed the recorded interview promptly and personally as the interview was still fresh in my mind. Even though it was a time-consuming and laborious process, I felt it was better than giving it to a new person to do it. The reasons were that I was able to add comments about the interview as I transcribed, particularly the individual's body language like his/her facial expression and emphasis. Secondly unclear portions in the recording were quickly remembered and inserted.

Video Recordings

To minimise the anxious moments to be encountered by the participants, they were asked to select their own teaching episodes to be discussed. This reduced tension. On the user control, I took it upon myself to manage the interaction with the images from the video playback. This strategy made the discussions to be focused as the requested playback/revisit was uniformly done without each participants insisting on being given preferential assistance.

3.7 Data analysis

3.7.1 Getting the appropriate approach for data analysis: Process of Extracting Themes for the analysis

The most difficult aspect of the process of data analysis was how I could analyze the data collected satisfactorily. Data collected in the study amounted to three hours of initial interviews and seventy two (72) hours of RD sessions. I was overwhelmed, about the volume of data more especially about how to condense such large volume of data into a manageable amount necessary to allow the emergence of themes, concepts and the identification of subsequent theories. After battling and struggling emotionally, which I think prevented the initial development of coherency and consistency of the conversation structure, I had to keep drawing information from different sources, including some traces of evidence of

their experiences and from literature that had some implications to the study until I ended up identifying the themes, categories and subcategories.

The following inspirational thoughts pushed me forward to analyze the data. According to Yin (2009), to analyze data

one must start with questions. Start with a small question first, and then identify your evidences that address the questions. Draw a tentative conclusion based on the weight of evidence, also asking how you should display the evidence so that readers can check your assessment. Continue to a larger question and repeat the procedures. Keep going until you think you have addressed your main question(s) (p128)

and from Akyeampong (1997), ‘to ensure ‘methodological congruence’ the analysed data should be consistent or compatible with the general underlying philosophy of the research’ (p190). From these two, and looking at the rationale, purpose and the importance of the study, I adopted the case study format to report this result based on an analytical framework grounded in the thematic analysis approach.

Through the process of the constant comparison method (Glaser and Strauss, 1967; Denzin and Lincoln, 2008), I tried to link issues located in the data to relevant concept about reflection and collaboration in an attempt to keep a close link between the data and the concepts. Constant comparison analysis allowed the voice of participating teachers to emerge from multiple constructed realities (Denzin and Lincoln, 2008) across time and across different contexts. With this method, comparisons generally were made with incidents, assertions and events, as they occurred. In addition the process through which an actual event occurred can be compared to the underpinning theoretical issue. This strategy was particularly useful in comparing the processes the participants journeyed through in their reflections and reactions to what they seemed to go through.

I kept a close attention to any contrasts between the categories I developed. For example, how the participants ‘described’ and ‘interpreted’, being ‘evaluative’

and ‘critical’ about an action seemed very much alike in their explanation; hence I needed to draw the distinction between them. Secondly, I used iteration as I teased out relationships, probed issues and combined categories from the data to develop the themes and patterns from the data in order to ascertain the correspondence between the concepts, reflection and collaboration, as reported in Chapter 5.

Extracting the themes for the analyses

To make readers understand what the intervention process actually helped to support, I divided the analysis into two parts. The first, Chapter 4, is about the impact of the interventions on the teachers and Chapter 5 discussed how the teachers use the intervention process to develop their thinking about their practices. The participants’ voices and ‘own words’ were selected verbatim and used as evidences to support arguments developed. These support what Creswell (2003) posited that for the relevant meaning to emerge, one needs to look at each case and draw meaning from it, as well as looking at a categorical aggregation from a collection of instances.

From the iterated process of reading and rereading the transcribed narratives from interviews, the RD session, including the review and exit meeting of the IP was interrogated as I wrestled with the data. During the process I was guided by the following questions: what words and phrases in the data were indicative to how the participants were reflecting? How were they organizing their thoughts? How were they describing actions being observed? How were they interpreting what they observed? How were they being critical about what they saw? Those aspects that had no relation with the focus of the study were discarded. This helped as I identified from the narrations common issues from the contributions of the participants.

However, Clandinum and Connelly (1995) have pointed out the risks, dangers and abuse of using narratives. The responses sometimes can be fake for example,

the initial perceptions of the participants about the process as an evaluation of their teaching, made them sometimes to give praises, or refuse to comment on some actions. Another issue was how they refused to comment, with the understanding that when a participants' time comes he/she will also be pushed to the wall. Such behaviours therefore were interrogated in details and those relevant to the central conceptual focus were included in the analysis.

The participants' way of re-categorizing issues of concern started the extraction of the themes (within-case analyses). For example, during the first review session, on teachers' first teaching actions, the participants' suggested among themselves that they will be more interpretative rather than descriptive in their descriptions of actions. These two issues that kept recurring were picked up as a theme.

Themes and categories indentified from the within-case analysis informed themes and categories indentified in the cross-case analysis. Within-case analysis from Creswell's (2003) viewpoint allowed me to become intimately familiar with each participant's views about the phenomenon, which in turn allowed the identification of the distinctive patterns and also accelerated the cross-case analysis process (Eisenhardt, 1989).

I used the cross-case analysis to examine how systematically issues cut across all cases' contributions. Referent themes from the within-cases analysis were used to identify similarities and differences in categories for the cross-case analysis as suggested by Powell and Marcus (2003). The most important reason for using a cross-case analysis, according to Moore, Carol, Anthony, and McLaughlin (2003) and Eisenhardt (1989) was to make one go beyond the initial impressions from the within-case. This therefore influenced my thoughts when I was examining themes or categories across the cases.

In sum, the analysis supported the reorganization of the data in a logical and coherent manner to make more understanding and to also answer the research questions. One issue worth commenting on was the value laden nature of the analysis due to the subjective way of interpretation. As a facilitator and teacher educator, I had some influence on their contribution as they considered me to have an 'expert' knowledge of the discussions, hence they mostly sought for my opinion on any issue and this, I can say coloured their responses. This also influenced the way I developed meaning to the actions they put up. Such influence is what Abraham (2000) thinks can be resolved if the analysis is done by an outsider, but this was not the case in the study.

3.7.2 Challenging issues/problems and reflections

The collection of data for the research was affected by five major factors that limited the amount and quality of information gathered for this exploration. Firstly, the views of the sample size of four participants appeared too limited to be used to generalise the findings. Secondly, mechanical problems related to the video and audio data affected the transfer of the recorded data to another device to be transcribed and this nearly deleted all recorded data. I was very fortunate to have a backup that was quickly used to retrieve the lost data.

Thirdly, by using the grounded approach in the analysis, one issue of concern was data saturation. The informal dialogue within the RD and the use of the iterative process and multiple comparison methodology make it very difficult to completely exhaust dealing with all issues in the data. What is produced is solely the researcher's own analysis.

The next important factor which constrained my data collection exercise and therefore limited the data I collected was the limited resources which I used to conduct the fieldwork. The Financial support that I was promised never materialised. On my arrival, I raised the issue with my employers, but this yielded no fruit as the university claimed it was not its responsibility to finance my field-

work. I therefore had to rely on my own limited resources to meet the cost of the entire fieldwork exercise. This included fuelling my car to transport the participants to and from their schools and homes, printing and photocopying of research instruments and other documents, as well as remuneration for the participants.

Another limitation to my research methodology is probably with the techniques employed in the analysis of the data, which seemed too simplistic to some researchers, since it did not provide sophisticated statistical analysis of the video excerpts.

3.8 Writing the Case Study Report

The case study report is spread over three chapters. The first is about whether the intervention process worked. If it worked what made it work, and how convincing can it be replicated? In doing this, as reported in chapter 4, major themes that emerged from the analysis helped me to present analytical descriptions of the process.

The within-case and cross-case analysis, comprising the reflective scales, changes in interactions and learning developed from the analysis forms the write-up in Chapter 5. In this report, changes across the themes observed which were peculiar to each of the participants, as well as similarities are explored and discussed. The key findings: scales of reflection in this chapter are analysed with relevant quotations from the data used to support my arguments. In selecting the quotations, I took into considerations their relevance to the issues being discussed, which saw in some cases more than one quotation from the participants to support any argument.

The sixth chapter will form the discussion of the key findings of the study. This will include lessons learned, support from my supervisors, personal issues en-

countered and my reflections and recommendations for further research. Suggestions for the use of the IP as a PD model will be discussed.

3.9 Summary

The chapter has discussed how the research design was developed and the methods used when implementing it. The implementation brought to light some elements of the process that can contribute to the effectiveness of using the IP. However, I have devoted greater portion of the discussion to explaining how the participants were selected, my role in the study and how the data collecting tools seemed to contribute to how the process worked. These elements occupy a unique position within the process when discussing the IP as a model PD. Using these helped to assess what might otherwise had remained hidden and unexplored. Even though I have conducted this study within broad ethical principles, the subjectivity nature of the data, which is characteristic of qualitative approach, could have been minimised.

As I tried to address some of the limitations of the various components of the IP, by using methodological and well as theoretical perspectives, the data was being used to develop a soft working theory to describe and understand the processes taking place and how these could be used based on the concepts under study. The way the various components of the IP are interwoven with the data collected make it difficult to use all data collected to explain what happens with the concepts under investigation. Finally, this chapter has illuminated how the process can be assessed to ascertain the effectiveness of the IP and the different levels to which the data support how the concepts underpinning the study traverse the process.

CHAPTER FOUR

WHAT WAS THE IMPACT OF THE INTERVENTION ON THE TEACHERS?

4.0 Introduction

This chapter begins with an analysis of the empirical data collected during a six month period in one Junior High School (JHS) in Ghana. This first chapter of the analysis is structured into two sections. The first of which presents the brief profiles of the participants, and the second which introduces the arguments raised through the analysis of the data. The research evidence presented in this chapter is a product of a number of iterative processes involving data collection and analyses. The second section of this chapter discusses what can be learned from this innovative intervention with a group of Ghanaian teachers.

4.1 Section A: Brief Profile of Participants

These brief profiles introduce the participants of the study. Pseudonyms are used to protect the anonymity of the participants, in accordance with the argument made by Bryman (2008) that the privacy of those who participate in the research process need to be respected.

Case 1: Catherine

Catherine is about forty five years old, married with three kids. When she was still a school pupil she was often invited by her immediate, as well as her senior colleagues, to come to their aid in terms of understanding some subject topics. It was through this that she discovered her potential for teaching. This influenced her to enter the initial teachers training college.

She built her professional career in stages. That is, at the end of each level in her education she had to work for a period before moving on to the next challenge.

She is, at the time of the study, at the thesis pending stage of her MPhil course in Mathematics Education at the University of Education, Winneba. At her school, she is the head of the mathematics department, and the most experienced of my participants in terms of the number of years she has been teaching. She is also the school's guidance and counselling coordinator. Her work also extends beyond the boundaries of the school, as she sometimes work as a resource person for INSET activities in the school and the district within which the school is located.

She believes in using teacher-centred approaches in her teaching, and thinks self assessment is the best option to determine the effectiveness of a teacher. Even though she rarely consults colleagues for support, she believes that asking for support from colleagues is key to solving problems in teaching. Furthermore, she thinks 'a teacher should not be tied to a particular teaching style but that, teachers should be versatile in using any particular style depending on the appropriateness of the style'.

She talks about empathising with colleagues who may have difficulties with their teaching and always offer options when consulted by her colleagues. Mostly the options are related to alternatives to ways of teaching and resolving identified problems about their teaching. Besides that, she organises and brings together all teachers in her department occasionally to talk about their teaching problems. She is happy to have support and respect from her colleagues in her position as head of department.

Case 2: Oneal

Oneal, the only male teacher in the study, is twenty eight years old, has acted as the assistant head of a school and is now a member of the school's sports committee.

He favours learner-centred approaches as a teaching style. Lack of adequate supply of appropriate teaching learning materials for some topics sometimes leads him to adopt other teaching approaches such as teacher-centred approaches. Oneal thinks attending INSET programmes has helped him to improve his teaching, but he recognises that some teachers do not take part in such activities, because they are put off by complicated organisational issues in their school district.

Oneal felt his contact with experienced teachers in the field, and the way teachers collaborate and share ideas in the school, has greatly influenced and changed his way of teaching. Aside from that he thinks the school climate also contributes to teacher success in the classroom. As a teacher he thinks there is always the need to look for alternatives to help improve teachers' performance.

Case 3: Aggie

Aggie is a twenty three year old mathematics teacher, and has been teaching in the school for three years. She is a form counsellor for one of the classes in the school. That role involves her in attending to the wider needs of students in one of her classes. She has attended some INSET activities but does not think such training has had any significant impact on her teaching. Her concerns were about the facilitation and organisational structures of INSET, where sometimes the facilitators' quality with regard to learning objectives seemed problematic.

Her preferred teaching style is the child-centred approach and she believes in collaborating with colleagues to solve problems with their teaching methods. She thinks teachers should always look for alternatives to improve their teaching since as she puts it: 'we cannot be perfect in all that we do that is why I occasionally ask other teachers to teach on my behalf when I have problems'. She is very critical of what she encounters, especially in class. To her, classroom teach-

ing is about inculcating what is right into students. She believes what is learnt at school by the students is crucial for their future lives.

Case 4: Lydia

Lydia is twenty five years old and has taught in the school for four years. Her major responsibility, aside from teaching, in the school is her role as the ‘staff secretary’ and she thinks that effective management of self is the cornerstone for every effective teacher. She believes teachers should switch between teacher-centred and child-centred approaches when teaching.

Lydia thinks that even though INSET has its own problems, it has shifted her beliefs in teaching mathematics and believes there was the need for it. She posits that consulting colleagues and sharing ideas is what should be done by teachers when trying to improve. Apart from colleagues she believes students can be relied upon to assess her lessons and performance.

Section B: Presenting the case study findings

Section B is an account of the outcomes from the investigation of the first research question. In conducting the analysis of the data gathered, I was confronted with the problem of making critical analysis of interpretations of the teachers’ perception on what they observed. Confirming my dilemma, Yin (2009 p9) asserts that ‘in qualitative research there is minimal originating organisation...in gathering data, topic and form are inextricably bound because they develop together’.

Therefore, through a careful analysis of the interview transcripts, reflective dialogue (RD) and notes from my observations of the discussion session, a number of themes emerged, each of which will be explored. In an effort to be very rigorous in analysing my complex research data, the teachers’ voices are often used to develop and illustrate the key findings. The outcome, therefore, is based upon my

thorough analysis of their views, which allowed for observation as to whether there were overlaps or congruence in their submissions.

I am aware that it is unreasonable to utilise all processes that can be used to explain individuals' explicit and tacit actions regarding their reflections and collaboration, due to time and space constraints. Therefore, the outcome is based upon a careful systematic analysis of several types of data. Generally, four factors can be identified as the major contributing influences which promote an increasingly reflective and collaborative environment for teachers to discuss their practice. These factors are listed below.

- participants' special characteristics
- the structured activities
- the facilitator managing the activities
- working with the ground rules

The data also provided evidence to show that the interaction between teachers promotes rich professional dialogue. The discussion which follows considers significant strategies that facilitate how teachers learn from different types of ideas in this environment. Finally, the way in which the prevailing cultural norms frame possibilities within a school environment and how these can support the development of understanding teachers' practices is explored.

4.2 Developing effective reflective collaborative interaction environment: The influence of four factors

Issues relating to the evidence about the four factors mentioned above form the subject of analysis and discussions in this section.

Interviews and reflective dialogue were used in an attempt to elicit information from the participants, in order to illuminate how their characteristics were being utilized in their roles. Even though views and opinions were expressed, drawing

out individuals' characteristics was a challenging process. The results of this process are discussed below.

It will be shown in the discussions in this section that participants' expert knowledge, prior experiences, and their positive attitude towards engaging with the kind of professional development activity, contributed to their reflective conversations, and promoted an environment conducive to collaboration.

When teachers or individuals engage in any collaborative activity with the aim of changing their practices, the expectation is that they share their knowledge and experiences in a mutually beneficial and well-defined relationship (Mattessich et. al., 2001). In addition, such an interaction aims to engage the group in reflection (Hatton and Smith, 1995) to appropriately make sense of their professional learning experiences and activities. Eraut (1994 p223) has also posited that 'it is only fellow members of a profession who are sufficiently knowledgeable to judge the work of their colleagues'.

The case study evidence indicated that, there were disagreements, rivalries and conflicts between the subjects from the outset of the interactions. Two reasons for this were identified in terms of the rivalry and competition from the data. First, there was a concern that the teachers could not sufficiently justify any identified event he/she deemed acceptable or unacceptable. Secondly, the participants were unable to offer any relevant and appropriate alternatives, and as such contested any suggestion made. Further, in-depth knowledge on any event observed was considered to support the offer of relevant and appropriate evidences to the acceptability (or unacceptability) the option offered. This is due to the understanding of their practices which meant the need for reflection that brings clarity and the ability to provide balance in judgment. This, in turn can provide valid and reliable evidence regarding what was observed. The following comments illustrate the emphasis on the need for in-depth knowledge:

Such discussions need well informed knowledge, if you do not have in-depth knowledge about a concept under discussion you cannot reflect and contribute much on it. Looking at Aggie's lesson on vectors she could not differentiate well between vectors and coordinates (Oneal).

From Oneal's perspectives on Catherine's third lesson, it is when you have in-depth knowledge about the two concepts that you can make the difference. He could point out all the mistakes in her lesson for instance she wrote perimeter beside a circle and circumference beside a rectangle and told the students that the words by the sides of the figures represent the distance around those figures which I think are wrong (Lydia).

Even though in-depth knowledge was acknowledged, it comes with some concerns which are echoed in the above quotations. These quotations point to probable occurrences which were echoed by Aggie, concerning power and subject knowledge authority and were about the influence of one person having what she claims to be 'more knowledge than the rest'. The implication here is that one has a strong confident position about one's subject knowledge. Consequently, in such situations, the final outcome of any discussion is likely to be skewed towards the ideas of such a person. Nevertheless, the participants seemed to be aware of domineering influences in such discussions, but their concerns were not dependent on the more knowledgeable one for further explanation, rather it was because of their overriding desire to have objective and even-handed discussions, taking everything into account to achieve fairness in their discussions, not just the most obvious issues. These sentiments notwithstanding, the teachers acknowledge the need for in-depth knowledge during such discussions. In addition to the in-depth knowledge there was the feeling that experience of the individual can also support such interactions.

This view seemed to corroborate what my literature review found regarding the fact that teachers' professional and practical knowledge base support them to identify differences and similarities in their actions (Dymoke and Harrison, 2008; Pollard et. al., 2007). However, their ability to do this depends on the qualities of their reflections (Rarieya, 2005).

The data shows that as the participants relied on their own personal historical precedents, through reflection, mostly advanced their experiences into the discussions. This normally constrained them from being very objective in their comments. What happened therefore was for them to depend on their prior knowledge regarding the actions observed, and they used this to try to justify what they know. Even though they believed that sometimes the solution to a challenging experience can prove useful in resolving another problem, it appears that the influence of the cultural dimensions sometimes colour their comments. This made the participants hesitant to use prior experiences. Of course this was not the sole explanatory factor that made them avoid the use of prior experiences. The problem of using their personal experiences to impose ideas on the other members was their greatest concern.

The following are some of the feelings of the case study participants about the imposition of ideas based on past experiences:

Madam Catherine the respect I have for you, and the way you give valuable information to our discussion, I am worried about the way you seemed to impose your views on us. In addition you do not respect our views meanwhile we are to learn from you the oldest from this exercises (Lydia).

Madam Catherine your behaviour is not making me come forward to offer my views (Oneal)

Catherine's use of her prior experiences seems to be the result of the willingness of the other teachers for her to contribute them to the discussions. However they also considered her to be suppressing their views. Even though she could provide some information on unfamiliar events for the benefit of the group, the remaining three participants opposed most of her views. The research literature suggests that a behavioural characteristic of this nature within interactions can threaten the extrinsic and intrinsic merit of the interaction (Olson and Barret, 2004; Fook and Gardner, 2007). Conflicts resulting from such interactions can also influence any meaningful reflection. Emphasising this point Aggie said: 'are we fighting or discussing issues. The way things are I cannot even recollect or reflect on what

we previously did'. Thus, through the use of the evidence, it became clear that the repetitive viewing of one's own, and others', teaching methods, where the locus is to consistently see multiple actions with the goal of obtaining a broader view, was to ensure nothing was missed.

As the process progressed, the whole culture of seeing teaching actions multiple times and attempting to locate differences and similarities appeared to pressurize the participants to gear up to critique their teaching practices. The following quotations suggest this:

The repetitive and continuous ways we see our actions help to easily recount what was currently discussed and link it to our new discussions. It makes you see multiple ways to adopt to resolve some of the challenging situations. (Oneal)

Our continuous seeing of our mistakes and resolving them does not need any special person to tell you what to do. You see the differences when you watch others practices. Reflection is made easier this way. (Aggie)

Her views allowed me organised my thoughts and lessons. She expressed her views on my lesson by telling me I need to separate out the improper fractions from the proper fractions. This to her which I used can make the lesson organised by finishing teaching problems on proper fractions before I continue. (Lydia)

The continuous seeing of my actions and the discussions so far has given time the idea that initially I was creating problems for you all. I now know it is the best to engage in such activities. Even it improves your experiences as you tend to learn more new things. (Catherine)

The extent of the continuous viewing and interactions and how it influenced their reflections and collaborations and the use of experiences were obvious from the comments of the teachers. It is therefore suggested that to help teachers to develop the ability to effectively reflect and collaborate, repeated viewing of their teaching actions is highly effective. Furthermore it is argued that this makes it necessary to engage teachers in such regular reflection and collaborative activities, a view which has been echoed by Day (1999), who says that within any effective collaboration, reflection cannot be left out. The regularity of the reflective, collaborative activities can provide conditions which can foster a reflective collaborative culture.

The above discussions point to some illuminating issues regarding an individual's in-depth knowledge in such discussions on specific events. This is found to be crucial and more appropriate in reflection when a greater quality of analysis is required (Hatton and Smith, 1995). The need for quality, in analysis and reflection, needs to be emphasised in such an interaction. Fook and Gardner (2007), for example, argue that since it is accepted that critical analysis is crucial in any reflective activity, and effective analysis motivates reflection in any discussion, it is essential for any reflective collaborative exercise to foster sharing of reflective views continuously within the interactions. The effective role sharing reflective views play in discussion has also been supported by Rarieya (2005).

She believes that it is necessary to engage in:

...reflection with others who ask questions of one another, thereby helping each other gain new insights about situations, beliefs and values. Moreover, the perspectives are usually shared (p315).

Thus according to Rarieya (2005) effectively sharing of views from reflection using appropriate knowledge is needed to ensure the participants in the discussion understand what is discussed. However, Fook and Gardner (2007) point out that adequate knowledge is crucial within good reflection. They therefore bemoan the fact that sharing reflective views, as one meets unfamiliar situations, where one has inadequate knowledge, makes reflection and discussion difficult. This is why Eraut (1994) argues that getting a second or other opinions on a view expressed is preferable, since such personal knowledge may not be congruent with the public knowledge under discussion.

The views of all four teachers suggest that, both personal and professional lives, as well as the structured social environment were significant and central to influence their reflective and collaborative practices. In support of this research, evidence in literature suggests that teachers' personal and professional lives can influence professional dialogues which in turn can influence their reflection and collaboration to a significant degree (Hatton and Smith, 1995; Rarieya, 2005;

Fook and Gardner, 2007). For example, Hatton and Smith (1995 p47) found in their Sydney study that

...the professional practitioner is able consciously to think about an action as it is taking place, making sense of what is happening and shaping successive practical steps using multiple viewpoints as appropriate.

In another study, Rarieya (2005) also pointed out that teachers' personal and professional lives can possibly lead them to have better control of their lives both in and out of classrooms. In her study, which had the aim of finding out what happens when teachers engage in reflective dialogue on their practices; four teachers from the same school who were unfamiliar with reflective and collaborative activities were involved in classroom observation, interviews and diary keeping. Apart from the teachers being unaware of their reflective and collaborative changes, the general observation by the teachers was that they understood their lesson well and learnt a new way to practice. Rarieya therefore argued that teachers' ability to engage in reflection, for methodological improvement, is sustainable, when the teacher is open-minded, wholehearted, responsible, willing to take risks and has access to alternative ways of teaching. She also argues that teachers would be more committed if the reflective activity could support them taking control of their professional development. She concludes by stating that personal and professional lives are closely intertwined and crucial in reflective activities. This came out from her study where some of the participants acknowledged the reflective activities as worthwhile to get them to improve on their practices, whilst at the same time others did not show commitment due to personal reasons. The study also identified and recognised the structure of the activities in the RD as a contributing factor to the teachers' willingness to adopt a strategy to discuss and understand their practices. This therefore forms the basis of the discussion for the next section.

At the heart of any reflective and collaborative practices is the structured organisation of activities. Generally there was a positive view shared by all the participants regarding how the activities helped them to gain a better understanding of their practices, as well as better organised ideas.

Based upon their group discussions, one can see that the activities gave them the opportunity to systematically and rigorously diagnose and audit their practices. The analysis of their comments indicates that the process allowed them to access the practical realities of their lessons and this made them aware of their professional worth. Further they felt it promoted quality in their interactions and reflections, as they shared and exchanged new experiences and ideas which corroborate what these many researchers (i.e. Tigelaar et al., 2008; Jung et al., 2005; Bereiter, 2002) think reflective collaborative activities support.

One important finding regarding the organisation of the activities in the IP was about seeing the consistent, practical realities of their practices through discussions. Even though the teachers have been teaching with occasional discussions on their practices, they viewed implementing their acquired knowledge has to be done through consistent, rigorous and systematic processes. In effect, the discussion process seemed like a bridge to facilitate effective implementation of their acquired knowledge of methods and principles of teaching in practice. For instance, two of the participants had these to say:

The discussions are telling us how to implement what we learnt at school concerning teaching principles and methods (Oneal)

These discussions are giving me insight into what we were taught at school concerning how to teach (Catherine)

The whole culture is aimed toward engagement in a systematic, organised activity in order to understand how it can be implemented. Some teachers recounted, with negative emotions, their experiences of engaging in collaborative activities with colleagues at their schools, when they met to discuss their practices. Aggie for example commented ‘the rather evaluation posture of the members when they meet at time discourages one for taking part in such discussion’. In addition personal sentiments seemed to influence their perceptions and characterise their interactions. Further confirmation that their perceptions influenced, what they said, can be seen in this statement made by Lydia: ‘Judging from the way the activities

are being discussed continuously, I have the opinion that it is an assessment of our practices'. Similarly, Aggie was of the opinion that member's evaluation stance on what they observe especially finding faults about our teachings to me is a way of assessing our practices'.

The above views demonstrate clearly the important role the activities played in the knowledge-practical implementation interface of their practices. The case study evidence indicated that the continuous and systematic culture provided a productive environment in which teachers could examine their knowledge base, something which they find it difficult to do in the normal course of events.

The activities provided vivid evidence of what the theories on teacher PD indicate can be achieved. For example consistent and systematic evidence regarding deficiencies were observed, and relevant and appropriate alternatives suggested for any such observation as was gathered from the following Oneals' assertion:

such consistent and systematic observation of problems with our teachings and subsequent suggestion to resolve them makes this discussion very positive, more especially how we frequently use the video playback facility.

In fact references regarding comparison using the video playback as gathered from the above excerpt were rampant. In most cases controversial and inconclusive comments require revisiting the appropriate event, replay, followed by verification and adoption.

The aforementioned which positively acknowledges the importance of the organised structure of activities, indicates that the teachers had difficulties from the outset. These are acknowledged by the participants from the following excerpts:

I am enjoying the trend of events in the organised activities now, because I hardly followed it initially because they were unfamiliar to me especially how to apply theories about our teachings (Aggie)

I was initially at a lose, however I can now follow the systematic organisation of the activities which is giving me systematic thinking about the activities (Lydia)

Prominent among such difficulties was the issue of seeing unfamiliar occurrences, which the theories and principles as well as their practical experiences never addressed. Such incidences, which were readily discussed further, strengthened their acknowledgement of the activities. However as the process moved forward, the teachers became adept in identifying the differences and similarities in all observed teaching practices, when they focused on specific topics for the discussions. Comparisons were effectively carried out which identified such differences and similarities. Oneal thinks in discussing teaching practice, the influences of knowledge from theories and principles on teachers' practices are vital, when activities are focused-based, for instance discussing lesson introduction, of which he thinks better comparison can be done.

Another issue, raised by the participants relates to the timing of the activities. The linkages can be seen when discussions based on theory and principle points of view are exported into the classroom, or vice versa, in continuous and regular schedules. The process of interactions looked positive to the teachers' reflections which is pointed out in this excerpt: 'The short interval within I implement what we discuss in my classroom, or what I teach is quickly discussed, to me, seems to improve the quality of our reflections' (Oneal). Reflection therefore becomes easier since contemporary difficulties are quickly attended to through the discussions. Emphasising how the organised activities promoted better reflection, Oneal said:

The manner immediate feedbacks on the identified deficiencies are advanced to immediate teaching actions in a more regularized and structured manner made it easy for me when reflecting to contribute during discussion.

These types of evidence suggest that the exercise provided a backup mechanism to support new ideas. The regular activities encourage a continuous build up of ideas as well as the linking of these ideas to knowledge and practices. However, evidence from the data showed some barriers which inhibited this. The teachers, as shown in Table 3.2, teach different classes and topics, therefore each teacher was accountable for the lesson discussed. The decision arrived at purposely served only the teacher whose lesson was discussed, even though the other teach-

ers gained some knowledge from it. Each of the teachers, aside from the one whose lesson was discussed, most of the time did not show much interest in the discussions. Varied reasons were raised including: 'listening attentively to our mistakes' (Oneal), 'the others see best my problems' (Lydia), 'because the immediate feedback from the discussion is to be used in our classrooms, discussions on others' lessons are not important to me' (Aggie). In spite of this negative feeling about the discussions, the link between the theories and principles of teachers' practice to their actual practical work is valuable, as supported by Fook and Gardner (2007) who believe that timing is crucial to critical reflections.

One distinguishing feature of the IP regarding the structured activities, which Aggie readily pointed out, is about the nature of the discussion pattern in the IP. Discussions from the outset were found to be disjointed and messy. Events were randomly selected and comments were made. The selections were generally on subject and pedagogical content. Discussions never focused on specific topics; hence it sometimes prevented continuous in-depth discussions on selected topics. Every individual's comments depended on their preferences. These preferences depended on their observations (Sherin and Hans, 2008). When discussions do not follow and focus on one event 'there is fragmentation of ideas' (Aggie). The resultant effect is that bits of skills are discussed, but there is no coherency in gathered ideas, and only poor and superficial understanding of practice is achieved.

However, through the subsequent, sustained interactions, a well-structured pattern of discussion was observed. Information provided was in a structured form and assimilating became easier, and, as a result of this, the teachers were able to organise their thoughts more easily. The order of presentation of ideas, turn taking and discussions focusing on specific issues to develop understanding at any point in time was one of Aggie's observations. This seems to be an important observation made as in this type of collaborative activity, ensuring the operation of principles and procedures is crucial. Furthermore, it is critical for teachers par-

ticipating in such an activity to examine their practices in order to identify both deficiencies and worthwhile teaching skills so that they can address and offer alternatives for change. Initially, this seemed a difficult practice to achieve, as Aggie observed. Despite this difficulty, the data shows a variety of examples of approaches adopted by the participants to continuously examine their practices. For example Oneal used a rhetorical questioning strategy to explore his own actions when he said ‘how can I use the child-centred approach to make my students understand the concept of data gathering and data processing?’ Catherine also thinks she should be able to device ways to clearly differentiate between ‘perimeters’ and ‘circumferences’ when teaching.

Oneal contributing to the debate about the structure of the activities had this to say:

the process of videoing our teachings, seeing teaching actions in the video playback, engaging in the dialogue on the action provide such organised and structured activities which to me influence how I analyse what I see in a more organised manner

This and similar comments from the other participants support the conclusion that the structured activities within the IP influenced the participants’ way of reflecting and collaborating. It created an environment in which their practices could be discussed to help them develop better understanding and to integrate the outcomes into their classrooms. Also through the activities, the participants acknowledged the worth of the process especially in attempting to understand the practical realities of their already learnt theories and principles in their teachings. The positive impact of the structured activities was given prominence by Catherine when she said ‘it actually helped me do critical analysis of actions observed’. Conclusions from these excerpts by Oneal and Catherine explain clearly that the outlined activities can promote effective interactions Mattissich et. al. (2001). This supports the findings of Gewirtz, Mahony, Hextall, and Cribb (2009) in which they identified those teachers who, based upon their engagement in reflective collaborative interactions, are likely to be equipped with up-to-date information concerning the knowledge explosion which has characterised the contemporary world.

Following on from the arguments of Gewirtz et al., the question to be posed now is could it be possible for the teachers to engage in this type of cooperative reflection without any facilitated support?

It has been argued in the literature that collaborative activities intrinsically and extrinsically motivate participants in their collaborative effort to change, however the competitive culture within collaborative activities tends to have both negative and positive influences, which are likely to affect interpersonal relationships and attitudes within the collaborative environment (Johnson and Ahlgren 1976; Ryan and Deci 2000). There is therefore a need to manage and coordinate activities (Ben, 2005) in order to provide a balance within these issues to guarantee a high level of professional discipline. It is through this balance that teachers can pour out their often quite justified critical comments, as they attend to their negative feelings and achievements gained from the interactions (Ribisch, 1999).

The data evidence indicates that when given the chance to decide on a rationale for the interaction, varied perspectives that could not be synchronized characterized the interactions. The problem was the influence of the complex group dynamics brought to the study by participants. Synthesizing ideas therefore it can be argued requires an intervention. As has been shown through past studies, collaboration and cooperation can exist in teacher communities and thus offer the members an understanding of some of the intervening and inhibiting variables (Mattessich, et. al., 2001). This information normally guides teachers in search of a strategy that can provide a balance of ideas in their activities. This is to ensure the development of a deeper understanding and valuable insight that cannot be readily made available. This therefore requires effective reflection. Evidence from the outset of the process indicates that external imposition of ideas is not appropriate. Consequently, open-minded ideas, where the locus of the support rested with how individual teachers can offer guidance were deemed more acceptable by this group. Nevertheless, any participant expressing such a view also

expresses awareness of the capability of anyone who gives them the freedom and autonomy. Thus the facilitator's standing needs to be enough to strengthen and stimulate the group to open up and provide ideas that can be sustained over time, rather than suppressing their views. The importance of getting a facilitator like this involved was acknowledged by the case study participants as being crucial. Aggie noted this when she stated 'I think the way Yaw came in to support our discussions strengthened our ideas and clearly opened up what we can do'. Confirming Aggie's comment, Catherine noted 'it was his help that resulted to our agreeing on a focus for the discussions'.

The positive views expressed about the role of the facilitator seem to be the result of how the participants anticipated their commitments and willingness to partake in the process. The messy and complex informal interaction within the process makes it a high-stake context in which reflective collaborative activities was to be organised in a flexible manner was welcomed by the participants. What can happen is without anyone to manage the activities teachers could adopt any strategy that they deem fit, which, within the group, means that there is a likelihood of conflict. However in order to foster a 'rich environment for the interaction' there needs to be a facilitator, who is versatile, and can change with the continuously changing times.

Creating such an environment was important in guiding the teacher change activities involving the Ghanaian teachers. Oneal was of the opinion, as gathered from the interview data, that 'teachers normally exhibit lackadaisical attitude towards any PD activity'. Potential reasons are that: 'teachers are normally ordered to attend teacher change activities without any option'. Secondly, that the top-down approach and the outcome from such activities do not allow them to have an immediate impact also seemed to contribute to their attitudes. In supporting these views Lydia said 'why do I have to attend to such activities when I do not get immediate feedback from it. What is even more disturbing is that you are or-

dered and on top our transport fares are not refunded to us'. This excerpt explains the pertinent issues and also serves to introduce another dimension: financial constraints. These concerns are frequently identified by INSET studies. In a study by Kankam (2002) cited in Kankam (2005), it was advocated that apart from attending to these concerns, teachers need to be motivated, by way of empowering them to decide on what needs to go into any teacher change activity.

Very often the influence of Ghanaian cultural norms exerts some limitations to discussions in which cross-hierarchical levels among the group members exist. Participants' awareness of differentiation both in age and academic standing demands that each recognise and give the necessary respect. The realisation of an artificial barrier created due to the differentiations, therefore plays an important role, as barren communication could occur within such an environment. Having effective and cordial interactions is dependent upon on developing effective rapport. The case study evidence indicates that establishing effective rapport is aided by explaining the rationale and the participants' ability to interrogate the rationale, as well as discussing ethical issues thoroughly, as a way to help the participant engage, in a relatively relaxed way, with the activities. In addition, establishing a cordial relationship is also crucial. This requires substituting 'sir', which is a sign of respect and a cultural demand, with 'Yaw'. The following statement confirms this view: 'the impression created in the first day from the explanation of the process steps put my heart at ease because I knew of my protection throughout the processes and the subsequent benefit' (Catherine). Having such access provided the necessary environment for feedback, which has the potential to be used to modify any initial plan for such an activity. For instance, in addition to maintaining the original plan to meet the participants after school hours, other slots were staggered in between their teaching schedules. The influence of these two factors from the case study indicated that it made the already messy interactions, which were punctuated with conflicts and tensions, more complex and needed to be managed in such interactions. For example, Lydia believed 'we need someone to organise our turn taking for harmony' and Catherine

also thinks ‘without Yaw I don’t think our discussions can end’. My presence as a facilitator therefore can be seen as vital. It did however arguably also contribute to some problems.

As the study indicates, my presence as a ‘stranger’ and also as their former tutor, and an educator contributed to the interactions that occurred. The disciplinary structures in the prevailing culture, before this intervention, inhibited how the teachers commented on observed actions, possibly because of my presence. These reasons are a possible explanation for how the participants interacted in the early stages of the RD. For instance Catherine at one point said:

I sometimes refuse to talk for fear of making mistakes in your presence. But as Aggie was teaching how to find the length of a vector it was observed that she had problems differentiating between vectors from a coordinate point. The way Yaw used his knowledge and experiences to ask Aggie questions related to vectors seemed to make Aggie know what she should do, however I could see that Aggie was not happy as she thought Yaw was exposing her weaknesses, but the systematic manner Yaw took her through shows how Aggie needed to teach such a lesson and alsoI don’t know whether Yaw has ever experienced such behaviour before.

The above excerpt explains the difficulties teachers had with my continuous presence. It explains the fact that they believed their concerns were also the concerns of their colleagues. Clearly my presence impacted in a variety of different ways on the process. In spite of my presence and their acknowledging my academic and professional competence, they doubted my capability to manage this process.

Their wariness about my role confirms my initial thinking about how I could facilitate such a process, because I had never conducted systematic research into teachers using their reflective and collaborative practices in Ghanaian basic schools before. I was therefore not clear how I could reflect continuously on such thinking to develop the needed strategies. I had also never encountered, as cited in Mangolin’s (2007), Whitehead’s (1989) notions of ‘educational theory, a dynamic and living form of reflection that exists in the lives of practitioners, whose content changes with the developing public conversation of those involved in its

creation' (Mangolin, 2007 p520). However, at the end of the six months, and as I analysed the data retrospectively, I began to understand the transformation I had undergone, by developing better understanding of how teachers' reflective and collaborative practices can support better understanding of teaching practices. This helped me to articulate my personal theory regarding teachers' development. Nevertheless it is clearly important that any facilitator in such an activity needs to be aware of the impact of his/her background and professional competencies. To encourage teachers in the study to improve upon their reflections, a process that offers greater opportunity for easy reflection was needed.

The case study evidence provides an account of the application of a process that had been used in other settings. Video clips of professional practice have been found by others to be a stimulating prompt to trigger reflective practices (Sherin and Hans, 2005; van Es and Sherin, 2004). Video clips have been seen by others to capture the richness of classroom interactions, and they can be used in contexts that allow teachers time to reflect on these interactions (Sherin and Han, 2009). The participants had prior knowledge of this tool's effectiveness, but even so, the study found the participants' were unable to use it totally effectively. The call for someone to facilitate this type of process is illustrated in the following statement: 'we need someone like Yaw to help with the playback session since to me I cannot combine my teaching with controlling video gadgets' (Oneal) and 'let us get someone knowledgeable in it to operate it since it is not part of our culture' (Catherine). Reasons for not attempting to learn to operate it include workload as well as how the environment did not support the use of video in teacher development activities.

The case study provided evidence indicating how my presence allayed the fears and anxieties of the participants regarding the abrupt ending of discussions. The manner I used thought provoking and probing questions helped remind them of what to focus on. The participants, in their attempt to articulate their views, were observed to rely on their colleagues for support. Objective reasons were expected to be raised to justify their support. However, as I observed, their body language

and the obvious hostilities during the exchanges of ideas normally lead to the abrupt ending of discussions. Lydia remarked: ‘you people are not making the discussions friendly at all, by your ways of arguments’. This view prompted me to reflect on the hostilities, at which point I made two observations. One relates to whether the participants understood the rationale of the study regarding giving them the autonomy to control the process. My intervening to calm down tensions therefore could be seen as an intrusion on their interactions. On the other hand leaving the activities to end abruptly was also a concern of mine.

Whilst I was contemplating how to resolve their fear and anxiety, which the evidence from the study indicated has gripped the participants given the repeated occurrences of the abrupt end to the discussions, the participants confirmed and acknowledged the influence of this on establishing mutual trust. This raises the question of how these three concepts, dominated by human innate qualities, could be resolved since they were linked to emotional attachment. Further analysis indicated a major contributory factor to this occurrence related to an entrenched disciplinary structure within their cultural norm, the ability to challenge authority. It has therefore been realised that ambivalence exists between the expectations of the process and the cultural demands. Expressing her disgust about such behaviour and calling for liberation from such behaviour,

Aggie said:

Seriously madam’s behaviour is unrealistic. She needs to respect our views as we do for her. The way she treats our suggestions, as if she is the overall boss of these activities, is not fair. She does not trust anyone. I do not know how to question her comments for fear of her shouting at me. I think Yaw needs to come in to save us from such suppression.

This supports the fact that within any community of practice, the group’s complex multiple dynamics, carried into such an activity, impacts heavily on it (Wenger, 2005). Having realised this, closer contact was made in order to search for reasons behind such behaviour. The findings can be summed up as follows, ‘as a head of department and a resource person in charge to seeing teachers change for the better, I cannot sit to see the participants doing what cannot bring

change in their discussions' (Catherine). This view deepened my understanding about Catherine, in relation to how she views her interactions with the other teachers. This disclosure exemplifies the idea that there are various reasons behind most of her behaviours which when unravelled was crucial to help understand her behaviour. My presence therefore became important as the strategy helped me to unravel what was behind her behaviour, which in turn assisted in both understanding and responding to the tensions, which developed.

The case study evidence also established the fact that the relationship between the participants and myself created another challenge. The teachers regularly demanded validation of their comments or views from me. Expressing his sentiments on the participants' closeness to me Oneal asked rhetorically: "Why do we want Yaw to ascertain whether all that we say is correct or true? I don't think he has answers to all that". Having realised this I always told them I was also learning like them. Getting closer to the participants seemed to have various effects on the process, however it appeared to do something to lessen resource person-participant divide, highlighted the importance of having someone to encourage such occurrences (Bens, 2005).

Establishing cordiality improved communications between the participants and me. However Catherine saw it otherwise. To her: 'being too close can bring compromises'. She made a good point that in communicating with others care must be taken to ensure what is discussed relates to the focus of discussions. The difficulty of this became apparent in this study. However with communication being crucial to collaboration, (Mattessich et. al., 2001) there is the need for someone to organise the group, especially a group with hierarchical levels aimed at establishing effective relationships that can promote communication. These are all explanations as to why there was the need for a facilitator to be present.

In summary, from the discussions, even though my presence in the interactions sometimes had what appeared to be a negative impact, there was a generally a more positive influence gained through my presence. How resourceful and the innovative ideas (Ben, 2005), gained through my continuous reflection proved crucial in such interactions. Furthermore, the ability to understand how a facilitator organises him/herself in order to be able to recognise personal shortcomings is crucial (Hatton and Smith, 1995; Osterman and Kottkamp, 1993; Ben, 2005; Mattessich et. al., 2001/2005).

However the facilitator's presence could not be said to be sufficient enough in such messy and complex interactions. Therefore, setting some guidelines could have also supported the facilitator, as it had been established that he was also a novice in the activities. The need to work with such guidelines is the focus of the discussion in the next sections.

As the process progressed, the evidence indicated that there were some worries regarding my management of the interactions. Catherine illustrates this point as follows:

Everyone was saying anything at all about the lesson. Which one should I take, why can't each one explain his/her thought before the other. I was confused on what to say about how things were going.

This excerpt is taken from an instance during which Catherine was asked to reflect on any of her lessons which she deemed was crucial to how she reflects during group discussions on her lessons. Significantly it explains the importance of the need to recognise establish ground rules, as the complex group dynamics could affect the way the group interacts (Wegerif, 2005).

According to Fook and Gardner (2007), participants are able to respond to issues within any interactions by following explicit rules and procedures. However, Mercer and Wegerif (1999) also posit that within interactions that involved free

talk, tacit or 'unwritten rules' to guide the activities. The understanding here is that there can be tacit rules as well as explicit rules. These two forms of rules seemed to have an effect on professional cultures within which the members operated, as was evidenced in the study

The issue of following a set procedure during discussions proved contentious. The participants expressed mixed feelings regarding whether it was appropriate to have a well-structured procedure or whether their arguments were to be based on their experiences. The evidence indicated that there was a feeling that adhering rigidly to a set procedure has its own problems. For instance, Catherine queried: 'how do you expect everyone to agree with me in an argument'. Her point raises lots of interesting ideas. One relates to multiple perspectives based on specific choices and preferences, because the ability to agree on issues depends on one's background information, as explained earlier. Again it depends on the objective analysis of the issue. Using these two instances it is difficult to adhere to a single procedure. However, for better understanding and uniformity of arguments, Catherine later said: 'our argument need to be uniform, you pick the issue, raise reasons to support your claim'. This was supported by Lydia who asserted:

To me if we follow a well structured procedure where there are no ambiguities, certainly every one can follow it but where there are challenges then it will be of no use

The conclusion here then is that, aside from the substance of the argument, the procedure for the argument is necessary. Similarly, following any rigid procedure or rule regarding using experiences which are tacit seemed difficult, because where the literature is cited or describes a critical incident it is easier for one to fall on his/her experience to support claims made. In such a situation, it is the appropriateness rather than a sequence of ideas that is required. Conveying this idea Aggie said:

Selecting appropriate evidence to support a claim, needs to be left to the individual and not on developed rules. The validity of the argument depends on the individual's analytical skills

Oneal supported Aggie's view and added that a person's ability to advance an al-

ready raised idea to support any claim made irrespective of the focus of the discussions is important. He commented:

At times an incident reflects an already discussed event. Therefore it is how the individual can advance such idea to support an argument which is important.

In spite of the fact that the idea behind these two excerpts downplays rules and principles in discussions, inherently it calls for rules when tacit experiences are concerned. Analytical skills mentioned by Aggie follow principles and rules for advancing appropriate experiences, which also depends on procedures. Therefore in order to ensure conformity, rules are crucial in any discussions.

Even though Hatton and Smith (1995) have asserted that it is not sufficient that reflection is encouraged by a procedure and instead means must be specified to demonstrate that particular kinds of reflecting are taking place. From my personal experience, it seems that when adopting either explicit guidelines or implicit tacit experiences for conformity's sake, procedures or guiding rules in discussions are crucial.

Another point worth noting is that when individuals are part of the development of activities, they stand to understand the procedures better than when they are not. In such a situation they are in a better position to review and monitor the activities (Mattessich et. al., 2001) in order to address any shortcomings. To be able to do this requires standards. The evidence indicates that 'in the absence of standards there is the need for guiding rules and procedures' (Catherine). Sharing this viewpoint, Aggie said:

I think as we share our views without any standard to verify whether our views are the required one, we can follow a procedure where our claims can be consistent with our views.

Acknowledging the impact of guiding rules, Catherine stated that 'the way I have developed a better understanding of actions was because I had the privilege to be part of the development of our guiding rules in discussing. It has helped me a lot since it initiated the ideas we put in the discussions'. The argument here is that in

any activity which is underpinned by the aim of teacher change, involving participants in such exercises goes a long way to ensuring the participant is appropriately equipped with the necessary skills that can help them initiate ideas necessary for discussions.

When discussions end abruptly, as previously mentioned, one potential reason is inconsistency in guidelines. The conclusion here is that the quality of the rules is tied to how the interaction proceeds. Since the interactions have been found to influence the understanding of the practices, it can probably be concluded that the understanding of the practices can be linked to the nature of the rules. In view of this, the inability of the rules to support better understanding from the case study resulted in some of the rules being modified. In addition, the rules also contributed to how the process supported monitoring the teachers' practices.

As the process progressed, difficulties from the participants' viewpoints in relation to how the rules were related could not support discussions of the practices. However, re-examination and modification of some of the rules led to better understanding, and also led to the identification of new problems. The continuous identification of problems was possible due to new interpretations given to modified rules. The discovery of new problems allowed two participants to express their dissatisfaction regarding modifying rules. Catherine was not in favour of modifying rules. She felt that a rule is a rule, and that it should not therefore be regularly changed. In support of this, Lydia said:

If rules are to be changed regularly, then we have problems ourselves. Either we did not understand what we are doing or better still the rules are not serving the appropriate purpose.

It is apparent that these two participants were not enthused with the frequency of rule modifications. However Oneal was of the opinion that 'rules that cannot stand the test of the time, and need to be modified as new challenges emerged from their classrooms'. Oneal raises a good point, which I support in the sense that rules need to be versatile and not static in their application.

Even though there were some reservations about rule modification, the evidence gathered shows that regular modifications stimulated some thinking about the process of collaboration and reflection. It was indicative for a monitoring device to be part of this process. For instance changing rule 6 to rule 10 (see Appendix D) would enable modification of the interaction process. The implication here is that rules modification is tied to process changes. I therefore argue that in any reflective collaborative activities, modifying rules is a necessary means of modifying the process. This in effect acts as a monitoring device and can be used as a guiding standard to assess process effectiveness. The aforementioned therefore points to the fact that, the rules support effective reflective collaborative dialogue.

A noteworthy outcome from the use of the rules is how thoughts were shaped by focusing on ‘why’ and ‘how’ questions. Metaphorically, Oneal expressed his view about rules as ‘to be able to use the school library well you need to ask why the library was setup and how it can be used, before you can adequately use it’. What can be made out of this is that, in trying to understand the use of a rule, why a rule is being used and how it is used can inform the participants of what to expect from using the rule. These ‘why’ and ‘how’ questions therefore can influence reflection and subsequently in-depth analysis and understanding.

Such a reflective approach is, in effect, an influencing factor on the thoughts of participants in trying to explain the importance of using rules. However, in order to address the time problem, which has been raised most frequently in relation to teacher change activities, awareness of its importance need to be stressed during the development of the rules. But, it is argued here that, even though adopting such rules in the development stage is important, there is the need for flexibility as the context within which the rule is used is crucial (Fonk and Gardner, 2007)

Developing confidence despite issues of doubt and feelings of being threatened,
Lydia believes

...in using rules, one can imagine what happens at the end of an interaction. During the discussion on my lesson on 'percentage', each one's turn gave me an impression of what I needed to have done in my lesson. I saw some challenges in the way they expressed their views.

The understanding here is that the turn-taking order can be described as a stimulating device for reflection. The important point to take from this is that for Lydia, reflections depended on a specific rule and it goes to support the claim that for effective reflection, collaboration is vital (Day, 1999). Furthermore, it is argued that, from Lydia's perspective, it is crucially important to have some projection during reflection, but I think, as remarked by Lydia, there are some challenges. The study evidence however provided some respite through which the participants reflected on theirs and others' reflections to provide alternatives which served as a prediction. Emphasising this Oneal said: 'seeing different skills displayed gives me the understanding to use other alternatives in my teachings'

This study suggests that the rules, including, but by no means exclusively, the tacit and explicit rules influenced the opportunities for the participants to develop confidence in analysing practice, and engaging in collaborative dialogue in the messy and complicated interactions. Again the 'why' and 'how' questions shape their thoughts and can serve as a strategy which operates as a platform upon which one can develop understanding of a professional culture that is dominated by socio-cultural processes.

The views of all four teachers, as stated below, suggest that both personal and professional lives and the structured social environment were significant and central influences in their reflective and collaborative practices.

Engaging in discussions on our teachings require each to consider his/her background information (Catherine)

I need to be psychologically stable before i can engage in such discussions (Oneal)

To me it is not who one is but how professional one can be in discussing our professional work (Aggie)

Ones in-depth knowledge about our teachings is very crucial in such discussions (Lydia)

Thus, having a major role in their quest for an understanding of their practice through which they can take control of themselves and their professional development. The evidence in the literature suggests that teachers' personal and professional lives can influence professional dialogue which in turn can influence their reflection and collaboration to a significant degree (Hatton and Smith, 1995; Rarieya, 2005; Fook and Gardner, 2007). For example, Hatton and Smith (1995 p47) revealed from their Sydney study that

the professional practitioner is able consciously to think about an action as it is taking place, making sense of what is happening and shaping successive practical steps using multiple viewpoints as appropriate.

The above notion supports Rarieya's (2005) idea regarding participants professional and personal lives, where he concluded that personal and professional lives are closely intertwined and crucial in reflective activities.

Observations made during the RD clearly indicated that the structured activities had an influence on the reflective and collaborative practice. There was an integration of their already acquired knowledge in methods and principles of teaching and their real world classroom practices. This reflective and practical approach, arising from the actual classroom situations, as experienced by the teachers, therefore gives credence to the use of RD, as a collection tool, in the study, and support Rarieya's view that teachers can gain practically from using such model. Emphasising this recent argument is to get a facilitator to support teacher learning and professional development is important (Heller, 1999; John and Swales, 2002; Fevre and Richardson, 2002; Sherin and Hans, 2008). The next main influencing factor is the structure of the activities. The case evidence showed that the practically structured activities seemed to support the teachers' organisation of their reflective thoughts. Giving credence to the evidence from the study, many authors have raised the importance of organising activities that can promote better understanding learning, reflection and collaboration. These

include well structured activities which assist teachers in critically examining the values of reordering, reinventing their identities and structures (McGee, 2008); professional knowledge development through well structured formal environments (Eraut, 1994); support of collaborative rather than individualistic approaches to reflection, and allowance of collaborative work as 'critical friends' (Hatton and Smith, 1995); easy to identify learning objectives, sound interpersonal relationships, personal security and self-efficacy as well as provision of a safe environment within which self-revelation can take place (Rareiya, 2005).

In examining the data, it was observed that the participants cherished how the activities provided them with a sequential ordering of activities. It enabled them to follow most arguments in an order which made their reflections easy. It also gave them the chance to question and uncovers some of their unidentified knowledge about their practices. The exit meeting analysis confirms this, with the participants acknowledging the efficacy of the structures:

As we hold discussions organised along the activities, I could easily reflect to link a previously discussed incident with what we will be discussing. (Lydia)

...when we have our teachings so practically discussed you actually know and understand some of the theories we have learnt well. I always seemed motivated more especially the well organised activities. (Aggie)

...most of our PD activities are theoretically inclined just like teachings during our school days. The activities here are more organised practically and it gives you the feel of what you know and what to do. It is not about what we can do but what we do. (Oneal)

With the participants acknowledging the structured activities as influencing their reflective and collaborative practices, their preference for any teacher change activity will be getting activities well organised. The commitment and willingness to attend to any teacher change activity depends on their acceptance of such an activity. The case study evidence showed they were committed and willing to be part of the activities as they depended heavily on it to interrogate and understand their practice. However the systematic nature too can promote boredom and stereotyping as the evidence showed. For example, according to Oneal said: 'the activities within the interactions are so moving that I find it always and committed to be part of all the activities'.

In trying to integrate into the reflective and collaborative activities, Fevre and Richardson (2002) have come out to say that, the perception of the one's roles and views about teacher change is crucial. Evidence from this study indicates that the inclusion of someone considered as a facilitator only acted as a catalyst and impulse-giver, rather than leading the group in their discussions. For the facilitator to integrate, coordinate and maintain the tempo of the interactions, in other words, to minimize any negative backlash in the study, in order to gain a better understanding about what he/she intends to do is crucial. This confirms the suggestive evidence for the need of a facilitator in any reflective collaborative exercise from Rarieya's (2005) study in Pakistan. Rarieya investigated the impact of a facilitator in an RD in Pakistan and came out with some interesting results. One of the aims of his study was to explore the facilitator factor on teachers who discuss their teaching practices. The data sources included individual interviews, informal conversations, participant observation, classroom observations, personal documents, researcher journals and opportunities to engage in reflective dialogue. As part of the study his role in helping the teachers engage in reflective practice as a reflective coach was also under study. Another part of the study involved teachers acknowledging the efficacy of the process and the presence of the other person who responds to the teacher's reflections, thereby facilitating the process of reflection was also acknowledged. Rarieya argued that the role played by the reflective coach is important because one cannot assume that teachers will explore issues or challenge their thinking on their own. He concluded that educators need to be trained to work from within the classrooms, rather than concentrating on organising in-service workshops only or working out of school.

The implication of this would be that the facilitator should be made part of the planning of the activity in order to have better knowledge about the rationale of the study. Part of the facilitator's role is therefore to relinquish all his/her background information in order to ensure that the participants are not intimidated by their presence, especially when they get to know of such background information. Whether one can completely relinquish such a background is a problem that

needs to be investigated. Currently there appears to be insufficient information about how this could be done. The current lack of information is what prompted Ben (2005) to catalogue the dos and don'ts of the facilitator. The list generated places the facilitator in a better position regarding his/her neutrality in any collaborative activity. Clearly the evidence of this case study seemed to support the outline. However, the positioning of the facilitator seemed to be linked to developing ground rules to support effective interactions.

Judging from the evidence gained in this case study it appears the key determining factor to allow the participants to develop their own ground rules was how they could initiate their own ideas to have control of the process. Because personal narratives require a significant degree of mutual trust, developing norms to guide the process with the locus on honouring confidentiality and refraining from commenting on views as told through personal reflection, until views made are essential in determining personal comfort levels as indicated by the case study evidence. As observed by Mercer and Wegerif (1999), a balanced and the integration of teachers, into a well structured activities and individualised/group work provide an environment of discourse of practices where rules to guide a collaborative activity is crucial. However the study added another dimension of tacit rules regarding the disciplinary features of the social cultural norms and played significant role in the study. This being the case, the interaction also seemed to promote triad rule: ground rules developed by participants, the prevailing cultural norms rules as well as tacit inherent rules in everyday life of individuals.

In summary, there was ample evidence from the interviews, observations and RD to lead to the conclusion that as far as the IP was concerned the special characteristics of the participants are crucial components that need to be given the recognition in order to understand the nature of the process. The use of acquired expert knowledge, prior experiences, willingness and commitment were characteristics that can support better reflective collaborative activities. It is therefore reason-

able to conclude that the need to identify participants with such characteristics is vital. As the review in chapter two shows, the ethos of collaboration implies getting participants who can provide relevant and appropriate information to such interactive activity is crucial. Again within the literature of collaboration, the processes and activities which are organised require logistics in supporting the process (Mattessich et. al., 2001). The multi reflective outcome from the participants (see chapter five) explains how the IP informed their reflective ability.

In all, the factors discussed in this section were the major influence on the teachers' reflective and collaborative practices. In addition to these major factors, each of the four, which influenced these major factors in addition to contributing to the development of effective reflective and collaborative environment for teacher change? Notably amongst them include in-depth knowledge, prior experiences, innovative and creative skills of the facilitator, consistency in activities and cultural norms. Clearly the participants' prior reflective and collaborative experience, designing well structured activities, a skilful facilitator and giving the participants the autonomy to develop their rules and control the activities are what the providers of PD activities need to seriously consider. The next section examines more closely how these factors, contributed to promoting an effective collaborative and reflective environment that provided rich professional dialogue.

4.3 Developing rich and deep professional dialogue: What the study discovered

Generally, the evidence from the research suggests that the teachers' ways of expressing their views on what stood out referred to as 'call-out' (Sherin and Han, 2008) describes how they engaged in rich and deep professional dialogue. Some empirical research evidence suggests that teachers' change in the way they engage in professional dialogue is linked to their preferences for 'call-outs' (van Ess and Sherin, 2006; Sherin and Han, 2009), and within the transcript data from the RD, the issue of what stood out to them and how they attended to them came through with great emphasis. Following on from the identification, I drew on the

strategies of the prior research of van Ess and Sherin (2008) to create the categories considered appropriate to explain the behaviour of the participants. This involved identifying dimensions that include what the subject (mathematics), thinking, pedagogy and management of the mechanics of the classroom are. After examining the transcript in this study, there were notable differences in emphasis on the ‘call-outs’ within the interactions. It has to be pointed out that the descriptions given are indicative of what the participants’ views depict, since the intention was to provide a descriptive view and not a numerical analysis. Four dimensions were identified. The first focus of discussion is the specificity about what stood out to the teachers to express their views (subject and pedagogical content knowledge). The second type of discussion concerns how they expressed their views (general and specific). The third is the extent to which they expressed their views (surface or deep). The fourth is about comments made in relation to their attitudes. From the first dimension, subject matter refers to how the teachers show ideas of knowledge and understanding of the subject and pedagogical knowledge concerned the teachers’ actions and decisions as well as strategies used in their lessons and their views expressed on it. For dimension two, the general means as to how the expression relates to general concern and specifically draws on an exact concern is discussed. The third dimension is about whether the teacher made analysis based on what observed referred to as surface or advanced other ideas to support other analysis. The identified dimensions are found in Table 4.1.

Examples of the dimensions from the examination of the data appear from the outset evidence of the changes that support the rich and deep dialogue in the interactions. It is necessary to point out that these interrogations were done from the complex RD through iteration, and so it is possible that not all the ideas from the transcribed discussions were selected. Even though the initially transcribed conversations were made available to the teachers for approval, most of the analysis was done without input from the participants. They could have been of help in discovering ideas that were embedded in some of their comments which

depict the identified dimension if they were closer and could be consulted. Nevertheless, I believe that what I selected is a fair representation of the kind of reflective analysis done by the participants and which appealed to me.

Table 4.1: Conversation Mechanics

| Rows | Dimensions | Focus | Indicative comments | Changes in discussion | | Comments made by observed/observer | | Attitudinal comments | |
|------|---------------------|---------------------|--|--------------------------------------|-----|--|---|--|--|
| | | | | Outset | End | Outset | End | Outset | End |
| 1 | Focus of discussion | Subject content | Idea related to subject content | Subject and pedagogical content view | | Describe, evaluate, repetition of idea, retelling, recounting, explanation | Give feedback, ask questions, interpret ideas, making references, validating judgment | Shifting of blame, aggressiveness, uncompromising, defending other teachers, emotional feelings, surprises, expressing of misgivings | Boldness, uniform criticism, cooperation, challenging others |
| | | Pedagogical content | Actions on decisions and strategies used | | | | | | |
| 2 | Type of | General | Ideas refer- | General | | | | | |

| | | | | | | | | | |
|---|----------------------|----------|--|----------|----------------|--|---|--|--|
| | discussions | | ring to all subjects | ideas | | | | | |
| | | Specific | Ideas related to subject content under discussion | | Specific ideas | | | | |
| 3 | Extent of discussion | Specific | Specific evidence to support claim | Specific | | | Extension of ideas on both subject and pedagogy and discuss issues to support claim | | |
| | | Deep | Import and advance already discussed idea (s) to support claims made | | Deep | | | | |

Source: Data from fieldwork: Interviews and Reflective Dialogue

Having identified the four dimensions from the outset, a further examination of the ways in which the teachers discussed their practices over time revealed changes in their exchanges. The resultant changes in types of discussions and the extent to which evidence was used to support their claims. From rereading the transcripts, it was revealed that specific comments and ideas from already discussed actions were used as evidences to support further claims made by the participants. The early sessions did not produce much in-depth reflection, as comments were mostly descriptions, judgemental remarks, recounting, agreeing and disagreeing, repetition and explanations. However as the process progressed, deeper and much more challenging reflective comments characterised their discussions. Some of the comments listed in Table 4.1 are feedback and interpretation, both of which involved individuals asking thought provoking and rhetorical questions, making references to already issues, which had already been discussed.

The outset saw some attitudinal behaviour characterising the discussions. These initial behaviours were influenced by the fact that the participants thought that the exercise was an assessment of the quality of their classroom teaching. They later came to the realisation that it was a way of developing and understanding their practices. This influenced their later comments about the process and some behaviour like boldness, uniform criticism and cooperation within the discussions.

In sum, the participants' use of combination of the dimensions could be described as fostering rich professional dialogue or deep reflective dialogue. However, the case study evidence suggests that because of one of three reasons raised, the professional dialogue could be achieved over time and not instantaneously. First, as the teachers interrogated each others' views, and shared their views with the intent of understanding their different practices, rivalry and conflicts forced the group to divide into factions, where sometimes each refused to accept the others' view(s). Secondly, the early part of the process was characterised by discussions, which were unrelated, unorganised, and involved nonconformity in advancing

views, and thirdly, there were no existing criteria to judge the authenticity of the views expressed.

Even though the wider literature suggests that talk-in-interaction needs to be contextually oriented and structurally organised (Hall, 2006), the case study evidence indicates that some behavioural and attitudinal issues, which intertwined with the dialogue patterns, did not help the systematic organisation of the dialogue, however the process seemed to support the development of rich and deep professional dialogue. The indicative behaviours based on their comments are found in Table 4.1 row 4.

Generally there is evidence that when teachers engage in an interaction to discuss their practices, what happens is characterised by divergent views at one point or the other. How such a situation is managed by the group is vital. Such characteristics sometimes result in the creation of factions within the interaction. However consistency in sharing of ideas, through engaging with the activities seems to influence how the teachers made sense of what they had been confronted with. Acknowledging such behaviour enables one to reflect upon and learn from such a difficult challenge. The case study suggests that the teachers were able to develop a better understanding of their practices from the difficult situation they found themselves in. This was achieved through consistent, continuous and systematic discussions of their practices. It can therefore be concluded that the increase in frequency of their focus on interpreting what stood out to them, helped minimise the effect of the conflicting situations, and rather made them develop a better understanding of the situation.

The case study evidence also indicated that as the teachers reflectively collaborated to discuss their teaching practices, even though the focus was a random selection of one or two of the specificities, their initial descriptive comments gave way to more interpretive comments and developed better understanding. The researchers van Es and Sherin (2008) point out that when teachers engage in con-

sistent interaction, changes take place and can lead to important insights of the issue at stake.

The findings from the study raise some interesting issues. From the analysis, it can be seen that the participants were found to select any of the specificities at their own convenience. Depending on one's perceptions, claims and counter claims, as well as rejection or lowered attention to any proposal or alternative are made. In a situation where a view is vehemently contested, entrenched stances are taken leading to chaos and uncooperative behaviours. Such uncooperative tendencies led to other members withholding relevant and appropriate information. Mutual and beneficial sharing becomes absent or limited and some pressures in the environment suppress or stifle reflection and collaboration. There is evidence to suggest that sometimes a stifling environment can hinder reflection and collaboration. But a safe and conducive environment for self revelation in reflection (Hatton and Smith, 1995) is vital in addition to making the rest respond to any observed action. A theoretical explanation of how this might come about is "to investigate and improve teaching in a supportive environment" (Hatton and Smith, 1995, p44), thus improving reflection and collaboration on what is observed among the participants involved.

Another finding was a lack of conversational format. From the analysis, the unsystematic selection of the specificities and the corresponding dimension made fragmented discussions. When everybody within any group expresses reflective views differently, multiple views seemed to dominate the interactions. However, the chaos that can characterise such a situation does not generally support the development of better understanding. Significantly, inconsistencies in discussion would pose a threat to the validity of reflections since only self reflections without collaboration exist, and group understanding of an issue under discussion seems impossible. Developing insight becomes an individualised affair, but Day (1999) posits that for better understanding, people who are willing to collaborate are reflective persons. The case study evidence suggests that consistent and con-

tinuous editing of teachers' practices accompanied with questions on such practice is important for understanding. The following quote illustrates this:

I seem to gain valuable insights from our analysed views when we discussed our practices consistently. I think group discussion continuously is good. (Catherine)

This quote clearly shows that when groups reflect and collaborate on their practices better understanding and clarity of issues becomes real. It is therefore reasonable to conclude that group reflective collaboration triumphs over individual reflection on similar actions. It is possible to argue that allowing a group of teachers to engage in reflective collaborative activities on their practices sees participants developing rich and deeper professional dialogue. For example Hatton and Smith (1995) argue that: '...it is important to structure situations, ask questions about what is happening and why, through this individuals will find it easy to identify what they want to learn, and have sound interpersonal relationships' (p40). In addition, Rarieya (2005) also argues that 'teachers are able to share alternatives with group members in a reflective collaborative session after discussing their practices' (p323).

In my view, a concern of what good practice is seemed to elude the group as they reflected on their practices. One particular instance in the study asked such a question, but the group never attended to it. There is evidence in literature which shows that in reflective collaborative activities, there are changes in thinking that are useful in practice (Fook and Gardner, 2007). It includes thinking more deeply and broadly, taking into account different perspectives, being more rigorous about evidence for their practice and integrating different views into their professional practice (Fook and Gardner, 2007 p139). For the group to ask questions and make it an important discussion regarding 'what is good practice', it was within their own context of dialogue to decide what good practice was. This is illustrated in the following quotation: 'this deep and rich discussion is really telling us what good practice is'. (Onael)

The analysis indicated that there were changes in the process adopted for the discussions. From the outset they could not clearly decide how to confirm what a

good practice was. This was because they did not tolerate multiple views, which can be attributed to the use of different approaches in their analysis. Appropriate and relevant evidence used by each to support their claims were not wholly accepted within the group. There was therefore a pool of discreet individualised views that were not systematically presented. Isolated views presented on any observed action characterised the discussions. Mutual sharing was problematic and did not encourage better understanding of their practices within the group.

However as the study progressed changes in the way they interacted did occur. Multiple views expressed on any event dominated the discussions. Each view was rigorously analysed to identify, select and adopt the idea(s) deemed relevant in the view expressed. This process enabled them to identify differences and similarities in any event as well as views expressed. Supporting this view Oneal said:

The thorough interrogation of our views, on how I managed the teacher-student interactions in my lesson to me is good. The manner we express similar and different views has led me have in-depth understanding in continuous manner and also afforded me to learn new things about what I need to do.

Adding her voice to what Oneal said, Catherine also commented by expressing her observation:

I now really see how we are displaying our knowledge as we use specific evidence to support what we say in respect of linking teaching theories to practice. In fact the different ways we expressed our thinking is showing how we analyse issues in different ways which I think is good.

These two excerpts acknowledged how relevant and appropriate pedagogical and subject content knowledge are important and tied to any discussions of teachers' practices. If these are well managed, accumulation of isolated views can influence new learning as claimed by Oneal. In the same way new ways of learning can happen, as was the view of Catherine. To indentify the extent for the need for both subject and pedagogical knowledge, as deduced from the two excerpts, clearly shows joint discussions can unravel such needs.

Even though the frequency of observing and dialoguing teaching practices in a truly joint and systematic manner seemed to encourage professional dialogue,

other factors that can provide relevant and appropriate information can compel one to engage in such dialogue. There is evidence from the literature to the effect that just engaging in mere dialogue is not a sufficient condition to describe deep and rich professional dialogue, rather this may be better thought of in terms of how relevant and appropriate isolated ideas can be synchronized (Fook and Gardner, 2007). The case study evidence indicates that an outwardly inconsistent and flawed analysis, by one of the participants, which epitomizes 'know-all' character, was a compelling factor that inhibited other members within the collaborative group from airing their ideas on an event during the discussions. The discussions were therefore sometimes characterised by irrelevant and inappropriate views, rather than views that promote the search for an alternative (Mattessich et. al., 2001). Expressing his dissatisfaction about such behaviour Oneal said: 'Catherine you do not want anyone to talk about your lesson, but your interpretation of differences between perimeter and circumference is not convincing'. Oneal made a good point, and others would I think support his view that to qualify to dominate a discussion an individual should ideally possess the relevant and appropriate knowledge in such an activity. Furthermore, the inner belief that compelled anyone to engage in professional dialogue needs to be dealt with cautiously, as without the appropriate and relevant skills developing better understanding of practices cannot be possible.

In an environment where competitive evaluation is allowed, emotional attachment to behaviour normally happens. There is suggestive evidence in the literature that emotional pains due to anxiety influences reflection (Fook and Gardner, 2007) and within the study, a participant opined how out of anxiety she could not concentrate on the discussions. As a defence mechanism, she rudely contests ideas that do not call for any anxious moments. This behaviour seems to provide a refuge to the anxious moments, as well as address the mental torture which is created by anxiety and which literature posit influences reflection. There is suggestive evidence in the literature that reflection is how the mind leaps forward to find possible solution to identified problems (Dewey, 1933). It is therefore reasonable to conclude that when anxiety sets in during discussions that are under-

pinned by reflection, individuals' reflective ability will be affected. The case study evidence supports this view as Oneal was found to express negative feeling about participants' reactions to some events. He felt the summative stance of their analysis of events, created some anxious moments and fear within him. He added that such moments put him at risk and did not motivate him to make his analysed view explicit. This is how he described his feelings:

The rationale is for us to find a way to understand our practices, but the way some of our actions and comments are condemned, I find it difficult to say anything on any action observed. Look at the way Aggie and Lydia have paired up to always see something wrong with what I say. Seriously Catherine had a problem with her lesson on perimeter and circumference, I said a lot but I cannot continue.

This view demonstrates the important role group behaviour plays in such interactions. It is worth noting that it is not how Oneal reflected on what happened, rather his concern is about what is hindering such reflection that seemed to prevent further analysis of events observed. This de-motivating issue, if it occurs within any group discussions, cannot support better understanding as one's ego becomes threatened. Addressing such ego issues in the study was about how issues are raised, how multiple perspectives are expressed, how members audit comments made and how unacceptable views are discarded with newly analysed and adopted ideas. Such developed behaviour is what Pollard et. al. (2008) believed was needed to underpin teacher change activities.

The case study evidence further indicates that the aforementioned effect of the environment on reflection was addressed by the process later on as could be deduced from Oneal's following comment: 'this last part of the discussions is helping me pick on an issue, analyse it, synthesis and evaluate it with possible feedback given where appropriate'. Reflection from this excerpt indicates that Oneal at the end recognises the diagnostic process in the way the participants analyse issues which according to him can 'support them engage in rich and deep professional dialogue'. The conclusion here is that, since the mind plays a significant role in reflection, anything that has an effect on an individual's thinking also influences reflection. Therefore the environment needs to be rich enough to provide effective reflection and collaboration.

Making sense of the realities of any situation especially those related to teaching seems difficult and challenging. As has been discussed in the literature, one's belief about development may be linked to how you have been trained. The belief that 'a deficiency in practice connotes a bad teacher' normally sees teachers jumping in to defend comments made regarding deficiency. Discussions about practice now become a win-win approach. Claims and counter claims, disagreement and differences in opinion resulting in heated arguments characterise environments where each tries to justify their stance. The case study evidence indicates that if such complex occurrences are not managed well, unorganised ideas, conflicts and tension occur. In addition, compromises are hard to come by with the resultant effects, which can hinder effective reflection (Mattessich et. al., 2001; Fook and Gardner, 2007).

How best to manage the complex occurrences was what the study unravelled through the consistent and systematic dialogue sessions which gave way to opportunities to justify claims with relevant and appropriate evidences from their practices. The understanding is that when teachers within any interaction group do not have the opportunity to justify claims, developing meaning from practice becomes difficult. However within a dialogue if participants have the chance to justify behaviour, information unavailable from mere observation is brought out. Teachers are able to pour out what occasioned, from within them, the exhibited behaviour. Teachers therefore need to reflect within the activity about their practices. Thus, teachers need to be reflecting in the activities as well as reflect about the activity.

The activity therefore makes an important contribution to the concept of reflection, which is about the extent to which it contributes to a valid interpretation of their involvement in the reflective and collaborative practices. Schon's principle of reflection which includes reflection-in-action and reflection-on-action was something the case study evidence seemed to support from a different angle. The

participants' abilities that support them to reflect when they are caught in the dialogue was what was shown, but this depended on how useful information discovered within the dialogue is used to support their reflective views. In the context of the findings of the study, this means developing rich and deep professional dialogue is for the participants to have the opportunity to ask questions and also have the chance to pour out their reflective ideas of what they think about their practices.

In practice, measures to encourage effective reflection and collaboration need to embrace questions and answers, openness, reluctance to offer responses to questions and the readiness to accept feedback, whether negative or positive. The environment needs to encourage one to defend and to provide deeper information of a teaching practice. Equity as well as the opportunity for each participant to contribute to the discussions is crucial. More than anything else, this makes the argument for appreciable recognition of each one's contribution in messy and complex interactions. The contention of the thesis is that the effect of understanding the process teachers' use in their reflective and collaborative practices can support understanding which Schon (1987) calls reflection-in-action. This is what individuals need to do to enable them compose a new situation, in a continuous manner, so that as they develop they can make reference to, at any time in the course of their work. It is therefore reasonable to say that providing an environment where views can be expressed and contested, but where the ultimate aim is to develop understanding of practice, in order to guarantee consensus building and compromises through which challenging situations can be attended. One step forward would be for the participants to tolerate multiple reflective views, increased and constant auditing of practices, and also to be able to reflect when caught up in an activity in a collective decision taking.

The evidence provides information regarding how such development can be done. Similarly according to Birenbaum and Pinku (1997), deficient knowledge of resources coupled with metacognition awareness of inadequate mastery stimulates

anxiety. As stated above, once anxiety occurs, it becomes a vicious cycle and can influence the thinking of the individuals in the interacting group hence their inability to diagnose their actions earlier on. Evidence from the observation, especially from the outset, showed cracks within the group. There were seemingly two opposing factions within the group.

Lydia bemoaned the division and blamed Catherine for such cracks, as can be seen from the following comment: ‘The division caused by Catherine’s behaviour seemed to affect our meetings. Views are suppressed making us lose valuable reflected ideas from all’. This evidence suggests that rivalry that has been raised already can be a cause of unreflective behaviour within any interaction. One opposes the others’ views, but supported their partners’ views. Each saw any event from different angles and there was an unending argument. Their comments seemed difficult to organise, as each had a biased view of the other. This bias emanated from a manner of observed deficiencies, which were discussed. Quite apart from this evidence, Catherine put out behaviour where she wanted everyone to adopt one strategy in their contributions. This behaviour defeats the aim of the study, as there is suggestive evidence in literature to support the fact that following one strategy in any reflective activity makes individuals unreflective. Dymoke and Harrison (2008), citing Zeichner and Liston (1996) stated that

Teachers who are unreflective about their teaching tend to be more accepting of everyday reality in their schools and ‘concentrate their efforts on finding the most effective and efficient means to solve problems that have largely been defined for them by some collective code’ (p9)

If teachers strictly adhere to the code of practice outlined for them and are not open to other ways, they will prevent them from framing identified problems (Dymoke and Harrison, 2008). However, Pollard et. al. (2008) thinks being reflective does not mean one should be concerned and interpretive of reflective practice. Rather, it should be an active concern with aims and consequences as well as means and technical competence to reframe and resolve a problem. Therefore, if the teachers’ contributions are influenced by the ‘collective code’ then it makes sense that the teachers were not reflective practitioners. Because in supporting Dewey’s view of reflective actions, the teachers’ ability to identify

and solve problems, suggest solutions, pose questions, hypothesize, reason and test their ideas in a sequential process of reflective thinking illustrates the potential skills and dispositions associated with reflective practitioners (Dymoke and Harrison, 2008).

With the process seen to spin around reflective collaborative activities (Pollard et. al., 2008), clustered around routine steps repeated over time, an avenue for the reinforcement of ideas in a continuous way was created. This means in the active or dynamic situation of the activities one cannot help but be 'unreflective' in the curious sense. As the participants were constantly acting on the spot without stepping back to postpone acting, which is a reflective process to consider various alternatives to an action and consequences of the various alternatives, their reflections became problematic. However, the evidence provided opportunities to see where the participants carefully reflected about what to do or not to do in each and every step as the teachers reflected on some actions and non-actions. Sometimes reflecting on all issues encountered is about thinking about all kinds of possibilities but while acting one can only do one thing at a time. In effect when rivalry sets in and is based on being forced to adapt to a single strategy, reflection becomes problematic just like collaboration. This is why Zeichner and Liston (1996) think that teachers who concentrate their effort to find effective ways of solving a problem defined by them or by some collective code are unreflective.

The progress of the process saw the participants embracing freedom of choice to accept implications. The way actions were set in motion to allow the participants to use what they already know in a unique manner enabled the participants to analyse issues collaboratively. This was achieved through the way the participants observed, communicated, made judgements and made decisions through teamwork, which Dymoke and Harrison (2008) describe as a requisite competence for any reflective practitioner.

In summary, the conversation mechanics analysed leads to the conclusion, in spite of the problems of friction within the interaction activities. The process saw the participant engaging in rich deep professional dialogue. Also there are sufficient evidences that suggest the teachers engage in varied experiences that give them the opportunity to audit and analyse their practices and offer deeper information which is shared and mutually beneficial to their practices. The case study evidence showed that as the teachers tried to manage the observational and attitudinal behaviours they in fact were developing deeper and richer professional dialogue. When one considers the fact that emotional attachments normally put off people from engaging in activities that brought about such emotional pains, the teachers engaged to minimise the pains and rather develop better understandings. Clearly the process needs to be given much attention as it can be a worthwhile activity if teachers are to have autonomy and control over their development. However there are some critical issues that need to be addressed which include teachers' orientation about some of the identified problems of factionalism, irregular discussion format, not relying on only specific formats prescribed by one of the participants, rather it needs to be the one's own ingenuity used to resolve problems and participants need to be ready to ask and be asked to justify reasons underpinning a behaviour inhibited.

4.4 Learning from different types of ideas in a collaborative reflective environment

Collaborative groups must experience a progression of 'successes during the collaborative process in order to be sustained. (Mattessich et. al., 2001 p25)

One of the issues which repeatedly showed up in the discussion was the whole idea of their beliefs in the discussions. This seemed to shape their contribution to discussions. The teachers' beliefs were considered crucial for the study because it revealed something about their professional life in relation to the type of learning style they adopt in teaching.

Generally, events in teaching practice occur in unique context and teachers also attend to the context with unique characteristics. When success is achieved, then

the unique characteristics become tied to one's professional competence. Each individual then sees a problem from his/her professional competence perspective. Within the IP interaction, the multiple views expressed based on the individuals' understanding of the event observed were as a result of how they attended to what they observed. The quality of the analysis that informed the views expressed seemed to depend on their competences as described earlier on. Views expressed by the participants indicated that if what is said by one participant is understood by another and adopted, then the individual has learnt a new idea. Emphasising this view Oneal said:

I think how a person expresses what he knows depends on his/her competencies to be able to support us resolve our problems. Catharine's view for instance on my lesson on Collecting and Handling data made me understand the concept well. Through her views I was able to discard some ideas I formerly held. I think I have learnt a lot from what she said.

This view reveals the notion that teachers attend to events in varied ways and in each way help to update their knowledge. The comment suggests that the teachers learn, re-learn and discard knowledge that are non functional. It also illustrates how the participants recognise the influences of others' ideas on their thinking. The comments also reveal how someone can learn from what one tells the other. As it has been repeatedly pointed out that sharing others' reflective views in a collaborative endeavour provides an environment where one can view issues from different perspectives. The understanding of others ideas that encourages one to look again and learn from the provided idea, as corroborated by Rarieya (2005) idea of using reflective dialogue to discuss teachers' teaching practices.

The results of the study suggest that the way in which the participants in the study acknowledged the process is atypical. This helped them to analyse myriad of issues until they hit the 'eureka' to resolve what seemed problematic about their practices from the exercise. However they seemed to be challenged by their own personal beliefs as stated earlier. For example Lydia's belief in collaboration was extended to calling for students to support her lesson evaluation. Such belief shaped her reflection and became the object of her consciousness. In addition, Oneal also felt role adoption is crucial in such reflective collaborative exercises.

The implication, as the above beliefs of the teachers suggest, is that basing one's ability to learn from others' unique capabilities means that within the interaction, the different facet of skills on display and used concurrently or appropriately provides multiple ways for each to learn from. What we have in this instance is how the participants' reflective analytical qualities are put into play.

The result of the above scenarios is adopting processes that can be emulated by the participant in the reflective corroborative environment that can support them to expand their reflections and collaboration (Rarieya, 2005; Mattessich, et. al., 2001/2005) to include their personal beliefs. This can, as the evidence from the views of the participants in the study indicated, depend on time since the unique characteristics of each individual will not allow all to develop such skills at the same time. The data supports the fact that each could process their ideas at different rates. Catherine and Aggie relinquished their beliefs regarding the ingrained cultural norms and the indifferent attitudes respectively as the process progressed in the third cycle of RD discussions with Oneal and Lydia showing a quicker acceptance in the second RD session.

The discussions so far point to the fact that the participants' acknowledgement of learning from the sharing of their reflective views were triggered by unusual or uncomfortable experiences or where their expectations of reality did not match the systematic presentation of their reflection to strengthen their beliefs (Zeichner and Liston, 1996 cited in Clark and Otaky, 2006). However, they were more pleased with the outcome as illustrated in the following statement.

What I got from the exercise is overwhelming. I never knew my posture negatively affected our discussions until later on when I became aware. Dealing with such complex group is difficult but I think we managed it. (Catherine)

In supporting what Catherine said, Aggie also noted: 'I now know how to organize my chalkboard well, involved students in my lesson and deal with very difficult students in class'. The excerpts show how each saw the impact of the IP. This suggests that the IP is a powerful strategy for fostering reflective action that can promote varied learning experiences. It is a technique which can be struc-

tured to provide a process that encourages systematic presentation, as gathered from the influence of the activities on linking these to what they know to their practices. The discussion so far points to the fact that beliefs and time frame had both positive and negative influences on any discussions. Being able to manage time can support learning in different ways as well as aid progression of ‘success’ and understanding (Mattessich, et. al., 2001).

When all is said and done, collaborative reflective dialogue is that which is underpinned by multiple perceptions and has the tendency to provide different ideas, either on the same issue or different issues. In a sustained manner, if ideas can be analysed to determine the appropriateness and relevance of the information provided, varied ways of meeting and learning new things continuously can happen. This explains Eraut’s (1994) view that knowledge can be acquired variously and that many factors influence such acquisition. He goes on to say ‘new knowledge is increasingly sought to cope with external demands for change but rarely for ongoing improvement of practice’ (p. 30). However for stability’s sake, teachers engage in numerous activities in search of knowledge to be able to meet the ever increasing educational needs (Gewirtz, et. al., 2009) as a way of improving their practices.

Again it has been suggested that beliefs shape practice and orient practical knowledge (Marland, 1998; Aguirre and Speer, 2000; Minott, 2006; Virta, 2002; Kupari, 2003). Furthermore, the beliefs of the individuals shape the development process individuals go through. The belief one holds also determines one’s readiness to respond to what might be new or different about new contexts. The understanding here is that belief and practical knowledge about teaching can coexist, and the transformation of beliefs into practical knowledge can happen through reflection. According to (Kyekye, 1997 and Owusu-Mensah, 2006) the Ghanaians’ belief, which is influenced by the cultural norms that is underpinned by communal spirit where ‘one is the others’ keeper’, is what supported them to develop understanding of any issues under discussion. By extension, the next sec-

tion looks at how the Ghanaian teachers' cultural norms influenced their behaviours in the interactions.

4.5 Support for developing deeper understanding in practice: The role of cultural norms

The literature points to the need to pay much attention to prevailing cultural norms underpinning individuals' behaviours, as it was found to assist teachers in developing a better understanding of their practices. Saliently it helped them maximise the conditions under which they operated and opened up their deep assumptions that led to learning new perspectives (Fook and Gardner, 2007). Within the literature, apart from the societal cultural influence, the school's culture also plays a significant role, as argued by Scribner (1999), in developing understanding of teaching practices. He also noted that school structure and school culture can influence the teachers' sense of efficacy and professional motivation

However within the transcribed narration of the participants from the RD, the idea of respect, communal engagement and the expectation for members to adhere to norms regarding the acceptance of views from the aged were prominent issues the participants struggled to tolerate and accommodate. These tenets, as stated in the literature chapter, are strong Ghanaian cultural demands. The difficulties arose when they tried to address their common misunderstandings which saw them struggling to develop consensus from their multiple perspectives, which were at variance.

While it is evident that collaboration emphasises trust, respect and cooperation, these constructs can also hinder collaborative activities. From this study, the behaviours of the participants suggest that tacitly, their societal cultural norms were so much ingrained in their daily lives and conversations to the extent that they influenced what they said during the interactions. Despite the fact that the cultural norms created an opportunity for giving voice to their own thinking, as well as making them sensitive and constructively very critical about what they said, it

hindered their interactions from the outset. However, as the process progressed, the participant behaviours showed that they made sense of their experiences through the knowledge, beliefs, schema and attitude, which are culturally situated experiences (Richardson, 2004). Their actions, beliefs and ideas seemed to hold them up and help support how they engaged their colleagues to scrutinize their actions in a more willing manner. This is because as stated by Richardson (2004):

...the degree to which any one teacher will actually engage in reflection depends on their individual propensities and abilities. Thus it is teachers' underlying personal values and beliefs that effect (sic) their interpretation of the educational practices they experience, and their ability to engage in reflection is affected by their previous (and current) experiences of the schooling processes, its culture and climate (p431).

Catherine, who was the oldest among the group, was observed from the outset to be fairly dominant. She normally wanted each participant to follow exactly what she instructed them to do. Commenting on Oneal's first lesson on *finding the simple interest* she said:

As you can see from my presentation on finding the circumference of a circular object, I found out from the students if they know what a circular object was, after that I wrote the formula to use on the board, then I explain the variables, after that I solved two examples and later I gave them classroom work to do on it. In this your lesson, ask them what simple interest is, write the formula on the chalkboard, work out two or more problems for them and then introduce classroom work for them to do while you supervise. This is what I expect everyone to do in his/her lesson.

As stated in 4.4, insisting on specific codes of practices from one person to the other makes the former unreflective. The case study evidence indicates that continuous insistence resulted in some resistances from the other. The continuous resistances from her colleagues was reflected later on in her saying 'we need to as we normally do even in our homes, together try to find out what were our shortcomings and suggest alternatives so that what we come out with what can be used in our other lessons. I think this will make us develop better understanding as our tradition demands'.

The resistance from the others seemed to influence the change in her behaviour. Even though the study was not about exploring the structures in the cultural tenets of the participants, their behaviour gives room to examining some hidden policies of the routine interaction behaviour (McGee. 2008) of the participants.

Her initial behaviour, which is the influence of culture, can be described from the outset as prejudicial to such a process, however over time it changed. Therefore I suggest that such cultural norms need to be rendered responsive to the aim of any such interaction process. This also explains why teachers need to privilege their own experiences within such environments despite the hierarchical relationship embedded in their culture. Despite all these challenges, the communal spirit with which they collaborated, as explained in previous sections, was another influence of their culture.

Catherine's behaviour change appeared to be the result of her becoming aware of how the cultural norms have influenced her behaviour. Her request for further explanations, evidence to support justification, and her demand for support, shows her behaviour change which was made possible through her reflections. The way she experienced different reflection can be attributed to how she separately used tenets within the same cultural norms. At one point she adhered to the age factor and at another point she was considering the communal aspect. Even though the two have their merits, the appropriateness of using any of the tenets is crucial. I therefore suggest that if the underlying cultural principles are well-identified and used, reflection is possible and effective.

As stated earlier, there are cultural characteristics which are tacitly used to reflect on the comments made. Some of the comments that portrayed such characteristics were observed to be serendipitous, and occurred without planning or forethought, but it was those which guided the individual' participants in their interactions within the environment. The participants instinctively were aware that they needed to share their views on any issue which arose. Supporting the above idea ONeal said

...anytime I noticed a deficiency in any of our practices, I always think about sharing it with all. It is something that has been with us right from our homes through school and now. I do not fear what other say about what I do.

This confirms the fact that the communal cultural norm firmly entrenched in his behaviour, however this is tied to his thinking or reflection on any observed defi-

ciency. The reflection made him aware of the cultural instinct for him to recognise the environment in a way that changes his perception of what is possible (Clarke and Otaky, 2006).

Clarke and Otaky (2006), following extensive research on reflection came to the conclusion that 'human' capacity is 'akin to our abilities to create and use language and other 'tools of the mind' to understand actions, even though the particular form it takes is shaped by historical, cultural and social factors' (p120). Furthermore, Hatton and Smith (1995) emphasise the need for consideration to be given to any form of knowledge or belief involved in terms of its support in reflection. This suggests that a more elaborate form of beliefs would have the potential to enrich the processes by which teachers can support their understanding, on the grounds of cultural norms. By this definition much more information regarding how cultural norms can support understanding would be required than just their teaching beliefs. However Bell and Gilbert (1996) have argued that teachers need more ways to develop their practices. In contrast it has also been argued that teachers have a more complex view of belief in their development (Adalbjarnardottir and Selman, 1997; Clarke, 1995; Geddis, Lynch and Speir, 1998). But Schon argued that the personal identity is very crucial in reflection, as it can influence a person's thinking. This is something, which the study unravelled, as the lengthy discussions helped the members to listen to others' perspectives and to share values to reach consensus. This meant that having honest and open intentions within an activity like the IP can support developing understanding. Most often some cultures demand rigid rules, however with the results of the study, such rigid rules cannot support compromises, as they gave them the opportunity to determine when to seek compromises or common grounds, and the ability to negotiate major decision in situations, where they did not initially share same opinions.

In the case of sharing opinions, the issues of superordinate and subordinate demarcations are likely to be a thing of the past, as the evidence from this study indicated a way of erasing such dividing lines.

Emphasising this Lydia said:

I think we all need to put our heads together in helping Catherine get the differences between perimeter and circumferences. I know we all have the knowhow to get her over this problem. She is very good, older than us, she is our boss, and we have been learning a lot from her but this should not scare us from helping her out of this problem.

The excerpt indicates a two-way support from the dichotomy. Subordinates were found to support the change process of the superordinate. It is therefore important to focus on what participants know, rather than who the participants are, since what is said and how it is said are ultimate indicators of what needs to be taken seriously. Using such occurrences can help limit anxiety and disengagement, which is most of the time an outcome of prescriptive instructions (Clarke and Otaky, 2006). Oneal's reflection could easily have been tacitly influenced by the underlying cultural disposition of the Ghanaian culture, which is embedded in his behaviour, and made explicit through his comments. This shows how he was exhibiting a socialising character to get along with others in the common good of the group, especially the superordinate.

Culture seemed to influence an interaction underpinned by multiple perspectives. On the contrary it could also promote compartmentalisation of views, more especially if the underlying principles show some inconsistencies. The evidence supports this view. Emphasising this point Aggie felt

we are expected to learn a lot from Catherine, but sometime she says something and does the opposite. For example, she expects us to follow a particular format when teaching, but this third lesson is very confusing. If she performs this way how can we get confidence in what she says?

In a situation where views are to be shared on a practice, indecision can have a devastating influence on the interactions. Since according to Hatton and Smith (1995) reflective thinking generally addresses practical problems, allowing for doubt and perplexity is necessary, before possible solutions are reached. Therefore the beliefs in framing and reframing practical problems to which solutions are being sought are crucial. I therefore argue that the expectation of what cultural tenets seek to influence in the interaction is contrary to what was observed over time. Even though, it had influence during the interactions, discussing the

impact of cultural norms in such an interaction needs to be looked at cautiously. However teachers' knowledge and beliefs influence what they determine as important to attend to in complex situations (Schoenfeld, 2004). Such belief helps to identify differences in individual teachers, and how it can help them to advocate a specific pedagogical approach (van Es and Sherin, 2008).

Imposition of ideas, where culture is used as a platform to advance behaviour is one revelation that came through the study. However, the evidence showed how such behaviour unravelled other behaviours that were being pushed on the other participants. Emphasising this Lydia said 'it is not everything that one knows that can be used anytime. It is its appropriateness that is important'. Lydia introduces another dimension-the appropriateness of such knowledge. I believe that the appropriateness of any information is vital to determine the extent to which the information can be used to develop understanding a practice. The suggestion therefore is that in the event of using cultural tenets to support the understanding of a practice, the relevance of the information to the context of discussion is vital. The consideration of any belief or practice in the light of the support it gives and the consequences thereafter need to be taken into considerations. Open-mindedness, the ability to accept and adopt wholly any feedback and consequences needed to guide such interactions. In addition, there is the need to suppress some dominant cultural norms that can hinder effective collaboration in order to develop better understanding of issues. In view of the nature of the study, where there is potentially reinforcement, replication and critical reflection, this cultural idea needs to be judiciously used to promote choices from the information provided so as to get relevant and appropriate information.

In conclusion, I have argued that culture can support developing the understanding of teaching practices in a collaborative reflective environment. The wisdom enshrined in the Ghanaian cultural structure allows, for example, the aged to dominate in discussions or reflections on issues. With reflection being considered as a human behaviour, and cultural norms seen to influence human behaviours, it is reasonable to conclude that in interactive activities that are underpinned by

both reflection and cultural issues, for effectiveness, the two concepts need to be tied together in order to provide richer information.

4.6 Summary

The evidence reviewed in this chapter has suggested that the IP can be used to address some fundamental problems that transcend reflective and collaborative practices. Issues like the promotion of effective collaborative environment, and managing the variety of observations and attitudes to the group discussions, and how cultural norms within an environment can support the development of understanding of teachers' practices. There are, however, some problems which make it difficult for these issues to be dealt with effectively. These include social, personal, professional and emotional issues.

Why the four factors were essential came through in a significant way, where emphasis was put on the need for these factors to promote effective reflective collaborative exercises. The commitment and willingness of the individuals and the role they adopted, as well as the trust they have for each other, were considered to be very important. The systematic and regular nature of the activities helped the participants to develop new ways of interacting with their colleagues. It was also found to be important that the facilitator integrated into the process as well and strengthened how the participants collaborated with each other. In addition the development of the ground rules, even though this brought some emotional attachments, helped to prompt their ideas about what needs to be done in such complex, informal interactions.

The study revealed how individuals could develop deep and rich professional dialogue as they critiqued their practices. Such critiques often involved offering alternatives to identified deficiencies, and this revealed a mechanism for evaluating their practices.

In theory such collaborative exercises need to help teachers learn from different types of ideas. Even though it promoted it, lots of difficulties were encountered by the participants. Notably among them were the fear and risk of talking about one's practice, and the insecurity regarding the making public what was confidential information. In spite of this the study over time attended to these problems. Another significant issue is the way the process supported an understanding of teachers' practices using their cultural norms as a springboard to stimulate such a discussion.. The communal nature of the Ghanaian culture and the issue of respect for the older among the group were seen to have a big impact on their actions.

This chapter has indicated ways in which the participants changed in relation to several variables. This is really what the reflective collaborative activity is all about. The changes in the way the teachers then understood their practices seemed to result in them developing deeper thought processes. Such deeper thinking appears to result from the way they analyse what they observed, heard and said. The understanding here is that what is said and how it is said is an ultimate indicator of the individuals' reflection. In this case, it will be appropriate to know and understand the various changes that the teachers went through, as they interacted with the process. The next chapter therefore explores the changes and the processes that the teachers went through about their practices.

CHAPTER FIVE

HOW DID THE TEACHERS USE THE INTERVENTION PROCESS TO DEVELOP THEIR THINKING ABOUT THEIR PRACTICES?

5.0 Introduction

In the previous chapter an argument for the view that the IP was an overall success in terms of getting the four teachers to reflect upon their classroom teaching practices in new ways was established. This chapter will look in more detail at the particular ways in which the IP impacted on the participants' ways of reflection. Further, this is to elucidate what happens when a group of teachers go through such an exercise.

5.2 Changes along reflective scales

There exist differences in reflections as individuals engage in any reflective conversation, but these are hardly noticed during normal conversations. Since it is practically impossible to look into the faces of individuals to identify these differences, the substantive comments from the data are used as the template in this study to explain the differences in their perceptions.

From the data gathered, it can be seen that the teachers showed and used some reflective skills and also had to overcome some challenges before they could understand their practices. These behaviours permeate the analysis. Even though the participants' comments seemed serendipitous, and occurred without planning and forethought, their initial reflections and where they got to at the end of the discussions are what is used for the classifications.

Within the literature, activities that involve teachers engaging in reflective conversation on their practices has indicated teachers' shift in reflection (Hatton and Smith, 1995; Rareiya, 2005). Within this shift, individual teachers or the group shift in different ways. These differences are influenced by various factors. For instance in the work of Rareiya, the participants expressed concerns about how

deficiencies identified in their classroom practice were not addressed, they felt there was a lack of support from colleagues, and they were only provided with descriptive comments about what went 'wrong' in their classrooms. They believed these factors hindered their reflections. However through engaging them more in critical dialogue about their lessons to reflect on their lessons, the teachers were able to critically assess their lessons, and made attempts to evaluate their lessons to understand their practices.

With one of the objectives of the study being to learn about how teachers develop their thinking about their practices, this chapter examines the processes the teacher participants use when discussing their practices. While open examinations of teachers' practices have resulted in indentifying different reflective practices labelled as levels of reflections, in this study the examination of the participants' practises resulted in four reflective shift practises. Their reflective stance at the start and the end of the discussions is what is referred to as the shift. Shift processes were observed in all four participants.

In trying to find a term to describe these shifts, emphasis was placed on the works of Hatton and Smith (1995), and Rarieya (2005) that have done extensive research in reflection and in-depth reflective dialogue research. Their work, especially that of Hatton and Smith, dealt with on-the-spot professional problems as they arose, and as they thought about the effects of their actions upon others, while taking into account the social, political and cultural forces and analysing one's performance in their professional role. Within the RD transcribed transcript, the initial readings lead me to notice differences in the way they reflected which led me to divide the scripts into segments within each participant's lesson discussions. Following on from this, I selected each segment from the transcript in order to try and find the kind of reflective issues that were being used in their discussions. This led to the identification of four types of issues: judgemental, descriptive, unorganised, and evaluative reflections. In analysing these, it became clear that it was the teachers' actions taken and decisions made from their own

analysis of the actions taken in seeking for clarifications and justification using questions. The phrase descriptive reflection refers to the teachers' actions as they recounted/retold actions observed. In the course of this process they raised reason(s) to justify claim(s) based on their perspectives. The next category was unorganised reflection, which involved participants in the state of doubt or confusion to address topical issues about their practices consistently and coherently. The fourth category, evaluative reflection, refers to the analysis of issues from data and the addition of opinions on the outcome. This was done by describing an accepted standard and observed action separately and then identifying differences between the actions.

From the second readings, a second set of reflection issues arose during the discussions of the teachers' third lesson discussions. In the final stage of coding, four other reflection issues came out. These included supportive, critical, organised and interpretative reflections. These were also identified to represent specific behaviours. Supportive reflection was about the encouragement or assistance one offers through discussing their concerns and difficulties to any who may have problems understanding an action as well as minimising emotional attachment. On critical reflection, the teachers used rhetorical, thought provoking questions that bordered on historical and cultural issues. Organised reflection occurred when they discussed topical issues about their practices consistently and coherently. Interpretive reflection, on the other hand, was about participants being able to analyse their own and others' thoughts in an attempt to identify differences and similarities in their reasoning and attitudes in order to understand existing practices.

In a final reading of the transcripts, a trend was identified in the teachers' discussions which led to the pairing up of their views to form the reflective scales. These reflection categories are used as templates to describe what happened in the analysis and provide insightful account.

The evidence from the study appears to confirm that one or more participants perceived the process to support teachers to bring their knowledge to an appropriate professional level. This is seen as how the teachers reflected in a number of ways. The reflective ways are outlined in the Table 5.1 on the below.

Table 5.1: Framework outline on reflective shift

| Reflective scale | | Possible Reflective Content | Rationale for reflection | Role of participant | What influenced shift |
|---------------------------|--------------|---|--|---|--|
| Judgemental to Supportive | Judge-mental | <ul style="list-style-type: none"> • Seek for clarification on identified deficiency • Seek for justifications | Analysing and dealing with identified deficiencies and faultlessness | <ul style="list-style-type: none"> • Asks questions • Explain action • Mutually Share ideas | <ul style="list-style-type: none"> • Becoming aware of behaviour • Continuous seeing of multiple actions |
| | Supportive | <ul style="list-style-type: none"> • Analyse episode and offer options • Offer alternative and direct/guide how to apply it • Suggest strategy to use | | | |
| Descriptive to Critical | Descriptive | <ul style="list-style-type: none"> • Recount and retell observed action. • Raises reason to justify occurrence of event | <ul style="list-style-type: none"> • Exploring alternatives to resolve problems • Sustained talking to link ideas to social, political and cultural issues | <ul style="list-style-type: none"> • Ask and use rhetorical questions. Example: what reasons can be assigned to ‘good teaching?’ | <ul style="list-style-type: none"> • Realizing and becoming aware of behaviour |
| | Critical | <ul style="list-style-type: none"> • Offer and relate ideas to school policy, official education policy, and socio-cultural issues • Emphasizes deeper and critical analysis of events • Emphasizes on well structured actions | | | |

| | | | | | |
|----------------------------|-------------|--|--|---|--|
| Unorganised to Organised | Unorganised | <ul style="list-style-type: none"> • Disjointed thoughts • Gives different explanations to same issue • Inability to make interpersonal comparison • Inability to sort out thought and views from others • Inability to monitor what others say | <p>Examine how essential generic competences are organised in a coherent and systematic order in arguments.</p> <p>Example: Explaining topic following the Blooms' (1986) Taxonomy-Comprehension, Application, Analysis, Synthesis, Evaluation</p> | <p>Questions ways of presentation</p> <p>Cherishes systematic presentation</p> | <ul style="list-style-type: none"> • Inconsistent arguments. Example: expressing views that has no relevance to topic for discussions • Ability to identify sequencing of ideas. Example: Developing a lesson from simple to complex ideas. • Mood of individuals |
| | Organised | <ul style="list-style-type: none"> • Prefers specific order of presentation of idea, • Systematic and coherent presentation of idea • Argument follows lesson presentation order | | | |
| Evaluative to Interpretive | Evaluative | <ul style="list-style-type: none"> • Selective summative evaluation • Always concludes on initial attempts. • Makes judgments based on her own thinking of what is right | <p>Weighing competing claims and viewpoints and analysing views in continuous discussions</p> | <ul style="list-style-type: none"> • Reflect-in-action • Monitor and try to organise own and others' viewpoint as in a continuous discussions | <ul style="list-style-type: none"> • Ask for clarifications • Request for repetitions |

| | | | | | |
|--|--------------|---|--|--|--|
| | Interpretive | <ul style="list-style-type: none"> •Prefer holistic mutually discussed issues. •Self evaluation and advances ideas to other similar observations •Prefers giving thought to ideas well •-before responding •Focuses on formatively evaluating event rather | | | |
|--|--------------|---|--|--|--|

These scales inform the different reflection scales that the teachers traverse during the process of engaging with reflective dialogue as found in Table 5.2. It also shows the individual teachers' behaviour which depicts the scale within which they operated.

Table 5.2: Reflective Scales and Individual Behaviours

| Reflective scales | | Participants/reflective comments | | | |
|--------------------------|--------------|--|---|--|--|
| | | Catherine | Oneal | Aggie | Lydia |
| Judgmental to Supportive | Judge-mental | Very instructive | Seek for clarification on identified deficiency | Indifferent to discussions | Question teachers inability to manage lesson |
| | Supportive | Empathetic and Offer options | Offer alternative and direct how to apply it | Offer option and direct how to apply it | Suggest strategy to use |
| Descriptive to Critical | Descriptive | Recount what observed. Raises probable factors and questions to observed event | Raises reason to justify occurrence of event | Retelling and uses 'common sense' knowledge to develop understanding | Observation on set objectives of lesson |
| | Critical | Offer and relate ideas to school/official education policy | Emphasizes deeper and critical analysis of events | Analytical views emphasize and relate ideas to socio-cultural issues | Emphasizes on well structured actions that relates to school/national policy |
| Unorganized to Organized | Unorganized | Disjointed thoughts. Gives different explanations to same issue | Inability to make interpersonal comparison | Inability to sort out thought and views from others | Inability to monitor what others said |

| | | | | | |
|------------------------------|----------------|--|--|--|---|
| | Organized | Prefers specific order of presentation of idea, systematic and coherent presentation of idea | Arguments sought to transfer ideas to student. Argument follow lesson presentation order | Questions ways of presentation. Cherishes sequencing of arguments | Organize, manage and monitor ideas commented by others |
| Evaluative to Interpretative | Evaluative | Selective summative evaluation | Prefers consistency of ideas | Always concludes on initial attempts. | Makes judgments based on her own thinking of what is right |
| | Interpretative | Prefer holistic mutually discussed issues. Finds out how teachers can understand practice | Self evaluation and advances ideas to other similar observations | Asks for evidences to all views to develop better understanding. Prefers giving thought to ideas well before responding. | Focuses on formatively evaluating event rather than one step analysis. |
| Major influence of shift | | Questioning the influence of cultural norms on her behaviours and seeing its negative effect | Mostly using rhetorical questions to develop deeper analysis of events | Realizing and becoming aware of engaging in debate rather than being indifferent to activities | Was of the view that well managed self and activities is important to understand practice |

Source: Data from Reflective Dialogue

As can be seen, each of the participants exhibited varied reflective changes, and also as shown in the table, each was significantly influenced by a variety of sources.

5.1.1 Deliberately judgemental to supportive reflections

From the data analysis, the participants' views displayed how they were dealing with determining how to resolve the on-the-spot differences as they shared their views on the process of solving the problems identified.

1. Catherine

Teachers often make judgemental comments about other teachers' practices based upon observations made at first contact with such practice. This is what Catherine most often did. Expressing her opinion on Oneal's first lesson, she said:

By your judgment how did you find your performance? To me it is not the best of performance because you did not impress me as a teacher.

On the same lesson after getting the feedback from Oneal she continued by saying 'always try to open up to tell us about your problems for us to be able to support you'. These excerpts indicate how she concluded and justified the behaviour she saw. Whereas Catherine reflected on what she observed, the indication is that she was also expecting Oneal to come out with his own reflections on his actions. Seeking clarification or justification in such a situation becomes a two-way affair between the observed and the observer. Any alternative offered, therefore, is dependent on the views expressed by the two participants. If such professional reflection can be shared through communication, it is reasonable to conclude that participants try to deal with identified problems on the spot.

Judgmental comments include questions that sought to confirm behaviour was one strategy Catherine adopted during the interactions. Commenting on Aggie's lesson, Catherine asked Aggie to justify her behaviour by saying 'we normally try to let the students we teach to understand and be able to apply what we say to solve problems, but judging from what I observed, why couldn't you organize your stuff well since it could have made them understand well all that you said'. Aggie then replied 'from my judgment and to the best of my knowledge, it is because I was teaching so many things together'.

The overarching issue here is that her judgmental reflection is seen to invigorate Aggie's reflection on her action. Therefore, even though in such reflective collaborative exercises, multiple perspectives normally characterise the discussions, relevant and appropriate information and better understanding related to any deficiency in practice observed can be elicited using an appropriate question.

As the process progressed, and after seeing and engaging in the critique of her own actions, Catherine realised how emotional pains appear in discussions. Remark on this she said 'I am really shocked about what you have all said. I could experience your sentiments and feelings behind your views. I really need your help to differentiate what perimeter and circumference can be taught well'. Catherine has made an important point regarding emotional pains (Fook and Gardner, 2007), which characterise most discussions involving teachers' practice.

The case study suggests that the process trajectory seemed to offer an environment in which Catherine could change, facilitating factors that helped in the change process including being self-aware of the negative impact of her behaviour, other colleagues being bold to challenge and pointing out her faults. In spite of the participants' attempts to support her change, the enabling environment created by the RD process also contributed immensely.

2. O Neal

O Neal on his part felt some aspect of their lessons seemed to influence how they make judgmental remarks about their practices. He noted:

I see different format of the chalkboard from the different teachings and adopting one style to me seemed good as consistency can even support the students' way of thinking.

In this excerpt, O Neal's judgment was more related to their professional skills. His judgments were influenced by the continuous identification of differences in styles when using the chalkboard, especially teachers' inability to adopt a particular style and its effect on students' understanding of what is taught.

As the process progressed, Oneal asked the teachers about the reasons regarding their inability to clearly adopt one teaching style. Feedback from his inquiry shaped his strategies to support other teachers during the dialogues. Through questioning, the feedback he received was indicative of the degree to which the questions have exposed the participants' inadequate knowledge in the issue at hand. In the process of the discussions, Oneal offered support by directing others how to make use of alternatives given. Curriculum relevance to students' needs formed the basis of his support. Referring to Aggie's teaching he said

you need to reflect on how you could make lesson systematic on the chalkboard and ask yourself, 'why am I using the chalkboard?' if these thinking permeates our reflections my feeling is that we will be able to exactly know what our problems are .

Oneal's reflection shift seemed to be mainly through the use of rhetorical thought-provoking questions to elicit information on the practicality of learnt methods and principles of teaching before offering an alternative. In addition, he seemed to be influenced by his own personal feelings about what he observed before suggesting an option. For instance he said 'even without analysing a lesson I can be able to tell whether the lesson was successful or not'. From Oneal's point of view some personal factors determine how to reflect on an observed practice during discussions.

3. Aggie

Aggie, from the outset, was more concerned about the quality of assessments made on teachers' practices. Her initial thinking was about getting alternative pedagogical strategies implemented in chalkboard work. She was worried about why teachers have to be analysing their teaching actions over and over without becoming skilful in getting the right strategy to use. Her view on multiple perspectives expressed on chalkboard was: 'even though our assessment of our chalkboard cannot be compared, I see that every lesson needs different chalkboard approach'. Inferences from the above extract indicates how developing a strategy to manage chalkboard work is context-dependent, however, such insight can be developed

through questioning perspectives expressed regarding teachers' inability to identify the correct strategy to use.

As the process entered the last cycle of RD, Aggie seemed to believe that, since students' future was of concern to her, she felt students must be an active part of the process of judging teachers' actions. She explained this in the excerpt below, from which I will also infer that it brought high level awareness to her thoughts and actions which saw her being able to articulate this behaviour.

I think the students are supportive enough to let you know what seemed wrong with your teachings. And so I am always thinking, 'what can I do to actively engage them' rather than waiting for a teacher who is not always in my classroom to help with assessment. We need to actively engage them to find and resolve our teaching problems.

It can be inferred from Aggie's comments that she moved from judgmental reflection focusing on quality of assessment to offer options by directing how it needs to be carried out. Her behaviour supports Schon's (1987) idea of reflection-in-action and also explains the extent of her reflection which seemed to suggest how one can reflect in varying degrees to understand an action.

The evidence suggests that the influence of different contexts of assessment also contributes to how people reflect. However, different contexts in different environments as observed in the IP process can influence one's reflection. The implication here is that, aside from activities one engages in as Aggie did, the reflection process seems to be influenced by being able to question one's own thought processes regarding the important outcome on users of such process. Aside from this, such thought processes need to be influenced by the goal of the activity on which the reflection focuses, in Aggie's case the future of the student was her main concern.

4. Lydia

Lydia's judgmental claims focused on the teachers' managerial skills. To her, without such skills, successful teaching seemed difficult. She thinks and ques-

tions the inability of other teachers to skilfully manage their pedagogical skills. However what was significantly missing from her narrations on managerial skills was not including challenges that go with it initially.

In scrutinising her views, it was clear that her analysis later on seemed to focus on challenges others faced and how supportive she can be. Her contributions to the dialogue did not focus on what teachers have done but what teachers do. Her analysis was more on challenging situations. Quite evidently she gave greater thoughts, and offered feedback to resolve such challenges through prioritising events she observed, whilst she ensured she offered and suggested options that were appropriate and relevant by saying ‘identify what is important, suggest what can properly help the one manage his/her teaching skills well. This to me can ensure effective support’.

Her reflective shift is achieved through her ability to understand the practical realities that give her some idea about deficiency identified before offering support. Her perception agrees with what Day (1999) asserts about teachers’ perceptions regarding their acquired knowledge of subject and pedagogical content which Day believed to make them capable of effectively performing. Lydia’s viewpoint supports the idea that in discussing teachers’ practices, understanding the practical realities from multiple and heterogeneous activities are vital before support can be given.

Summary

Views expressed across the judgmental reflections by the participants varied in the way they made judgements. Catherine, for example, was more instructive in seeking clarification, compared to the show of indifference and the use of questions by Lydia at the start of the interactions.

As the process progressed predominantly the participants with the exception of Aggie who specifically suggested adopting a particular strategy, the rest offered and directed how an option needs to be implemented from the identified deficiencies. A scrutiny of their responses revealed that each of the participants' shifts was informed by different factors. Catherine, right from the outset, was influenced by her prior experiences as a resources person, power relation and cultural norms. The process trajectory allowed for her practices to be critically audited and critiqued, which helped her to realise that being instructive was not appropriate, hence she resorted to offering options. Oneal, however used rhetorical questions to seek clarifications on why a particular behaviour regarding deficiency was observed. Aggie felt students need to be included in lesson assessment, since they can provide objective assessment for the teacher. Lydia felt giving support depends on the challenging nature of the deficiency observed.

Significantly two questioning strategies were used to unravel the deficiencies. Those that focused on behaviours observed from the playback teaching episodes and the second was about subjecting theirs and others claims to in-depth analysis. The two question types elicited information on the rationale for the observed critical incident as well as how they justify the claims made. Rhetorical questions are sometimes also used to seek for fuller explanations.

The data further found out that such judgmental and supportive ways are influenced by the human personal factors that include their prior experiences and emotional sentiments. Here, issues related to their professional skills, lesson delivery and the practical realities of their lessons coming from their experiences informed their thinking. Finally their thinking about striving to accommodate varied perspectives, making better quality analyses and addressing challenges related to emotional attachment were what the group identified as the supportive reflection.

5.1.1.1 Similarities and differences across responses in the deliberative judgmental and supportive reflective scale

Whilst operating within this reflective scale, the participants acknowledged learning new ways of reflecting. The data thus provided varied processes through which they reflected. Even though all the participants reflectively made judgmental and supportive claims, their shift seemed to be influenced by different factors. The differences in their analytical processes were grounded in personal issues, pedagogical issues, psychosocial issues, quality in their analysis and curriculum issues. In spite of the differences in factors that influenced their shift all the teachers questioned some of their behaviour characteristics that led to the shift in their reflections.

Personal, pedagogical, psychosocial and emotional needs influenced how judgmental claims were made by Catherine, Oneal and Lydia. Catherine made judgmental claims using directly her experience-based questions and the fact that it is quite useful in such discussions in that it enabled one to know why and how behaviour is displayed and also how to respond efficiently to unforeseen circumstances that may arise when one is teaching. Because the aim was to support teachers' understanding of their practices, all the participants used questions to seek explanations and clarifications for the reasons an identified deficiency occurred in order to offer support. In addition, after getting information about their practices, all participants offered supportive reflection to help improve practices later.

However, differences existed in the factors that influenced their judgmental claims. For example,

From your analysis, what can you say about your performance? (Catherine)

How can you develop and use same chalkboard format in your lesson (Oneal)

The two excerpts shows that Catherine's rhetorical questions focused on stimulating reflection from them and Oneal used the rhetorical questions to address why they could not adopt a particular teaching style. In other words, the questions had different roles in the interactions.

Another factor was psychosocial issue. This also influenced the teachers' judgmental reflections. The emotional attachments where misunderstanding, conflicts and tension characterise discussions, as indicated by Catherine, mostly influenced what they say. A personal belief in a particular way of prioritising activities also influenced them when making judgmental claims as was observed in the case of Lydia who said: 'in my own belief, I think you need to know the students before you planned your lesson'. In addition, Aggie expressed the belief that the context of the lesson provided some background to their claims.

The quality of analysis that is centred more on curriculum issues also had some impact on their reflections. To Aggie 'one can only give a supportive response depending on how such reasons indicate an identified deficiency relating to how subject content in their practices can be communicated'. In other words there are times when a participant's reaction to an event shows how the one is in need of correction.

The process of shift, aside from the elements in the IP as discussed in chapter four, has one crucial characteristic that contributed to the change in this reflective scale which was about their ability to accommodate discerning views. This characteristic is the understanding of practical realities of their actions as they used questions to stimulate their thought processes as gathered from the comments they gave about observed teaching actions. Giving thought to, and the employment of questions in this regard, is compatible with Zeichner and Liston's (1996) idea, where reflective practitioners often question their behaviours in order to aid understanding. This also supports Gibbs' (1988) contention about analysing case events during reflections. In sum, two issues related to reflection prevailed.

5.1.2 Descriptive reflection to critical reflections

From the data analysis, the participants' thinking showed how they explore alternatives to resolve problems in professional situations. The resultant effect of the

sustained interactions made them think about the effect upon their actions as they took account of the social, political and cultural issues that have contributed to their practices.

1. Catherine

In the study, the teachers cited literature to support their claims and they identified deficiencies in their practices, analysed such deficiencies and offer alternatives. For instance, Catherine believed that to make ones' view authentic there is 'the need to cite literature to support what one says'. However, objections, rejections and disagreements are some behaviour exhibited which raised barriers for effective discussions. It was realised that such opposition probably was retaliation for how Catherine used her authority to suppress and prevent them from making their comments especially, during discussions on her lesson. Again it seemed to be about her inability to justify reasons raised to support her claims, as well as inappropriate and inadequate knowledge related to the observed actions. Such behaviours do not augur well in reflection especially if factual account and one's inability to provide relevant details to explain what happens is the norm for the discussions. This seems to break the reflective cycle as suggested by Gibbs (1988).

However, over time, as the process progressed, the barriers seemed to be broken down and the teachers could link their experiences well when Catherine's behaviour changed. By developing new knowledge from the interactions, she could now develop deeper analysis from the multiple views expressed by her colleagues, relate it to both political and socio-historical issues. She thus now critically reflected when she later on said 'when teaching, your primary aim need to be on ensuring effective transmission of ideas, adhering to the school's policy of making sure all the students attain good grades at the end of their course.....since mostly the final examinations wants the students to display quality and thorough learning'.

Even though she supported her claims initially with evidence from her observations and moved to a more advanced way of arguing in which political and socio-historical issues were involved, such a shift did not have any link to her initial attempt, but rather the change seemed to be influenced by the nature of conversation the participants engaged in.

She thinks

...the claims made and the counter claims made about some subject contents, for example, the distinction between circumference and perimeter helped me develop understanding of the concepts well.

The above excerpt clearly demonstrates that the interaction mechanism greatly influenced her shift and therefore means the initial reflective behaviour of an individual is likely to support how the person reflects later on. This means for effectiveness an initial reflection attempt needs to be linked to the final reflection one makes.

2. Oneal

Another issue that seemed to influence shift in reflection was about the emphasis placed on topics for discussion. Mono topic discussion, even though it can produce in-depth knowledge within a discussion on teachers' practices, has a very real possibility to skew the discussion. However, multiple topic discussions, even though they produced shallow knowledge as remarked by Oneal, appear to have balanced discussions on skills. Oneal felt:

...focusing on specific subject content with corresponding reasons to justify the deficiency observed in its applications is good, but descriptions are skewed and focused on only an aspect of the practices, on the other hand, when reference is made on pedagogical knowledge with accompanying reasons, descriptions cut across various techniques teachers adopt.

Descriptive reflection, per the excerpt can occur through multiple topic discussions. As opined by Mattessich, et. al., (2001) and Fielding et. al., (2005) collaborative discussions are aimed toward providing in-depth understanding of issues. Oneal's point therefore is important and I suggest that in order to avoid skewed understanding, recounting of events in practice needs to include more and

wider discussion in order to have access to multiple skills and views. This will enable the use of different skills to analyse issues.

However as the discussions progressed, use of rhetorical questions to seek justifications, reviewing and summarising of views as one takes a turn to comment, seemed to help the individual become more critical in their comments. Sounding more critical about their teachings Oneal said 'I think our discussions now have given us much information about our teachings but when we are discussing our practices, we need to know how school policy is directing us to teach especially preparing them towards final examinations which is a school policy'. This excerpt shows how he was now emphasising policy related to their practices.

Oneal's transition shows that in such discussions, individuals from the outset learn new things. However overtime what is learnt gives them much more understanding of the various events that make them export what they've learnt to other situations.

3. Aggie

Within an interaction group, whereas knowledge based on technically and professionally accepted views are expressed, ideas based on common sense knowledge that lack relevant and appropriate requisite knowledge on topics of discussion are also expressed. Such knowledge is principally underpinned by personal assumptions that are hard to analyse or can be proven to be acceptable or not. The evidence shows that the attempts lack objectivity. Using such personal assumptions in respect of reflection is what Hatton and Smith (1995) referred to as 'mere description' and not reflective description. The argument here is that within any interaction, it is possible to have individuals within the group being unreflective as was the case of Aggie, whose submissions from the outset were frequently characterised with 'to the best of my knowledge, I think...' without any evidential reasons.

However, over time, comments on any observations which were supported with reasons were common. That the teachers were becoming aware of and being able to identify differences with reasons as a result of various indications was what the study showed. This promoted the move from an unreflective stance to a critical reflective position. Exhibiting such behaviour, Aggie could link ideas by saying ‘from the way Oneals interacted with the students in his second lesson, and from what I gathered from Catherine’s way of organising the chalkboard, I think I need to adopt.....as the school policy demand such behaviour’. Further, she was able to identify inconsistencies in the use of the chalkboard when she said ‘it was not a very good display of chalkboard work’. Aggie’s behaviour demonstrates that she was being a bit critical about her reflections.

Aggie being critical indicates that she’s concerned about ethical and political issues regarding the action observed. Emphasising this she said:

It is the right of the children to know why we are teaching them. Let them know the implications of some of the lesson to their future life because it is a policy to make our lessons more practical and to support them in their future life.

Clearly Aggie’s shift, from using ‘common sense’ to a more analytical stance, demonstrates that differences exist between intention and outcome in reflection. Her initial intention to describe what she saw, through becoming aware of not just to describe but to further provide reasons, supports Hatton and Smith’s (1995) view as stated in literature. One significant outcome was the fact that her shift was the result of how she and her colleagues reached consensus and agreed on what they observed without any force. This is because in most activities underpinned by PD principles, Hatton and Smith posit that major departures from the initial position are forced by either internal staff opposition or radical external intervention. From the view of Hatton and Smith, what has occurred in this study is that even though the participant willingly opted to be part of the study, the process outline seemed to put some external pressure on them. However it can be inferred that her initial posture provided the basis for a change leading to exploring alternatives in provisional ways. The reason is that she became aware that analytical skills can better help one’s shift in reflection rather than the use of common sense.

The relevance of analytical skill in processing teaching practices is crucial to support a shift from descriptive reflection to critical reflection. It is argued here that in engaging in any reflective activity, individuals need to have an appropriate and relevant knowledge base of the activity. Further, it is suggested that the acquired skill needs to be relevant to the goal of the activity, since it is through this that reflective shift can be realised as in the case of Lydia. Care and effort therefore need to be taken if effective shift is required as it could support better understanding of issues.

4. Lydia

Lydia describes teacher-student interactions, basing her reasons on the set objectives of the lessons. Her analytical posture is gained through scrutinising the objective of lessons, using what is said and observed to talk about the lesson. She thus based her view on facts available to her. She thinks one cannot make any 'value judgement when one has no facts about what one is about to say'. The idea she cherishes is about the fact that one need not 'jump to try to draw conclusion before determining what is worthwhile'. She further said 'describing a lesson for describing sake does not tell the one what you have seen. You need to locate an action and make reference to it'. This excerpt was taken from the instance in which she expressed surprise about the legitimacy of teaching which is not structured along lesson preparation.

She later, as the process continued, added another dimension to her comments by talking about structuring and managing action related to school and national policy. To her 'the lessons need to be structured and delivered as demanded and structured around the way we organise our teaching lesson'. Continuing she said 'lessons are planned to help students achieve various levels or objectives; they need to be part of the lesson'. Such strong support for giving prominence to students permeated her thoughts.

Lydia's reflective transition was characterised by the use of facts about actions observed to closely examine lesson structure and policy in-depth in order to identify and link the overarching issues from pedagogical perspective. Being ignorant of how the process journeyed from the outset marred her initial reflection and saw her focusing on issues that were different from her later analysis. Her goal at each point in time was different, however it would have been appropriate if a range of ideas were raised initially and later examined. Her analysis therefore was multi-dimensional, and as she moved on to different trajectories at different times, her reflection was clouded with complexities due to the multi-dimensional nature of discussions.

Summary

The teachers' interactions saw them recounting and raising probable questions that aroused their thinking to offer reason for deficient practice. The sustained interactions saw their reflections emphasising school/official related policy, deeper critical thinking, more complex analytical ideas related to socio-cultural issues and the emphasis on well-structured school activities.

Catherine's shift was influenced by the continuous and systematic organisation of activities. On the part of Oneal, his shift was influenced by the way he uses rhetorical questions and self assessment, however he generally focused his analysis on few aspects of his teaching like concentrating on subject content of a lesson. Aggie exhibits a change that is indicative of the difference between intention and outcome of an event. She thinks it is based strictly on how she finds it appropriate to offer comments. Lydia was more concerned with scrutinising the objective of what is said and observed so that she can talk about the lesson. Her analysis is based on use of facts about actions and closely examines events. She exhibits multi-dimensional analysis as she uses different trajectories in her analysis.

From the views expressed by the participants as discussed above indicates that from the outset invalidity and inconsistency in arguments characterised the discussions. The participants merely recounted what they observed without any reasonable evidence to support their claims. Such an initial attempt is what Hatton and Smith (1995) claim is not reflective. Difficulties identified included the teachers' inability to link their knowledge in subject content to their pedagogical practices. As discussed in chapter four, the inconsistencies realised in dealing with dimensions focusing on specificity contributed to their descriptive stances in their analysis. Illustrating this, Catherine remarked 'we need to identify reasons that will make our claims more understandable'. This remark explains how she descriptively reflected. Further she mostly used questions like 'what was not good about what you saw?', 'how do you think the teacher can explain the subject matter well?' and 'what went well and why?' were what Catherine used to help find reasons to justify her claims.

Sustaining the questioning strategy resulted in the participants advancing their accounts to school policy. Significantly, their accounts on the deficiencies identified were more on the difficulties in realigning their practices to their immediate school policies. This is confirmed by the following statement made by Catherine 'when discussing our practices we need justify any claim we make for effective transfer of ideas. This is what the educational policy is all about. If we do that I hope we will be able to know what to include in our lessons to ensure our students attain good grades at the end of their course.....since mostly the final examinations wants the students to display quality and thorough learning'.

Whilst it is evident that they all descriptively and critically reflected on the practices that were analysed, different factors influenced their shift processes. However, regardless of their analytical base, it would appear that the teachers seek out to develop deeper understanding of their practices as well as processes that seem appropriate and relevant when developing the deeper understanding. Rarieya (2005) has suggested that at the centre of discussing their practices, in the absence of sufficient reflective ability, the teacher will not be able to bring his or

her knowledge to the appropriate professional level, and the participants in the study described the process they used as being descriptive and critical reflections to develop the understanding but each went through the process differently.

5.1.2.1 Differences and Similarities in Descriptive Reflection to Critical Reflection

Even though all but one of the participants exhibited descriptive reflection from the outset, they all demonstrated critical reflection from their comments however there were differences in the process of the shift. Whereas Catherine's shift was a way of linking her descriptive reflection characteristics to the critical reflections, Aggie, was observed to initially not reflecting, however her later behaviour showed she recovered and began to critically reflect on observed actions. Lydia's shift was informed by the creation of awareness where ignorance gave way to objectiveness.

The cases travelled through different reflection processes and in a sense through their substantive comments on actions observed. Significantly there are differences in the way they analysed the teacher-students interactions on the specificity dimension. Furthermore it was realised that when the teachers discussed the same topic they seemed to have individual different goals. For instance Oneal did not understand why Catherine focused her comments more on the students' final examinations while Lydia talked about managerial skills of his lesson when he said 'I do not understand why the two of you are saying two different things about my lesson instead of all of us focusing on, for example, lesson presentation before moving to another'. This excerpt explains differences in their thinking about a teaching practice.

In addition to the fact that the IP process provided an environment for the shift in their reflective journey, a variety of factors including personal relationship, policy issues, subject and pedagogical content issues provided the means of support for the shift. These saw each individual's shift from descriptive to critical reflection.

tion differently exhibited. All their shifts are traced to how their goals and what their school policy enjoins them to do. Within the shift, they valued making sense of the interactions and were willing to discuss in detail and at length.

Similarities and differences are also observed in the use of elements of questioning to develop in-depth understanding of their practices. When the participants were asked questions by their colleagues about teacher-students interactions, what was natural for the teachers at this point was to focus on what the teachers in the video were doing. All respondents could retell what took place in their teachings and that of their colleagues. Differences in this area were seen in the fact that while all were critical of or thought about what the teacher did, they did so either in relation to how their teaching actions could be managed in such a way that what the school policy entails them to do could be achieved. Such awareness made them question how ethical issues can be resolved when they are teaching.

In sum, the start of the interaction saw the participants just retelling and recounting what they observed. However it was through prompting and questioning that they recovered to analyse what they observed more critically as they related their comments to school policy.

5.1.3 Unorganized Reflection to Organized Reflections

From the data, the participants acknowledged that their arguments were generally inconsistent, unsystematic and incoherent from the start of the discussions but later developed into arguments that were more systematic, coherent and consistent as a reflection process. The following excerpts explain these:

What I have noticed is that, initially our arguments showed we did not understand what we were doing as our arguments were inconsistent (Catherine)

I saw my initial contributions were not systematic, but I could see I later came out with systematic views (Oneal)

I was really confused since most comments from some of us were not coherent initially; however I was delighted to see more especially Aggie coming out with systematic and coherent arguments (Lydia)

1. Catherine

In her attempt to support colleagues in trying to know themselves, Catherine presented different views on particular skills from lesson to lesson. Similarly, inconsistencies were observed in her attempt to recount on lessons initially. However, she became more organised in coming out with thoughtful ideas about what she observed in the later discussions. She noted that ‘...if ideas are presented in systematic order as we do in our teachings, which never occurred to me initially, I think better understanding can be derived from it’, a statement which sums up her shift to more organised reflection.

Catherine’s initial reflection under this scale shows she probably did not really know and understand what was going on with regard to reflection but she later structured her thoughts to form her opinion about what had happened. This idea supports the views of Pollard et. al (2008) who believe that in an attempt to gather information people initially find it problematic to organise their thoughts when involved in some discussions.

2. Oneal

The study drew attention to Oneal’s inability to reason out the purported aim of the interaction regarding interpersonal abilities as well as encouraging the other participants to appreciate and value their abilities. This is crucial in reflection because, as Hatton and Smith (1995) think, being able to understand interpersonal relationships improves reflection. Expressing surprise at some specific behaviours put up by participants, Oneal continuously lamented his inability to understand what he was seeing in the behaviours exhibited by the participants. He stated, ‘I find it difficult to understand and come clear the way you all make the concepts you teach understandable to the students’. Furthermore, he said ‘...how do you understand the way you have been teaching, we can only do this if we encourage ourselves and to appreciate that our performances are making an impact on the children?’ These questions were raised as a result of not hearing any of the participants applauding their work after the observations.

The progress of the process made Oneal come out with arguments suggesting how he appreciated the participants' ways of teaching. His comments show attempts to transfer skills. His later arguments show how he recovered and used the trajectory of lesson presentation as the sequence of his arguments. To him:

...we can come out to comment on any one's practices if we follow the logical sequence of teachers' way of introducing a lesson, chalkboard work, how students are involved in lesson and the subject matter of the lesson...

This second analysis strategy by Oneal explains how, in the mist of varied lesson presentation, he chose such a sequence. His choice can be problematic, especially in an environment that is not familiar as it can cause individuals' reflections to become blurred. However, the study activities presented circumstances that support systematic organisation of activities; hence following such a route can support a shift from the unorganised reflective property to a more organised reflection.

3. Aggie

Blurred thoughts on reflections also seemed to be influenced by one's inability to sort out thoughts and views expressed by other participants on observed practice. Such difficulty emanates from varied factors. One such factor is about the individual not reflecting on what was observed but on what ought to have been done. This explains why reflection is about analysis of experiences encountered, by actively attempting to make sense from what we observe, rather than always learning from experiences.

Depicting the blurred behaviour Aggie said 'What are we doing? Are we to observe and talk about the bad sides of everyone's teaching or are we from the teaching actions to see where we can also make mistakes?'. Her comments suggest that she did not comprehend what the exercise was all about initially.

While Aggie did not question the way the participants went about analysing what they observed as suggested by Hatton and Smith (1995), she questions the or-

ganisation of the lesson content and how it could be improved. In addition, she also reflected on what ought to have been done and not what was done. The type of lesson plan she used to prepare her lessons and how she followed the planned lessons in her teaching influenced how she offered comments after gaining understanding of the process. She believes there was the need for well organised and consistent thoughts when discussing teaching actions. However, during the discussions she thinks there is a need for short term organised thoughts to resolve unattended issues that have long term effects on the discussions. This contrasting evidence shows how she considers putting down plans and implementing them differently.

From Aggie's comments, this long term organisation of thoughts influenced her thinking when commenting on any action. This coupled with other elements such as being well informed about what is being discussed, personal experience and discussing teaching actions with colleagues was what she endeavoured to understand and speak about in terms of teaching actions. As Osterman and Kottkamp (1993) and Day (1999) point out, the act of engaging in discussing teaching activities with colleagues to understand their teaching actions is an indicator of reflection.

4. Lydia

It is argued that self-monitoring is essential to critical reflection (Hatton and Smith, 1995). Similarly Dillenbourg (1999), and Marquardt (1999) have all opined that it is essential to monitor reflective activities. Reasons are that in an emergent process, hidden assumptions and implicit value choices need to be brought to the surface so that new ideas, skills and attitudes can be learned. However, in the study Lydia experienced difficulty initially in reflecting and monitoring what the others said, as well as the progress of the discussions against the focus of activities. Her attitude generally was not interested in the gains she might get from the exercise, rather her attention was on why a particular behaviour was

necessary for a particular lesson and not others. This made her use several examples to buttress her contributions, which mostly were out of focus.

Furthermore, she was emotionally disturbed when challenged, for example to substantiate comments made by her, such as ‘I was so much scared from the start as the multiple voices asking me to substantiate my contributions at times throw me off board’. To her, repetition and frequency with which ideas are affirmed by other colleagues supported her to prioritise and organise her ideas. The understanding she developed from the feedback she received from her colleagues enabled her check and find out the meaning of some of the actions observed and also how to prioritise the ideas.

In addition, the organised nature of the activities supported her in following arguments and analysing issues. Quite evident in Lydia’s responses is how she ordered her ideas. To this she said: ‘...my viewpoint about any teaching action from the dialogue so far is about connecting what I see, talk about and getting all similar ideas in the order of how lesson are well organized’.

Lydia’s shift is a clear manifestation of the way people try to interpret meaning through reflections if they encounter a novel activity. Such novel activity from the start has participants encountering difficulties in sequencing and promoting understanding, however over time, well organised thoughts are achieved.

Summary

The analysed data indicates how the IP is a strategy that can provide participants with the attention needed to examine how their skills are applied in a small, controlled setting. The teachers were found to organise their thoughts well as they interacted with different types of knowledge that are intertwined and organised not according to type, but rather to the problem that the knowledge is intended to address (Gallimore and Stigler, 2003).

Saliently from the study, thoughts expressed on an issue(s) from the initial discussions sometimes were disjointed and ingrained with varied interpretations. With time, more organised thoughts were observed.

Initially their arguments seemed disjointed as they demonstrated inability to make interpersonal comparison, sort out thoughts and views from others and to monitor what others said. Their shifts see the teachers' choosing specific orders for the presentation of ideas, preference for systematic and coherent presentation of ideas, and preference for arguments that sought to transfer ideas to students. Arguments need to follow lesson presentation order, question ways of presentation and sequencing of arguments. They also need to organise, manage and monitor ideas commented on by others.

Factors that influenced their shift include: systematic organisation of the process (Catherine), arguments made regarding lesson presentation and facilitator influence (Oneal), systematic presentation of arguments as well as selection of an appropriate evaluation procedure based on the objectives of a lesson to determine how the person understands a lesson (Aggie) and the ability to monitor a lesson whilst it is being presented allow one to understand the nature of the lesson.

The data indicates how the teachers discuss their practices in real and practical situations using different professional perspectives and sharing existing knowledge and beliefs. They examined how their essential skills were used as inconsistencies, and in this process, unsystematic and incoherent ideas are examined. The inference from the aforementioned show of the teachers' ability to organise their thoughts well on their practices seemed to relate to how they examine issues with their peers and make decisions about immediate behaviours or skills.

From the above, it can reasonably be concluded that particular attention is needed to develop a strategy to support teachers in organising their thoughts well in any discussion on their practices. It is argued that different types of knowledge that are intertwined are organised not according to type, but rather to the problem that the knowledge is intended to address (Gallimore and Stigler, 2003). It is through addressing these problems that the evidence indicated that teachers need to move from unorganised thoughts to organised thoughts through the RD process.

5.1.3.1 Differences and Similarities in Unorganised reflection to organised reflection

All the participants shifted within this scale however, each went through different reflection processes. Whilst Catherine could not initially help others to understand themselves, Oneal could not compare interpersonal abilities of the participants. On the other hand Aggie had an initial problem of sorting out views from her colleagues deemed acceptable, and Lydia was not able to monitor how ideas are linked to discussion topics.

Catherine made it clear that she did engage in ‘reflection on her comments as she tries to make it more structured’. The idea of sharing and collaborating shaped the kind of discussions Oneal thinks influences his ways of putting thoughts in some order. Lydia employed reflection or ‘thinking about’ and questioned the relevance of structured contributions to reflections. Giving thought to, and the employment of questions regarding views expressed is what Zeichner and Liston (1996) referred to as the use of questions by teachers as an aspect of reflection. She in addition was not only generally concerned with how the teachers go about their teachings as observed, but also reflected on their differences, with the aim to understanding how they teach. The idea of thinking or reflecting on any aspect of teaching with the aim to improving or changing is a characteristic of reflective teaching as stated by Cunningham (2001). While Aggie was also concerned about this area, she not only questioned it, but the process of questioning led her to become proactive in addressing her perceived idea that organising thoughts in sequence promotes better understanding.

The attempts made by the participants to organise their thoughts clearly explains the difficulties involved when reflecting in a messy environment with the purpose of developing meaning from actions observed from within the environment. The implication here is that, as each individual's shift is dependent on factors unique to each one, some can be shared. However trying to harmonise such complex and varied factors is a problem. In conclusion, reflecting to organise ideas seemed difficult, however proper organisation of activities can support such a shift.

5.1.4 Evaluation reflection to interpretative reflection

From the data analysis, respondents weighed competing claims and viewpoints as they explored alternative solutions to issues raised regarding their performances as they examined their own and others' views. Initially they had difficulty with their explorations, however with time they could examine in-depth their own and others' viewpoints.

1. Catherine

Teachers' ability to weigh competing claims in an argument and then exploring alternatives by giving evidence for the views was something the participants engaged in during the study. However, the participants attended to this differently. For instance Catherine, who wields power as a head of department and a resource person for PD activities, made both summative and formative assessment about actions observed. However, she became selective about what was said, in her assessment attempts, to ensure that her position impacted on the reflective activities. She was more concerned, especially when the activities required the extension of some pedagogical skills observed in one lesson to all lessons.

Interpreting actions related to mathematics through reflection was a problem for her, and for that reason she advocates for a formative evaluated structure to support effective understanding of the subject content. She further thinks that with-

out assistance from colleagues who have in-depth knowledge in the subject under consideration, understanding and interpretation of mathematics concepts is difficult to reflect on. She thus calls for a holistic discussion of issues rather than piecemeal ones in which multiple perspectives permeate discussions. As the process progressed, she began to analyse the actions she observed in new ways, specifically to be more interpretive in her assessment rather than merely cataloguing what she analysed. More importantly her reflections focused on what kind of understanding does the teacher get from her analysis.

2. Oneal

Oneal believes that the consistency with which one provides ideas, by following particular patterns in analysing issues, can help develop better understanding. He always wants presentation of arguments based on steps that can bring out understanding with sufficient evidence rather than mere assessment. He further calls for comments that place emphasis on congruence of interrelated ideas. This, to him, can support the development of better understanding of teaching actions and habits.

He believes in self-evaluation or reflection on one's own comments. His belief supports suggestive evidence in the literature in the sense that the act of self-examination is a fundamental tenet of reflective teaching. Cunningham (2001) has pointed this out as one characteristic of the reflective process in which teachers were asked to confront 'self' and the uncertainty about their actions in relation to their classroom experiences and situations. Furthermore, he emphasises the gains one seems to get through engaging actively in discussing one's evaluation, a process with which everyone needs to engage. While it was not clear how Oneal questioned the method, he questioned others' analysis. What he did question periodically was the evidence used to support claims that were not visible in the observed actions and the impact on their discussions.

Providing his interpretation was one of the difficulties during the interactions, hence Oneal mostly placed emphasis on the use of ‘flashback’, something that has been suggested by Minott (2006) aids interpretation. The constant replay of the actions from the video playback made such flashbacks easy for Oneal to quickly link his ideas about evaluating and made interpretation easy. Such flashbacks or replaying of situations makes the purpose of interpretation more meaningful, which according to Coyle (2002), if used well improves practice.

From Oneal’s standpoint, factors like varied access to teaching episodes, which was a characteristic of the IP, influenced their desire to search for explanation and understanding of teaching practices. In addition to Oneal’s view, it enables them to conceptualise reflection as a deliberate cognitive process.

3. Aggie

Aggie’s behaviour demonstrates the difficulty individuals have when analysing others’ views in any interactive activity. The outset saw her making concluding remarks regarding the actions observed. Furthermore, she acknowledges her difficulty to analyse what others say during discussions.

Even though the frequency and regularity of her other participants’ offers of support for their comments was something she acknowledged, she doubted her ability when she said ‘I need to understand carefully what I think about what one has said before assessing it, if even it will take me a whole day to do it I will do that’.

Even though she believed in-depth thinking can support better interpretation and thus suggested that it ought to be linked to one’s previous experiences, she had the difficulty of interpreting what one says about an action.

Quite clearly Aggie’s reflections were prompted, or she relied on information or comments provided by her predecessor as she took her turn to comment on an

issue. Mostly her arguments were based on what one has said which she either complimented or criticised. This behaviour supports Rareiya (2005), who points out that the act of engaging in dialogue to develop understanding and to be able to interpret actions is an indicator that helps participants work within reflective levels.

Aggie's inability to effectively analyse others' views relates to her belief that variations exist in individuals' thinking processes in assessing what they see, which she is not privy to, hence analysing such thoughts is complex. However, agreeing or disagreeing on what others say acts as a trigger for her to question others' views. Further, she thinks questioning her attitude about discipline, as well as self-evaluation of her own comments informs the way she interprets what she hears which is a behaviour Dymoke and Harrison (2003) indicate is vital to interpret actions.

4. Lydia

An examination of Lydia's comments indicates she prefers for each one to assess what he/she hears and form his/her own opinion about what they heard. She thinks sharing such experiences with colleagues can motivate one to seek and ask for more information for clarification rather than presenting evidence that is not practicable. In the absence of getting other colleagues to discuss teaching actions, looking at one's own actions with an open mind is her preference. Being willing to engage colleagues in a collaborative endeavour where reflective views permeate such interaction to understand one's teaching action is something stressed by Day (1996).

She also emphasises self evaluation of one's own analyses of teaching actions. However, she thinks this can be done if teaching activities are well organised and the analysis follows the manner in which the teaching actions are organised. Furthermore, from scrutinising her comments, she formatively re-assessed comments made by other colleagues and offered interpretations continuously. She was thus

seen to critically examine and process what she heard in the discussions. One difficulty she faced was when the judgments were based on opinions just like hers. Analysing others' opinion is what she claims '...very difficult to do since you cannot objectively verify it'. Her behaviour in the interactions in the later stages was how she concluded every submission to any observed actions before explaining and interpreting how she evaluated the observed actions. To her, it is important to 'let the people know the end product before you interpret how you got there'. This is illustrated from her justification in the following quote '...you write the formula for finding simple interest on the board for the students before explaining the elements in the formula'.

The issue of 'best practice' to her depends on peoples' assumptions, values and beliefs about what they say about any action. This caused her to seek out others' views on her practices. To her 'getting others' views are important because everyone has a way of placing values and how his/her belief about such an activity means'. This point means the understanding other people have about an activity is crucial to determine how good the activity is. This will depend on the effectiveness of the alternatives offered, which makes her question most of the alternatives given, '...are the options offered practicable and realistic?' This makes her believe that it is better to be objective in interpreting what one says. She thus is seen to emphasise reflection-in-action during any discussion period. She felt being flexible and able to adjust to the various interruptions during discussions enabled her to frame her views in such a way as to infer interpretations.

Summary

The participants were selective and engaged in making summative evaluations based on their own thinking of what is right. However the shift saw them holistically and mutually discuss issues to find out how teachers can understand practice. They self evaluated and advanced their ideas to other similar observations as they asked for evidence of all views to develop better understanding. In the end they seemed to formatively evaluate events rather than simply carry out one-step analysis.

The shift was influenced by the following: engaging in analytical reflection by adhering to the rules and guidelines and the facilitator comments (Catherine); use of flashback, attempt to minimise backwash and the multiple accesses to various teaching actions that influenced his thinking (Oneal). Aggie was influenced by the frequency and regularity of which the participants offered reasons and support. In addition, she relies on prior comments made by colleagues to her and this disagreeable stance allowed her to question some views of the other participants. She had the problem of not being able to question views initially but moved to a position in which she was more able to question all views while discussing issues. Lydia changed from being summative in evaluation to more formative with the view that the latter gives much better information than the former.

The picture that emerged from the data suggests that the teachers had the thinking that understanding of their practices is tied to deeper and more purposeful interpretive reflections.

5.1.4.1 Similarities and Differences in Evaluative Reflection to Interpretive Reflection

From the outset, all the participants expressed concerns about what their colleagues said regarding their pedagogical skills. However, as outlined in Table 5.1, differences existed in the factors that influenced their analysis of what their colleagues said. This included factors such as personal opinion, self-evaluation, sharing of views, effective communication, questioning their views and actions, continuous evaluation and emphasising formative evaluation instead of summative evaluation. Primarily addressing differences in the analyses and developing better understanding of comments made were the focus of the participants' comments.

These are captured in the following excerpts:

From my personal opinion, I think one need to move away from evaluating issues to rather interpreting what observed about the issue as we share our views (Lydia)

One can only be at the better position to interpret what observed if the one can self evaluate his/her actions well (Catherine)

To be able to either do end assessment of do it continuously depends on how one communicates such views to others. In addition one need to be able to question own and others' views (Aggie)

Self evaluation, adhering to formative evaluation principles, questioning one's views or opinions, influencing the reflection process were important for Oneal and Aggie. Oneal emphasises moving away from conditionalities and doubt about opinion on whether it can be practicable to self evaluate. Questioning one's opinion was a more appropriate and useful way to respond efficiently to interpreting unforeseen circumstances that may arise during one's narration on the teacher's comments. Furthermore, flashback and following developed ground rules by the participants themselves are possible ways in which teachers can interpret their colleagues' comments properly.

However, differences existed in the factors that influenced their self evaluations. For example, whereas Oneal self reflected in his comments, Aggie could not reflect on comments of others' discussion actions initially. However, with time she shifted in her thinking. To her: 'one needs to be proactive when analysing others' analyses of teaching actions since using practical experiences to support claims made can direct how one interprets an action'.

On the part of Catherine and Lydia, they expressed their views that cross hierarchical levels, adhering to policy, the use of common sense knowledge and heavy dependence on summative evaluation are factors which made the difference in their evaluations. However, the frequency of activities, continuous assessment, the extent of interpreting what is said, information sharing and multiple views are factors that influenced their shift. Catherine could relinquish her authoritative stance, as multiple views expressed about her analysis influenced by her expression show that in teaching authority does not matter, instead acceptable practices

are required. Lydia also felt that being flexible and the extent to which one interprets actions by including values, attitudes and impressions promotes better reflections.

5.1.5 Summary

To summarise, all the participants believed that active involvement in RD supported the shift in their reflections. Differences in the way they reflected rested in personal characteristics, the way activities are structured and the attention given to how significant an event is to the individual. Each of the participants' shifts is prominent in one of the reflection scales. For example Catherine showed a drastic shift in deliberative judgmental to supportive reflection, Aggie in unorganized to organized reflection, Lydia in evaluative to interpretive reflection and ONeal in descriptive to critical reflections. These shifts happened when they employed 'thinking about' and questioned aspects of their teachings and views that related to the observed actions they observed.

While they all showed movement from one scale towards another scale in the bipolar reflection scales, they did so in relation to how they taught and how best to utilise their classroom experiences and their complex group dynamics to reason about the actions they observed. Various factors influenced the way they talked, communicated, agreed, disagreed and developed consensus as well as how they were able to address both psychological and social issues as they collaborated.

5.2 Discussing the facts about the reflective scales

The views of all four respondents suggested that in reflection, the process shows that the participants were beginning to examine the actions using their essential skills or generic competencies as often applied when teachers see their own or others' teaching actions for the first time. This process seemed to show how they tried to test their personal understanding of how they teach, how the activities

influence what they do, the extent which they think about the actions they observed. This is what Schon (1987) describes as Technical Rationality, where content ideas are tested or assessed. The participants based their reflections on their technical knowledge. The participants, in an attempt to resolve an identified problem or deficiency, used such skills knowledge to try to interpret what is acceptable. It is not advocated for teachers to say they are using such skills, but how they carry out their analysis, and the manner in which it is delivered, should reflect possession of such skills and concern for better understanding. Rareiya (2005) is in agreement with this thought.

The teachers' shift along the reflective axis suggests that teachers, in the process of their reflections, change the way they reflect over time. That is, the start of their reflection changes as they continue to engage with reflective activities. The shift happened as they were able to provide accurate and complete information. The following section discusses how each of the scales tells how each of the participants' reflections influences their thinking about their practices and what is expected of them.

5.2.1 Deliberative judgement reflection to supportive reflective

In explaining how such reflective scales can be integrated into teachers' dialogue, the views of all the four participants suggested that they were dealing with on-the-spot professional practice problems processes of reflection. The manner in which they try to share their views in an attempt to resolve deficiencies and develop understanding of their practices motivated them as they used direct experiences to support and get support for their efforts.

Underpinning their ideas about why they reflect relates to the work of Schon (1987) and his two concepts: reflection-in-action and reflection-on-action. Schon's idea regarding the concept of reflection suggests that there is a direct connection between the two concepts during discussion on an action, both of

which involve an individual seeing something for the first time trying to identify a new situation on the action. This means that during such discussion the two concepts go together (Rarieya, 2005). However Fook and Gardner (2007) state reflecting on a practice is finding a better way to practice. While no one can disagree that teacher often comment on their practices upon seeing them. Most often they make judgemental comments regarding the positive and negative aspects of the observed action. As they reflect and discuss the practices, the case study evidence indicates that they deal with the identified deficiencies in a way which allows them to resolve the on the spot practices to develop better understanding of the actions. One significant observation was the way the teachers reflected-in-action as they discussed the actions and through it they could descriptively discuss reflective and supportive reflections. The evidence gives credence to what Hatton and Smith (1995) think about effectiveness in such reflective processes where there is the need for support to create different forms of reflection for exchange of technical ideas. Such roles will enable them to conduct their analysis on the action observed.

Views expressed were used as evidence indicates how the participants analysed their actions by seeking clarification and justification using questions. For example, ONeal said: ‘what evidence do you have to support what you have said’. This is based on how they noticed and understood what they did and why, based on their own conclusions. In the same vein the participants offered supportive reflection by giving encouragement or assistance through discussing their concerns and difficulties with any who may have problems understanding an action.

The data further indicates that such judgmental and supportive ways are influenced by human personal factors which include their prior experiences and emotional sentiments. Here issues related to their professional skills, lesson delivery and the practical realities of their lessons coming from their experiences informed their thinking. Finally in striving to accommodate varied perspectives, their efforts to provide better quality analysis and addressing challenges have some emotional attachment.

The entire set of responses showed such judgemental and supportive ability. Their judgements were a way of shaking their assumption about their practices to find new and better ways of practices based clearly on different ways of thinking. From the actions observed they based their choices on preferences through critical questioning. It was through these preferences that emotional issues cropped up. For example Catherine's reactions to how the rest remarked on her inability to differentiate perimeter and circumference well generated much conflict between her and the rest of the group.

Being able to reflect continuously to give supportive remarks seemed to be dependent on being accommodating, open and willing to accept any option given. Developing such ability is time-dependent especially within an environment where complex behaviours are always exhibited. Fook and Gardner have said time and timing is crucial for reflection. Potter and Badiali (2001) commented that stepping back to reflect on issues is time dependent.

Earlier in this chapter it was stated that the case study participants' substantive comments based on how they view the interactions are used to determine their shift. It is therefore fair to suggest that this is possibly the reason why they differ in the way they attended to issues, hence the difference in their rates of reflection. Hatton and Smith (1995) did not emphasise so much the factor of time in their reflection, however the students' stepping back depicts all that has been said about reflection, but with this study the participants' reflections alongside the discussion makes the reflection more functional, as they reflected during the discussions. Solving problems with this strategy goes to strengthen their understanding of their practices.

The findings from the analysis based on reflection seems to suggest that a teacher's ability to engage in reflection for improvement is possible and sustainable when the teacher is open-minded, wholehearted, responsible, willing to take risks and has access to alternative ways of teaching. However as Gallimore and

Stigler (2003) claimed, 'one of the major barriers to changing teaching is the narrow range of instructional practices that teachers observe as students' (p27), but this study exposed the teachers to a way in which they could deal with their on-the-spot problems by sharing their reflective views in an ongoing manner and not later after the discussions. From my experience of engaging teachers discussing their practices, even though feedback from such discussions is preferred, the differences in individuals' response rate can affect the quality of feedback given. Having quality analysis is tied to reflection as suggested by the following scholars: Tigelaar et al. (2008) and Bereiter (2002). In conclusion even though quality of analysis is prerequisite in this reflective scale, time constraints tend to affect it as individual-specific characteristics influence what one says.

The frequent identification of deficiencies from their use of their technical knowledge, which Schon (1987) talks about as technical rationality was crucial in this reflection exercise. One method of reflective support is to be able to offer appropriate and relevant professional alternative. The teachers within this scale felt that they were learning something though they were hard put to pinpoint what effect the shift was having or had on them during the discussions. For example, all Oneal could say was, 'I'm learning. Even though I tend to understand what we have been saying but exactly what I'm learning is difficult to say'.

When teachers continuously engage in discussion to locate contradictions in their practices, most often they look out for deficiencies and try to offer alternatives as support. However, there are times when problems are unearthed without any alternative offered. This situation reinforces this study's original assumption that the teachers could not judgmentally reflect because either they could not resolve the problem due to the fact that they found it difficult to examine further why the identified deficiency is a problem or did not have answers to identified problem. The ability to further examine practice is one element of a teachers' reflective role Fook and Gardner (2007). The idea is that sometimes it might not be that what is identified is the problem to the teacher, but other factors might contribute

to such problems. Therefore, I will infer that the teachers' ability to unearth an assumption about a practice as posited by Fook and Gardner (2007) is a prerequisite to offering supporting reflection.

As opined by Mattessich et. al., (2001) and Fielding et. al. (2005) collaborative discussions are aimed to provide in-depth understanding of issues. The sustained interrogation of the practices over time showed descriptive reflection was tied to critical reflection. As the participants offered options to the identified deficiencies in their practices, they raised issues that relate to personal needs and external demands. Personal needs include the participants' want to improve practices. After raising reasons to back claims, the participants offered options that could attend to the identified deficiency and which teacher could adopt. Their thinking in offering such alternatives therefore seems to go beyond descriptive thinking. Emphasising this Lydia said: '...we need to have in mind alternatives that will help the one whose lesson was observed change for the better'. This excerpt points to the conclusion that, as teachers offered alternatives, their intention was to address the personal needs of individual teachers. These needs are informed by an external policy which demands teachers to always strive to improve. It is this policy that enjoins teachers to be part of in-service training. However, the individuals' readiness to recognise such need is crucial.

5.2.2 Descriptive Reflection to Critical Reflection

Another area which strongly influences critical reflection of the participants is the issue of students' need. Most of the comments made were directed on the teachers in their teachings to think about the influence of their practices to the students. In one respect, they think the teachers need to strive to transmit worthwhile knowledge to the students. In another instance they believed the students need to be well prepared to pass their examinations, especially their final external examinations. The participants' thinking was informed by what the country's educational policy requires them to do.

Reacting to a question calling for justification of a practice Catherine said:

I brought the teaching of perimeter and circumference together. I needed to make the students understand and know the difference between the two. Most often the policy of external examination questions is to test their knowledge about the concepts.

The above data points to the conclusion that in discussing teaching practices, the teachers in their multiple thinking processes become aware and recognise a policy regarding teacher change. The understanding here is that there is the need to consider national policy that recognizes both in-school and out-of-school teacher development activities as has been emphasised by Rareiya (2005).

One significant finding in relation to the descriptive reflection tied to critical reflection in the study is that it is not located in individuals' assumptions that authority and some cultural norms can support such shift. Rather it is developing awareness that critically reflecting is explicably located in, and influenced by multiple historical and socio-political contexts (Hatton and Smith, 1995). Imposing authority on other participants suppressed the participants from raising further options that need to make the participants export their views to multiple perspectives. Emotions arose as the one exhibiting authority refused to accept options offered. Hiding behind cultural norms as the oldest that is considered to store lots of knowledge and refusing to accept any option offered also made other members refuse to offer further options to deficient practice. The resulting outcome seemed to hinder shift within this scale.

From the information given above, it can be concluded that interactions where such behaviours are exhibited sometimes are accompanied with emotional pains. In such situations, deeper thinking by the participants seemed difficult. Also, through such practices members need to adopt strategies to overcome such problems. The participants' willingness, readiness and commitment therefore come into play. In sustained multiple perspectives exchanges within the process, such emotional attachments were minimised. Thus the continuous interaction in critical reflection has been identified to minimise emotional influence that inhibits

their reflection (Fook and Gardner, 2007). As both the initial training of staff and the periodic in-service programmes, the standards expected from the support staff are clearly defined and effectively communicated to all concerned. Thus, the critical functions for achieving the standards have clearly been identified with the learner being the central focus of these activities (Robinson, 1994).

Teachers are not just concerned with practices that will serve their instant goal as they engaged in structured discourse; rather they think about their broader purpose and practice in ways that support their long-term goals. This idea which underpins McLaughlin and Talbert's (2006) description about what teachers do when they engage in discourse about their teachings, is given much interpretation in the study where the multifaceted process encouraged each of the participants to draw, simultaneously and selectively, from each others' views to support their claims.

Through utilising multiple perspectives teachers are able to re-evaluate their fundamental assumptions (Fook and Gardner, 2007) about their teachings. From the various views expressed by the participants, there was a need to understand that the connection between their personal experiences and the broader social context and how they are intertwined as well as how this influences the way they use what they know to what they do. Such a posture made them, from the outset, engage in more descriptive exercises as they tried to link their experiences through recounting processes to what they saw. For instance, the participants were able to justify and share their views on what they observed within the context of their discussions. These ways of sharing of views support the arguments that shared cognition is deeply intertwined with the 'situated cognition' theory (Shulman, 1987). Interestingly, this study has found that there was subtle and covert resistance to sharing of ideas, hence the teachers' shifts were occasioned by how convincingly one uses evidences to support their claims. For instance, Catherine resisted initially any analysis of her performances by the other participants. However, as evidence from the video playback actions was used to support arguments

made she finally said: 'the manner clear evidences were used as reasons to support views expressed made me convinced about their views they expressed'

The participants, through their own and other's voices, explored alternative ways to solve problems that sit in their professional situations. The process saw range of reasons for the actions they observed as well as how they behaved. The critical incidents they described, which were not analysed initially, were analysed in a more in-depth way which provided linkages to other issues of concern. Reasons that they raised regarding their description also had links with other related issues, resulting in many linkages made one event. The way they explored and tentatively examined and shared why actions occur the way they do enabled them to question, explicitly and implicitly, to develop understanding of such events. Questions like why this behaviour?, what is the need to make my teaching more practical? are some of the questions that promoted further inquiry resulting in issues connected to policy of a school. In effect their reflections support Schon's (1987) view of reflection. To Catherine the need to make lessons practicable is 'to help the students understand lesson well to be able to pass final examinations which is a school policy', was also her reason to critique most of the lessons. The participants seemed to develop metacognitive skills and a belief or ideology (Hatton and Smith, 1995) where the goal of their practice was to link the practice to the socio-cultural or external policy of their institution. This normally is not common occurrence in their day to day interactions. However, Hatton and Smith (1995) think such 'critical dimensions need to be fostered from the beginning, for teaching is a moral business concerned with means and ends' (p. 46).

The evidence shows that the process of observing contemporary classroom actions, critically dialoguing on observed actions, raising reasons for what is observed and subsequent using feedback from the discussions, is a powerful strategy for developing understanding of actions. This is emphasised in the following views expressed:

What is discussed really has relevance to my next lessons always (Catherine)

I am really enthused with reasons that are given for any action observed. It really influences what to always had to teach (Oneal)

The transformation of the participants' reflections through talking, as they questioned and confronted each other in a trusted way, makes it very important. For example Aggie said 'I know what Oneal is telling me about vectors and coordinates are true and I have to accept it wholly'. The ability to reflect and accept one's own deficiency wholeheartedly is what teachers need to adopt in their practices. They therefore have to be open and willing to hear and understand (not necessarily accept) other alternatives (Fook and Gardner, 2007). This can be done as they scrutinised their practices together as they willingly engaged themselves, which seemed to foster better reflections. Even though such behaviour is what Schon points out as necessary to develop proficiency in reflection, the process through which these teachers went does not necessarily explain proficiency but it is the extent to which one reflects about an action. It also created the opportunities to identify the level for giving voice to their own thinking.

The way they examined their thoughts made them realise the extent of the thoughts expressed. Being able to exchange views cordially is one way to understand how teachers' personal lives are closely interwoven. Oneal acknowledged one particular situation as important more especially as 'it allowed other reasons other than what I came out with were given'. This process of reflection seemed to motivate them to be strong and to continue to further explain and seek more information about their practices. The way the interactions were characterised with objection, rejection and disagreement explains the robust nature of their explorations. These behaviours were labelled 'negative' by Aggie, but I disagree with her opinion because within any interactions underpinned by identification and aimed toward finding solutions to problems about teaching such behaviours are normally experienced. Such behaviours stimulate other thinking processes like questioning and in-depth analysis of the issue. The objections and rejections are only questioning the process. What is important is that it is not the questioning which is necessarily informing reflection, rather it is the climate for learning they created (Fook and Gardner, 2007) and the sorts of responses which facilitated such an environment.

In the discussions the participants' voices were not used to verify whether an action was good or not, rather they gave evidences to why the behaviours were observed. As the participants mulled over, or tentatively explored reasons as to why such events happened, their behaviour supports what Hatton and Smith (1995) and Rarieya (2005) have advanced with regards to talking about actions by teachers. The participants thus reflected on and reflected in the actions and the process as they looked for the reasons for any event observed. However, they reflected on what they observed, but the concerns could not be verified even though they gave reasons for such behaviours. The insightful evidence from their exploration can be used to support the idea that the claims they made were purely based on what they observed and not how to verify what was observed.

The behaviours of the participating teachers seemed not too different from when teachers meet, especially in their staff rooms to discuss their teaching actions (Neil and Morgan, 2003). However what could be considered as a subtle difference was the manner in which the interactions in this study were organised. It was more than the casual interactions in which teachers ground their discussions generally to resolve identified problems. This was more for them to understand and know the rationale behind any observed action.

However as Hatton and Smith (1995) put it, the identification of a suitable knowledge base as a starting point to develop arguments in such an interaction is difficult. In this study, this was addressed by the participants as they discussed in a shared and negotiable manner both the subject and pedagogical content generally and specifically during the discussions. The descriptive phase seemed to develop the knowledge base upon which further analysis of events seemed to be guided.

5.2.3 Unorganised Reflection to Organised Reflection

Hatton and Smith (1995) point out that the most difficult aspect for fostering reflective approaches is the eventual development of a capacity to undertake reflection.

tion-in-action. More especially reflecting on one's own practice, calls for the ability to apply, singly or in combination, qualitatively distinctive kinds of reflection (namely technical, descriptive, dialogic or critical) to a given situation as it is unfolding.

From the data analysis the participants' inability to organise their arguments in a consistent and coherent, yet thoughtful manner initially was due to some personal worries and their previous experiences. However a more logical reasoning and systematic presentation supported the participants' transfer of their skills to others later. This change process is the discussion in this section.

Quite clearly the case study evidence suggest that the process was making the participants begin to examine how each was to use essential generic skills competencies as often applied in controlled, small scale settings (Hatton and Smith, 1995). However, with the study located in a collaborative environment, their examinations initially seemed disjointed.

From the findings, it is evident that quality of reflection is enhanced by exchanging experiences and ideas with others as agreed by the following scholars: Tigelaar et al. (2008), Bereiter (2002), Jung et al. (2005), MacDougall and Drummond (2005).

These writers and others, such as Fook and Gardner (2007) also agree that effective reflections depend on how ideas can be systematically and coherently organised. Through regular interactions, Rareiya (2005) states that the teacher is better able to reflect and sustain manner when the teacher is open-minded, wholehearted, responsible, willing to take risks and has access to alternative ways of teaching.

All respondents reflected in action as well as on their 'espoused theories' and 'theories-in-use' (Schon and Agyris, 1978). For three respondents, reflection centred on their how to organise their thoughts and the degree to which they personally influenced the organisation of their thoughts. In other words, they employed reflection-on-action during the discussions. For example, the primary purpose of analysis of views by Lydia was to see if the stated objectives of a lesson were achieved.

However, self-evaluation was also important for Lydia, as well as Catherine and Oneal. Oneal and Catherine used this to see if they understood their practices and how effective they were in their analysis. The act of self-evaluation is a characteristic of a 'more-reflective teacher', as pointed out by Coyle (2002), Posner (1989), Zeichner (1992), Hyrkas, Tarkka and Ilmonen (2001), and Hatton and Smith (1995). Cunningham (2001) points out that one characteristic of reflective teaching involves teachers asking and confronting 'self' and the uncertainty about their teaching, in relation to classroom experiences and situations'.

Lydia, in her evaluation, focused specifically on how the observed practice could demonstrate the degree to which certain skills were used. Peer and self-evaluation carried out by teachers is not new, but the findings in this study underscore that it is a viable way to get the teachers to make sure theirs and others' actions are thoroughly explored and for them to take responsibility for their own learning and empower them by getting them involved in their own development process. The idea has clearly been suggested in literature by Pickett and Dodge (2001) that to achieve this, one needs clear ideas of what is expected of them in terms of specific performance.

I am in agreement with Pickett and Dodge in that getting teachers to self evaluate their own practices will aid them in taking greater responsibility for their own development. I think this is important because as a teacher, I occasionally need to reflect to understand my progress in teaching.

Arguing along this same line Villages-Reimers (2003) thinks teachers need to get involved in reflective PD activities to self develop by carrying out 'self-regulation of development efforts'. This means that teachers over time need to take charge of their own development. My belief therefore is that one criterion of an effective reflective person is to be able to self evaluate in the process of discussing practice.

Other aspects of organising thought involve knowing what to evaluate and setting the criteria for evaluation. Minott (2006), citing James-Reid (1983), stated that teachers should be deliberate in planning for evaluation. Deliberate means that during the process of planning for evaluation they should determine the purpose, decide on the means of measuring the processes and outcome and collect information via observation and careful monitoring of activities.

All the participating teachers in this study established a purpose for their organisation of thoughts as they used phrases like 'systematic' and 'coherent presentation' to acknowledge the impact of the process during the RD. However differences exist in their views, which rest in the ways they explain their thoughts. Although all respondents used questions in requesting the identification of deficiencies, they did not question the process they used in their questioning. Nor did they question and consider the degree to which their assumptions, values and beliefs about what they observed influenced how they organised their thoughts. For instance, Oneal used flashbacks in his arguments. He felt: 'flashbacks can let me know the next step to take'. From Oneal's point of view 'flashback' help him link one idea to a previous one and made him more reflective. Using flashback as suggestive literature evidence is important and describes a competent, reflective practitioner (Coyle, 2002).

Oneal's inability to differentiate between interpersonal skills was a concern he identified in this study. Expressing his view he said:

from my personal experience as teacher, I sometimes share with colleagues' information or ideas I encountered when reflecting on some of my work. Normally I do so because I was either frustrated with a situation or happy about an achievement. My expectations were to let my colleagues share such information with a view to getting alternatives to the uncomfortable situations.

Oneal's behaviour shows how he empathises with his colleagues. This is crucial in group interaction because Slote (2010) think empathy, as related to relational skill, is crucial for teachers engaged in interactions since it involves deliberately putting oneself into the shoes or place of another person. Furthermore Young and Gates (2010) thinks empathy helps create a trusting and safe learning environment. This therefore requires listening to one and be able to hear his/her perspective. Having this ability enables me to understand their emotions.

Another relational skill expected of my colleagues is the ability to 'tune in' to what I am saying. McCann and Baker (2001), Hutchins and Vaught (1997) cited in Slote (2010) suggest that 'tuning in' includes the ability to listen effectively, which means carefully listening to expressed thoughts. The degree to which the participants could address and develop interpersonal relational skills was one of my concerns as they showed up during the interactions and support Markham's (1999 p59) view that 'teaching is a complex interpersonal relationship, one in which human beings are not as separate as we often assume'. Another issue that came up strongly from the analysis is the issue of mood.

According to Comer (1980)

Mood is a state of mind reflecting one's feelings at any particular moment. Everyone has experienced their good and bad days. Days when spirits are high and days when spirits are low, days when relatively little disturbs one and days when even minor aggravations set one off. Days when everything seems to be going well and days when nothing seems to go right, days when one is invigorated and feeling fine and days when one is out of sorts physically, tired, or ill. These represent dimensions of mood and can influence our judgment of ourselves and those around us. They can influence how we react to situations.

From the quotation above my understanding is that there is interconnectedness between one's feeling, state of mind, action/non-action and the subsequent impact that action/non-action has on others. By extension the mood of one triggers actions and reactions in another.

In Comer's study on mood and its impact on evaluating teaching, he speculates that mood is a dependent variable. In other words, given the nature of mood, that is, a state of mind reflecting one's feeling at any particular moment, it is likely that a teaching situation might trigger the mood and that mood does not influence the situation.

The findings from this study support this proposition in which Catherine exhibited behaviours that depict the influence of mood. She violently responded to Aggie's comment concerning her inability to differentiate perimeter from circumference. The sense of frustration, concern, agitation and even a degree of anger which shows the plethora of emotions at play as Catherine responded to the comment. From this I suggest that my study support Comer's (1980) speculative conclusion that mood is a dependent variable that can affect reflection. This supports the view that action influences action or, put another way, circumstances or interaction situation or action triggers feeling, which triggers mood, which causes, an action/non-action that, in turn, influences action in the form of reflection.

Rareiya (2005) also highlights the idea that such situations allow teachers to adapt covert behaviours, which could be detrimental or beneficial to the group as they try to develop understanding of their practices. It becomes dangerous when such behaviours are not open to the group. Members may find difficulty when offering support. In addition, members become disillusioned if they do not have access to such behaviour.

It is therefore crucial for teachers, according to Fook and Gardner to:

...model different ways of asking questions that might elicit further thinking and reflection for a person, as oppose to asking questions that might be more inclined to close persons' thinking down, or implicitly impose a way of thinking rather than invite a person to think it through for themselves (p 97).

Such a questioning strategy, without any force or pressure can help elicit information needed. Consequently, the study showed the uses of multiple strategies are therefore needed to elicit the appropriate information. For instance, as Aggie's did not provide much evidence as to how she seemed to organise her thoughts initially, the progress of the study made her able to sequence her thoughts. This allowed her to fathom and organise her ideas on her practice. This change was likely due to the repetitive ways in which the discussions and activities were structured.

Aggie's behaviour indicates that a person needs to be given some space and time to respond to issues, and there needs to be checks with the person that the particular idea or wording fits with their way of seeing things as suggested by Fook and Gardner (2007). The issue of time had already being argued by Hatton and Smith,(1995) who believe in the importance of time frames within which reflection takes place, and whether it is relatively immediate and short term, or rather more extended and systematic. Similarly Rarieya (2005) also said that a shift in reflection became evident over time when he used four teachers in a reflective dialogue regarding their teaching practices.

The participants appreciated the fact that in transforming from unorganised to organise, critical friends their colleagues in the discussion group facilitated their shift. They welcomed the way their colleagues weighed competing views and claims through exchanges of ideas and the exploration of alternative solutions. Their activities seemed to encourage a degree of sharing between respondents and their colleagues. However, emotional pains accompany such behaviour. It is through the identification of the reflection that such emotions are addressed as suggested by Rareiya. Examination of their personal feelings is crucial, as was

concluded by Oneal who said ‘there are times the tension built in you become released from the way some of us empathise with the other’. While these actions are characteristics of reflection, they seemed not to have occurred quickly for one of the respondents, Aggie.

Sorting out and sequencing thoughts from complex multiple views explains how one can shift from an unorganised reflection to organised reflection. Considering the case of Aggie, the initial observation indicates she had problems telling which explanation or option best resolve the deficiency identified in her lesson relating to subject content. This relates to what Schon (1987) calls ‘Technical Rationality’ problem. Overall, through the collaborative reflection, participants, on their own could shift through an ‘appropriate pace of development’ (Mattessich, et al., 2001, 2005). The shift needs to be done through small, short term goals (Mattessich, et al., 2001, 2005; Minott, 2006). This is evidenced in Aggie’s observation when she said ‘...the manner we set ourselves short and small activities like reducing the observation clips from 20 minutes to 10 minutes actually helped me organized my thoughts well’. Similarly Oneal said ‘...if we were able to analyze what we observed what we see quickly, we will be able to remember all that we do consistently’. However, Lydia believed that ‘...each has his or her own way of analysing issues, let us leave the analyses to be mindful of all time frames for our discussions’. This proved why Mattessich, et al. (2005) think teachers or participants have to share their ideas where the ‘number and diversity of collaborative partners should not be more than the collaboration requires or can support at any given time’ (p22). Apart from time frame, which is crucial for such shift, intersubjectivity (Lipponen, 2002), was also identified in the case evidence as a contributory factor to the difficulty of organised ideas. The question then is how adequate can the time be? Since the teachers were observed to attend to ‘significant’ issues differently, here, as stated above the intersubjectivity factor makes the time factor relative and also dependent on the activities involved. It was thus imperative to note that the shift from unorganised to organise within the group differed and can also be tied to time and human factors.

In such interaction, ownership of the process is seen to be crucial. As indicated in chapter four, ground rules played a significant role in making the IP work. Through rule modifications, its appropriateness to the context of discussions helped regularise conversation mechanisms within the process. Such regularity also allowed for regular build up of ideas which subsequently led to organised thoughts. For instance, in Oneal's incident, he preferred advancing arguments along the manner in which a lesson was planned to make such arguments relevant to the lesson. It is recognised that the systematic and consistent sharing of views developed from the way each expressed view influenced the next person's turn, hence resulting in the building and accumulation of ideas as was observed by Oneal. This explains how they were empowered to take their own decision about any event.

Behaviours that are indicative of lack of understanding of a process are normally experienced at the beginning of any discussion. Teachers' initial talk about issues concerning their teachings, are normally done in an unorganised manner. To get organised, personal beliefs and behaviours, such as domineering and entrenching, need to be attended to since it tends to close down discussions. These behaviours prevent better conceptualisation of principles of activities however, overtime such activity is overcome resulting in organised thoughts. For instance Lydia's behaviour shifted over time, as she was able to conceptualise the underpinning principles of the process and access to multiple teachings made her see how a specific skill can be used in varied ways.

This is what causes Hatton and Smith (1995) to posit that

It is widely acknowledged that from such a starting point which addresses the immediate and pressing concerns ..., it is possible to move on to create learning situations which foster the development of more demanding reflective approaches, taking account of the factors which impact upon the practical context, often using the technical competencies as a first frame-work for analyzing performance in increasingly demanding situations (p46).

In sum, because the IP was a novel process to the teachers, the activities tended to suggest that, when individuals meet a new and unfamiliar setting, attempts are

made to reorganise their behaviour(s) in a trial and error manner to make it acceptable within the context. In this sense, behaviours are mostly subjected to continuous reorganisation. The process saw those reflecting-on-actions as well as reflecting-in-action as they mulled over the observed actions soon after observation sessions. The reflective capacities they adopted can be fostered by providing strategies and experiences which will develop their required skills.

5.2.4 Evaluative reflection to interpretive reflection

Bennett (1999) and Matttessich, et al. (2005) have pointed out that the frequency with which participants within any collaborative group communicate their views promotes better understanding of issues discussed. The participants in the study from the outset could not effectively communicate well their views on any event they deemed critical. For instance Catherine, even though she believed her evaluation of action observed, understood why Aggie could not differentiate between vectors from coordinate point, her inability to communicate her views well caused her analysed view to be rejected by the others. However it has been suggested that effective support for the identification of inconsistencies explains how individuals misapprehended issues under discussion in any collaborative activity. If teachers therefore cannot effectively communicate their views then it stands to reason that all teachers are at risk when it comes to evaluating their views as explained by Osterman and Kottkamp (1993).

Sustained discussions and persistence were found to be ways through which effective communication was possible. Being open to discussion and continuously making analysed views available to colleagues through talking, where inconsistencies in arguments are identified and resolved, can support teachers in modifying their evaluation strategies. But, this will depend on the individual teacher. Individuals' capability to deal with novel situations seemed to differ as was evidenced in the study. The intention behind such analyses from multiple opinions on same critical incident is also crucial. For instance, Catherine and Oneal explicitly communicated their views and made the rest of the participants aware of their expectations of either agreeing or disagreeing with them.

Such human influence on their views could probably emanate from their prior traumatic and emotional experiences or from a positively motivated experience. Whatever the influence is can affect how one evaluates an event and explains why one's experience is tied to his/her evaluation skill.

Participants' preferences during any interactive activity seemed to have some influence on their reflection. Mostly events that do not present any emotional attachment are readily analysed. It is therefore unrealistic to expect the same views to be expressed on the same event. Reasonable explanation of this is the fact that each prioritises events differently. Such variation, as evidenced in the study, promoted varied analysis of events. However with sustained discussions, some of the differences were resolved. The understanding here which also supports Hatton and Smith (1995) view is the fact that through sustained discussions reflection change is possible. My position therefore is that if teachers engage in continuous discussions, there is a possibility that differences in their analytical skills can be addressed.

As discussed in chapter four, a loose framework of conversation seemed to influence the reflective shift under this scale. One's ability to influence any discussion seemed possible. An apparent lack of confidence, being unsure to about what to say and either confirming or rejecting what is said sometimes characterised discussions. Whilst these are occurrences during discussions, the inability to interpret an action reflectively can also be tied to a prior interpreting reflection by another group member. This is not to make the case that one had not really thought about or analysed an action, but that it seemed as Aggie and Lydia indicated in the next excerpt, the prior ideas influenced their reflection, which they see as more 'reasonable' or were what they had in mind.

I think what you are saying is the true of the action and I think it brings out the interpretation clearly. (Aggie)

I was contemplating what I ought to say and this was what I had in mind to say is the interpretation. (Lydia)

This occurrence can be intentional or unintentional. Whatever is the case, a trusting, mutual sharing and collegiate climate is what can promote such interactions and can be seen as very important elements in any reflective process. Such a supporting climate in a collaborative setting is what Osterman and Kottkamp (1993) claim as ‘international actions and interventions’ (p. 45), which supports effective reflection. However an unintentional behaviour as was recognized in the study, if sustained can also promote changes in reflection.

Even though the intentional behaviour of reflection was tacitly being used, the honest, opened and objective way in which views which were expressed made understanding easy. Using such an atmosphere to gain experience cannot happen without conflicts. Occasionally, offensive comments or conflicts arising from challenges to issues concerning the identification of deficiency in thoughts, and the provision of unclear statements results in tense atmosphere cannot be ruled out. For example, Aggie challenged Catherine for talking to the chalkboard instead of the students. In response Catherine retorted ‘...you need to be abreast with new teaching techniques’ this made Lydia after analysing Catherine’s comments say ‘...we need better explanation than what you gave out. Tell us why you talked to the chalkboard’. These reflective collaborative behaviours, as have been described by many authors, (Fook and Gardner, 2007; Osterman and Kottkamp, 1993; Sherin and Hans, 2004; Rareiya, 2005; van Es and Sherin, 2008), tend to create tension if not well managed as they stifle shifts in reflection. Notwithstanding, consensus building can help to create an atmosphere conducive to discussion and possibly influence the shift in this scale.

Despite the shift, as discussed, being more of an unintentional activity, there were some instances where the participants had the intention of engaging the other as was observed in the interaction framework. If deliberate attempts will be made to use this as a strategy, then it is suggested that participants need not disguise their feelings of respect, but objectively analyse the actions as described by Osterman and Kottkamp (1993).

Another crucial issue that the study seemed to correct is peoples' inability to analyse others' views while discussing issues. One very crucial ingredient in such a reflective collaborative exercise is one's ability to reflect-in-action as the discussions progresses. The ability to be able to analyse ones' view as the one is talking and offer the appropriate response is crucial when discussing teaching practices when time frame determines the activity. In this case the 'stepping back' needs to be frequent and short in duration.

Reasons advanced by three of the participants included:

Easy and faster way to remember what discussed (Oneal)

Ideas discussed will be reinforced if it is frequently done (Lydia)

Linking news ideas to old ones become easy and quicker (Catherine)

There are suggestive evidences in literature concerning the impact of reflection-in-action. Reflection-in-action, as suggested by Schon (1987), enables an individual to compose a new situation in a continuous manner and enables one to develop a behaviour which can be referenced to any time in the course of their work. This is normally what influences immediate responses where one unconsciously solves an identified problem. However this study, as mentioned in chapter four, indicates that cultural norms influence discussions and the development of learning. This created tumultuous situations especially where the attempt was to identify alternative solutions to any identified deficiencies of faultlessness.

Within literature, evaluative reflection refers to comparing what one does and its effect with some standard of what one would wish to have achieved (Higgs and Titchen, 2001). But because there was no standard, the choice of criteria, upon which Catherine depended and the cultural norms made evaluation difficult, even though the prevailing culture had some disciplinary structures/criteria to assess comments.

Interpretive reflection from the study is the process of correcting distortions in our reasoning and attitudes. From the analysis, the participants explored their thinking through questioning which signifies how the participants were developing understanding of themselves. This is supportive of the view that individuals, with this aim in mind ask questions like ‘What is it that we make of ourselves through our acts of understanding existing practice’ as claimed by (Baumfield and Butterworth, 2005).

The picture that emerged from the study suggests that there is very little formal evaluation of practices being transferred by either the originator or the partner. This does not, of course, mean that practice transfer has been unsuccessful. It just means that the formal evidence of success is voiced out without much exploration of practice in the classroom. The participants’ behaviours can be viewed as one of the ways to answer the ever-increasing external demands for ‘robust’ assessment of teachers’ practices.

From my own experience of engaging only incidentally with asking reflective questions in interactions, my foci were mainly on question that relates to reliance on individuals’ experience and practical knowledge, which I thought were sufficient to get teachers to engage more fully with the reflective activities. This was due to the fact that from the overview of Catherine’s response, coupled with Hatton and Smith (1995) and Rareiya (1995) ideas seemed to be highlighting the power of teachers’ practical knowledge to influence the process of reflection. However, despite seasoned teachers’ engagement with reflection, and if van Manen (1995) and Day’s (1999) views are correct, then teachers who are ‘caregivers’ and ‘moral enterprisers’ might be experiencing tensions when motivated by a caring interest in the growth and welfare of their colleagues when it comes to emotional attachments during reflection.

Notwithstanding the seeming difficulties that Day (1999) identifies, and the shortcomings of the teachers in not being deliberate in addressing their reflective

need, I believe that teachers need to include reflective activities in their work. In other words, I believe that teaching is a reflective enterprise. I also believe that teachers need to acquire the necessary reflective skills in order to help them engage effectively in reflective activities. However I do know that the teachers had taken courses in reflective teaching during their undergraduate courses.

The work of Rareiya (2005) brings into sharper focus the complexity of the idea of teachers' motives in engaging in RD. This study suggests the motives teachers carry into any reflective dialogue will determine how they spend the limited time they have, both in and beyond the classroom. I will extend this thought to include the fact that how teachers define their professional role is also likely to influence the degree to which they reflect within any reflective activity.

It seems the degree to which the respondents contribute their views in the discussions is also a personal matter. From the results of this study, personal convenience, choice and beliefs about teaching influence how they analysed observed actions and, by extension, how the respondents thought about and carried out their analysis of what other teachers said. Emphasising this Oneal said:

To me I think one's personal belief, how the one view what has been observed or analysed what observed influences what one says

This view by Oneal support Hatton and Smith (1995) position on teachers' ability to analyse one's performance in a professional role hinges greatly on weighing competing claims and views by others and then exploring alternative solutions. Should teachers in any reflective interaction be simply exploring others' views, or should he or she be giving reasons for actions taken? My present and personal position is that teachers need to be able to analyse continuously what others are saying in their effort to develop meaning from what is being said, as postulated by Dewey (1933). At least two participants displayed the ability to analyse views expressed concurrently as the discussions progressed.

However, to get a fuller understanding of how the teachers analyse views from the others, there needs to be further investigation into the broader issue of their reflections and how teachers position themselves in this debate. Rareiya (2005) suggests two reasons for doing this, but only one is of interest to me, that of the fact that participants can be reflective about their teaching if given the opportunity and equipped with the skills to do so. However in the absence of sufficient reflective ability, the teacher will not be able to bring his or her knowledge to the appropriate professional level. I am particularly interested in this reason, as it raises other issues, including that learning to reflect is a developmental process and this is likely to raise several issues for both teachers and teacher educators.

The discussion in this section suggests that addressing both the teachers' ability to reflect and be able to reflect concurrently during discussions is important, however there exists personal and contextual constraints which militate against this occurring. Solutions to these areas of concern are not easily found, and therefore warrant further investigation, which will be carried out in chapter six.

The analysis under this scale explains and attends to the difficulties teachers face in change processes regarding evaluating and interpreting observed practices. However the participants' ability to stand back and reflect-in-action to examine their own and others' judgment and what contributed to them makes it very important.

There are suggestive evidences in literature concerning the impact of reflection-in-action. Reflection-in-action, as suggested by Schon (1987), enables an individual to compose a new situation, in a continuous manner, and enables one to develop a behaviour which can be referenced to any time in the course of their work. This is normally what influences immediate responses which is believed to occur when one unconsciously solves an identified problem. Being able to do this explains one's competency.

5.3 Summary

In this chapter I have continued the analysis begun in chapter four to show how teachers use the intervention process to develop their thinking about their own practices. The analysis shows the extent to which the exploration of teachers who engage in activities about their classroom mathematics teaching helped explain the reflective process of teachers. Furthermore, it can be concluded that they have reached a reflective stage where, from the interaction they are able to consciously think about what has taken place and modify their teaching actions practically and immediately in their classroom. With this understanding, the intent of such dialogue is always to learn new ways to help support their practices. This is what the study unravelled, through various strategies, including questioning in their reflection process. This strategy helped the participants elicit information and clarifications on familiar and unfamiliar events. The outcome helped inform the offer of alternatives to any identified deficiency in their practices.

To summarise, while participants seemed to move through different reflective scales as they dialogued, the shift was promoted by some factors, notably, personal factors, use of questions, cultural issues. I argued that despite the inhibiting factors such as mentioned above, some motivating and facilitating factors influence the shift. In other words, teachers should aim to be prepared to take risks, mutually share views and be prepared to accept criticisms collaboratively as postulated by Day (1999). However, addressing these needs required first addressing their existing personal and contextual constraints, which worked against the shift in the reflective scales. All the participants seemed to be concerned with these aspects of reflective development, but there were degrees to which they agreed and this depended on factors the study considered within each scale.

The changes that occurred in their reflective journey clearly demonstrated that as teachers engage in critical dialogue on their teaching actions, support is crucial. This notwithstanding, there are some factors that hinder, facilitate and motivate

the shift. Significantly, authority and misapprehension of the rationale of the study and participants' inability to rationalise discussions seemed to hinder the shift, and what facilitated the shift depended on the participants' understanding of the rationale behind the process as well as the number of questioning strategies. The motivating factor was the way their own practices were used for the discussions which gave them satisfaction when viewing their own practical experiences.

There was consensus between the participants that the shifts were influenced by the mutually sharing of views in the reflective dialogue. In addition, the participants felt that the shift actually helped them to understand their subject and pedagogical contents and if a habit can be developed from such activities they will be able to develop better understanding of their practices.

The scales of the reflection rather portray that there are reflective processes that can support teachers to understand their practices. Tacitly and latently, the participants traverse through scales of reflection which are informed by varied and peculiar factors. These factors may not be conclusive however they can support changes in reflection.

Initial reflective stance, for example, understanding the reflective process, personal views and opinion about an action without any analytical frame do influence one's initial reflection. This chapter, however, revealed possible subtle and covert resistance displayed by the respondents as they tried to change their opinions. The respondents displayed various levels of professional orientation, as well as varying degrees of reflectivity regarding how they analysed their teaching actions.

Questioning their analytical processes, familiarity and unfamiliarity of teaching actions, being able to recount/retell with evidence, ignorance, transferring skills to other teaching actions and objective analysis of actions are issues as gathered from Table 5.1, supported the changes in the participants' reflection. The chapter

also provided some evidence to how each of the participants shifted within each of the reflective.

As they engaged in discussing their actions through reflection-in-action and reflection-on-action (Schon, 1987) what clearly underscores the impact of the study was how it enabled and facilitated the identification of the shift which I argued in the report. Finally, I argued that there might be a need based on the observation and comments gathered from the participants to address the development of teachers' collaborative and reflective skills, as an aspect of teachers' professional development.

In the next chapter, I present the summary, conclusion and recommendations to make clear the major lesson learnt from this study. The outcome of the study, based on empirical evidence from the data collected has contributed to knowledge relevant to research. To explain the pragmatic relevance of the results I shall discuss the implication of the results within the Ghanaian context towards teacher change.

CHAPTER SIX

CONCLUSIONS

6.0 Introduction

My general goal for this research was to examine how an intervention process that I developed can impact on teachers as they engage in a reflective collaborative discourse about their practices. Investigating teachers' practices of this kind is not an easy task due to the complex and messy nature of the discourse, and more especially when it has some characteristics of traditional experimental research, action research that sits in qualitative methodology. Since a case study approach was adopted, I had to select issues that had some loosely-determined conceptual frames to ensure thoroughness and explicitness of data collection. This allowed me to rely on the contextually-situated expediencies of the participants that made the findings go not only beyond what happens in their classrooms but also to their personal life as was gathered from the findings.

This final chapter of the thesis reflects on the intervention outcome and discuss various implications relating to salient emerging issues. I will therefore summarize the main findings to revisit the research questions as found in chapter one, and draw some broad conclusions. I will also discuss the process of reflexivity and its place in ensuring the quality of this research, and then discuss the potential limitations of the study and suggest potential areas of further research

The intervention had the effect of changing the ways in which these teachers talked and thought about their practices, both as individuals but also as a group of colleagues. Not all teachers developed their reflective capacity in the same ways. Again, it was realised that the prevailing socio-cultural elements influenced the way teachers engage in professional dialogue. Furthermore, it provided the teachers with the opportunity to consider their practices more carefully and objectively. In any reflective conversation, teachers traverse between reflective scales, surely this does not happen in a single conversation as such but through repeated conversations. However it is not easy for teachers to look at their own practice

objectively as their perspectives are heavily influenced by their own social backgrounds, rather it was done through the concerted effort with their colleagues and relationships with colleagues.

6.1 Summary of the Major Research Findings

There were two major areas of findings from the study. The first is concerned with the impact of the process on the teachers and how the teachers use the intervention process to develop their thinking about their practices

6.1.1 Impact of the intervention on the teachers

1 Inclusion of prevailing societal cultural values in reflective and collaborative practices framework of teachers.

Whilst it is generally recognised that reflective and collaborative activities with a purposeful agenda and primary principle of supporting the understanding of practice for teacher development, support members to critically dialogue to understand events or actions through negotiation and sharing of ideas (Tigelaar et. al., 2008), the study evidence added another dimension. The study evidence indicated that, the ingrained prevailing societal cultural values of the Ghanaian basic school teacher greatly influenced the critical reflective collaboration dialogue towards the development of better understanding of their practices. Even though the IP was a far more difficult framework initially for the teachers to interact, understand and change their attitude towards their teaching, their experiences from the interaction gravitated into building a culture that supported them develop deeper thinking about their teaching practices when activities are located in their classrooms overtime.

The study evidence indicated that, professionally, teachers need to have relevant and appropriate knowledge in content of discussions to enable them share, make sense and judge the work of their colleagues. This is consistent with the view that reflective collaborative activities support the sharing of knowledge and experiences in a mutually beneficial and well-defined relationship, make sense of their

professional learning experiences and activities (Mattessich et. al., 2001; Hatton and Smith, 1995). The framework of the intervention process emphasised quality in deliberations where skills, selected and considered by the participants as important, forms the locus of discussions, supported the development of better understanding of teachers' practices. This is supported by several instances cited in chapters 4.

Day (1999) explains that, reflective and collaborative practices act together and provided information that motivate teachers to learn to improve their teaching practices. Similarly, the evidence from the case study suggests that the development of reflective collaborative practices culture can support deep critical dialogue that gravitated into better learning and understanding where the locus of the activities is the sharing of multiple perspectives and practical examples of teaching practices. Further, as the teachers mulled over identified problems from their practical experiences, dealing with change depended to a large extent on the acceptance of all to engage in the activities no matter how unfavourable the interactions were. The teachers thus, showed commitments, perseverance and willingness to risk and discuss their practices. This reflected the commonly accepted theoretical knowledge about the functions of reflective and collaborative activities.

In spite of the teachers' frustrations, especially when nothing immediate is recognised from their discussions, they realised the development of appropriate strategies for further use. These evolved through the accommodation of each other's unfamiliar and consistent behaviours, becoming more democratic and finally acknowledging the influence of repetitive activities in their reflective and collaborative practices overtime. This is consistent with suggestive evidence in literature that indicated teacher's behaviour in critical dialogue in the developed countries is generally accommodating and democratic within teacher change activities (Akyeampong et. al., 2006).

The conclusion is that teachers within Ghanaian basic schools need more repetitively and practically oriented programmes that emphasise reflective and collaborative activities to support their developmental activities. The introduction of such new practices is considered worthwhile since it had potentially positive impact on their professional life. Further, it ensured full educational benefit of reflection and collaboration which were valued far more by the participants for developing deeper insight into their practices when the locus of discussions is the vivid classrooms practices. Teacher change thus can be developed if the classroom forms the foreground for teacher changes. The evidence pointed out that the process supported the teachers to explore and interrogate their practices as well as develop strategies that constitute and exemplify their innate qualities. Such innovative PD activities, if grounded and contextualised in teacher's classroom experiences, will recognise and emphasise as crucial the teachers' local knowledge. In addition, if used as a PD activity, it can promote viable levels of reflective professionalism and expertise more especially when integrated with the teachers' prevailing cultural dimension to support changing the Ghanaian basic school teachers' behaviour in the classroom which is found to be autocratic, have conservative ideology, where debate is not encouraged, and sometime resist reforms (Akyeampong et. al. 2006).

2. The teachers individually and collaboratively learned from the intervention process.

The intervention process was generally perceived to be an environment which supported the development of various types of reflection where the teachers individually and collaboratively learn. The structured and organised activities, the presence of a facilitator and the ground rules they developed and used were all factors which helped to develop a climate in which they could learn from each other in increasingly collaborative and reflective way. These features have been acknowledged to provide an enabling environment for any collaborative activity where the participants came with special characteristics, had well structured and organised activities, a facilitator and the participants developing their own ground rules, (Mattessich et. al., 2001; Bens, 2007; Wegerif, Mercer and Dawes, 1999).

The case study evidence showed the ways in which the discussions enabled the teachers to gradually develop broader understandings about their individual and collective practices. The views expressed by the participants as they engaged in the process exemplify the characteristics of collaborative activities echoed by Mattessich et. al (2001) which supported them to develop insight into their practices. Importantly, it was the multiple repetitions of the process which seemed particularly effective in developing new forms of reflection.

In spite of the fact that, is not easy to say to what extent the presence of a facilitator has influenced the process which has important ramifications when considering whether this approach might be a scalable approach to professional development in Ghana, the interaction revealed that the participants were keen to succeed, hence they brought out multiple ideas during the interactions for the benefit of all. Even though the initial interactions were not always easy, as the study progressed the teachers became more able to think and act in a more supportive, creative way. Certainly evidence from the study corroborates the view of Bens (2005) to support this contention.

The study found that the participants availed themselves readily even through the complex and strenuous nature of the study was very evident. Several factors were expanded in chapter 4 to explain why in reality the participants' readiness to be part of the study was elusive and so requires no elaboration. One point was clear in order for the participants to develop their commitment to this method there was a need for them to be given some autonomy over the activities. However, what was not clear was the question over how far this can go and what the balance should be between independence and facilitation.

The research evidence in addition, had it that the sufficient in-depth knowledge and experience, the participants were found to be crucial for the reflective and collaborative activity. The view of this thesis is that such knowledge needs to be linked to practice as well as it being able to interact with their colleagues was

borne out of the fact that a reflective practice is considered an individualistic view of learning which provides a useful framing device necessary to help conceptualise professional learning.

The structured activities forming the process outline provided opportunities for teachers to focus and understand their practices through accommodating divergent views (Dillenbourg, 1999). Challenges, for instance, each of the participants explaining a particular concept differently from the other, that cropped up motivated the teachers to learn new ways to change their practice and the process provided a number of identifiable stages, including recognition, refinement, re-examination and renovation. The process thus had the intent to motivate and prepare teachers to learn in new ways.

The well-organised structured activities allowed the participants to reflect and question significant occurrences in their teaching actions, dialogue on it and collaboratively learn from the multiple feedbacks they gave. The activities saw how their knowledge about methods and principles in teaching were linked to their practices. By way of comparing what they know in theory, they could critically analyse what they observed as well as what they said in discussing events observed. The process enabled them to test their experiences and found the acceptable behaviours needed.

Another lesson that can be learned from the research findings was that as they continuously interrogated their views and actions repeatedly, they developed a better understanding of their teaching actions. The process saw them searching for more information about their actions hence it provided the environment where their inquiry skills could be improved. The process started more on competitive and combatorial and ended up more collaborative and cooperative. It was therefore very lively active interaction with complex views interwoven in the discussion. The idea of checks and balances permeated the discussion that saw different reflective trajectories and changes taken place over time.

Thus, as the process journeyed, one critical question that came up was about 'whether my presence was needed as a facilitator'. This issue arises because I had a big impact on the success of the process which raises questions about whether such a process could work without such a facilitator. There was therefore the need for getting someone to provide a gentle balance among the participants. In such a situation there was another question regarding 'how covert and overt should the one be'. This was necessary as fostering trust among the participants was crucial.

Other reason that made my presence important was the fact that the outset of the intervention was messy and complex and the participants needed some prompting and repetition of what would work and could be analysed. There was therefore the need to get someone to provide gentle balance among the participants. My presence was particularly important at the outset of the intervention which was messy and complex. Participants needed some direction and support to approach the sessions in keeping with the project aims. In addition managing the video resource and it was through me that it was made easier. With the underpinning aim of the intervention, the cyclical and sustained nature of the activities needed the inclusion of the participants in the planning of the activities. This was because the process emphasises the integration and eliciting of information in a more trustful environment through the creation of a common language. Such strategies were designed to address the problem of differences in power relation among the teachers as well as conflicts and tension that seemed to hinder effective learning. Therefore my presence was important since it created an enabling environment where the participants due to the pressure and their expectation, but these pressures perhaps changed over the duration of the process. In my opinion, this could help cultivate a culture of exploration, high trust and joint responsibility. This meant a facilitator or a coach (Rareiya, 2005) needs to avail him/herself for such activities. My presence as a facilitator therefore was crucial in such an interaction.

In addition to my role, views expressed by the participants in the uptake of the process indicated that as indicated in the literature and so was included in the design, using the developed rules during the interaction confirmed that the approach was necessary. Engaging and including the participants in the development and use of the ground rules before and during the interaction process supported the participants' understanding of the process. It enabled the participants to know how to start their discussion and how to organise their thoughts which was initially problematic later on became organised.

From the views expressed about the factors that create an enabling learning environment, the overriding conclusion is that much more needs to be done in terms of support in the use of technological resources. This supports the storage of activities that can be referenced to at anytime in order to avoid constant meetings since the activities were simultaneously organised alongside the formal teaching work of the participants (Sherin and Han, 2005).

3 Prevailing socio-cultural elements in the immediate environment supported the development of rich and deep professional dialogue

Generally, the underpinning cultural norms which thrive on a communal spirit and strict disciplinary structures made the participants to adhere to a practicing code during the interactions. The attitude of the participants towards seeking for explanations, depending on the oldest considered by the culture as someone with enough experience, corroborates other researches. For example, in a collaborative development the cultural underpinnings are important (Pollards et. al., 2008), since influence of culture play significant role in developing a habit (mine view). In this study, certainly the evidences obtained seemed to support the positive cultural influences.

The cultural influences are manifested in teachers' hidden assumptions and implicit value choices as they adhered to a cultural structure where one confesses

failure and expands victories within an interaction (Revans, 1980). Gallimore and Stigler (2003) explain that ‘overtime, cultural activities and routines are taken for granted and become embodied in beliefs about what is right and propel’ (p 27). The communal spirit influenced their willingness and readiness, and absorbed the risks and threats to the participants (Mattessich, et. al., 2001). The systematic thoughtful processes with the use of their professional and practical knowledge base enabled the participants to identify critical differences and similarities in their teaching actions. Using their views as evidence, they used varied analytical processes to reconstruct and reframe their ideas. The findings show that there were confessional and communal behaviours. These were observed to be at odds however, the teachers change considerably over the process regarding these two issues. The conclusion is that even though these two cultural issues framed the start of the process, it did not constrain the ongoing process in the same way.

Through these two cultural issues they mutually shared the rich outcome from the discussions and made them to learn new things in new ways. This was influenced by their everyday ingrained communal behaviour where ideas are to be discussed within a group where the oldest superintends the meeting. Inputs to discussions are mostly from the oldest who is believed to have store of enough experiences (Kyekye, 1997; Owusu-Mensah, 2006). The observation of Kyekye and Owusu-Mensah is very relevant to the issue of reflection and collaboration, as the teachers in the research adhered to disciplinary structures where each had to finish contributing to an issue before another played a significant role in their interactions. Each respected the others’ views and the contesting of views by the older ones was done with caution.

Expression of multiple ideas, and the way multiple teaching actions were discussed, gave the participants varied ideas about a particular actions. The teachers imported and advanced their ideas from an already discussed episode, into their discussions. This made the discussion environment rich with multiple views.

This notwithstanding, the participants met difficulties in terms of expressing surprises when confronted with unfamiliar episodes, inadequate knowledge about subject concepts, use of power and authority and wrongly adopted and used teaching skill. In spite of these challenges, the frequency of observing and dialoguing on teaching action, and in a truly joint and systematic effort, the interaction portrayed, well informed professional dialogue. This is not surprising, as Gallimore and Stigler posit that ‘when an environmental perturbation occurs, the strategy of most individuals and groups is to adapt cautiously, through small experiments on the margins of cultural practice’ (p 26). The view of this thesis is that in the Ghanaian cultural structures within any environment where participants engage in interaction, the cultural norms ingrained in the participants tend to influence their actions within the interaction positively. Reason to this is that the cultural dimensions influenced the participants’ behaviour within the interaction.

4 Opportunities to systematically and rigorously diagnose their teaching actions

The study found that the participants acknowledged the sustained interaction as an activity that support them to reflect, question and analyse their practices in any in-depth manner. However, what was clear from the case study evidence was that if the teachers had got the chance to follow-up on their INSET activities, they would have got the opportunity to audit their practices. This is something that the intervention enabled them to do. The continuous reflection and questioning approach is therefore a relevant issue to consider if one expects to understand practices. Since this will lead to the offer of the necessary relevant and appropriate support to help the teacher know the processes needed to improve his/her practice in a sustained manner.

The evidence indicated that initially the participants were not skilled at examining and reflecting on their teaching beyond generally critical discussions of their apparent weaknesses. However with time and with continuous interactions, they could examine and reflect on their teachings. This shows increasingly exploratory considerations of different approaches and perspectives. The resultant effect is

development of deeper insight into their practices and this resulted in their acknowledgement of relearning, reinterpreting and unlearning of some undesirable skills.

The continuous reflection and questioning of their practices from the case study evidence seemed to arouse the participants' interest to question what has been hindering their ability to further analysis even in a more complex manner. To be able to question one's own reflective thinking is what the study unravelled and which supports Hatton and Smith (1995) findings about reflective exercises. Their increasing ability to consider multiple views helped them to analyze and questioned their practices. This ability to interrogate multiple perspectives is what underpins most teacher change processes (Pollard et al., 2008) and so the success of the project in generating reflective shift in these teachers point to the potential of this approach to lead to broader teacher change.

Such an exercise needs to be done collaboratively for better results from the evidence of the study, however the group can be more than the number used as more perspective can provide rich information. . This is because the views of the participants in the study suggest that the outcome from their multiple views from the rigorous auditing were mutually beneficial and was shared and this made them to develop a better understanding of their practices. However, the process was not without problems. One of such problems that has been documented in literature is how a deficient knowledge of resources coupled with the metacognition awareness of inadequate mastery, stimulates anxiety (Birenbaum and Pinku, 1997). Evidence obtained from this study appears to support this problem. However, the continuous interactions and discussions minimized this problem over time. The overriding conclusion therefore is that, despite the challenges of establishing the direction of the intervention process, problems can be resolved resulting in a dynamic reflective environment

Collaboration as discussed in chapter two requires managing the variety of observations and the attitudes of the group during collaborative discussions. But there had been suggestions that beliefs shape practice and orient practical knowledge (Marland, 1998; Aguirre and Natasha, 2000; Minott, 2006; Virta, 2002; Kupari, 2003; Huxham and Vangen, 2005; Borg, 2001). In the same vein, social factors and access to a range of complementary skills (Seethamraju and Borman, 2009) underpin what teachers say as they discuss their practices.

The study evidence indicated that the continuous dialogue was tied to the multiple opinions expressed. The expressed opinions were based on their reflections or analyses of what the participants observed about their practices. In addition, it also depended on their preferences on what they observed or noticed. However different analyses from each of the participants could have been considered important as different issues and ideas were expressed. The idea here is for teachers to understand their practices as they think and analyse various aspects of their practices and adapt any feedback from each of them that they think necessary.

Compromises and consensus reaching were observed to characterise the discussions over time. This is not surprising since in any discussion that is characterized with cross hierarchical levels, mostly multiple behaviours tend to underlie the activities within the discussions. Individuals respond to issues with their unique ideas. They thus use their technical know-how to attend to the issues at stake. More importantly, their views are underpinned by their beliefs and values. It is on the strength of this premise that I conclude that the intervention helped manage the observations and attitude in the group interaction.

6.1.2 Teachers' thinking about their practices

The evidence from the study appears that one or more participants perceived the process to support teachers to bring their knowledge to an appropriate professional level. The following are how the teachers reflected about their teachings.

1. Reflection: a tool for understanding and dealing with on-the-spot Professional problems.

One of the primary aims of the IP was to explore the processes teachers go through in their reflection. The participants' shift was influenced by different factors. These factors include the participants becoming aware of behaviour, continuous seeing of multiple actions, realizing and becoming aware of behaviour, inconsistent arguments, the ability to identify sequencing of ideas, the mood of individuals, the use of questions to ask for clarifications and the request for repetitions of ideas that influenced their reflective shifts. This supported them to develop better understanding of their practices.

As the participants reflected on the challenging factors, as well as their beliefs in practical knowledge and mood, they made decisions regarding how they could resolve any identified deficiency or faultlessness in their practices. These decisions and adjustments in turn influenced how they later reflected on the observed actions. However, it was likely that further reflection on choices, decisions, action and non-action about what they observed in turn influenced how they reflected on their practice.

The study evidence indicated that before the participants reached any consensus about the solution to an event, they argued to agree, disagree, confirm and disconfirm any decision taken from their multiple views.

Generally as they reflected during their discussion, they presented analyzed views on the events observed. They then shared the views amongst themselves. Their mutually accepting and deciding on an alternative for any identified deficiency or faultlessness about an action made them to mutually support each other during the interactions.

The process provided some insights into the nature of the interrelated support each gave to the other. The relationship regarding recall and sharing of views actually provided evidence to how their reflection-in-action/discussion addressed their concerns after experiencing the arguments about their practices. In effect they went through the process by, as Hatton and Smith (1995) put it 'contextualizing of multiple viewpoints' (p6).

The process also explains the relationships between the participants' reflective skills and how reflection plays a significant role in dealing with changes in personal beliefs about how a practice is understood. The relationship seemed to deal with individualized and collaborative issues in learning.

Individually, the teachers developed a sense of themselves as to what they are and how adequately they can address their concerns about their practices. The individual has 'inner tendencies and personality trait, attitudes and values, moral principles, sense of self-worth-and that these inner tendencies determine their behaviours (Borg, 2001). This notion is based on the understanding that the individual possesses abilities for cognition and makes rational choices to develop and establish knowledge. The individual therefore will be able to develop strategies through analyses and frame devices necessary to help him/her conceptualise his/her professionalism.

Collaboratively, teachers can learn as they meet to interact and negotiate by allowing for divergent views (Dillenbourg, 1999) in a truly joint and systematic effort. From this they can interpret and 'make sense' of their relationship to improve their practices. Even though the participants initially did not anticipate such learning they came to the realization about how the process informed their learning potential. This meant informally and possibly even unconsciously, they had become aware of such learning potential.

Such self-awareness is what Cunningham (2001) has argued on that it is through reflection processes that seasoned teachers develop self-awareness on their personal capabilities. Furthermore Coyle (2002) also argues and suggests that reflection could aid in encouraging teachers in their role as autonomous professionals, as well as encouraging them to take greater responsibility for their own professional growth.

2. Reflection supporting critical thinking that includes taking account of social, political and cultural issues.

Coyle (2002) continues her argument for reflection by emphasising that it encourages teachers to take a greater responsibility for their own professional growth when this is set within their unique particular socio-political contexts. From the result of the study, I conclude that within discussions of practices, attempts must be made by teachers to the effect that every practice needs to be linked to policy or socio-cultural issues. Teachers therefore need to understand that they are not teaching for teaching sake rather their output is to fulfil a set objectives, be it national or local. To achieve whatever objective is set is for the teacher to share views with colleagues in their attempt to develop appropriate strategies to move their discussions to the realm of policy or set goals/objectives. Teachers need to know that teaching itself is not only the transmission of knowledge, rather it is done to achieve a set national or local goal that needs to be discussed passionately with colleagues or through teamwork to understand each other's view concerning the set goal/objective.

From the overall results of my study, all the participants displayed different trajectories to achieve or develop such skill. In discussing practices, it was not only retelling or recounting of what happened that is important rather their ability to raise reasons to support whatever was said was their utmost concern. It is this constant raising of reasons through critical analysis that saw the teachers relating their practices to school policy as well as social-cultural issues. I therefore argue that persistence and consistently sustained discussions will trigger off teachers

thinking about how to relate their teachings to a set of national objectives as well as local/school policy.

The participants in their interactions emphasized deeper and critical analysis in a more-structured form of events that eventuated into linking it to policy. The process created an opportunity for them to see some of their practices as being problematic from the perspectives of the goals and practices of their profession. It is this that Hatton and Smith (1995) described as 'social reconstruction'. This became possible as through questioning they could rationalise their views in relation to the expected goals of their practices. Thus, the questioning strategy facilitated their analyses of theirs and other's views. The overriding conclusion from the above is that teachers can think about their actions and the effects upon others' actions by taking into account the set goals of their professions. Other researchers who have also researched on how reflection can have an impact and have similar effects include Smith and Hatton (1992) and Rareiya (2005).

3. Reflection supports systematic and coherent organisation of thoughts

There was clearly the awareness of organizing thoughts systematically and coherently through reflection to develop understanding. Generally, it was observed that the participants tried to examine how their essential analytical process could be organized in an order that will eventuate into developing better understanding. It was felt that doing so will give them a better process to uncover their unknown and unidentified skills. To the participants, such organization of thoughts indicates better grips of skill of reflection. It is quite clear that such a view about reflection stem from one's experiences with reflective activities. In emphasising this claim, Fook and Gardner (2007 p51) attest that, in an attempt to support research in professional practice, the reflective process is about 'unsettling thinking and unearthing fundamental assumption about practice and to see how these are linked with actual practice'. Therefore 'examining one's use of essential skills or generic competencies as often applied in controlled, small

scale setting' (Hatton and Smith, 1995, p6) in such an interaction can provide a better picture of what happens.

In summary, critically reflecting through discussions on teachers' practices needs some criteria in the reflection process which gives reasonable indicators that the reflection culture is embedded in an interaction. The case study evidence therefore suggests that the participants became aware that reflection can help them organize their thoughts well during the discussion of their practices. Being able to organize thoughts therefore can support one to analyse thoughts concurrently in discussions. This is the next area of discussion.

4. Reflection as a process to analyze competing claims and viewpoints

Given the facts in the analysis, I assert that the participants were reflective enough in analyzing theirs' and others' viewpoint concurrently as the discussions processed. As stated in chapter two, Schon opines that reflection-in-action and reflection-on-action are reflective processes practitioners use in their practice most of the time. Reflection-in-action is what Schon points out to support individuals to compose a new situation, in a continuous manner, and enables the individual to develop a behaviour which can be referenced to at any time in the course of their work. For effectiveness, the case study findings point to the fact that openness and mutual sharing in the reflection process is vital. Unfortunately, the evidence shows that some human issues threatened the effectiveness of developing behaviours that can be referenced to when discussing practices. What emerged for example was the inability of Aggie to initially rationalise ideas from viewpoints given by others. However, with time, this problem was attended to. What actually occurred was that, they holistically and mutually discussed issues that were self evaluated and advanced their ideas to other similar observations. In addition, they gave thought to ideas well before responding. In effect they formatively evaluated their views.

The conclusion here is that the results point out that the reflective shift saw those using reflections as a tool to safeguard feelings or emotions and preserve their self esteem. The analysis indicated that all the reflective scales were integrated into one discussion frame. In addition, it helped the participants to cope with perceived contextual challenges. Many authors including Birrell, Bullough, Campbell, Clark, Earle, Egan, Erickson, Hansen, Young (1999) and Fook and Gardner (2007) have explained that when individuals face serious challenges to self, 'strategic defensive adaptations', or 'coping strategies', are used to attend to such challenges. Coping strategies may be direct or indirect. It becomes direct when one within an interaction becomes hostile to another and the later adopts strategies to avoid such pains. On the other hand changing about how one responds to a traumatic situation to reduce the impact of any unpleasant situation is termed the indirect strategy.

Challenging situations that accompany discussions result in emotional pains. Illustrating this, Eraut said:

The pain of change lies in the loss of control over one's own practice, when one's tacit knowledge ceases to provide the necessary support and the emotional turmoil is reducing one's motivation. Hence the need for time and support is an order of magnitude greater than that normally provided.' (Eraut, 2004b, p 261)

To survive and cope with pressures within a practice, Eraut thinks professionals often develop 'coping routines'. These normally reduce, as reported in RECME (2009) report, the cognitive load and enable a professional to pay more attention to the situation at hand. What is worthy of note here is that the participants adopted various coping strategies during the process uptake to attend to the emotional pains. But more importantly, these coping strategies were facilitated through the process outline where for each identified emotionally related issue the continuous seeing and applying of the strategies minimised the emotional effect. For example, Catherine decided to use her power as someone in authority to ward off consistent critiquing of her practices as this impacted on her emotionally. This indirect coping strategy (Birrell et. al., 1999) made her change the way she thought about the challenging situation, as she actively used this strategy to reduce the impact on her thinking and reflection. Aggie, on the other hand, decided to remain indiffer-

ent to some situations, especially when she could not organize her thoughts well. She therefore did not communicate her thoughts to the rest of the group. I will interpret the decision she took as one that slowed her down in her shift from the unorganized to organized reflection. This, I can say, was a way of safeguarding embarrassment from the others and is likened to Birrell et. al.'s (1999) idea of indirect coping. An overview of the process therefore closely resembled the activities commonly employed by reflective teachers, for example, framing the problem as promoted by Schon (1987) and asking questions, as suggested by Zeichner and Liston (1996).

From the aforementioned, the result of the study supports the fact that these coping mechanisms seemed to support the shifts in the reflective thinking. Therefore policy makers need to be put in place structures that can facilitate effective PD activities if the strategy is to be used as a PD activity to monitor and reduce the negative effects that this may have on teachers engaged in such an activity. However, I suggest that since the IP process sought to reduce its effect, the teachers can be empowered to monitor such influence.

6.2 Implication of Research Findings

6.2.1 Introduction

The relatively small sample used in the study requires the need to emphasize that the findings must be considered as suggestive rather than conclusive. With the focus of this research being to find out what happens when teachers within one school engage in a reflective conversation about their practices with the view to understanding their practices, it is my opinion that the summarised findings have implications for policy and practices of teacher change programmes. The conditions and assumptions underlying general teacher change activities need to be vigorously examined in order to locate it in a local context. Since this exploration which has an underlying evaluation research undertone is deliberately undertaken for action (Wolf, 1987), rather than the traditional research which aims to produce new knowledge with often no specific consequences on practical decisions,

the recommendations that accompany these implications will serve both local and national teacher change purposes.

The data analysis raised several issues that are of importance to teacher development regarding its organization and professionalism. It is therefore my opinion that the findings have clear implications for:

- a) schools and teachers
- b) the Ghana Ministry of Education: Teacher training institutions, INSET providers

6.2.2 Implications for schools and teachers

a) Developing schools and students collaborative culture

As will be discussed later, developing a well-structured policy and also strengthening this policy on collaborative activities that include teachers concurrently engaging in collaborative activities and their formal teaching work will be vital. However, to ensure proper implementation, changes in schools and classrooms practices will be useful and more effective. The key questions are; How should the school and classroom culture be changed to enable teachers to develop the initiative to engage in collaborative activities without interrupting their school work? How can the school develop a better learning environment, motivate the teachers to have the desire to be autonomous and control their change activities for them to understand their practices rather than waiting for directives from the policy makers to engage in teacher change programmes? How can the collaborative culture be organised to enable the teachers have an insight that will promote their practices rather than as a fault finding activity? Given that this process is used as a new change will be at odds with the prevailing teacher change activities, teachers will have to reflect on their practices and share the ideas collaboratively. Modelling teachers' teaching periods in their schools need to be considered. Because, it has been argued that teachers improve mainly by reflecting on their teaching and by discussing teaching issues with colleagues, as posited by (Tigelaar et al., 2008; Jung et al., 2005).

The case study evidence indicated that teachers develop different thinking trajectory when they are engaged in the activities in the IP. They are found to engage in rich and deep professional dialogue about their work (5.4). They believed that if challenging issues like emotional issues, aggressiveness and uncompromising stance can be attended to, they seemed to have a positive dialogue. In my opinion, I think such hostile attitude needs to be attended to. On the basis of the fact that one's tacit knowledge ceases to provide the necessary support to the emotional turmoil (Eraut, 2004), the reflective collaborative activity need to be organised in a friendly and conducive environment. These calls for an enabling environment where the teachers can engage each other in a democratic environment so that each can provide in-depth information will help them develop more insight into their practices.

To begin the development of such a culture in the schools, the question of the teachers' prior experiences need to be determined and their understanding of the culture needs to be developed. The prior experience and the understanding would provide strong entry behaviour for the participants. It will let them know and provide relevant and appropriate viewpoint during the discourse within the culture.

Section 6.1 examined how an effective reflective and collaborative environment can be promoted. The study has shown that the special characteristics participants carried into the study played a significant role in ensuring success in terms of getting the four teachers to reflect upon their classroom teaching practices in new ways. It was further identified that some of the characteristics they carried into the study, like use of authority and culturally related issues like age, provided an initial hindrance to their contributions. To address the influence of these occurrences, a stratified selection is recommended where those in authority are separated from the rest. This will ensure equality and bring about equal transition in their reflective abilities. Furthermore, to address the ingrained cultural underpinnings, an objective outline needs to be developed to guide the interactions. A

well-informed sensitization programme for participants that explains how to adhere to developed ground rules to guide the interaction is also crucial.

In order to stimulate and motivate teachers to engage in development activities, a process that ensures continuous and systematic critical dialogue is preferable. Most PD activities consisted of 'one-shot' and were normally organised in a top-down approach aimed at teacher mastery or prescribed skills and knowledge. In this regard, there is the need for PD providers to greatly structure their PD activities situated in a realistic context when their activities are located in their classrooms. If this is done teachers can combine their dual activities of being part of the PD with formal teaching. This will enable the teachers to bring their immediate identified problems for better discussions and understanding. At the same time, the teachers can have access to others' views about the same subject content or on pedagogical skills

It should be known that these entry behaviours only cannot ensure an effective culture rather there should be a continuous discussions within the process. This means staggering the meeting periods between their teachings schedules. This is important because the teachers are to advance the outcome of their discussed practices to support their classroom practices. The culture should therefore have an underpinning philosophy of discussing contemporary issues. This will help the teachers overcome the ever-increasing demands on them to live up to the new challenges that have culminated due to technological explosions.

The teachers in the study strongly acknowledged the presence of a facilitator or to use the term of Rareiya (2005) a 'reflective coach'. They felt the process would not have been effective without him. This seems to suggest that teacher educators need to be trained to work from within the classrooms, rather than concentrating on organizing in-service workshops only or working out of school. This role is varied and relates to the suggestions made by Ben (2005), Rareiya (2005) and as cited by Rareiya (2005), Thomas and Montemery (1997) among

others that point out those reflective coaches should not only be experts and reflective practitioners, but when necessary, they should adopt partnership roles as facilitators and collaborative learners.

There is no doubt that in such a complex culture, the need for rules are crucial. The Ghanaian teachers' teaching schedule and the workload the teacher is confronted with, makes the teacher's work very complex. In view of this, rules should be developed by the teachers themselves where each one's priority can be taken into accounts to support the fixing of time and timings for meetings. To all intents and purposes, what is important for developing a collaborative culture is how the teachers will be willing and ready for the culture to be developed.

Additionally, the issue of financial problems has been the bone of contention for most PD activities. The structure does not allow for much financial constraints. However, the issue of the video can bring problems; meanwhile one video resource can support such activities.

b) Learning new ways of reflection

As argued in 4.4 the reflective and collaborative activity was observed to be very crucial in teachers teaching practices. The analysis of the RD data has shown that the teachers learned in different ways of reflection. To achieve the optimal value of reflection and collaboration, teachers should consider how the uses of different questionings are able to induce multiple analytical ways as each had a different way of analysing a particular event. In addition they should justify their claims with evidence. Ideally their questioning skills should be structured to invoke deeper thoughtful ideas in their analysis.

At the same time the offer of an alternative has the intent to make them understand their practices in depth. But most importantly the manner they guide and direct how the alternatives indicate how different ways can be suggested on the

same issue is crucial. The more they develop understanding of their practices the greater will be their enthusiasm to learn from different ways.

To a large extent the offer of alternatives depends on how the teachers can analyse what they observed through reflections. The provision of such feedback is a crucial and often a significant strategy of informing teachers of their competences and the adequacy of their exhibited skills from varied views (section 4.4). The evidence indicated that the appropriateness and relevance of the offered option or feedback is crucial. This depends on the individuals' in-depth knowledge on the issue being discussed. This is in turn provided multiple views that provided multiple ideas and ways to learn from.

Ideally discussing issues with a colleague requires a common understanding between the discussing partners. Having a common structures that all are conversant with to my opinion is preferable. One of such structures is the underpinning cultural norms that guide all the participants. The communal spirits that exist between individuals could be said to motivate them to dialogue, share and exchange ideas among themselves. One of such structures will be the disciplinary structures embedded in the cultural norms. Following these structures can make discussions follow some order and this can support a better understanding since each one will have the time to express views to the understanding of all.

One phenomenon emanating from the cultural norm issues was the way it supported developing deeper understanding of their practices. It is therefore pertinent that the prevailing cultural tenets provided an immediate environmental condition common to all to adhere to in terms of following systematic conversational procedures and supporting learning in new ways.

c) Critical dialogue shape the ways teachers reflect on their practices

As discussed in 5.1 the critical dialogue saw teachers reflecting differently and through different reflective scales. The general observation was that teachers

have a wider range of reflection scope when discussing their practices. It also explains different ways through which teachers practices can be viewed when it comes to developing an understanding of the practices. The reflective modes of judgemental, supportive, descriptive, critical, unorganised, organised, evaluative and interpretive modes reflect the wider attempts that can be used to assess teachers' practices. The resultant effect is teachers learning from new ways and how conversation processes shape the reflection of teachers. As discussed in 4.2 their difficulty in rationalizing their thoughts, saw the need for a facilitator to organise their activities. This made them to provide an insight into and give new knowledge or new beliefs about their practices and the disclosure of issues bordering on salient demand, school policy and socio-cultural issues relating to the teachers classroom practices were also raised during their discussions. Even though the process looked continuous and systematic, structuring the activities to progress alongside their formal teaching is crucial. This will help teachers to cascade and advance their learning from the practice onto their teaching actions.

d) Ensuring uniform and consistent reflection

There was the contention for teachers' consistency to reflect. The resultant effect of practical reflection (Potter and Badiali, 2001) is for teachers to think and deliberate on the means and the purposes of particular actions. It follows that the event identified in a practice determines how one can reflect on it. The problem then is how to adopt the relevant and appropriate reflective strategy to think about during the event. To overcome this problem, there is the need to explicitly make the rationale and what the teachers are expected to do clear before the start of any reflective dialogue. This has implication for reflection trajectory. There is little doubt that how reflective one is can have a significant effect on understanding the practice.

Consequently, there is the need to engage teachers in different models of teachings that can trigger reflections and be able to sensitize them of the need and what they are expected to discuss. This will give them, from the outset, the main

ideas about what they should expect. In a situation where there is the difficulty to get the appropriate resource for the trigger, short teaching episodes, of about five minutes duration, can be used to sensitize them. The contributions from the discourse can then be summarized and used as a working paper and also as reference material for the discussions.

6.2.3 Implications for the Ghana Ministry of Education: Teacher training institutions and INSET.

a) Teacher training Institutions: Developing collaborative culture in teacher training schools

An important strategy that can persuade teachers to engage in activities and to give an innovation a try that often permanently changes their attitude is through collaboration (Fielding, 2005). Further, a process for the development of a culture that has a purposeful agenda to enable group members understand events or actions through negotiation and sharing of ideas about the action is through reflection (Pollard et. al., 2008). However, teachers generally meet at their leisure to discuss their practices with the aim of resolving deficiencies, and to look for other alternatives to support their teachings. This explains how reflective and collaborative they are, but as to whether such meetings produce the needed effect is another issue which the study did not explore. The findings as summarized in 6.2 therefore have clear implications to develop collaborative culture skills in the teacher trainees. To begin the development of such skills in the teacher training schools, the question of reforms in the curriculum of the teacher training schools comes in.

Depicting an evaluative research which is undertaken with the intention to submit a suggestion for improvement (Beeby, 1977; Wolf, 1987), this study also sought to explore and develop a process through which teachers can have a deeper and better understanding of their practices. The suggestions that came out from the study reflect my main personal belief as articulated in the rationale for developing the IP, as discussed in chapter three, which was found to have been supported in the outcome of the study.

The reforms in the curriculum need to start with introducing one into the professional learning related to teachers general education courses. Generally, all the training colleges have teaching methodology courses. The inclusion of these concepts into the curriculum content will have a better foundation for understanding these concepts. Also the preparatory periods for teaching, popularly referred to as 'on-campus-teaching practice' can include component of it focusing on practicing the concepts with the trainee teachers using their mini-teaching episodes for discussions. Almost all the training institutions, both initial and tertiary, engage in out-of-campus teaching practices. These periods can be used to explore alternative ways in which these concepts can be implemented, as most of the time for convenience and supervision sake, more than one teacher trainee is found in one school of practice. Efforts by policy makers can therefore be made to get the teachers to engage in collaborative activities to develop these skills. Even though the study evidence indicated the teachers' willingness and preparedness as factors for being part of the study, in the training institutions, to get the students more involved will be ideal is to make it examinable and be made part of their final examinations.

Evidence from the data collected suggests that teachers ought to become autonomous and be able to control their change process. The implication is that teachers need opportunities during their training both at the pre-service period and in-service period, to be inducted into this kind of professional discourse. From the study, it seems that teaching from a reflective stance is something teachers can among themselves help each other critically dialogue on their teaching actions. Thus, when we encourage teachers to reflect on their learning, we need to help them to determine and appreciate the functions, processes and reasons for reflection. This is because promoting professional life is always at the heart of any teacher change process and this can really be made effective through reflection, as established in chapter 2.

The findings, as summarised in 6.2, have clear implications for training institutions and development partners in teacher change activities. To begin the process

of engaging in collaborative efforts, the processes and structures which include decision making and operational systems are crucial (Matrteessich et. al., 2001). This is because if the process is systematically organised, it stands to present a systematic organisation of thoughts and arguments. In view of this, a modified outline of the process needs to be incorporated in their teacher change training trajectory, where emphasis can be made on the context and needs of the teachers. Activities therefore will need to be flexible and adaptable. In addition, as the process was concurrently organised alongside the teachers' formal teaching, the inclusion of video recording resource facilities which have been found to be very powerful resources (Gallimore and Stigler, 2003; Sherin and Hans, 2004; van Es and Sherin, 2008) is crucial. This is because there are differences in the way others see the same actions, and to bridge the gap created when people use their mental images in discussing issues its inclusion will be useful.

b) Implication for INSET: Restructuring INSET

In the Ghanaian context, PD is mostly a top-down approach and removed from the daily teaching activities of the teachers. It became apparent from the study that the IP is definitely an alternative professional development strategy for the teachers.

There is acknowledgement that teachers need to be active participants in educational change processes. As the 'Expanded Commentary' of the Dakar Framework for Action (World Education Forum/UNESCO, 2000) states:

Teachers are essential players in promoting quality education, whether in schools or in more flexible community-based programmes; they are advocates for, and catalysts of, change ... Teachers at all levels of the education system should ... have access to training and on-going support ... and be able to participate, locally and nationally, in decisions affecting their professional lives and teaching environments. (p. 20)

From the excerpts above it is very important that in-service training in Ghana is made available to all teachers. This is because INSET provides teachers opportunities to learn and grow in their teachings. The case study evidence indicated that such training needs to develop in teachers the character to interrogate their uni-

identified knowledge about their practices. This, in my opinion, is likely to make teachers live up to expectations and not be engulfed by the demands of their teaching which they are usually less able to interrogate from the ways they develop understanding of their practices.

An effective outcome of teaching has been linked to effective reflection and collaboration. It has been argued and suggested that classrooms are to become communities of active and inquiring learners and teachers who provide the leadership and guidance in such classrooms must themselves have professional developments that are also inquiry-orientated and collaborative (Fullan et al., 1990; Wenger, 2004; van Es and Sherin, 2008). For example, the study evidence indicated that the IP developed around RD saw the teachers learn how to rigorously and systematically diagnose their practices and mutually shared their viewpoints collaboratively. Hence, by engaging in a quest for an understanding of their practices, they were taking control of themselves and their professional development.

An idea that came up repeatedly from the teachers' viewpoints was the fact that the interaction saw the integration of their knowledge in methods and principles of teaching with their real world and the actuality of classroom life. They emphasized how their discussions were practicalized and they were able to advance what they discussed into their classrooms to address some of their problems. This, therefore, led the teachers to develop a positive attitude towards the IP. This seems to suggest that PD of the teacher participants need to have a critical reflective collaborative dialogue component which is practical orientated and can use the actual classroom situations as experienced by the teacher participants.

The study evidence proved that from the outset, even though all the teachers had experienced numerous INSETS and been exposed to different teaching strategies, they initially lacked the adequate and relevant skills to critically analyze their practices. With time, however they acknowledged the IP as an effective strategy

in that they could think critically and be able to offer alternatives to any deficient or faultless events they observed. In addition, even though they had seen other alternative practices, they had not engaged in such critical dialogue to examine their practices with multiple views and multiple ideas. This made them, as stated in 5.4 and 6.2, to learn in new ways individually and collaboratively.

Furthermore, the study suggests that any effort to promote the IP in Ghana will have an immense benefit for any training teacher. The fact is that it fit and helped them to be sensitive to their ways of looking at, and talking about, their practices and teaching which saw them developing a positive attitude towards questioning their teaching from themselves and from others. This attitude was informed by their immediate cultural norms structure that is underpinned by the communal spirit that made them engage in a rich and deeply professional dialogue.

c) Need for National PD Policy

The evidence seems to suggest that there is a need for a national policy that recognizes both in-school and out-of-school teacher development activities. At the moment, much emphasis of teacher change activities is out of school, but this study reveals that an in-school teacher development approach is crucial. Such a national policy would positively influence teachers' and schools' expectations on PD activities. Currently Ghanaian teachers are disillusioned with the way PD activities are organized. These activities do not have any immediate impact on teachers' practices after attending to PD activities. In addition, the development activities focus on quantity and assume that quality comes from what Day (2004) said is due to the teachers acquired knowledge and pedagogical content and so it is a natural outcome of these activities. In contrast, the IP activities, as a teacher development strategy focus on quality. The centre of activities is in the classroom and teachers continuous development concurrently for the IP whereas with the out-of-school teacher development activities, the organizers, teachers and the training form the background. Thus, in the IP, the improvement of the classroom practice is tied to the teachers' development. This suggests a strong link between the IP, teacher development and school improvement.

Another important implication for INSET is that the teachers developed their own ground rules and focuses for the discussion. The advantage here is that teachers immediate needs form the locus of discussions. With the ever increasing demands in the classroom for teachers especially with regards to the long awaited bureaucratic process for organizing out-of-school development programmes, the IP seemed to resolve such a long process. Depending on the willingness and readiness of the immediate teachers, which the study indicated, organizing such collaborative activities becomes related in local content context and also faster. However, there is dilemma here. Taking into account the existing working conditions for teachers in Ghana, for example, the heavy teaching load and lack of resources among others, and the time and timing of PD activities to teaching demands, the extent to which this reflection is expected to occur regularly without changes in the work schedule of the teachers seemed to be of a major concern.

6.3 Applicability of the conceptual framework in the Ghanaian context

Relating the findings from the study to the conceptual framework, it can be argued that even though the IP provided much more emphases on critical reflection, the findings have revealed that when teachers engage with such a process, their reflective journeys within any dialogue like the IP can best support them to develop a better understanding of their practices which can support their own teaching growth.

For example, as indicated in chapter one, even though many attempts have been made to support teachers to change their practices through PD activities, the activities are externally controlled. The study has shown that given the necessary support the teachers by themselves can engage with themselves to develop better professional lives. Again, teachers need to be given autonomy to organise their own change processes. With regards to how the process can be managed as argued by the conceptual framework, it can be concluded that the facilitation and

the participants' ability to develop rules that fit their context can support such a change environment.

6.4 Self Reflection on the Study

a) Lessons from the study

The interaction between the group members reflected my intention and my stated goals for the intervention as well as the goal of having everyone play his/her part or contribute during the interaction. The process saw the participants identifying problems, reframing the problem, developing alternatives and adapting actions considered appropriate in the observed images and using them in their classrooms. This shows that the process can be relied on to support teachers in their quest to develop. The processes are seen to be spin around reflective activities, clustered around routine steps repeated over time. The repetition creates avenue for reinforcement of ideas in a continuous way. As such, the steps in the process show characteristics of reflective activities (Pollard et. al., 2008).

The development of ideas in this thesis has been rough and complex. With my initial intent to investigate teachers' self assessment in the Ghanaian education terrain, I saw that such a topic was very broad. After reading literature and engaging in in-depth discussions with my supervisors I had to shift to professional development after my second supervisor had left and was replaced by another. This shift was necessitated by the fact that PD was very broad. After further consultation, I came to decide on the topic for the thesis.

From the literature I find reflective and collaborative practice to be powerful learning methods (Osterman and Kottkamp, 1993; Mattessich et. al., 2001; Fook and Gardner, 2007). The depth of literature and my understanding developed from the study has inducted me as one of the proponents of the use of reflection and collaboration to enhance practice as a teacher educator.

The participants in the research did not initially generally see their collaborative and reflective practices as vital for their teaching practices. This corroborates Rareiya's (2005) initial study evidence. However, they later on acknowledged the influence of these two concepts. The findings of the research support my previous experiences where I rarely reflected. I had the notion that teachers do not and cannot find any value in the process. However, from the experience I got the teachers also acknowledged its effect which they further felt reinforced their earlier views that it can support their practice change. What did surprise me was how the teachers expressed surprises when they had the opportunity to observe their practices. It actually stimulated them to put in their best during the interactions. The teachers' behaviours support Gallimore and Stigler's (2003) observation that 'If 'everyone does the same things' the sources of alternatives are limited' (p27). Seeing different actions sometimes makes teachers to become surprised and be more curious and this confirms the fact that even seeing one's own practice makes everyone to be surprised.

During the implementation process of the IP, I gave some consideration to the use of video vignettes in order to try to encourage the participants to undertake reflection using videos. However, the difficulty I envisaged was about using video in different contexts. Notwithstanding these drawbacks, the participants were quick to retell, recount and compare some of the issues that were encountered during the trigger watching period which was used to sensitize the participants on what they were to expect.

As I sat observing the activities, new ideas and issues changed my way of facilitating the process. In effect, I continuously learned new ways of doing things. This really gave me more insight which I think will greatly enhance my work when I get back to my school.

The process was new to me and my inexperience was exposed by the participants. The participants rightly rejected a suggestion made by me on an issue. She said:

“you have not taught at this level before so just sit and listen to us”. Quite apart from my position, as a teacher educator I could not have sat down unconcerned when wrong concepts or skills were being discussed. This sometimes pushed me to intervene when I knew definitely that if I did not correct them there was the likelihood that they were going to learn wrong skills.

Throughout the PhD process, I was increasing my theoretical understanding of teacher change and the processes thereof. From interacting with the participants and the IP, I think it is vital in this reflective section to consider not only how my increasing theoretical understanding informed the research process but how my understanding of the educational literature was informed by the research and data during my PhD trajectory.

At the outset of my research, the difficulty to crystallize ideas from the process became problematic hence I sought for an extension. As I reflected on the processes that I went through, especially during the write-up period, I saw that I was always under pressure due to the fact that I had a limited time to wind up. This really affected my understanding and how my view of reflection had been created through the many attempts of re-writing each of the chapters. However, with the able assistance from my supervisors, more especially when I was told one day that ‘the end is near’ I knew I was on course since earlier on I did not know the direction I was taking.

From my exploration of literature on collaboration and reflection not only on education, but also especially on the health profession, I came to understand more about the usefulness of the concept. I realized the need to holistically understand the ideas in collaboration and reflection more especially through the writings of Mattessich et al (2001, 2005), Hatton and Smith (1995), Rareiya (2005) and Sylvia Downs (2003). This expanded my understanding of the concepts and influenced the research trajectory and analyses as well as the interpretations of the data.

b) Strengths and Limitations of the Research

The first and major strength of this research lies in the structure of the IP which depicts classical experimental research and action research in this single research, with its attendant use of multiple data collection techniques. The nature and purpose of the research informed the design. As pointed out in Chapter One, this study was about developing a process where teachers within one school were given an opportunity to engage in a planned series of group activities and discussions directly related to their own classroom teaching. Such a study required an in-depth exploration of the views and feelings of study participants. This was made possible in this research through the use of individual interviews as well as RD.

The in-depth exploration using four teachers provided rich and deep information where the teachers could learn new ways of understanding their practices. Even though the data collection period was not too long, the number of participants involved provided enough data representing multiple views which could have been possible through large numbers. Each individual had enough time to comment on issues of concern to the study.

The second strength of this study was the way teachers concurrently engaged with the study and at the same time performed their normal teaching. The teaching actions used for the exercise were contemporary hence issues discussed were recent issues where ideas expressed were advanced into their classrooms. This made the teachers to understand some challenging situations that they were not privy to if they had implemented the outcome later on. In addition to that they were able to discuss what they found problematic with their colleagues which in normal times could not have been possible as they may have other things to think about due to the numerous activities that go on the their school.

In this study one advantage that was particular about the investigation was that the teachers' immediate needs where their current practices which were of great

importance to their classroom work were discussed. Again, by putting together their own problems and the challenges facing them, they could, through collaboration and reflection, attend to these challenges.

The third strength of this study was my familiarity with the research terrain. Even though it has been argued by authors including Burgess (1984) that there is a tendency for a researcher who knows his research context to take certain behaviours and issues for granted and thus fail to subject them to an in-depth scrutiny, at the same time it gives the researcher some room to organise the research activities, as attested by Quaigrain (2002). In my case, it made it possible for me to manage the research process very well. As a teacher educator, teaching how the concept can be applied in the classroom, I had the advantage of having a very good knowledge about the participants whom I was working with. As a result of the good working relationship I had with them, they were more than willing to participate in the study. In fact, they saw the study as a way to help resolve some of their dilemmas about their teachings and getting alternatives to their practices.

The fourth and final strength of the research process was the benefit derived from getting an in-depth understanding of how teachers can reflect and collaborate. As the nation struggles to find an alternative PD activity where attendance, financial constraints, making sure syllabi are completed on schedule, and not leaving the class unattended to while teachers go on INSET, this process for me provides a best alternative for PD activities. The interactions also afforded me the opportunity to put into proper perspective the views of teachers concerning their practices. In fact, being a facilitator made it possible for me to explore issues at a much deeper level. It produced valuable insights into the problems of the facilitation as well as issues teachers do not think of as influencing their practices. This once again points to the benefits of multi-faceted research strategy adopted in this study.

The main methodological limitation identified in the research process was what Maykut and Morehouse (1994 p155) refer to as the problem of reactivity. They pointed out that reactivity is a 'term used to describe the unintended effects of the researcher on the outcomes of the research processes'. The first of such problems of reactivity was my position as a teacher educator. This was because the participants had the perception that I had answers to all their teaching problems. Regularly they sought my point of view when they were discussing their teaching practices. In response I always reiterated that I was also learning just as they were and I had to convince them that I needed their viewpoints to enable me get a comprehensive picture of the issue. Thus my familiarity with the terrain acted as a double-edged sword which could have negatively impacted on the research process, but I managed to minimise its negative effects.

The second problem of reactivity arose from the perception of the participants that I had come to assess their teaching practices. They therefore had an initial suspicion about my being part of the observation and discussions. Akyeampong (1997) reports of a similar problem during his field work in Ghana, which Marshall and Rossman (1999:85) refer to as 'Politics of Organisations'. This earlier signal which I anticipated made me plan towards it. This was addressed when I thoroughly explained the rationale and purpose of the study and my role as a researcher and facilitator as suggested by Marshall and Rossman (1999) and Bens (2005). This position made me maintain good interpersonal relationship, especially during the RD and also throughout the study, to disabuse their minds of any such suspicion. Maintaining interpersonal relationship in such a situation has been recommended by Marshall and Rossman (1999). As the process progressed and they found out to have in-depth understanding of issues related to the level they were teaching, their initial suspicion faded and that led me to interact very well and to have a high degree of cooperation from the participants.

6.5 Recommended Areas of Further Research

From literature it was realised that empirical research in collaborative and reflective practices of teachers are limited and are found to be mainly explored in de-

veloped countries. In Ghana, the issue of reflection and collaboration is new and very little is known about it. What this study had done is a comprehensive analysis of teachers' reflective and collaborative practices. There were certain issues that emerged from this study but which were not captured in the mainstream exploration. These issues need to be further investigated for us to gain a deeper understanding into them. This research therefore has acted as a springboard for a further research agenda. This section therefore provides the highlights to these emerging issues.

1 Linking knowledge to practice

One issue that emerged from the study was about the ability of teachers to link their knowledge to their practice. This issue appears not to be given much attention in the study where the need to assess how such knowledge gained in the study is implemented in the classroom. This issue need further investigation to see how effective the discussions they had impacted on their classroom practice. Specifically the issue to be explored could include:

- Teachers reporting on how the discussions they had imparted on their teaching actions
- How they can ensure such ideas are well implemented
- What improvements are needed to ensure that professional support can help teachers implement their discussed actions?

2 A study to explore differences in reflective behaviours when reflective dialogue is on the same focus

Another area of concern is how the participants exhibited different reflective behaviours when the same focus underpins the critical dialogue in the study. Even though the processes adopted by the participants in expressing their thoughts about what they observed differed, factors influencing such behaviours were not explored. This calls for an in-depth investigation into factors that influenced individuals' process of reflections. The reason is that every individual has a unique way of understanding an issue. Such a study should aim at developing an opera-

tional definition of factors that can support groups of people to reflect on their practices with common variables. Such factors could address the following research issue:

- What factors need to be considered when teachers engage in collaborative reflective dialogue on practices on the same issue?
- Are teachers to be given special training in how they collaborate and reflect on specific issue on teachers practice?
- To what extent does a specific teacher characteristic influence how the teacher reflects on his/her teaching action?

3 An exploration of how teachers can consistently reflect on the same issue

There was the problem for teachers to consistently reflect on issues in a similar manner. It is therefore recommended for further research to investigate the issues whether human or in the context of the discussion that can influence how they reflect and what process can provide how consistency can be achieved.

Such a study has a potential to bring to light the strengths and weaknesses of how a particular all-important strategy can be handled. This study can also help bring out some theoretical interest such as whether there is a human factor or an important related issue to the context that influences the extent of their reflection.

6.6 Summary of the Main Issues from the Research

This chapter has presented a summary of the main findings of the research by looking at the general issues with the exploration of the intervention process. It brought to fore the impact it has on teachers. It has also highlighted how teachers use the Intervention Process to develop their thinking about their practices.

The study has implications for teacher change process and what the key factors for the change process are regarding how it can be adopted in schools in Ghana.

It has also pointed out the fact that it can be adopted as a PD activity where the foreground will be on classroom activities and teacher development in an ongoing manner. Furthermore, the prevailing cultural norm in the immediate environment was observed to heavily influence how teachers can engage in a rich and deeply professional dialogue on their practices. Again, it gave the teachers the needed opportunity to systematically diagnose their teaching practices and learn from new ways.

The findings also suggested that to make teachers develop in different ways about their practices, they should perceive that if they can critically and practically diagnose their practices and advance ideas from what they have discussed into their classrooms to address some of their problems they will be better placed to develop further. Generally, the IP provided evidence to the fact that teachers can

- understand and deal with on-the-spot professional problems.
- Develop a critical thinking that includes taking account of social, political and cultural issues
- analyze competing claims and viewpoints
- support systematic and coherent organisation of thoughts and ideas to enhance their professionalism

There were some lessons drawn from the research findings that provided insight to some recommendations for policy considerations. These include developing a school collaborative culture, learning new ways of reflection adopting critical dialogues that shape the ways teachers reflect on their practices and ensuring uniform and consistent reflection.

Through my reflection, I came to the conclusion that while I was exploring how the IP was impacting on the teachers, it was also giving me insight into my unidentified knowledge about reflective and collaborative experiences. It also gave me the research trajectory requirements to qualify as a good researcher. The research journey therefore has been worthwhile. It also became clear to me that the

issue is not whether the IP can work rather it is whether the IP can properly sensitize the conceptualisation of the process for an effective teacher change process.

I believe that if the recommendations made in this chapter are adopted and if steps are taken by all key players to implement the process while attending to some issues that have hindered teachers thinking, the IP should stand a good chance of making a positive impact on the teacher change processes in Ghana.

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APPENDICES

Appendix A

DESCRIPTION OF THE CASE STUDY SCHOOL

University Practice School, Winneba.

The University of Education, Winneba, practice school, is located in the north campus, which is one of the three campuses of the university in Winneba. The school, at the time of the research, was managed by the university and the District Education Office (DEO) of the Ghana Education Service. The university was and is responsible for the provision of infrastructure, and in consultation with the DEO the recruitment of teachers for the school, while the DEO in addition is responsible for the day to day administration of the school. The two bodies therefore collaboratively manage the school. With time the understanding is that the university will take full control of the school.

The school serves both the university community and the people of Winneba. Because of the status of the school, everyone within the Winneba township and beyond wants their children to be enrolled in the school. The school population, at the time of the study stood at 420 with 290 boys and 130 girls. The staff strength of 33 was spread over the classes and subject departments. Six teachers handled the six lower primary classes with the remaining teachers teaching subject spread over the eleven subject departments. Apart from two teachers who held the certificate 'A' post-secondary certificate in teaching, the remaining teachers were graduate degree holders with about 98% of them being products of the University of Education, Winneba. Two of the staff, the headmaster who is an Assistant Director of Education, and the school counsellor, holds Master of Education degrees.

The school compound is dotted with shady trees, and under each of these trees are tables and chairs. On arrival at the school compound, especially at the JHS block, one sees teachers sitting in groups under these trees. I became interested to

know why they were sitting in groups. It emerged that at their leisure time they meet in subject areas to discuss issues relating to their practices. Further checks on this from the head of the school revealed that it is a policy of the school for teachers to collaboratively engage in discussions on their practices. These discussions, as emerged from the interviews are about resolving teaching problems as well as getting teachers who have the requisite skills to teach certain subject content. Emphasising the effect of such interactions Aggie said:

During one of our discussions, I became aware that Oneal has the flair to teach collecting and handling of data, and so anytime I got to that aspect I call on him to teach the students on my behalf

One problem the teachers encounter in the school is about students' lateness and absenteeism. The town is a fishing community. The school has a sizeable population of students coming from the fishing community. Mostly the peak of the fishing business is the mornings and the fishing season. The people involved in the fishing usually use their children during these times. Students come to school late or are absent during these periods. These seriously affect the work of the teachers. Catherine expressing her misgivings about the behaviour said:

You may be at the middle of the lesson when these children come in. most of the time you will have to either repeat an already taught aspect of the lesson or you start all over. We have discussed this over and over again during our group meetings and even I have been echoing this during INSET training programmes for all to discuss and find appropriate solution. But the problem still goes on

The school is privileged to have access to the physical education faculty and so during sporting times, all the teachers are drafted to support and help the students during training periods. The evidence from the interviews suggested that, when PD activities are organised during such times, it competes with the sporting events as well as their collaborative activities. The effect is that each one has to prioritise his/her activities.

My reflection on the field experiences at the school points to the fact that the collaborative culture in the school seemed to support the teachers in their work, yet some factors seemed to hinder such an activity. In spite of the problems, they believed that developing the culture was important.

Appendix B

FIRST INTRODUCTORY MESSAGE

Introduction

Thank you for taking part of your tight schedule to meet me to brief you about the study I am embarking on.

My name is Samuel Asare Amoah, and a student with the University of Nottingham, School of education in the UK. As part of my course, I am embarking on a study, which seeks to investigate the professional development processes and their potential impact on the reflective and collaborative practices of teachers in Ghana.

My suggestions is to get your experience in watching each other's video and each one of us should agree to have one of our lessons videotaped and the purpose of that is for us to have access and watch the video so that we can share our views.

The process for the study is that we need each other to watch others teaching but to avoid interruption and the difficulty for all to get into one's classrooms, we are going to video tape each other's lesson which is a different approach. You will then watch a video playback of your colleagues' lessons, we meet latter to discuss it, and what we need to do is to agree to watch together the sort of things we might agree to work on.

We are not going to criticize one another but for my PhD I am interested in exploring how teachers observe each other and how they can use what observed to help each other. We are not going to criticize each other, our interest is to see how to support or give supportive and helpful feedback to each other.

This is a collaborative exercise, which will allow us to give each other supportive, and effective feedback requires that what goes on here should be very confidential. This should not go round to other teachers in the school. In effect, you are going to share your skills on your approaches of your teaching with your colleagues

I am therefore here to help you in what you are doing. I am not here to assess you by telling you whether you are good or bad teacher but for you to tell me what you have been doing as far as your teaching and practices are concerned.

I will want you to know that you can stop participating in the study at any time or even now, refuse to participate without any ill feeling.

I will be with you for next six months and activities involved, which will be in four phases and in three cycles, determined by you so that it will not interrupt with your official work in the school here.

There will be thorough discussions in all activities in this study. There will be negotiation to decide for dates, periods and venues.

If you choose to proceed, the following are the stages. (Refer to Figure 3.1)

Appendix C
REQUEST LETTERS

Room C17

School of Education, The Dearing Building
The University of Nottingham
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

18th January 2008

Ministry of Education
District Director's Office
Winneba,
Ghana.

Dear Sir/Madam

I am a research student at the University of Nottingham in the UK. I am embarking on a study which is **investigating the reflective and collaborative practices of teachers in Ghanaian basic schools**. As part of my research project, I intend to conduct series of observations and interviews with three teachers. I will therefore be grateful if you would allow me access to a University Practice School and three mathematics teachers who will form the sample for the study. Their views on this subject will represent valuable contribution to my work.

Please find attached the proposed plan for the study. I would like also to assure you that all information they will kindly provide will be used only for this work and will be treated with extreme caution and confidentiality.

Thank you for your kindness.

Yours faithfully,

Samuel Asare Amoah

Room C17
School of Education
The Dearing Building
The University of Nottingham
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

18th January 2008

Selected teachers,
University Practice School
Winneba,
Ghana.

Dear colleagues,

I am a research student at the University of Nottingham in the UK. I am embarking on a study which will involve three teachers teaching mathematics. You have been selected as one of the three teachers. The study will attempt to explore how you and your colleagues teaching mathematics have been working, sharing ideas about your teachings and how to develop your teachings further in mathematics.

The study will involve interviews which will be audio recorded, videotaping of some of your teaching, writing down commentaries on your teachings, your colleagues watching a playback of the recorded videotape of your teaching and they also writing down commentaries on what was observed in the video playback, and you and your colleagues dialoguing on the commentaries written down with streams of the video clips being used as evidence for the dialogue. The study has five phases. See Figure 3.1

I am not an expert in the process and so you should not look up to me for any expert advice but you are to think about the best way to make the process work well. I am also not going to interact with you to assess your performances even though I was your lecturer but to sit quietly and observe how you work. My position in the interactions will be purely facilitating it.

Thank you for your kindness and I do hope to meet you to start thinking about the process for the study and I strongly assure you of confidentiality on what will happen before, during and after the process of the study.

Yours sincerely

Samuel Asare Amoah

Appendix D

GROUND RULES AND DISCUSSIONS PROTOCOL DEVELOPED BY TEACEHR PARTICIPANTS

A. GROUND RULES DEVELOPED BY TEACEHR PARTICIPANTS

The following seven categories were developed.

Procedural rules

1. Dialogue meeting should be between 90 to 120 minutes
2. Every lesson to be videotaped should be between 35 to 40 minutes
3. Days, time and class for any lesson should be negotiated with teacher concerned
4. Each day, time and venues for dialogue meeting should be negotiated for at the end of a meeting and accepted.
5. Video recording should be focused on activities in the in the classroom including what the teacher is doing at any particular time.
6. Venue for the dialogue session which should be well organised by researcher/facilitator
7. Three teachers need to be present to start dialogue session.
8. Mobiles phones on silent
9. Reduced external interruption
10. Dialogue on **20 minutes** chunks of lesson clip at a time for each of the participants

Modified to:

- 10 (b). Dialogue on **10 minutes** chunks of lesson clip at a time for each of the participants
11. Researcher should always start discussions, except anyone has a concern about the process
 12. Participants whose lesson is being observed and dialogued should first summarise the lesson and justify as a way of defending action observed
 13. Three lessons of choice to be videotaped.

Framing and reframing of ideas

Each can pick on any of the parameters to develop argument.

Contributions should focus on the following; concepts of topic, chalk-board work, teacher-student interactions, approach of teacher, questioning skills of teachers (reinforcement), introductory and ending of lesson, class management, teaching learning materials and lesson delivery.

Finding solutions to identified problems

1. Anyone should give reasons for any claims
2. Each should give reasons for making any claim.

Collaboration

1. there should be cooperation
2. mutual support
3. All feedback and alternatives need to be discussed by group before a decision is taken.
4. Any member can encourage the other to speak during discussions
5. Allow each member to contribute and express perspectives based on context related experiences whatever he/she is saying about an issue
6. The group should seek to reach agreement on any issue
7. All in the group are encouraged to speak by other group members.

Culturally situated

1. Allow each member to contribute with context related experiences whatever he/she is saying about an issue
2. Respect each other's view
3. All should respect and accept each other's view
4. All should listen to the views of all especially from the experienced

Shared talk

1. all relevant information is shared;
2. the group seeks to reach agreement;
3. the group takes responsibility for decisions
4. The group takes responsibility for any decisions taken
5. all relevant information is shared;

Others

1. Focus contributions by describing and interpreting observed actions to bring understanding.
2. Describe what seen, interpret it as one understands it, and offer suggestion for its improvement.
3. All should know that challenges/disagreements/agreement is acceptable.
4. Alternative opinions are discussed before decision(s) taken.

B. DISCUSSIONS PROTOCOL DEVELOPED BY TEACHER PARTICIPANTS: What to focus discussion on.**Teacher**

1. Quality in subject matter
2. Teaching style
3. Class control

Lesson Delivery

1. Format for Lesson delivery
2. Lesson introduction
3. Chalkboard work
4. Questioning skills of teachers
5. Use of Teaching Learning Resource
6. Timing of teaching

Others

1. Management of

- Destructive behaviours
- Class interruptions

2. Teacher-Student interactions

- In class
- Outside class

3. Relationship with other teachers

- During discussions

Appendix E

INTERVIEW QUESTIONS

Background information

1. Can you tell me about your academic background as far as mathematics is concerned?
2. Apart from your teaching what other responsibilities that is of interest to you in school and outside school

Training

1. Can you tell me about any INSET course(s) you have attended for the past two years and how have you dissimulated the information gained.
2. Do you think it was necessary for you to do a follow up of the training you had
3. Can you assign any reason if you had the feeling of attending such a training again

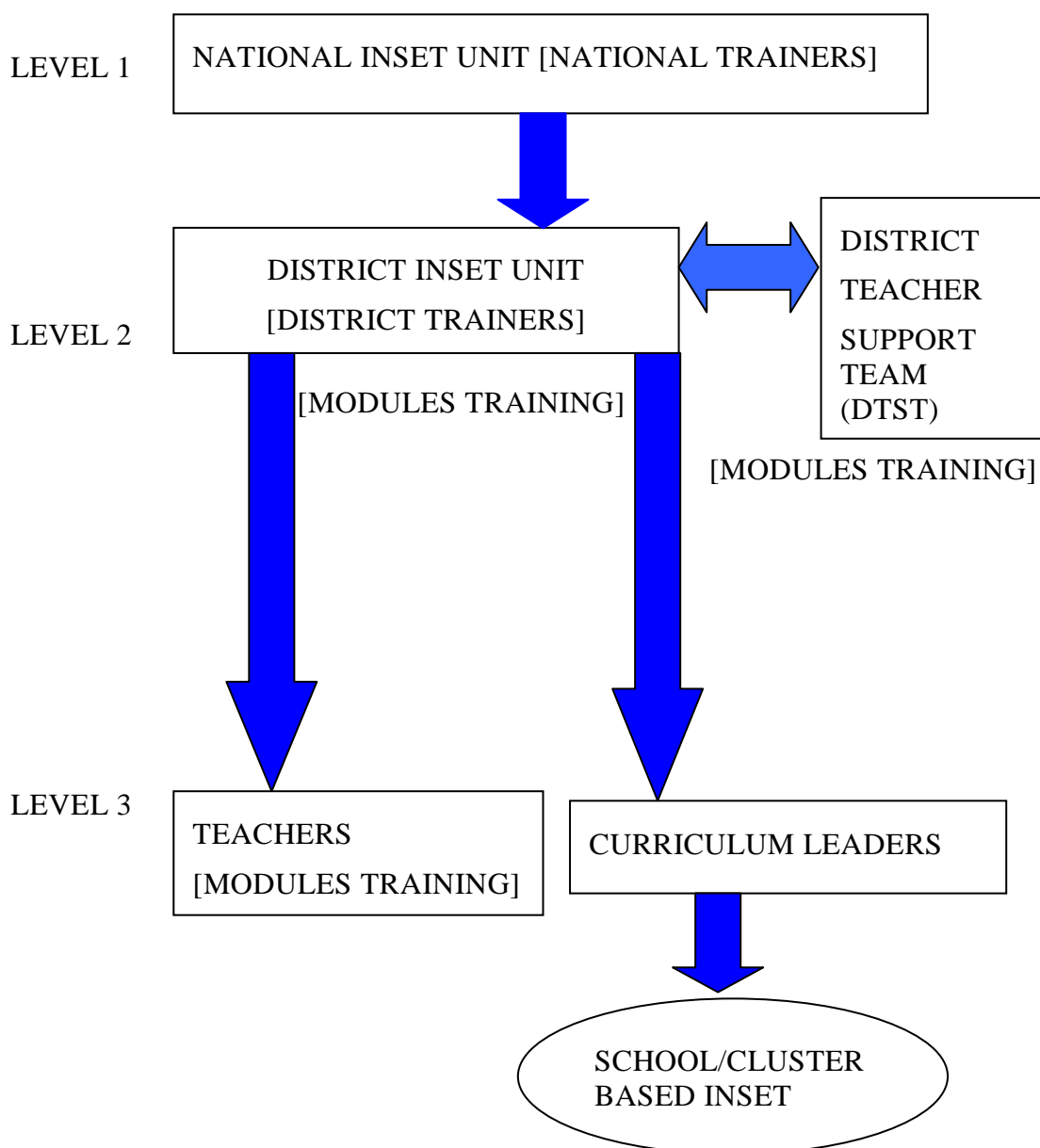
Current approaches

1. How do you after teaching a lesson look forward to the next lesson?
 - i. Can you tell me a lesson you have taught recently which you were really pleased?
 - ii. Why were you pleased with it?
2. What are some of the major approaches that you have been using in your teaching?
3. Explain why and how some of the critical things you have been using influences the approaches you have been using.
4. What have you noticed in the past two years in your teaching after attending an INSET programme?
5.
 - i. What do you think you have been doing differently from what you use to do?
 - ii. What brought about the change?
6. Where and how have you been getting help in your teaching
 - i. Do you think you have been teaching well?

- ii. if how have you been organising yourself which makes you think that you are teaching well?
- 7 Why do you require personal needs and how do you think it can be addressed
- 8. Do you think there is the need to relook at the way you have been teaching?

Appendix F

PROPOSED JICA IN-SERVICE TRAINING (INSET) STRUCTURE



Source: JICA (2006). Operationalisation of INSET document