Establishing a New Teachership through Interactive Radio Instruction:

Evaluating the impact of IRI on teachers' practices in Malawian primary schools

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Declaration

I declare that this thesis is my own work and that all critical and other sources (literary and electronic) have been specifically and properly acknowledged, as and when they occur in the body of the text.

Signed:

Date:

Abstract

This evaluation research study is concerned with the quality of support and in-service development for Malawian primary teachers through the medium of radio. The study aims to evaluate the influence that the current United States Agency for International Development (USAID)-funded interactive radio instruction (IRI) programme has on teachers' behaviours, with the aim of proposing some guidelines for the development of a model of continuing professional development (CPD), appropriate to the Malawian context, using IRI. It identifies the teacher as a critical entity in raising levels of learners' achievement within the primary school and posits that through improved teacher support and development, higher levels of learner achievement can be attained. The study identifies the potential that communication technology in the form of interactive radio instruction (IRI) offers in improving CPD of teachers at a cost that could be affordable to disadvantaged school communities in the country. The study takes place in a context where the Malawi government has been challenged to provide quality universal primary education after introducing free primary education (FPE) in 1994, which resulted in a massive expansion of primary schools, resulting in acute shortages of teachers.

The study has drawn on aspects of practice theory and in particular the work of Giddens (1984), Bourdieu (1977, 1978), Shatzki et al (2001) and Reckwitz (2002a) in an attempt to emphasise the role of artefacts, such as interactive radio, as part of social practice. A practice theoretic perspective has been used to highlight the contentious role played by learning-objects in teacher practice and the need for flexibility and innovation in employing learning-objects like interactive radio as part of teaching practice.

To carry out a critical exploration of the issues of teacher learning and practice, a longitudinal qualitative research approach was proposed for the evaluation of the existing IRI programme in Malawi. As the researcher was also actively involved in the planning of the Malawi IRI programme from onset, he therefore maintained a dual role of researcher and co-founder throughout the research process. The empirical evidence employed within this research was elicited through three main processes: interview survey, participant observation and focus groups in order to achieve validity through methodical triangulation.

The analysis of this evidence shows the considerable difficulties faced by classroom teachers in attempting to adopt interactive radio and therefore be able to use interactive/active learner-centred instruction as part of their ongoing teaching practice. The analysis, however, also highlights the possibility of exploiting interactive radio for provision of an integrated, sustainable CPD of teachers in educationally deprived school communities.

Overall, the research study puts emphasis on the need for paying attention to the social practices (contextually specific) within which the use of educational technologies (such as interactive radio), are enmeshed. There is need to explicate the details of such practices (instead of adopting a narrow, technical, focus on attributes of interactive radio itself) in order to improve the efficacy of using interactive radio.

Acknowledgements

Prospects for fulfilling my research ambitions on teaching and learning issues came into sight after a long and quite tedious period of sponsorship 'hunting'. I am, therefore, indebted to many people that, knowing or unknowingly, in one way or another, stimulated and helped me to endure and live up to my (and their) expectation: to see my PhD research come to fruition. Thus, I ought to express my gratitude to the British tax payers and to the UK government for making my studies in the UK possible, through the British Commonwealth Scholarship and Fellowship programme. My special thanks go to the Canon Collins Trust for nominating me for the 2006 British Commonwealth Scholarship award.

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There is no research without a *corpus.* Therefore, I ought to pay tribute to all teachers (and their learners) who volunteered to participate in the study. My gratitude goes also to their supervisors (Primary Education Advisors, PEAS) for helping me carry out the interviews and classroom observations. I wish also to acknowledge the cooperation of the Ministry of Education, Science and Technology in Malawi (MoEST) for allowing me access to some schools for my data collection. I deeply appreciate the openness and collaboration of the respective directors and deputy-directors in the directorates of Planning, Basic Education and Education Methods Advisory Services. My sincere thanks go to Mrs Bertha Masauli (Acting Director of the Malawi College of Distance Education, MCDE) and Dr Simon Richmond (Director of the Education Development Centre, EDC) for hosting me as a researcher in their institution.

Getting involved and surviving such a long-lasting study has required lots of understanding, sacrifice and moral support from my family and relatives. I feel rather guilty that even though my wife Kettie and my sons Kenneth, Paul and Benson were with me in Stirling, I could hardly spend enough time with them as

they and I would like, given that I was quite busy with my study. Knowing it will not repair those ‘lost’ three years, I dedicate this thesis to them.

Abbreviations and Terms Used

Abbreviations and acronyms are often used in the field of education. An attempt has been made to avoid them in this work but those that have been used are defined below.

CPD	Continuing professional development
CEPSATI	Classroom Environment Pupil Satisfaction & Achievement Instrument
DOCS	Divisional Outreach Coordinators
EFA	Education for All
EDC	Educational Development Centre
EMAS	Educational Methods Advisory Services
FPE	Free primary education
HGIOS	How Good Is Our School?
HGIMT	How Good Is My Teaching?
IEQ	International education qualifications
IHE	Institute of Higher Education
IRI	Interactive radio instruction
ISP	International school improvement programme
ISO	International Standards Organisation
INSET	In-service education and training
L2L	Learning to Learn
LTMS	Learning and teaching material sources
MCDE	Malawi College of Distance Education
MDGs	Millennium Development Goals
MIITEP	Malawi integrated in-service teacher education programme
MoEST	Ministry of Education, Science & Technology
NESP	National Education Strategic Plan
NGO	Non-Governmental Organisation
PEAS	Primary Education Advisors
PCAR	Primary Curriculum and Assessment Review
PRESET	Pre-service education and training
REFILM	Radio Education for Interactive Learning in Malawi
SSA	Sub-Saharan Africa
T1/T2	Teachers with 1 and 2 years of training
T3	Teachers with 3 years of professional training
TEI	Teacher Education Institute
TIA	Teacher –In-Action
USAID	United States Agency for International Development
UTT	Untrained teachers

General Introduction and Background

As in most countries in sub-Saharan Africa (SSA), schools in Malawi are constrained by poor resources which are a consequence of the high levels of national socio-economic deprivation. This problem of inadequate resourcing is particularly serious in rural primary schools, which constitute the majority of schools in Malawi. Education has a central role to play in combating social and economic deprivation: without a high quality education, the essential skills and knowledge necessary for economic growth, an enterprise economy and social progress cannot be developed. Most primary teachers in Malawi are under-qualified or un-qualified in professional practice and their own academic education may not have progressed beyond the Malawi School Certificate of Education, the equivalent of the Ordinary Level of the Cambridge Examinations Board. Without well-qualified and professionally skilled teachers, high quality education cannot be delivered. Thus Malawi and most other African countries find themselves in a vicious circle – poor economic performance and low standards of living mean under-educated and unqualified teachers who cannot provide the high quality education which could create the conditions for social and economic progress.

Perhaps one of the main obstacles to improving standards of teaching and learning in Malawian schools is the lack of a basic infrastructure in communities and therefore in the schools which serve them. In many schools, there may be no access to an adequate water supply and, in rural primary schools there will almost certainly be no electricity supply. The implications for the use of computers and other technological media to support learning and teaching are obvious – they are quite simply, non-existent. In terms of educational technology, the situation could perhaps be most graphically described in terms of a development gap - a 'digital divide' - of perhaps fifty years, between Europe and Africa, between Scotland and Malawi. This lack of access to even the most basic technological resources severely limits the range of teaching approaches available, a limitation which is exacerbated by large class sizes - often as many as sixty students in one class. The combination of poor standards of teacher education, non-existent technological resources and large classes leads to predominantly traditional teacher-centred approaches in the classroom, which seem to have little or no focus on the individual needs of students, and appear to contribute heavily to low standards of educational attainment.

Politically, the Government of Malawi is committed to tackling the problem of continuing stagnation in standards of teaching and learning in its schools, but when hard budgetary choices have to be made in the allocation of scant national resources, school improvement and specifically, continuing professional development (CPD) of teachers, have low priority. And yet, the bulk of teachers in primary schools of the country are under- or un-qualified. These are mostly teachers recruited after the introduction of free primary education in 1994 which led to an increase of almost 100% in enrolments (Kunje and Chimombo, 2007).

If this vicious circle of deprivation and stagnation in educational standards in Malawi is to be broken, creative and innovative approaches to school improvement must be explored. It is unrealistic to expect that schools with no basic infrastructure could jump immediately into the computer age and benefit from the sophisticated range of information and communications technology now available in many schools in the developed world. However, literature shows that in these same schools of the developed world, radio broadcasting was once widely used as a tool for formal education (see Strydom, 1981). Reference has been made above to the fifty-year developmental gap between schools in Europe and in Africa and it is in that context that the current research proposal seeks to examine the potential of interactive radio for CPD of teachers as a way of accessing and developing high quality teaching and learning in Malawian primary schools.

In any context, effective teachers are a key enabling factor in the improvement of the quality of education (Verspoor, 2004; UNESCO, 2005). For this reason, investment in teachers represents a significant percentage of the public sector budgets of most countries. In realisation of the fact that the most significant factor in student achievement is good practice of teachers (Haycock, 1995), the Malawi Ministry of Education, Science and Technology (MoEST) has tried a number of innovative policies for both pre-service education and training (PRESET) and in-service education and training (INSET) in the past in an effort to develop the best teacher practice. Unfortunately, very little work has been done in the country to evaluate the efficacy of in-service or continuing professional development through interactive radio.

The argument in this study for a type of IRI that could be used for providing an integrated and sustainable CPD of teachers while delivering quality services to learners

('dual-audience' approach) stands in contrast to the current USAID/EDC strategy in Malawi where the traditional 'mono-audience' approach to IRI has been preferred. This approach is the same as the earlier IRI series which were organized so that teachers would mainly follow along with the activities and provide follow-up according to the radio characters' instructions. In many ways this simply promotes mimicry or learning through simple imitation and not the *deep learning* required of the teachers to meet the challenges of current changes in education. With a 'dual-audience' IRI approach, the classroom teacher is given a more central role to play as he/she manages classroom activities introduced by the radio instructors. This research argues for the use of IRI (first and foremost) in developing and supporting the ability, skill and knowledge of teachers to manage classroom activities effectively. There exists credible evidence that radio, while being the cheapest form of communication technology, offers significant professional development possibilities for teachers as well as enhanced student/pupil learning (Micael, 1994; Moulton, 1994; Leigh and Cash, 1999; Potashnik and Anzalone, 1999; UNESCO, 2003).

Thus this study proposes an IRI that can be used for the professional development of teachers who are committed to their own continuous improvement, in order to ensure that their pupils achieve their maximum potential as learners and become successful participants in a constantly changing culture and society. Essentially, the study attempts to address the challenge of the 'reprofessionalisation' of teachers in Malawi - what I have referred to as 'new teachership'. Therefore the ultimate purpose of the present study is to contribute to insights towards education quality improvement in Malawi by depicting innovative usage of IRI for teacher development.

Teachers and teacher developers will benefit from this research work, but educational policy-makers, administrators, researchers as well as donor agencies involved in educational development work should also find this study useful.

The Researcher's Position

The starting point for considering my own contribution to this doctorate is to reflect on numerous strands of my own experience, which have drawn together to influence and shape this research. I attended primary and secondary education as well as part of tertiary education in my home country, Malawi, between 1975 and 1985. After graduating as a secondary school teacher at the University of Malawi, Chancellor College, I taught History and English in various Malawian secondary schools before leaving for Namibia (in 1989) where I continued my teaching career. While in Namibia I experienced the primary school system, as a teacher, for the first time. Here, I had to teach all subjects for a particular grade, not only the two subjects in which I had specialised during my training.

At the end of my contract with the Namibia Ministry of Education in 1994, I moved to South Africa where I joined the Northern Cape Department of Education and continued teaching in high schools but before long, I was promoted to the position of Provincial Teacher Development Coordinator. I was then seconded, in this position, to the Catholic Institute of Education (CIE), a church related non-governmental organisation (NGO) responsible for running the Whole School Development and Renewal (WSD & R) programme throughout the Northern Cape Province of South Africa. At the end of my secondment to CIE, I was absorbed into the middle management of the Ministry of Education as Deputy Chief Education Specialist responsible for managing INSET programmes in the province.

Apart from line-managing INSET programmes, I was given the opportunity to study educational practice, especially teacher practice, in many countries around the world. I travelled widely to countries in Europe (especially Scandinavia) and America to gain knowledge of good teacher practice which we could use in improving standards of teaching and learning in our schools. It was during this time that I was also given the opportunity to pursue further studies at the University of Oulu in Finland, where, after completing the course, I obtained my International Master of Education degree in 2002. The MEd research study investigated innovations aimed at restoring a culture of learning, teaching and service (COLTS) in historically disadvantaged schools of South Africa, and it was while completing this study that I started thinking about my PhD research work based on Malawi.

In my working life, I have accumulated specialist educational and research experience especially within the field of teacher development, teacher practice and interactive radio. It is this eclectic mix of expertise that has helped me towards a broader and liberal perspective and has enlarged my understanding of the wider picture. I view this doctorate as having provided the opportunity to unite the accumulation of disparate but interwoven strands of my former travel, work, educational and research experience and as having helped me to make the current study more meaningful.

It was upon my return to South Africa from Finland, and after a stint with the Ministry of Education at the head office in Pretoria in 2003, that I moved to Johannesburg and joined the Open Learning Systems Education Trust (OLSET), an NGO that runs the radio learning programme throughout South Africa. It was during this time that I first heard of 'interactive radio instruction' (IRI) and, as head of department, got first-hand experience of it. This experience has inspired me to embark on the current research. After witnessing the benefits of IRI in historically disadvantaged schools of South Africa, I decided to examine IRI's application in similar communities in Malawi, but with special reference to CPD of teachers. It so happened that at this same time, the Malawi Ministry of Education was considering reviving radio learning in primary schools across the country. Therefore, when I won a British Commonwealth Scholarship to do a PhD study in the UK in 2006, my research proposal on IRI-based CPD was enthusiastically accepted by the Malawi Ministry officials. Therefore, right from the onset of the Malawi IRI initiative, I became fully involved as co-founder and researcher.

The idea was to develop an action research IRI-based CPD model beginning with a pilot in a few schools. This would lead to identifying best practice in exploiting IRI for dual purposes (i.e. 'dual audience IRI system, focussing both on teachers and learners). However, the implementers of the programme (USAID/ECD) decided to follow the 'mono-audience' IRI system which focuses mainly on learners (see section 1.4 and chapters 4 & 8). Thus the original action research methodology and model was adapted into a longitudinal evaluation research approach in order to monitor and evaluate the effectiveness of the USAID-funded IRI in improving teacher practice. The findings of the research would then lead to recommendations for expanding the Malawian IRI programme in order to enhance CPD of teachers.

Chapter 1 **Framing the Study**

1 Malawi

1.1 The social and economic context

Malawi is situated in the southern part of the African continent, with a total land area of 119,140 square kilometres, of which 20% is covered by Lake Malawi. It is a landlocked country that lies between 9 and 17 degrees south of the Equator, and is bordered by Mozambique to the East and South, Zambia to the extreme West, and Tanzania to the North (see appendix D).

Malawi became independent from colonial rule in 1964 and became a Republic in 1966. Before this, it had been governed through scanty democratic principles of the British government as a colonial master. Formal education systems were introduced by the missionaries. Kamangira and Kasambara (2001) make the point that even though some democratic principles existed, they were at the mercy of, or marred by, a colour-bar or apartheid between colonial settlers and indigenous people and existing restrictions made it impossible for indigenous people to survive in the formal education system. This has partly contributed to a limited growth of the country, socially and economically.

According to the 2007 Human Development Index, Malawi has not significantly improved its economic standing (www.cia.gov/publications/the worldfactbook/geos/mi.html). The country is ranked among the lowest per capita income in Africa. Poverty is chronic and widespread; growth is disappointing. Several socio-economic indicators from international and government statistical offices are still

showing that over 50% of the population is below the poverty line. The country has few natural resources. Agriculture currently provides what little there is, but production is beset by degraded soil, erratic weather conditions and a system of land ownership and inheritance that does not encourage investment (Department for International Development (DFID), 2003). According to the Voluntary Services Organisation (VSO) observations in 2002, the people have few productive assets, scarce opportunities to generate income outside agriculture, are poorly educated, under-nourished and in poor health (VSO, 2002). Not much has changed since then. The income per person is estimated to be around $160 per year (Scotland-Malawi Partnership, 2008). Three quarters of the 12 million people live in rural areas and earn a living as smallholders. Current statistics show that the literacy level stands at only 40%. Thus, even though strong tribal-based and familial social affiliations act as a form of social capital, alleviating poverty remains a daunting task.

Being a landlocked country, and because of its limited natural resource base, poor physical and financial infrastructure, Malawi remains dependent on economic assistance from international financial institutions and external donors. The country was approved for relief under the World Bank Heavily Indebted Poor Country Programme in 2000 (VSO, 2002). This, plus change in government since 2004, is hoped to bring about positive reforms including some improvements in primary education.

1.2 Education: A historical and political perspective

The education system in Malawi has undergone changes at various stages depending on who was ruling the country. Initially it was the British missionaries followed by the

British colonial government with their own systems of education. Missionaries from Europe first came to Malawi in the early 1800s and their aim was 'to civilise the primitive and pagan natives' by teaching them Christian values and replacing the slave trade with what was considered a legitimate commerce**.** Thus, before Malawi became independent, primary schools as well as some secondary schools were run by missionaries. The missionaries focused on teaching the 3Rs (reading, writing and arithmetic) as well as the word of God, with some missions placing emphasis on technical skills. All missions gave primary education which lasted for some 10 to 12 years. At the end, a pupil reached the highest class, called Standard 6 (the present Standard 8). Most learners who completed the 10 years, which were mostly taught for several years by missionaries, reached a very high primary school level. However, it has to be remembered that, "mission education was a means to an end; and the end being the gospel" (Banda, 1998, p. Xiii). In other words, the missionaries merely wanted to evangelise**,** there was *no emphasis on intellectual development.*

With regard to teacher development, all missionaries recognised the fact that they needed teachers if they were to run schools, but because the main aim of missions was not academic but to use the school as auxiliary to the church, the teachers were evangelists first and teachers after. Naturally, there was a great tendency towards religious bias in the missionaries' curriculum, teacher education not being an exception. The aim of mission education was therefore also the basis for teacher education and training. While a vocational nature of education brought about some positive results such as the spirit of selflessness, it limited teachers' intellectual development. For example, the approach was based on a philosophy or general belief that "a pot does not question its maker, the

potter" (where the 'pot' represented the learner and the 'potter'' the master or authority) (Banda, 1998, p. 8). Based on this philosophy, it cannot be expected that teacher training colleges could produce teachers of a high calibre in terms of their cognitive and critical thinking. Such a philosophy was directly translated to the school ethos and manifested in these teachers' practices in and outside the classroom. This legacy continues to haunt Malawi society today, as revealed by the empirical studies on current teachers' practices in Malawi reviewed in chapters 5 and 6 of this thesis.

Although there was an attempt at innovation of the education system upon the country's independence in 1964, little did change with regard to curricula (Banda, 1988). According to Banda, over-emphasis on issues of nation building meant a superficial reform of the education system which eventually led to a gap prevailing between the community and schools in attitudes of values and expectation. While it is clear that Malawi's decision makers were aware of this disjuncture that often exists between education on one hand, and nation building endeavours on the other, it is not clear whether it was due to a lack of adequate resources to build human capacity amongst educationists to undertake changes of magnitude as required by the set national goals, or whether it was the inability by those in charge. The net result was, however, a failure in designing relevant curricula and exploiting it to bridge the systemic educational gaps and ensure the preservation of a unique cultural inheritance for the younger generation (Kamangira and Kasambara, 2001). Similarly the status quo in teacher education system (and therefore teacher practice) remained despite the few attempts to revolutionise the system after 1964. The failure to produce teaching personnel of high calibre in the

Malawian teacher education system after independence could partly be attributed to the politics of the time.

Under Dr Hastings Kamuzu Banda's iron rule, Malawi was a typical dictatorship till he was dethroned in1994. In this context education policy was influenced, to a large extent, by political policy of the time. The scanty democratic principles inherited from the British colonial government were compounded by the biases of Banda's one party system that came into effect upon independence in 1964. According to Kamangira and Kasambara (2001), the one party system meant an autocratic style of government in which undemocratic decisions were made such as: banning freedom of press, expression or affiliation; detention without trial; and declaring the president to be for life thereby providing no room for vice president in the government and the party. Kamangira and Kasambara observe that this had drastic consequences on education in the country. These authors contend that the introduction of new subjects such as Malawi Young Pioneers (MYP) in schools during Banda's rule was more for indoctrination of party propaganda than for education. The whole concept of 'Civics' as a subject in primary schools was geared towards the same goal of indoctrination. The result of all this was a primary school system which promoted *rote learning* with *teacher-centred, chalk-and-talk* style of teaching. In general, just as freedom of speech and expression had been thwarted, critical thinking was not allowed and many intellectuals that expressed their views had either to flee the country or face jail without trial. Given these circumstances, and the impact of free primary education in 1994, the low pre-colonial standards in primary and teacher education have prevailed to date as discussed under 'context of the study' below.

1.3 Context of the study

Judged by what are considered acceptable international standards today, education in Malawi prior to 1994 could be described as below average. However, by Malawian standards of the time, the quality of basic education was considered to be very high. There was a basic infrastructure, teaching and learning materials, a favourable pupil-ratio in primary schools (1: 40), available professionally trained teachers and regular visits by school inspectors.

1994 marked a major turning point in the country's history, politically and educationally. A new multiparty government was ushered into power under the United Democratic Front party which introduced *free primary education* (FPE). However, even though primary education was made free, it did not mean compulsory as there was and remains no enforcing mechanism to ensure that parents send children of school-going age to school. It was also the real beginning of the many educational woes that the Malawi government is faced with today as expressed in statements from the media, such as: "Chaotic! Disastrous! Corrupt! Disappointing! Poor! It's gone to the dogs! It's sad!" (*The Nation*, 2000, p. 2)

In addition, commentaries which appeared in local newspapers such as '*Malawi education system in a mess', 'Where has all education gone in Malawi?'* became a common feature between 1997 and 2004, a period sadly remembered as Malawi's 'Dark Ages' (*The Nation*, 2000). Studies conducted during this time (for example Milner et al., 2001; Mbewe, 2002) show that teachers, like their colleagues in the civil service, had very little time for their profession. It is cited that teachers went about teaching without

lesson plans, without record of work and without class registers, but some were also heavily engaged in small businesses to supplement their income (International Educational Qualifications/Malawi Partnership, 2001).

The background to this deterioration of culture in Malawian primary schools after the 90s can best be understood by studying the issue of teacher supply after multiparty democracy which, as mentioned earlier, came with FPE in the country. Malawi had chronically suffered from poor human and capital resources (Kamangira and Kasambara, 2001), and this got worse after the introduction of FPE in 1994. The introduction of FPE in Malawi, although partly due to the Jontien declaration on Education for All (EFA), came about mainly as a result of the political pressure on the newly elected ruling party after the multiparty elections in 1994. The implementation of FPE meant a rapid rise in learner enrolment—from 1.9 million to 3.2 million (USAID, 2003)**.** This led to acute shortages of teachers in the country's primary schools of the country. Although the pupil-teacher ratio had initially been reduced to 88:1, a significant drop from 115:1 prior to 1994, it was still way above the 60:1 required by EFA.

The Malawi government attempted to solve this crisis by embarking on mass production of teachers through INSET programmes such as the Malawi Integrated In-service Teacher Programme (MIITEP) through which untrained teachers had to be recruited and equipped with some teaching skills through an intensive teacher training programme involving three months of residential training at a teachers college, self-study distance education, and school-based supervision. The programme was designed to train as many teachers as possible within a period of four years. These untrained teachers (UTT) had a low academic level, with most having passed the Junior Certificate (JC) with low grades

(see Chimombo, 2007). The suitability of MIITEP curriculum for such student teachers has been questioned, especially as the area of emphasis in this programme was methodology of teaching (Chimombo, 2007). This meant that the academic and content knowledge base remained very basic. This was compounded by the fact that once teachers were in schools, they were supposed to be helped by the headmasters, mentor teachers and Primary Education Advisors (PEAS), but this school-based partnership did not materialise. As Kunje and Chimombo (1999) have observed, while partnerships between qualified and unqualified teachers can be set up and maintained, this will not lead to an improvement in the quality teaching unless both are well supported with further training. As it happened, most of teachers did not complete the full course once deployed into the field, but were subsequently certified as qualified. Whatever justification, it would appear pressure to meet the Millennium Development Goals (MDGs) goal of producing a sufficient number of having over 50% of the teaching force professionally qualified by 2015 (Chimombo, 2007) seems to be the main driving force behind this random certification.

While partially satisfying the pupil-teacher ratio, the MIITEP approach has dismally failed because mass production of teachers has meant a plethora of teaching personnel without proper training thereby compromising *quality* in teaching and learning. By 2005 the ratio of pupils to qualified teachers is still heavily skewed at 95:1 (National statistics on line, 2005). According to government statistics, this ratio has been reduced to 60:1 (MoEST-EMIS, 2007) since 2005, but considering the MIITEP certification for the majority of T2 category of teachers (see chapters 5 and 6) the pupil-teacher ratio is likely to be much higher. In essence, these teachers remain under-qualified and the result is

drastic deterioration in the levels of learning and teaching practices in schools. Studies in 2001 showed that almost 80% of children in standard (grade) six could not comprehend grade-level text at minimal levels (Milner et al., 2001, p. 3). The DFID report of 2003 revealed that for every thousand pupils that entered primary education, only two qualified for tertiary. Given the findings in this study on the state of teacher practice (see chapter 5 and 6), not much could have changed about this to date.

In light of the above points, free primary education and the EFA initiative as a whole, while ideally a good start, had put additional strain on primary education in Malawi because the system is unable to cope with the growing pupil numbers. It would appear that free primary education was enacted before a comprehensive policy framework had been developed which examined the resource and other implications of FPE. The *expansion* of primary education has been at the expense of equitable distribution of available educational resources thereby negating '*quality'*. Thus the global rhetoric on '*quality* education for all' remains a far -fetched dream for Malawi as a country. There is evidence of substantial increase in enrolments since the introduction of FPE, but at the same time, teaching and learning has remained of poor quality.

Of late this situation has been compounded by one other factor, the shortage of teachers: even though the number of teachers initially increased through the MIITP initiative, it has drastically declined due to the HIV/AIDS epidemic which is taking away, through death, many educators at all levels. Previous forecasts by UNESCO indicated that Africa needed to expand its teaching force at a rate of 5.6% per annum during the 1990s to meet the EFA requirements. According to Perraton (2001), this rate had not been achieved by the beginning of the 21st century. By his assessment, in Africa as a whole, the teaching force

had grown at a rate of 3.4%, slightly ahead of the rate of the growth in the number of children in schools, but at nothing like the rate needed to provide enough teachers for EFA. Now teacher supply in Africa has to reckon with the consequences of the HIV/AIDS epidemic. The UNICEF study of 2008 reported an HIV/AIDS prevalence rate of 11.9 % amongst people of ages 15 to 45 years in Malawi (www.unicef.org/infobycountry/malawi_statistics.html). Teachers are not exempted from the pandemic.

The conventional college based teacher education system in Malawi, like in the rest of sub-Saharan Africa is not able to cope with the scale of the task. As seen, apart from the challenge of training enough new teachers, the existing force is under-qualified or un-qualified, whether in academic or professional terms, or both. This study argues, therefore that, though other factors also count (such as shortage of teachers; the lack of basic management skills and weak supervision; inadequate curricula; inadequate parent involvement in their children's education and also the long distances children have to travel to reach schools in rural areas), the root cause of falling (or failing) standards in Malawi's primary education seems to be poor training of teachers, which has perpetuated less interactive, traditional teacher-centred learning and teaching practices in schools. I argue, therefore, that the introduction of interactive radio instruction (IRI) in the Malawian primary education system should be geared towards resolving this core problem.

1.4 Radio education and vision for interactive radio instruction (IRI) in Malawi

By 1990 experimentation with school radio in Africa was based on out-of-school education mainly for the growing number of primary-school leavers who could not get into secondary schools (UNESCO, 2000). In Malawi, like most parts of Africa, study centres (popularly known as MCDE) were run to widen access to junior secondary education using radio but relying predominantly on correspondence lessons. This system was not particularly efficient—offering what was seen as a worse method of teaching, run with minimal resources, for the children who had performed worse at the end of primary education (Perraton, 1993). However, with modest costs per student, the centres were able to offer some educational opportunities to children who might otherwise have had none (UNESCO, 2000). Perraton has observed that in Malawi, such centres were attracting more students than the regular secondary schools. He also noted that the intervening years have witnessed a shift of emphasis, the move away from public-service broadcasting to a deregulated sector, increasingly dominated by small stations and transmitters (accompanied by new technical changes) in most parts of the developing world.

IRI is therefore attractive as tool for formal education in low-income societies. IRI is a radio learning methodology which has been developed to turn a typically one-way technology into a tool for active learning inside and outside of the classroom. Its founders in Nicaragua in the 1970s sought to combine the low cost and broad reach of the radio medium with a clear understanding of how people learn. A full definition of IRI is given in chapter 3.

While it has been demonstrated that it can be used to expand access and increase equity in both formal and non-formal educational settings, the success of IRI lies in the fact that it brings active learning to the classroom every day (Moulton, 1994), and ensures that the entire syllabus is covered, not just the bits that teachers find easiest to teach. A point highlighted by Potashnik and Anzalone (1995) is that IRI uses a classroom methodology that embodies *active learning* and helps the teacher master strategies that promote it. This is the aspect that the current study explores: how IRI could be exploited maximally for professional development of primary teachers, given their low academic and professional background as discussed above. IRI has been used successfully to address issues of both quality and access in many countries with challenges similar to those facing Malawi. Those relevant to Malawi have been identified and are reviewed in chapter 4 of this thesis.

Given the potential that IRI offers for improving quality of education, the Malawi government has asked the American government (through USAID) for support to start an IRI programme for all primary schools in the country as a means of enhancing the implementation of the new Primary Curriculum and Assessment Review (PCAR). PCAR combines a new local language literacy model, continuous assessment and critically, a learner-centred instructional approach. Thus, the principles of this new curriculum based on learner-centred approaches, represent a significant shift for Malawian teachers in terms of teaching methodology, curriculum materials as well as theories of teaching and learning. In general, the PCAR initiative of the Malawi Ministry of Education is an ambitious one given the requirement of an elaborate and careful coordination of many functions at all levels of the education establishment.

Subsequent to the agreement with the Malawi Ministry of Education, USAID has contracted another American NGO, the Education Development Centre (EDC) to implement the IRI programme, which aims to accomplish two main objectives: to improve the learning outcomes in basic subjects in early primary school grades; and to support and reinforce the introduction of the new primary curriculum in the country (USAID, 2007). The IRI content originates from studios based at the EDC and is then disseminated to all schools in the country through live broadcast over the national radio broadcasting station. The lessons cover all basic skills in the curriculum, including literacy, numeracy, English and Life skills. Schools have been provided with what we call 'next-generation wind-up radios' to tune in to daily thirty-minute lessons. For a start, 150 lessons have been created for each grade level but broadcasts began in standard (grade) 1 in January 2008. It was hoped that by the end of the year 2008, all the human resources and management needed would be in place to ensure continued IRI development and broadcasts for other standards (grades). However, evaluations indicate that this objective has not been realised (see chapters 5 and 6, empirical study).

The findings in this study seem to suggest teachers' low knowledge base as a major reason for low standards of teaching and learning in Malawian primary schools. Given that we are in this day and era, when IRI has evolved in such a way to build teachers' skills and enable them to play more active role in a learner-centred and interactive teaching and learning processes (World Bank, 2006), it is surprising that in Malawi, the traditional 'mono-audience' IRI system (with focus only on pupils) has been given preference.

It is argued in this thesis, that IRI as practised in Malawi at present, has limitations in acting as a catalyst for real improvement in the quality of primary education in the country because it pays peripheral importance to the issue of *teacher development*. It is argued that although active learning strategy is a feature of every IRI, without teachers' empowerment, no amount of guidance and modelling could achieve interactive and active learning in the classroom. The classroom teachers' ability to adopt interactive/active teaching-learning strategies is critical to success and this is what IRI ought to be geared for, first and foremost.

In a typical traditional IRI classroom, the teacher is consistently guided by the radio teacher in questions and answers, in organizing educational activities. Thus the radio teacher serves as a role model. The expectation is that in the process, untrained teachers or those with low levels of teaching skills are mentored or coached in various teaching methodologies. While this may be so, findings in this present study show that such learning does not go far enough in raising the teachers' knowledge base to enable them to adopt and adapt such teaching practices at a high level. In terms of the conceptual framework guiding this study (see chapters 3), such learning has been described as *surface* learning, where individuals learn mostly by imitation.

Therefore recommendations for an IRI approach that could advance the 'learning to learn' spirit amongst teachers is put forward (chapter 8)— by expanding the current model of IRI into one that could sustain CPD of teachers to orient teachers towards the PCAR learner-centred approach based on a *deeper* understanding of such a strategy. An argument is made that, given the ill-preparation of the majority of primary teachers in Malawi as discussed above, IRI should be exploited first and foremost, for teacher

learning by incorporating teacher development programmes aimed at raising teachers' pedagogical content knowledge (see figure 5, chapter 7).

In terms of classroom practice, the view taken here is that emphasis on learner-centred methods as a yardstick for measuring teachers' *good practice* is not simply about preferring one or other form of pedagogy, but trying to improve the content and nature of teacher-learner interaction. As findings of this study reveal, in most cases of traditional teacher-centred practices, the quality of interaction is low- although some interesting and effective traditional techniques were observed. Therefore the emphasis on the need for teachers' 'paradigm shift' from old (traditional, teacher-centred) to the new (learner-centred) approach is necessary for two main reasons: a) the learner-centred approach around which IRI is structured is the basis of the PCAR reforms going on currently in the Malawian primary educational system; b) comparatively speaking, the learner-centred approach seems to promote interactive (active) learning-teaching practices associated with *deep learning* more than the traditional approach.

1.5 The significance of this study

It is widely recognised that countries within sub-Saharan Africa are faced with huge educational challenges. What is not clear is whether there is, in these countries, sound understanding of the underlying or root causes of the problems and the means of addressing them. For example, one notes with regret that developing countries are still clinging to competitive advantages based on natural resources and cheap labour in a world context in which the role of knowledge has become of paramount importance for social and economic development (Brito, Brouwer, Menezes and Mlay, 2005). Today it

would appear that, more and more, the quality of knowledge is a springboard for competitive advantage in a 'global village'. Hence terms such as *knowledge* and *information society*, *knowledge-based economy* and *learning society* have become part and parcel of the world of educational and development policy. These terms also demonstrate, amongst other things, that learning has definitely become not just a lifespan need for individual citizens and for societies, in general, but also a social need and a social *quality* (Smith, 2000). It becomes crucial therefore for governments to build and strengthen indigenous human capacity in order for their countries to promote and sustain the inexorable knowledge and learning-driven development which characterises current and foreseeable trends, world-wide. Van der Kamp (2004) makes clear the role of knowledge and learning as requisites for social participation when he says that:

> In knowledge and learning societies, competencies, skills and learning have come to be recognised as fundamental for participation by individuals in modern life as well as the hallmark of dynamic economic units and thriving social communities. (Van der Kamp, 2004, p. 5)

The above points illustrate the need for effective and efficient educational systems capable of yielding high quality learners. In the developing Third World nations, such challenge tends to be overwhelming, especially within the SSA region where, in general, school systems have remained rather basic and ineffective. As a result, expanding access and improving the quality of education in this region have been crucial ongoing issues. Malawi, the setting for this research study, is no exception.

Governments tend to handle issues of educational access and equity with great urgency, and they become matters of high priority. This is understandable given the fact that such

issues are tangible and, certainly, more pressing due to their social and political volatility. On the other hand, '*quality'* is a more subtle element, and one that really matters when education is considered as an agent for social and economic development. It is a fact that the technological developments that have created the most rapid and profound transformations worldwide rest on the quality of knowledge. In recognition of that, the Malawi National Education Sector Plan (NESP) highlights quality assurance as one of the top priority goals. Furthermore it states that "the mission of the Ministry is to provide quality and relevant education to the Malawian nation" (MoEST, 2007, p. 3). It can be assumed that better quality also entails higher efficiency, through measurable factors such as lower failure, dropout, and grade repetition rates.

The dangers of continuing the existing deficiencies in the Malawian education system have indicated that it is necessary to reform the approach to teacher development. Development agencies from different donor countries have started projects which aim at improving primary and teacher education in Malawi. But it would appear that these projects, both those still in progress and those that have ceased to exist, have fallen short of addressing the root causes of the core educational problems, and hence have had limited success. The success of any educational programme depends upon the capacity of the individual teacher to deliver. Effective classroom implementation is therefore crucial to any educational initiative.

The most worrying problem in Malawi's primary education is its poor quality and inefficiency (Milner et al., 2001). Reflecting awareness of that issue and also attempting to tackle it, the NESP in Malawi pledges increased attention to improving the quality of primary teacher education. Complementarily, the NESP regards achieving better quality

as one of the major challenges facing development of primary and further education in the country.

In line with these concerns, this thesis builds around an evaluation study that aims at providing an empirically informed strategy for providing quality CPD of teachers, using interactive radio instruction (IRI) as a way of improving the quality of primary education in the target schools. The study was stimulated by serious concerns in Malawi about the quality of in-service education and training (INSET), alias continuing professional development (CPD) of teachers in the country particularly in rural, remote village schools. Obviously, many factors including material, financial and organisational—contribute to the quality of the output of educational systems. However, an important concern in designing this study was to address some of the professional and personal factors, especially *teachers' practice* which is about *teacher culture*, a sub-culture of the overall *school culture* which has direct influence on the functioning of the school as an organisation.

The post-Muluzi Malawi government has made considerable efforts to improve the standard of education by introducing the new Primary Curriculum and Assessment Review (PCAR) into the primary school system. As pointed out, the principles of this new curriculum, based on learner-centred approaches, represent a significant shift for Malawian teachers in terms of teaching methodology, curriculum materials as well as theories of teaching and learning, in general. This requires Malawian teachers not only to change what they do in the classroom, but also to challenge their beliefs about teaching and learning. However, evaluations during this research indicated that mechanisms put in place to encourage such changes in teachers' philosophies or beliefs and practices are

inadequate. The original/current interactive radio in the primary education system is merely for the traditional use of IRI, in which, as discussed above, focus is on *access* more than *quality*. IRI is a teaching method which has already been used extensively and successfully in Kenya, South Africa, Australia, Papua New Guinea, Nicaragua and Indonesia to name but a few. In Malawi, there are no studies focused on the potential and benefits of using IRI for improving primary and especially teacher education.

The aim of this research is therefore to evaluate the influence that the current USAID funded IRI programme has on teachers' behaviours with the aim of proposing some guidelines for developing a model of CPD, appropriate to the Malawian context, using IRI. This could be a way of ensuring improved and effective teaching and learning in the long term—even long after the USAID funded IRI programme has ceased to exist in the country. As noted, the current evaluation research has taken place in a context where the Malawi government has been challenged to provide '*quality'* basic education while implementing PCAR. Therefore the concern is to go beyond the traditional use of IRI by ensuring that IRI becomes a catalyst for paradigm shifts in teachers' beliefs and practices so that these are consistent with the principles of the new curriculum being implemented in the country.

It is hoped that an examination of the impact of IRI on teachers' practices will provide a baseline for exploring what teachers actually do in their effort to learn new ways of improving their practice. This should help to show how IRI might be used to offer professional support and development for teachers to implement fully and effectively the new curriculum as it is intended. In Malawi, like the rest of SSA where improving the

quality of education is a burning issue, studies and interventions conducive to that end are long overdue.

IRI has great potential as a resource for students, and also as a tool for teacher training (Potashnik and Anzalone, 1999). As argued in chapter 8 of this thesis, IRI represents an invaluable opportunity for teachers to further their professional development, and improve their knowledge beyond Junior Certificate and the UK 'O' Level standards which, as highlighted in the *context of the study,* is what many of them achieved at school.

Two main underlying assumptions have motivated this study: firstly, the presupposition that at a theoretical level, the constructs used (see chapter 3 and 4) could represent valuable inputs for the deepening of our awareness and understanding of Malawian primary teachers' own understanding of their profession— a broader and diligent view of the problems that hinder them from performing their tasks effectively. Secondly, the conviction that IRI has the potential to affect and manipulate the material and financial conditions (and the constraints) under which it operates, and therefore to have a positive influence on both teachers' and learners' experiences. Explicitly, IRI can purposefully influence 'sophisticated' teachers' beliefs and practices as well as develop learning strategies that yield positive outcomes thereby contributing to the overall *quality* of the educational system. It is the only communications medium which is universally accessible to all schools and to all teachers- but only if it is part of a carefully thought out and networked support system.

The primary significance of this research can be described as providing insights into the key role that IRI can play in the professional development of teachers especially in areas of educational disadvantage. It may also provide a better understanding of the relevance and potential of simple forms of media in positively transforming school cultures and providing effective CPD of teachers in educationally disadvantaged school communities. This will hopefully encourage not only the Malawian leadership, but also the international community to re-examine radio's potential for effective schooling through improved CPD of teachers. It is predicted that with a relatively small investment in IRI and relevant teacher training, teaching practices and educational attainment could be revolutionised in Malawian primary schools, so that children are offered a genuine alternative to a future of low-skilled work and poverty.

1.6 Delimitation and Limitations of this Study

1.6.1 Delimitation

It is important to point out that while evaluation of IRI is the focus of this study, IRI itself is by no means the only method of using radio successfully in education. The decision to concentrate on IRI for teacher development is purely due to the researcher's realisation of the express need for qualified personnel in Malawian primary schools, and the lack of information for developing strategies in the use of IRI for CPD of teachers. Furthermore, although IRI has been used in a wide range of contexts, developed and developing worlds alike, it is not within the scope of this study to analyse all the different scenarios. The investigation in this study is limited to the value of interactive radio instruction for CPD of teachers within the context of a typical developing Third World country.

The examination is limited to primary schools and teachers (as well as their learners) because unlike their secondary school counterparts, they have the critical (and yet often underrated) task of 'laying the foundation' of education. This foundation needs to be solid if the 'building' is to be a complete success. With regard to issues of access, capacity building and equity, primary school educators usually find themselves at the receiving end. Their classes are usually larger than in secondary schools, yet they have far fewer opportunities for development and receive very much less support in their work. In Malawi, schools in rural areas receive fewer qualified staff and the younger classes get the least qualified teachers (Kamangira and Kasambara, 2001). Therefore learners in early years and especially those in rural communities are ill prepared and experience schooling of extremely poor quality which would often prevent them from even attaining basic literacy and numeracy skills. This problem of quality in primary education sector needs to be checked if children are to achieve their potential.

Apart from the HIV/AIDS impact on teacher supply, there is an exodus of qualified teachers from primary schools. The exodus of teachers is largely due to the way in which personnel is managed. Good primary teachers are removed from classroom practice to become head teachers or educational officers at head office. This greatly weakens the academic and professional standards of primary schools. The same has to be said about the practice of removing good teachers from primary schools and placing them in secondary schools (see Mbewe, 2002). This system disadvantages primary education and has the negative result of perpetuating inequalities which would otherwise be avoided.

1.6.2 Limitations

A major limitation of this study concerns the methodological approach used. In conducting the evaluation study, it was realised that for all sorts of obvious reasons (e.g. costs, time, intrusion into everyday professional activity, and so on) a limitation was placed on what could be achieved as the observations made only provide a snapshot of what teachers are able to do. It is often assumed that teachers 'turn on' the desired strategies and behaviours at any point that there are outside observers - that they have a 'pet' lesson in the ‘bottom drawer’ for precisely the occasion when evaluators come to observe. For this reason, it would have been preferable to arrive unannounced at times, but it has been found that even where this is the case (and quite apart from the countless ethical dilemmas this poses for researchers), it takes teachers little more than the ten minutes or so between one’s arrival and the customary courtesy visit to the head teacher's office for teachers to abandon the lesson planned for the day in favour of one that contains all the elements that they think one wants to see. These are the ‘fabrications’ of performance that participants make, which Webb (2006) draws the researcher’s attention to about classroom observation as a research method.

Fully aware of these dilemmas, the researcher was committed to gather more than a snapshot of teachers' teaching. Thus each teacher was observed three times during the main study. We recognised that teachers would inevitably put a bit more into the three days than might be usually the case, but also assumed that most teachers do not ever go 'flat out' on a daily basis unless there is an extrinsic motivator. After all, use of additional methods (interview and focus group) for data collection and analysis meant that the limitations of one method were compensated for. Critical multiplism, different methods

and forms of analysis that were employed complemented each other, contributing to both convergent and discriminant validity, thereby enhancing claims to knowledge (Shadish, 1986).

Furthermore, in most longitudinal studies, collection of data is done over a 'long' period of time. This means that collection and analysis of data is on more than one occasion over a specified time period. Although this is the case here, the current research has a much shorter life span mainly because of the objectives and academic imperatives that accompany it. For example, the IRI programme in Malawi has no pilot phase but is run as a fully fledged programme from onset till end of the three-year period of USAID's financial support (2008-2011). However, the scheduled deadline for this research was September 2009 which meant that all the field study (evaluation) had to be completed within 2008 which happened to be the very first year of implementation. Given these limitations, only two empirical studies (the *baseline or pre-intervention study* and the *main study* or *post-intervention*) were scheduled for this research. However, in order to assess teachers' own experiences of the IRI programme during the implementation stage as well as to check the effectiveness of the implementation strategy, an additional empirical study (referred to as *second baseline study*) was scheduled during the implementation stage. As an add-on, the findings of this additional study do not form part of the synthesis and comparative analysis in 6.3. However, these findings (details are included in appendix E) have been incorporated in the overall analysis of the research findings (see, for example, p.195).

It could be argued that findings of this research in the first year of programme implementation may not necessarily be a true reflection of the happenings over the entire

three year period. However, one full year of implementation is sufficient time for assessing effects of a programme of this nature. In any case, the interest of the research is not about evaluating the programme objectives per se, but assessing whether the IRI approach taken has had any impact on teacher practices and in what form this is happening. This will provide a foundation for further research and the results herein should be seen in this context and used accordingly.

1.7 Overview of the thesis

After this introductory chapter, the remainder of the thesis is structured into four parts. Part 1 (Chapter 2) presents the overall design for the research and draws attention to the difficulties in trying to implement the longitudinal qualitative research design and identifies what modifications were necessary as the research progressed. The research task is presented more thoroughly in this chapter.

Part 2 is split into two chapters (Chapter 3 & 4) and develops the conceptual framework which has been characterised as, broadly, *practice theoretic*. The review in Chapter 3 introduces the main construct of this research study, *teacher practice*, by examining literature on the notion of practice, activity theory, learning objects, learning/pedagogic theory, cultural theory and professional development theory.

Chapter 4 draws upon literature from a range of sources including the WorldBank, UNESCO as well as individual scholars that examine the role of educational technology with specific reference to radio as a learning-object or tool for educational development. The lack of information on strategies for utilising interactive radio instruction (IRI) for sustainable professional development of teachers, as a way of ensuring permanent

solutions to the challenge of low teaching standards in Malawian primary schools is highlighted. Radio, like other educational gadgets which are used for enhancing teaching and learning cannot replace the teacher in the classroom therefore the teachers' academic and professional development should be central to the Malawi IRI programme.

Part 3 (Chapters 5, 6, 7 & 8) presents a detailed account of the methodology employed in the study for the collection and analysis of empirical evidence gathered as part of this research. It has been made clear that the range of evidence drawn upon is broad, but three main sources of evidence were: a semi-structured interview survey, observations, and focus groups. Given the dual roles of the researcher (as co-founder of the IRI project and as a PhD researcher), emphasis is placed on the fact that evidence was elicited for *dual* purposes- that is, the ongoing evaluation of the Malawi IRI programme and the provision of an evidence base for the current research study. Results from the baseline study and the main study are presented in Chapters 5 and 6 and then synthesised in section 6.3, using the conceptual framework developed in chapters 3 and 4 as analytical lens. This is continued in Chapter 7 which presents a general discussion of the findings in relation to the key research questions. It highlights what are considered to be the most significant outcomes from the current research which serve as a basis for the recommendations on future directions of IRI for the target group. These recommendations are presented in chapter 8, along with the final conclusions.

Chapter 2 **Research Design**

This chapter provides an explication of the main elements making up the research design adopted for the research**.** The chapter draws attention to the significance of the adopted qualitative and interpretative approaches as a means of exploring the reactions of a range of classroom teachers (and office-based educators) involved in the IRI programme, to the introduction of interactive radio and novel forms of working practices. The qualitative /interpretive approach underpinning the research has been useful in addressing the complex interrelationships between the meanings and understandings held by social agents, their activity and working practices and the social settings in which practices take place.

The overarching research design draws on the work of Joseph Maxwell (1996) and in the next section Maxwell's perspective on research design is discussed, followed by an examination of each of the elements identified in his model and how these have been implemented within this present research.

2.1 Maxwell's model of research design

According to Maxwell (1996), most people present research design as a linear sequence of steps to be carried out sequentially. In contrast, he argues for research design to be a set of interrelated components or elements which must interconnect in a coherent way if the design is to achieve its intended outcomes. He defines research design as "...an underlying scheme that governs functioning, developing, or unfolding; the arrangements of elements or details in a product or work of art" (Maxwell, 1996, p.1)

When the components and the relationships between them are coherent, the integrity of the overall design can be seen as an emergent attribute of the entire entity. Maxwell's model identifies five components and six relationships between them (figure 1) but he acknowledges that there are many more factors and interconnections that will influence a study.

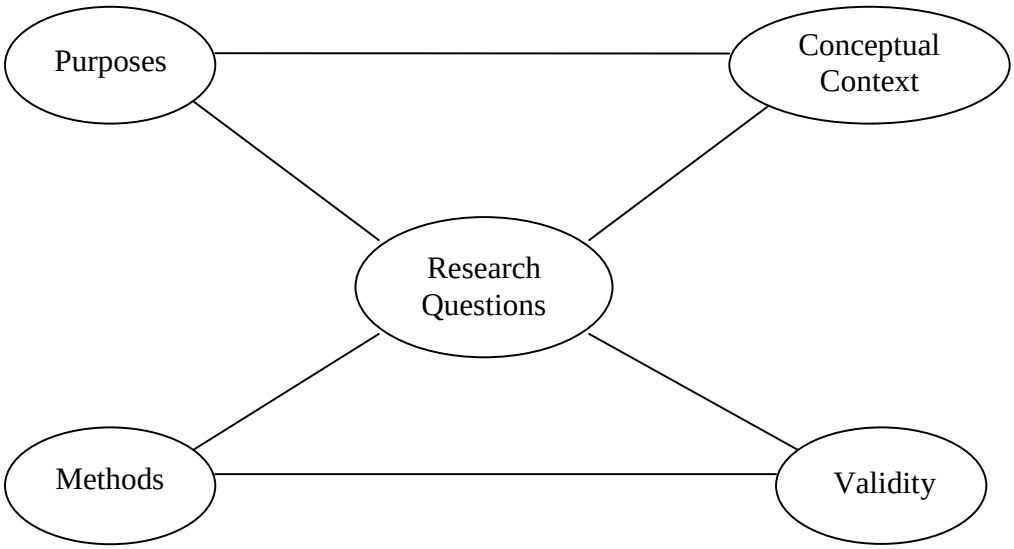


Figure 1: Maxwell's research design model (1996, p. 3)

Maxwell's (1996, p. 5) argument is that the model above "is more compatible with the definition of design as the arrangement of elements governing the functioning of a study than it is with design as a pre-established plan for carrying out the study or as a sequence of steps in conducting that study". Each of the elements identified above plus the interrelationships between them are addressed in the sections that follow hereunder.

2.1.1 Purposes

> This is about determining the ultimate goals of the study; the issues it is intended to illuminate and what practices it will influence; why you want to conduct it; and

> why we should care about the results; why the study is worth doing (Maxwell, 1996, p. 4)

The purposes of the current research are closely linked to the overall aims of the Malawi IRI programme (see chapter 1). A particular question that is raised by the current study is: in what ways will the introduction of interactive radio influence (if at all) the beliefs and therefore teaching practice of Malawian primary teachers? The interest is in the *changes in teachers' beliefs and practices.* This being the focal point, it can be said that this evaluation is conducted specifically to investigate the use of IRI to lever the development of teaching/pedagogic practices and teacher understanding of pedagogies that support pupil learning. From this, an overall aim of the current study has been derived as being:

- *to evaluate the effects of IRI on teachers' beliefs and practices, and its value in improving continuing professional development (CPD) of teachers*

The means by which this aim was achieved are by:

- *assessing the USAID funded IRI programme's contribution in improving teaching approaches and pupils' attainment in the classroom*
- *comparing teachers' practice; teachers' ability to reflect on , evaluate and transform their own practice prior and after the introduction of IRI*
- *assessing ways of using IRI as an approach to developing educational leadership with the capacity to sustain effective CPD of teachers*

The outcomes of this research include evidence of IRI's impact on teachers' beliefs or philosophies about learning and teaching, and how this translates into changes in their professional conduct. The idea was to use such understanding in developing guidelines that exemplify the use of interactive radio instruction for professional development of teachers— as a way of ensuring quality teaching/learning practices in schools. In other

words, the outcome of this research project is a model IRI teacher training programme, called *Radio Education for Interactive Learning in Malawi* (REFILM), tailored to Malawi's new primary curriculum and assessment review (PCAR) for primary schools under study. It introduces a teacher development component into the current IRI programme through the *Teacher-In-Action* (TIA) series geared towards upgrading the academic and pedagogical knowledge base of teachers in order to reinforce new teaching methods into the classroom that constitute a move away from the traditional teacher-centred approaches.

2.1.2 Conceptual context

> This is about what you think is going on with the phenomena you plan to study; what theories, findings, and conceptual frameworks relating to these phenomena will guide or inform your study; and what literature, preliminary research, and personal experience you will draw on. This component of the design contains the theory that you already have or are developing about the setting or issues that you are studying. (Maxwell, 1996, p. 4)

The conceptual framework developed in chapters 3 and 4 of this study is used to guide and inform the empirical analysis presented in chapters 5 and 6. Maxwell emphasises that the conceptual framework developed for a research study should be more than a simple literature review although an effective review of literature is an important part of developing a coherent conceptual framework. According to Maxwell (1996, p. 26), there are three main problems in viewing this part of a study as a simple summary of literature: a narrow focus on literature, ignoring other conceptual resources; a broad coverage of the field rather than a tightly focused examination of research that is particularly relevant to the current study; and a focus on description rather than critical analysis. The conceptual framework developed in this thesis draws upon an eclectic body of literature but the

primary body of literature can be referred to as 'practice theory'**.** Overall, the literature reviewed and synthesised to develop the conceptual framework includes examples from practice theory, activity theory, culture theory, teaching and learning theory (pedagogic theory), school improvement and effectiveness theory, radio instruction and classroom interactivity. As such, the literature drawn upon reflects the range of issues raised by the introduction of interactive radio for formal learning and teaching in educationally disadvantaged school communities.

As discussed in chapter 1, there is considerable overlap between the researcher's involvement in initiating the IRI programme in Malawi and the current research. In particular, the conceptual framework developed here is regarded as a sensitising framework, very much in line with the notion of 'illuminative evaluation' proposed by Parlett and Hamilton (1977).

2.1.3 Research questions

> This is about what specifically you want to understand by doing the study; what you do not know about the phenomena you are studying that you want to learn; what questions your research will attempt to answer, and how these questions are related to one another? (Maxwell, 1996, p. 4)

According to Maxwell, his model is interactive in two senses – interaction between the elements of the model and interaction between the researcher and the components. In this latter respect, he emphasises the need for the researcher to be prepared to amend aspects of the research design as the research proceeds. One such aspect of the design that could be refined as the research proceeds is the exact terms of the research questions. One general question has been raised that frames the research problem of the current study: *In what way can radio technology through the IRI approach be exploited for the*

development of a new philosophy on teaching/learning and good practice among primary teachers of Malawi? This forms the basis for the more specific research questions (in the current study) as presented below:

1 Are there new patterns or changes in patterns of teachers' beliefs/philosophies about teaching and learning over time after the introduction of IRI? How is this growth (or decline) experienced by teachers and other educators with respect to their practices?

This question is an attempt to develop an explicit focus on the impact (negative or positive) of IRI on teachers' thinking about their profession. It calls for an understanding of how teachers themselves perceive their thoughts, beliefs or philosophy or values as changing with respect to their 'practice'.

2 What evidence suggests that IRI has contributed to the development and growth (or lack) of new forms of pedagogical and professional practice amongst teachers? Through what mechanisms does IRI seem to affect this change?

This question is a refinement of question one and is an attempt to develop an explicit focus on the things and ways that make change in teacher practice possible as a result of IRI. The focus is on assessing and verifying the role of IRI in changes that take place within individual teachers, groups or the school as an organisation.

3 Are there any variations in both the take up and in the resultant effects of interactive radio programmes between different cohorts of teachers? What seems to be the reasons for this?

This question attempts to show the complexity of the link between social context and appropriateness of educational technologies. The question is an attempt to highlight the assessment of IRI's impact on teachers from different backgrounds professionally and culturally, even geographically. For example: *under-qualified, unqualified* and *qualified*

as one dimension and *urban* or *rural* teachers, as another. These are important variables for addressing the research problem (see *sampling,* below).

4 What is the knowledge base of Malawian primary teachers, and in what ways are they able to draw on this in shaping their own learning and practice?

This question draws on the link between epistemology and conceptions of learning. It is an assertion of the notion that the education and training of teachers need to be at a certain level to enable them become effective classroom practitioners. For example, by being reflective practitioners, teachers would be capable of discovering, on their own, new ways of dealing with the complex demands of their work. The level, but also the standard of education and training has a bearing on the beliefs and conceptions of learning, hence perceptions that teachers hold about teaching— which in turn has a direct bearing on their performance. Understanding the root cause of degradation in standards of teaching and learning in the Malawian school system requires an understanding of these facts. Simply put, this question is in recognition of the fact that the starting point for any educational improvement plan is teachers (as learners) and their classroom teaching-learning situation: the fact that almost all of the teachers have themselves been products of Malawi's educational system is itself another disadvantage.

A further question that is explored is directly related to the conceptual approach of the project:

5. Does a practice theoretic approach assist in understanding the responses of teachers and other educators to the introduction of radio instruction?

This question is as a result of the realisation in undertaking literature review, that practice theory, even though a somewhat diffuse body of theory, may offer analytical perspectives

that can be used to illustrate aspects of the use of interactive radio as a teacher in-service learning-object or artefact—something that might be missed by other perspectives.

2.1.4 Methods

> This is about what actually you will do in conducting the study; what approaches and techniques you will use to collect and analyze your data and how these constitute an integrated strategy. This component of your design includes four main parts: your research relationship with the people you study, your site selection and sampling decisions, your data collection methods, and the data analysis techniques you will use. (Maxwell, 1996, p. 4)

This study sets out to study attitudinal and behavioural change over time, and the methodology reflects this aim. Longitudinal research can either be quantitative or qualitative in nature. According to Risk (1998), whilst there has been considerable growth in the use of qualitative methods in evaluation 'shades' over the last few decades, its potential is still under utilised. Hakim (2000) adds that there still remains a prejudice in favour of quantitative studies which are perceived to be more scientific because they involve 'hard numbers'. The preference for a longitudinal *qualitative* research design here was because it was thought that much of what policy makers need to know cannot be learnt from quantitative evidence. While qualitative studies cannot provide statistical measures of change or impact, they can provide detailed information about the causes and consequences of change over time (Molloy and Woodfield, 2002).

More importantly, qualitative research can also offer policy makers information about decision making experiences as a behaviour grounded in the experiences and world view of those likely to be affected by a policy decision. As Leisering and Walker (1998) observe, the dynamism of the social world points to the need for dynamic methods of enquiry. As people's perspectives are not fixed and are liable to change for a multitude of

reasons, research methods with potential to capture this fluidity may be more illuminating than other approaches. Therefore longitudinal qualitative research methodology was considered appropriate for this research study for the following reasons:

- Longitudinal qualitative research can provide rich information on peoples' perspectives and how and why these are perceived to have changed over time
- Longitudinal qualitative research is invaluable in providing evidence relating to the way in which service providers are delivering programmes and how participants or the target population are receiving new information.
- A longitudinal qualitative research approach has the ability to explore in great detail, the impact of an intervention (IRI, in this case) within the complex of individual lives.
- Longitudinal qualitative research is characterised by the use of exploratory and interactive methods of data collection that aim to capture the form, complexity or origins of the issues being investigated.

2.1.4.1 Data collection

A longitudinal qualitative research allowed a range of different methods to be utilised for data collection and analysis. The tools chosen for this study included *observations*, *interviews* and *focus groups*.

Participant Observations

According to Cohen et al (2000) there is a wide spectrum of roles that a researcher may adopt as part of the process of observation. At one extreme is the *complete participant,* then comes the *participant-as-observe*r, then *observer-as participant* and finally the *complete observer*. With regard to the IRI research project and the role the researcher undertook as co-founder, his 'role' in this respect is regarded as one of both 'observer-as-participant' and 'complete observer'. That is, being fully engaged in the implementation of the programme (including monitoring and evaluation in my other role as co-founder of

the IRI project in Malawi) and at the same time, taking a low profile without directly doing the project manager's job, but observing from a distance. A full account of the manner in which these observations were conducted and how data was analysed afterwards is explained in chapters 5 and 6.

Semi-structured interviews

Interviews represent a classic qualitative research method that is interactive. The rationale behind the use of informal semi-structured instead of questionnaires was that many people are more willing to communicate orally than in writing. The aim was to create informal interviews in order to gather data. Both group and individual interviews were conducted. Individual interviews are an ideal forum to explore detailed personal experiences and evaluation of the intended interventions. As the focus was on personal experience, semi-structured and unstructured interviews which were more conversational were preferred. In a typical longitudinal research approach, the interview schedules used for collecting data (analysed in chapter 5) comprised key themes and sub-themes to be explored.

Focus groups

A focus group can be defined as a group of interacting individuals having some common interest or characteristics, brought together by a moderator who uses the group and its interaction as a way to gain information about a specific or focused issue (Marczack and Sewell, 2001). Though used in a limited way in the current study, group discussions provided an opportunity to bring together participants/recipients as well as service providers to discuss, share, and compare their experiences of the IRI intervention.

According to Morgan (1998), the discussions that occur between respondents can highlight common experiences and views, identify differences within the group, and act as a stimulus to further thought among respondents. The discussions are also a stimulating environment for generating solutions and strategies.

In this study**,** focus groups were conducted with teachers, head teachers, Primary Education Advisors (PEAS) and Divisional Outreach Coordinators (DOCS). The prescriptive approach to participants' recruitment (Morgan, 1998) and the overall structure of group work (Unwin, 2006) was not followed. This was because data gathering through focus groups was not originally one of the planned methods of investigation. However, an opportunity arose at a gathering of teachers, head-teachers and PEAS, to obtain additional data through focussed discussions with these representatives. As such, it was therefore not possible to follow the routine procedures (e.g. ensuring that "clear communication and safe environment for dialogue are established from the onset" (Valerie, 2002), checking the suitability of the focus group format with gate keepers and piloting).

2.1.4.2 Analysis

A detailed account of the methodology for data analysis is presented in chapters 5 and 6. Although the actual coding of transcripts was mainly guided by ideas of Miles and Huberman (1984), the overarching method used for data analysis in this study is that of '*Framework'* as applied by the National Centre for Social Research, UK (see Molloy and Woodfield, 2002). This method is in keeping with the overall longitudinal qualitative research approach adopted as it involves the classification and interpretation of

qualitative data within a series of thematic charts. This involved adding later accounts to earlier data within a *thematic framework*. Thus, data from the first empirical study (baseline study) was clearly distinguished from that of the last empirical study (main study) and the two were placed side by side within the same thematic framework (see section 6.3). The process therefore involved explaining subsequent accounts, views or experiences of participants alongside those given earlier in the research process. One advantage of conducting longitudinal analysis in this manner is that it allows findings to be linked to earlier data sets at both a thematic and case level. For example, as well as working at any new issues that are emerging in later accounts, it is also possible to consider who is raising these new issues, and whether any groups in the sample experience change in similar ways.

By following a thematic analytical framework, concurrent analysis of baseline data alongside fresh responses (baseline study 1 *vs* main study) gives an opportunity to consider the ways in which views, attitudes/experiences and practices of teachers in the eight schools under study, had changed over the 12 months of running the IRI programme in Malawi (see chapter 5 & 6).

Qualitative research does not seek to identify a single 'truth' or to chart the general message or dominant pattern (Bridges, 1999), however, in the evaluation of national programmes such as the USAID funded IRI programme in Malawi, there is huge value in exploring individuals' perspectives on their experiences or attitudes, which, through *triangulation* can yield reliable evidence for policy-makers.

2.1.4.3 Methodological triangulation

According toWellington (2000, p.3) “methodological triangulation is where a variety of methods are used to study the same issue”. Robinson (1993) makes the claim that methodological triangulation helps in the reduction of inappropriate certainty. Inappropriate certainty may arise where a single method for data collection produces, apparently, unambiguous results, but where alternative methods, applied to the same phenomena reveal the fragility of the original results. In this sense, the most valuable aspect of triangulation is its use of validation— be it validating statements, transcribed accounts, interview records, data from survey or evidence from case study (Wellington 2000).

Although it has many benefits, methodological triangulation has its critics such as Guba and Lincoln (1987), Blaikkie (1991) and others who argue that it is inappropriate to combine methods based on different theoretical positions. The sections that follow present a discussion of each of the above three methods and particular issues are raised by the use of them in this present research. It has to be remembered that simply combining three different data collection methods does not guarantee that each will offer the opportunity to verify the analytical outcomes derived from the others. In order to allow analytical verification, the methods should be identified and used with this aim in mind, and such an aim can only be achieved if the research constantly monitors the usage of these methods. In this case, the three methods adopted were seen to offer the opportunity for analytical verification as they each have a relatively tight focus and they have been used to *illuminate* the broader phenomenon from quite distinct perspectives.

This is why the combination of the above-mentioned methods within this study is seen to offer an effective form of triangulation.

2.1.4.4 Sampling procedure

Molloy and Woodfield (2002) observe that longitudinal samples will almost always be smaller than an original study sample given the difficulty of successfully tracing and recruiting an entire sample. This means that it may be difficult to obtain diversity in all of the recruitment criteria. Thus, the option taken in this study was to select a small number of key criteria according to which individuals were grouped initially. It should be remembered that IRI in Malawi is implemented nationally at Standard (grade) 1 level, which means all public primary schools were involved in the project right from the onset. Eight schools involving 19 teachers were randomly selected per region but using the *urban-rural* variable. Thus, three schools from each geographical location were included in the original sample. This was followed by simple random sampling of teachers within selected schools with more than two Standard 1 teachers. These selected teachers were then divided into three categories according to their *professional training background*: UTT (untrained teachers), T1/T2s (with 1-2 years training) and T3s (with three years training). The T1 and T2 categories were combined into one after confirming that no real difference existed in terms of their pre-service training. Within this, the *mode of training* (type of pre-service training received) became a sub-category.

2.1.5 Validity

> This is concerned about how you might be wrong; some plausible alternative explanations there could be, and validity threats to the potential conclusions of your study and how you will deal with these. How the data that you have or that

> you could collect support or challenge your ideas about what's going on; why we should believe your results. (Maxwell, 1996, p. 4)

The final question posed by Maxwell (1996), "Why should we believe your results?" provides a touchstone for assessing the credibility of a piece of research. In the context of the current research, Maxwell's use of the word 'results' has been interpreted to include: a) the researcher's account of the research methodology, b) the researcher's explanations offered for the phenomena studied and, c) the knowledge/truth claims that are made. As part of the defence of the validity of the current research it is important to briefly mention the range of contemporary perspectives that apply to both qualitative and quantitative research.

2.1.5.1 The range of contemporary definitions of validity

There are different kinds of validity ranging from content validity to predictive validity (Cohen et al., 2000, p. 105). Cohen and his colleagues acknowledge that validity is now a complex and nuanced aspect of contemporary research but also point out that "Validity is an important key to effective research. If a piece of research is invalid, then it is worthless…" (p.105). They elaborate that validity should not be seen as some absolute state which all research must attain, but rather, as a question of degree. Research should attempt to minimize invalidity whilst maximising claims to be valid.

Maxwell (1996, p. 86) also emphasises that validity is not a gold-standard, it is a goal than a product. Further, "validity is also relative: it has to be assessed in relationship to the purposes and circumstances of the research rather than being a context-independent property of methods or conclusions". With this in mind, an attempt has been made to

ensure the validity of the current research by examining a range of possible threats to validity and how the research design attempts to deal with these threats.

Validity threat 1: Limited perspective

This threat is in reference to the possibility that the researcher could have adopted a limited perspective on the research phenomena and as a consequence has not 'attended' to important issues that this perspective fails to highlight. In response to this threat, use of *multiple methods* of data collection and analysis (that is, *triangulation),* was adopted. By using interview survey, participant observations, and focus groups, an attempt has been made to examine the phenomena of interest (i.e. impact of IRI on teachers' beliefs and practices) from disparate perspectives with each of these different perspectives providing a checking mechanism on the others.

Validity threat 2: Deliberate deception by research participants

This threat is in reference to the possibility that the research participants deceived the researcher, either deliberately or inadvertently. This is particularly applicable to the interview survey. As part of the interview survey, participants could attempt to deceive the interviewer by providing responses that they felt avoided them looking 'bad' or 'incompetent' (Maxwell, 1996, p. 93). Also, participants could feel inclined to provide responses that they feel the interviewer expects. The design of this research is intended to minimise such threats. For example, the use of external verifications through cross-checking findings against other related other data gathered through the EDC's monitoring and formative evaluation processes. In addition, the data was cross-checked against current research on Malawian primary education, for example, the ones carried out by the

Malawi Education Institute (MIE), Centre for Educational Research and Training (CERT) and other data gathered through the EDC's monitoring and evaluation instruments. Furthermore, findings were presented to a panel of twelve PEAS as the process of data analysis was winding up. Another mechanism built in the process of conducting interviews was that each of the interview participants was given the opportunity to make their responses confidentially (thus allowing them an opportunity to make critical comments). Furthermore, a *'classroom environment pupil satisfaction and achievement indicator*' (CEPSATI), was adapted for pupils to fill in as a checking mechanism on the responses from teachers about the classroom learning experiences.

Validity threat 3: Choice of research sites is atypical

This threat is about whether the chosen research sites or subjects are atypical of the population as a whole, in which case generalizations drawn could be invalid. In line with its aims, the participants in the current research have been identified according to the contextual focus. As the research is mainly about teacher practice in primary schools, teachers form the largest single group of participants in this study. Up until recently, studies on teacher education in Malawi indicate that three-quarters of teachers in rural areas are either under-or un-qualified **(**see Kadzamira et al., 1999). Since the IRI programme is implemented nationally and a majority of schools in the country are of rural background, systematic sampling was adopted to ensure an equal representation of rural schools and the population across the country. In this case, this threat is counteracted, and it would be justifiable to claim external generalisation as a feature or outcome. The current research attempts to illuminate the particular responses within each

of the different individual teachers and their schools as they adopt IRI and the documented responses are most likely to be typical of the wider population.

Validity threat 4: The researcher's interpretation does not reflect participant interpretations

This is concerned with the potential mismatch when the researcher's interpretations do not reflect the interpretations held by research participants. This threat can arise for a number of reasons, for example: researcher bias or the imposition of an interpretive scheme by the researcher that does not reflect the local situation and premature closure. This threat is particularly relevant to research that is attempting to promote understanding as interpretation. One of the main ways of trying to refute this threat is by seeking opportunities for feedback from research participants and others— what Maxwell (1996, p. 94) refers to as "member checks". Within the context of the IRI project and the current research, this potential validity threat has been addressed through the use of feedback mechanisms built in to the evaluation processes used within the research. Follow up discussions and informal conversations with key participants meant that the outputs from evaluation mechanisms were subjected to verification by project participants. Informal verification was carried out primarily through ongoing focus groups, such as PEAS (and head-teachers) as discussed above, but also individual interactions with these.

Although these processes of verification provide a means by which the validity of aspects of the analysis could be assessed, the final responsibility in addressing this validity threat rests with the researcher through the way in which the empirical analysis and the discussion of it is presented. According to Peshkin (1988) it is important to be aware of 'our subjective selves' and the role that this subjective self plays in research since being

aware is better than assuming one can be rid of subjectivity. Therefore being aware of 'my subjective self' here meant being aware of the qualities that would enhance this research as well as the researcher's beliefs about the value of IRI in the professional development of teachers that could skew the interpretation of the data if the researcher were not aware of them. The suggestion by Eisner (1998) that each person's history, and hence world, is unlike anyone else's means that the way in which we see and respond to a situation, and how we interpret what we see, will bear our own signature. This unique signature should not be viewed as a liability but as a way of providing individual insight into a situation.

2.2 Ethical considerations

The object of this study, like most other studies in the field of social and behavioural sciences, is humans themselves. The social science researcher does not have a free hand in terms of the research procedures that may be performed because it is proper for participants to exercise their right with regard to their involvement in the research project (see Hysamen, 1994). When embarking upon this study, it was acknowledged that the participants would not owe the researcher anything and would be entitled to respect, dignity and courtesy. These are the various individuals and groups that were involved in this research project—officials of the Malawi Ministry of Education (MoEST), head-teachers, teachers and their learners, parents and other stakeholders in education. All of these have had their normal daily activities somehow interrupted even if approached outside the classroom or outside their work places. In accordance with the rules of respect, this study viewed all these as 'participants' and not as mere 'subjects'.

This study regarded the question of anonymity and confidentiality as important therefore the privacy of educators and other participants was protected as far as possible. No names of educators needed to be written down on the various research instruments that were used for data collection and analysis, and the study aimed to constantly take honesty into consideration, where 'human subjects' and personal information was dealt with. An attempt was made to ensure that participants felt comfortable and unthreatened so that as much information as possible could be revealed from them about the educational matters (under study), without fear that names would be traced back to them.

Another consideration was about research requirements within the Stirling Institute of Education (University of Stirling), where this research study was carried out. Consideration had to be given for complying with the BERA guidelines and ethical approval was applied and granted by the Institute's Ethical Committee.

Attention was also given to issues of collaboration with partner organisations- USAID and EDC who are the implementers of the IRI programme in Malawi. Although permission to carry out the study in schools had been granted by the MoEST, this research had to be worked out within the framework of the USAID initiative. It was important to ensure that the current evaluation research was not in conflict with the programme implementation strategy, especially the mechanisms put in place for internal monitoring and evaluation. Naturally, an understanding had to be reached with the implementers regarding the objectives of evaluation in the current study vis a vis objectives of the IRI programme itself.

Finally, as a mother body in educational matters especially primary teacher education and training, the MoEST had a central role in the decision to accept or reject the need for the proposed study. Permission had to be sought from MoEST in recruiting the teachers, head-teachers, PEAS and other educators into the study. Schools which formed a population sample for the study had to be identified, and once that was done it would have been most appropriate to leave it to the individual head-teachers to check the willingness of their staff with regard to being involved at the classroom level. Ideally, the researcher would explain in detail what the research was about and what their involvement entails. The information would be given to potential participants with great caution so that internal and external validity of the results was protected. However, as explained in the section below this ideal situation did not necessarily apply in practice.

2. 3 Conflict with literature

In general, there is abundance of supposedly empowering and progressive rhetoric surrounding the notion of genuine participation with teachers and learners (for example, see Valentine et al., 1999). However, experience during previous research works and during this present research confirmed that attempts to implement this prescribed best-practice in the field reveal aspects of the literature to be naïve and significantly detached from reality of research in the developing world context. For example, it would be practically impossible to get started if one strictly followed advice given regarding 'privacy and confidence' and ensuring 'informed consent' to the degree suggested (see Holloway and Valentine, 2000). This is not to suggest that participatory guidelines should be ignored as such, but that in this context there is need for locally specific engagement and less supposedly universal applicable procedures **(**Horton and Kraftl, 2006).

Chapter 3 **Practices, Artefacts and Learning**

Chapter 1 provided a synopsis of the main construct of this study, namely *teacher practice*. The present chapter presents an extensive account of social practice, the wide area of research that comprises the concept of teacher practice. Literature reviewed in this section is therefore drawn from a wide array relating to social practices but the review attempts to emphasise the role of learning objects as artefacts (or tools or resources) for growth of social practices. As a way of charting this focus, attention has been put on the need for adopting an analytical framework that sensitises the researcher to the nexus of social relationships and structures within which all practices (which employ artefacts as part of that practice) are enmeshed. Beginning with a concise background to the field of practice (section 3.1), the chapter proceeds as follows: In section 3.1.1 Giddens' work (1987) on practices is used as a starting point for discussion and for subsequently developing a focus on the place of artefacts within practice. Section 3.2 provides a background to learning-objects and in doing so highlights a range of key problematic issues. At the heart of the argument is the claim that in order to analyse learning-objects (as artefacts of practice) in a useful way, it is important to consider not only the learning-object in isolation but the learning-object within a particular context of use. Section 3.3 starts with an abridged account on conceptualising the construct of perceptions of learning/education. Thereafter, this is reviewed by zoning on the importance of teacher learning using the Learning to Learn (L2L) approach (3.4). Section 3.5 is an attempt to provide a synthesis of literature that examines how artefacts become important as representations (of human activity) in the light of emerging literature which examines artefacts as important components of epistemic practice. The following section (3.6)

explores innovative ways of providing CPD of teachers for good practice. 3.7 is a study of analytical frameworks for studying learning objects and the last part (3.8) presents a summary of the chapter.

3.1 The concept of practice

"Practice is what people do, as distinct from what they say they do, or what the larger societal norms or structures identified by social scientists imply they usually do" (Dictionary of Social Sciences, 2000). Although such a definition does not say much, it helps in highlighting the fact that practice is fundamentally about how people behave in particular social settings. Schatzki et al (2001) have observed that the definition lacks focus and does not help to operationalise the concept as part of an empirical study, but they also assert the significance of practice perspectives for modern social theory. They remark that the concept of 'practices' now occupies a central place in contemporary sociological thinking. Furthermore, they assert that "most thinkers who theorize practices conceive of them, minimally, as arrays of activity" (Schatzki, et al., 2001, p.2). To elaborate on this, these authors state that:

> [a] central core, moreover, of practice theorists conceives of practices as embodied, materially mediated arrays of human activity centrally organized around shared practical understanding. (Schatzki et al., 2001, p.2)

Schatzki et al's definition places *activity*, especially human activity, at the heart of the notion of practice but does not offer much to distinguish activity from practice apart from stating that "actions, for instance, are embedded in practices" (Schatzki et al., 2001, p.3). The frequent interchangeable use of the words action, activity and practice is a reflection

of the difficulties often experienced in finding explicit definitions of each of these terms or clear distinctions between them. For Schatzki and his colleagues, there is a multiplicity of approaches to the study of practices and he proffers the phrase 'field of practices' to offer some sense of boundary without putting constraints that unnecessarily limit theorising about practice. Notwithstanding this, there still remains a considerable difficulty for the student of practice wishing to study situated, particular examples of practice, to operationalise the concept of practice in a manner that is useful for empirical research.

As a way of operationalising the concept of practice in this present study, an attempt has been made to integrate the work of a range of authors who adopt a detailed focus on practice, and in particular those that give attention to the significance of *artefacts* as elements of *practice*. Giddens' theorising of practices forms the basis for the discussion hereunder.

3.1.1 Giddens' approach to practice

According to Giddens and Turner (1987, p. xx), 'social practices' can be understood as "skilful procedures, methods or techniques appropriately performed by social agents". This indicates that (social) practices relate to what people (social agents) do (performance) and that a practice is more than just repetitive, conditioned responses to particular stimuli, as the social agents employ skilful procedures, methods or techniques. In other words, a social agent could always have acted otherwise.

Giddens (1993, p. 81) further analyses practice into the following, interrelated, sub-components:

- *acts:* identified elements or segments of actions
- *action/agency*: the stream of actual or contemplated causal interventions of a corporeal being in the ongoing process of events in the world
- *practices:* when speaking of regularized types of act I shall talk of human practices, as an ongoing series of practical activities

This kind of conceptualisation of practice seems to have some similarity to the hierarchical analysis of activity within activity theory (refer to *activity theory* below). Although there are remarkable differences in emphasis, Giddens' conceptualisation also resonates with that of Bourdieu (1977). For both Giddens and Bourdieu the main concern, in explaining social practice, seems to be what individuals do in their daily lives. Bourdieu, like Giddens, is of the opinion that social life cannot be understood simply as the aggregate of individual behaviour. Bourdieu's (1977, p.60) argument that social practice is not 'rule governed' is in line with other thinkers on the topic but he underestimates the importance of rules as one resource which contributes to the mix of freedom and constraints that characterises behaviour. Bourdieu reckons practice is not consciously - or not wholly consciously - organised and orchestrated. According to this, nothing is random or purely accidental but, as one thing follows on from another, practice happens. However, it would be wrong, according to Jenkins (1996), to suggest that Bourdieu thinks that practice just happens. Jenkins (1996, p. 70) has explained this view as Bourdieu's most potent metaphor on 'practical sense' or 'practical logic', the centrality of 'a feel for the game':

> the practical mastery of the logic or of the imminent necessity of a game - a mastery acquired by experience of the game, and one which works outside conscious control and discourse (in the way that, for instance, techniques of the body do).

This could be very true of the academically impoverished Malawian primary teachers—especially with regard to the fact that most people, most of the time, take themselves and their social world somewhat for granted: they do not think about it because they do not have to, what Bourdieu refers to as doxa or 'doxic experience':

> …the coincidence of the objective structures and the internalised structures which provides the illusion of immediate understanding, characteristic of practical experience of the familiar universe, and which at the same time excludes from that experience any inquiry as to its own conditions of possibility. (Jenkins, 1996, p.14)

Bourdieu's emphasis on the improvisatory nature of practice is well understood, and so is his identification of the 'thoughtlessness' of habit as a factor enabling individuals to go about their daily lives without having to consider every move they make. This is broadly in line with Giddens' (1979) idea about the 'routinised' nature of practices except that he draws attention to the way in which agents draw upon rules and resources as part of their practice, and that in drawing upon rules and resources agents employ "practical consciousness: tacit knowledge that is skilfully applied in the enactment of courses of conduct, but which the actor is not able to formulate discursively" (Giddens, 1979, p.59). He interprets rules as "techniques or generalisable procedures applied in the enactment/reproduction of social practices" (Giddens, 1984, p.21), that are *not* determinative of social practice but instead must be interpreted and enacted as part of practice. Furthermore, he draws on Wittgenstein in suggesting that to know a rule, "is to 'know how to go on', to know how to play according to the rule" (p. 22). This is important as it demonstrates the relationship between rules and practices. With regard to Bourdieu's analogy of the rules of a game, Giddens finds this inadequate as a way of examining the rules which are an integral element of social practices:

> Even those [rules] which are codified as laws are characteristically subject to a far greater diversity of contestations than the rules of games. Although the use of rules of games such as chess, as prototypical of the rule-governed properties of social systems is frequently associated with Wittgenstein, more relevant is what Wittgenstein has to say about children's play as exemplifying the routines of social life. (Giddens, 1984, p.18)

Giddens (1984, p. 65) highlights the significance of rules as enacted in practice in stressing that "rules cannot be exhaustively described or analysed in terms of their own content, as prescriptions, prohibitions, and the like: precisely because, apart from those circumstances where a lexicon exists, rules and practices only exist in conjunction with one another."

Within Giddens' theory of structuration, rules are one element (the other being resources) in the stabilisation of social relationships across time and space. He defines structure as "rules and resources recursively implicated in social reproduction; institutionalized features of social systems have structural properties in the sense that relationships are stabilised across time and space" (Giddens, 1984, p. xxxi). However, it has already been stated that social actors or agents do not 'apply' a rule or use resources in a simplistic or deterministic way (they are not cultural dupes who lack understanding of the social system within which they operate and, though may decide not to do so, they could always act otherwise) but instead apply sophisticated approaches as they apply rules in a given situation. Giddens (1979, p.68) emphasises this process of rule- instantiation by drawing upon the work of Garfinkel:

> The operations of practical consciousness enmesh rules and the 'methodological' interpretation of rules in the continuity of practices. Garfinkel's conception of the interpretative work which is always temporally involved in accountability is very important here. What Garfinkel calls 'ad hoc' considerations - the 'etcetera clause',

> 'let it pass', etc. - are chronically involved in the instantiation of rules, and are not separate from what those rules 'are'.

Partly, it is this 'interpretative work' (employed by the in-service primary teachers and other educators) that we seek to examine as part of empirical analyses in Chapters 5 and 6. This we regard as particularly important in light of the considerable ambiguity surrounding the definition of interactive radio as a learning-object and how they should be adopted, further developed and used.

Amongst those elements considered to be crucial in the stabilization of social-relationships across time and space is *resource(s)*. Reckwitz (2002) regards the integration of the notion of resources within Giddens' theory of structuration with the concept of artefacts as a potentially worthwhile avenue of exploration:

> Here it is possible to create a link with Anthony Giddens's version of practice theory, presented in the form of his "theory of structuration". In Giddens's conceptual framework "the material" appears as "resources", which are interpreted as necessary requirements for the existence of practices. These resources, however, are primarily understood as allocative or authoritative means of power, less as things/artefacts to be handled. (see Giddens, 1984, p. 58–62), (Reckwitz, 2002a, p.215)

It can be said that in Giddens' theoretical framework resources are regarded as the means (or mode) through which allocative or authoritative power is exercised. In a way, this conceptualisation is useful in highlighting the underpinning importance of power and domination in social relations, but it is not a conceptualisation that is in line with the more common perspective of resources as the material or 'things' to be used in carrying on a social practice. For example, Schatzik et al (2001, p. 145) take issue with Giddens'

use of the term ‘resources’ on two grounds. Firstly, “it is not compatible with the functional specification of resources. The medium through which a capacity is exercised cannot itself be a capability; at the least, it must be the exercise of that capability. Secondly, the examples that Giddens offers as examples of resources (organization of activities, coordination of actors, aptitudes, capabilities, wealth, technologies, raw materials, land) are wrong. If resources are capabilities, as Giddens asserts, then there is a considerable degree of inconsistency between this definition and the list of examples (apart from ‘aptitudes’ and ‘capabilities’) offered above”.

For the purpose of this thesis, the word ‘resource’ is used in its more usual sense to mean some kind of *artefact* employed as part of human activity. For the purpose of the present research, we regard Giddens’ attention to rules and resources (and how they are drawn upon by skilful or knowledgeable agents as part of a practice) as an essential aspect of illuminating the adoption of *interactive radio* in teachers’ in-service education and training system.

Another definition of the term ‘practice’ has been offered by Reckwitz (2002b, p. 249):

> A practice (Praktik) is a routinised type of behaviour which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge.

Although this definition bears similarities with that of Bourdieu and Giddens in its emphasis on the ‘routinised’ nature of practice, it develops that work further by emphasising that ‘forms of bodily activity’ (behaviour) and artefacts (things) and their usage, are an integral part of practices. Other alternative perspectives can also be drawn

upon to highlight and enhance Giddens' ideas. In the following section, for example, attention is drawn to what could be considered as some similarities between Giddens' thought and some aspects of activity theory.

3.1.2 Activity theory

As good a place as any to start thinking about activity theory is Yrjo Engeström's model of activity itself (Engeström, 1993). According to this model, the relationship between human agents and objects of environment is mediated by cultural means, tools and signs. Work is performed in conditions of joint, collective activity mediated by tools.

One important aspect of activity theory is that it highlights the hierarchical nature of all human activity and (perhaps more importantly) the dynamic inter-relationship between these hierarchical levels. Activity theory presents three hierarchical levels for analysing human activity, each distinct from the other in the degree of conscious effort required and the driving force behind it (see figure 3 below):

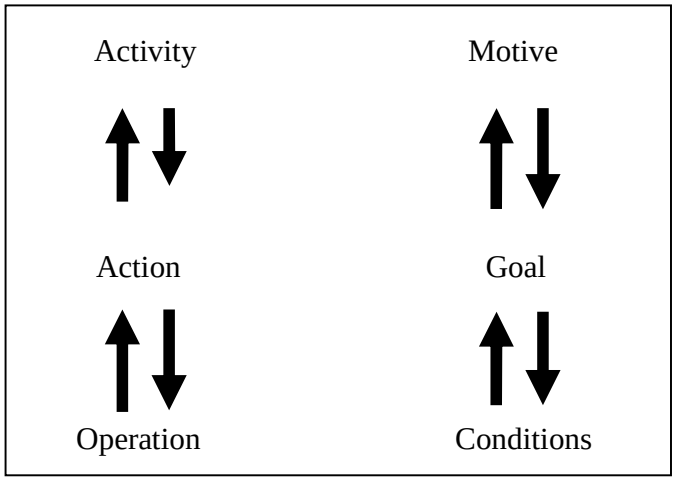


Figure 2: Hierarchical Nature of Activity, after (Jonassen and Roher-Murphy, 1999)

In human activity theory, the basic unit of analysis is human (work) activity (Bannon and Bodker, 1994). Human activities are driven by certain needs where people wish to achieve a certain purpose. The collective activity within an activity system is driven by a *motive* (or motives), which has as its focus the production of some sort of object (i.e. the 'thing', which may be physical or mental, which is worked upon by the subject). For activity theory, the relationship between motive and object is an important one, hence the description of 'object' (i.e. the intended outcome of the activity system) as 'objectified motive'. Here, actions are consciously directed and driven by a *goal* or *goals* and from just a glance the actions within an activity system may not appear to relate directly to the overarching motive/object. *Actions* in this context are processes where there is a lack of coincidence between the object and motive.

Jonassen and Roher-Murphy (1999, p. 63) stipulate that:

> With practice and internalisation, activities collapse into actions and eventually into operations, as they become more automatic, requiring less conscious effort. The reverse dynamic is also possible: operations can be disrupted and become actions. So the relationships among activities, actions, and operations are dynamic.

Thus operations are actions that have become more automatic and require less conscious effort in carrying them out than do actions. In thinking about untrained or poorly trained Malawian teachers' practices (the focus of current research), the insight offered above about the dynamic relationship between actions and operations is particularly important - mainly because the forces impinging upon this relationship are often the result of the adoption and adaptation of technology, or as termed by activity theorists, *tools.*

As with the theory of practice, the focus of attention in activity theory is human activity but such activity does not happen in isolation, it always takes place within an activity system:

> Activity cannot be understood or analysed outside the context in which it occurs. So when analysing human activity, we must examine not only the kinds of activities that people engage in but also who is engaging in that activity, what their goals and intentions are, what objects or products result from the activity, the rules and norms that circumscribe that activity, and the larger community in which the activity occurs. (Jonassen and Roher-Murphy, 1999, p. 62)

The above discussion of the hierarchical nature of activity and 'embedding' of human activity within a particular, situated, context (the activity system), seems to be similar to Giddens' analysis of practice offered earlier. In Giddens' analysis, emphasis is also put on a hierarchical relationship between (moving from the lowest level to the highest): acts, actions/agency and practice - drawing attention to the network of relationships within which individual agents are enmeshed. Giddens also emphasises the considerable interpretative work that all social agents must do when instantiating rules in a particular, situated, social setting. From a superficial glance, the way in which activity theorists use the term '*tool'* would appear to overlap with Giddens' use of the term '*resources'* as part of the recursive reproduction of social relationships across time and space. However, as discussed, there is a remarkable difference between Giddens' use of the term *resource* and the way in which most writers within activity theory employ the term *tool.* In essence these are material objects that are integral elements of social practice. The next section is about examining these material objects (artefacts/tools) as important mediating elements of social practice.

3.1.3 An examination of material objects or tools as artefacts in practice

The term *material objects* or *artefacts/tools* (e.g. interactive radio or IRI programmes) as important mediating elements of social practice (including teacher practice) is mainly promoted by Reckwitz (2002). In his examination of the significance of the material in theories of culture, Reckwitz (2002a, p.196) points out that '*the material'* in the classical sociology of knowledge is conceptualised as:

> ...'social structures' that provide a foundation for orders of knowledge…High-modern culturalism redefines the material as 'objects of knowledge' or 'symbolic objects', as objects which become visible in the context of systems of meaning (categories, discourse, communicative action).

Contrary to the above approach in conceptualising the material, Reckwitz draws attention to the broad body of work which he places under the heading of a 'theory of social practices'. Using this heading, Reckwitz (2002a, p. 196) examines Bruno Latour's (1987) 'symmetric anthropology'— focusing on the manner in which "it enables one to grasp the material not as a social structure or as symbolic objects, but as 'artefacts', as 'things' which are necessary components of social networks or 'practices'". In reference to the ambiguity on how things or artefacts are regarded even within contemporary theories of social practice, Reckwitz (2002a, p. 209) says:

> 'Things' thus have the status of 'hybrids': On the one hand, they are definitively not a physical world as such, within practices they are socially and culturally interpreted and handled. On the other hand, these quasi-objects are definitively more than the content of cultural 'representations': they are used and have effects in their materiality.

Regardless of this ambiguity, Rekwitz (2002a, p. 212) goes on to emphasise the fundamentally important place of things/artefacts (the material) in practices:

> The things handled in a social practice must be treated as necessary components for a practice to be 'practised'. In fact, one can say that both the human bodies/minds and the artefacts provide 'requirements' or components necessary to a practice. Certain things act, so to speak, as 'resources' which enable and constrain the specificity of a practice.

As seen in the above quotation, Reckwitz mentions resources (in quotes) thereby drawing attention to the work of Giddens (examined earlier) and, in a footnote, suggests the integration of Giddens' idea of resources with the notion of artefact as a potentially useful line of work. He thus elaborates on how human agents employ artefacts as part of their practice by further alluding to the work of Giddens:

> Yet technical equipment cannot determine certain activities in a strict causal way. In order to have effects, artefacts must be used; and to be used, they must be treated with understanding and within the parameters of cultural codes - they must become an integral part of a social practice. Thus, from the point of view of practice theory, the 'relationship' between human agents and non-human things in the network of a practice is a relationship of practical understanding. (Reckwitz, 2002a, p. 212)

Attention is drawn to the way in which human agents become, in a sense, imbued with practical understanding:

> When human agents have developed certain forms of know-how concerning certain things, these things "materalize" or "incorporate" this knowledge within the practice (the latter restriction is important because "as such" and beyond complexes of practices things do not incorporate anything — at least from the point of view of a post- Wittgensteinian theory). Things are "materialised understanding", and only as materialised understanding can they act as resources. (Reckwitz, 2002a, p. 212)

This aspect of 'practical understanding' highlighted by Reckwitz is somewhat neglected by Giddens. In the same vein, by emphasising that 'beyond complexes of practices, things do not incorporate anything', Reckwitz is refuting Latour's plea for a symmetrical treatment of artefacts and humans (as part of an actor network) and in so doing, Reckwitz is in line with the perspective adopted by many activity theory writers. An important point being made here is that artefacts only have significance because they are handled and understood by human agents in certain specific ways – they cannot be entirely equal. Another point by Reckwitz (2002a, p. 213) that is also important as it provides a foundational pillar for the empirical analysis in chapters 5 and 6 of this thesis concerns the dynamics of social change:

> Finally, if social change is a change of complexes of social practices, it presupposes not only a transformation of cultural codes and of the bodies/minds of human subjects, but also a transformation of artefacts (a relationship which deserves closer study than can be offered here).

Three specific aspects of social change are highlighted in the above quotation: cultural codes, human agents and artefacts. Although a detailed empirical analysis to apply this 'tripartite' model of social change within the context will not be undertaken in full here, it suffices to mention that the relationship between social practice and the resources or artefacts that are employed as part of that practice are significant in shaping practice. Thus two things become clear: first, artefacts act as epistemic objects; secondly, that epistemic objects act as representations within the research/knowledge creation processes. Knorr Cetina (2001) develops her conceptualisation of 'epistemic objects' within the context of scientific knowledge creation work. She uses the term 'epistemic practice' to refer to those practices which are non-routine and involve creative and

constructive processes as an integral part of the knowledge creation process. Thus the various forms of knowledge representations that are fundamentally important and integral to the knowledge creation process are the ones that she refers to as ‘epistemic objects’.

For purposes of the current study, this perspective can be profitably applied to processes involved in the development, utilisation and modification of IRI programmes as learning-objects for teacher development. This perspective emphasises the potential significance of learning-objects as knowledge artefacts supporting the scholarship of teaching, and is the basis of the discussion in sections 3.5, 3.7 as well as chapter 8 of this thesis.

Therefore, only a certain category of objects fit this description of ‘learning’ objects. In this respect, Knorr Cetina (2001) draws attention to the highly ambiguous nature of what she refers to as *knowledg*e or *epistemic objects* and how such objects are an integral part of the research/knowledge creation processes. Emphasis is put on how such objects are very different from the everyday notion of an object (e.g. a hammer). Knorr Cetina makes clear that attempts to clarify the nature of such objects, through closer observation and inquiry generate further questions and increase their complexity instead of providing clarification. To emphasise the distinction between epistemic objects and everyday-objects she states that:

> The everyday viewpoint, it would seem, looks at objects from the outside as one would look at tools or goods that are ready to hand or to be traded further. These objects have the character of closed boxes. In contrast, objects of knowledge appear to have the capacity to unfold indefinitely. They are more like open drawers filled with folders extending indefinitely into the depth of a dark closet. Since epistemic objects are always in the process of being materially defined, they continually acquire new properties and change the ones they have. (Knorr Cetina, 2001, p.181)

This has resonance with the notion of a 'boundary-object' developed by Star and Griesemer (1989). The congruence with the notion of epistemic objects can be concluded in the sense that Star and Griesener offer the notion of boundary-objects as key artefacts within the process of negotiation of the diverse intersecting social worlds. In their analysis, Star and Griesemer (1989, p. 393) say that boundary-objects are objects that are:

> both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use.

The above argument offers a fruitful opening for examining learning-objects (such as interactive radio) as artefacts of teaching practice. Therefore the next section is devoted to a discussion on learning-objects which should be regarded as a precursor to the main discussion on interactive radio in chapter 4.

3.2 Learning-Objects

3.2.1 Definitions

Currently, there seems to be no universally agreed definition of the term learning-objects. Wiley (2000, p.22), for example, has observed that "it would seem that there are almost as many definitions of the term as there are people employing it". He has supported his point by giving definitions from a variety of different sources:

> (CBT) vendor NETg, Inc. uses the term "learning object" but applies a three-part definition: a learning objective, a unit of instruction that teaches the objective and a unit of assessment that measures the objective (L'Allier, 1998). Another CBT vendor, Asymetrix, defines learning objects in terms of programming characteristics: "ToolBook II learning objects - pre-scripted elements that simplify programming … provide instantaneous programming power"

> (Asymetrix, 2000). The NSF-funded Educational Objects Economy takes a technical approach, only accepting Java Applets as learning objects (EOE, 2000). It would seem that there are almost as many definitions of the term as there are people employing it. (Wiley, 2000, p. 22)

Furthermore, the Institute of Electrical and Electronics Engineers' (IEEE, 2002) offers the following definition:

> Learning Objects are defined here as any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning. Examples of technology supported learning include computer-based training systems, interactive learning environments, intelligent computer-aided instruction systems, distance learning systems, and collaborative learning environments. Examples of Learning Objects include multimedia content, instructional content, learning objectives, instructional software and software tools, and persons, organizations, or events referenced during technology supported learning.

Wiley points out that there are also other, similar terms, which are used to describe entities that could all be encompassed within the definition offered by the IEEE. Quite a number of scholars have criticised the above range of definitions and related terms as unhelpful and that, in itself, does reflect the dynamic and complex range of current work on learning-objects and related technologies. Despite this flood of definitions, Wiley (2000, p. 23) has suggested yet another definition of learning-object: "any digital resource that can be reused to support learning". His argument for this addition is that "the proposed definition captures the critical attributes of a learning-object, 'reusable,' 'digital,' 'resource,' and 'learning', as does the LTSC definition" (Wiley, 2000, p. 24). This underpins his claim that "those who incorporate learning-objects can collaborate on and benefit immediately from new versions" (Wiley, 2000, p. 25). The notion that learning-objects have potential to support collaborative working is an important one and

will be explored later in connection with the issue of *school-based staff development* processes (see chapter 8).

Downes (2004) has recommended that we stop talking about learning-objects, and instead speak only of 'resources'. In agreement with this, Wiley (2003) maintains that while 'learning object' sounds like something specific, there has been little if any convergence toward a common meaning. The term 'resource' maintains the ambiguity inherent in the term 'learning object' without the pretensions of a specific definition. Thus, it wouldn't be wrong if the field moved on from 'learning objects' to talking about resources as Downes suggests. The term 'learning-object' carries with it too many ambiguous connotations for it to be useful, and a simpler alternative would, probably, better serve the educational community which is struggling to accommodate the term within existing and developing practice.

Although no agreed definition of learning-objects exists, the following distinguishing features can be helpful in describing learning-objects. They:

- exist in digital form;
- are aggregations of other digital resources (such as images, audio/video clips, text);
- conform to internationally agreed standards regarding their structure;
- incorporate metadata that conforms to internationally agreed standards;
- are frequently held in object repositories and can be transferred from these repositories to learning management systems (LMS) i.e. the objects are interoperable/reusable.

The fact that considerable energy and in some cases considerable sums of money have been expended on thinking about and developing learning-objects (Friesen, 2004) has not stopped controversy on a range of important issues concerning learning-objects. Amongst other things, disagreement still rages about what does or doesn't count as a learning-object and how learning-objects should be used and managed. In our consideration of radio and IRI as learning-objects, the following key attributes of learning-objects, based on current literature, become relevant.

3.2.2 Characteristics of learning-objects

3.2.2.1 Object-ness.

> The term 'object' is ostensibly borrowed from object-oriented programming, and provides a nice allusion to computer code that is constructed in such a way that it will be possible for other programmers to re-use the code in new programs. Although the initial extra effort may not directly give a return on a programmer's time, being able to build up a library of re-usable code may return significant benefits in the long run, especially if an entire community of programmers made their code available to each other. (Richards, 2002, p.1)

The above quotation helps to explain the principles underpinning the object-oriented paradigm of software engineering (Richards, 2002). Here, software objects within the object-oriented paradigm perform restricted, well defined tasks and, so long as the system-conditions necessary for the object to perform its tasks are maintained – the results of using an object will be predictable. The notion of developing a new system based, in part, on 'bolted together components' that have been developed and tested elsewhere is appealing and, as a development paradigm for educational content, appears to offer many advantages— reduce the reinventing the wheel phenomena, resource is

available for use across a range of contexts, well defined functionality. Emphasis is on reuse of objects/materials but experiences on the ground seem significantly different from the conceptualised development model. For example, Wiley (2003, p. 75), has observed that "there is no reason to expect that educational objects will ever be widely reused, when empirical research has demonstrated that OOP objects (the model on which learning objects are supposedly built) are infrequently if ever reused". He says that the programming resources that are frequently re-used, libraries (that contain very small, algorithmic functions), may have implications for thinking about learning-objects:

> This suggests that research in learning objects should follow a very different path. If we are to follow the software development model we claim to hold dear, learning objects should not contain content at all; rather, they should contain the educational equivalent of algorithms – instructional strategies (teaching techniques) for operating on separately available, structured content. (Wiley, 2003, p. 75)

Again Wiley's thinking has direct relevance to the packaging and construction of instructional material within the Malawian IRI programmes. The researcher in this thesis reports elements of resistance by practitioners/teachers in using IRI as partly due to technical issues concerning the programme. Findings indicated that in some cases teachers seemed unfamiliar with terminology (e.g. outcomes; objective versus results, etc) used in these programmes and that created resentment (see analysis of main study, chapter 6). The fundamental difficulties in trying to apply new ideas and terminology from the object-oriented paradigm to education have been noted by Allert and Nedjl (2002, p.17) who claim that "pedagogy and instructional design are ill-structured domains" whereas the object-oriented paradigm, it could be argued, offers an all-pervasive approach to software development. The difficulties of introducing innovative

ideas and practices to education which are borrowed from elsewhere (in this case applying ideas from the objected-oriented software development paradigm) creates problems and incongruities as noted by Friesen (2004, p. 61):

> This incongruity can also be seen to repeat a negative historical pattern that has recurred in different forms with previous innovations in educational technology. In this pattern, these innovations are introduced into educational contexts and practices clearly bearing the stamp of their technical origin. Instead of being presented in terms familiar and meaningful to educators, they bear connotations that appear unclear or even negative in these practical contexts. Next in this pattern is the appearance of various forms of resistance to these innovations on the part of practitioners. Finally, this is followed by teachers and other practitioners being blamed for their resistance and inflexibility in not adopting such innovation.

3.2.2.2 Learning is inherent within a learning-object

In a situation where it is possible to identify a set of 'things' that are learning-objects, it should also be possible to identify another set of things as non-learning-objects, which are all those things that lie outside the boundary formed by the set learning-objects. Regardless of context (a learning-object in one setting could be non-learning object in another), a class of objects associated with *learning* lie within the set referred to as learning-objects.

A conclusion can therefore be drawn that the title 'learning-object' infers that there are inherent characteristics of learning-objects that are directly associated with learning and these characteristic(s) can be unambiguously identified. Explicitly, this means that the learning is in the content, a perspective that is deeply engrained in the phrase (or metaphor) 'flexible delivery' and the transmission model of learning. One of the many

authors that have identified and critiqued this perspective on learning-objects is Mayes (2003, p. 9):

> While long advocating the reuse of learning dialogues as a learning resource, I have nevertheless thought of myself as a sceptic on the topic of learning objects. My attitude had been rooted in the belief that it is fundamentally misguided to think of learning as having anything much to do with content.

Mayes (2003, p. 9) elaborates that: "It had seemed to me that the idea of learning-objects that could be automatically combined into a course, tailored for an individual learner, was a re-emergence of that flawed vision [automated instruction embedded within intelligent tutoring systems]" . Mayes acknowledges that his earlier perspective on learning-objects was based on outdated thinking and what he was referring to as learning-objects is now referred to as a *knowledge object* or a content or information object. Nevertheless, much attention to date, in discussion about learning-objects has been on the notion that learning is an inherent characteristic or facet of a learning-object, a kind of naïve-essentialist perspective, and that learning can be packaged up and delivered electronically to numerous learners. In this respect the following quotation from the International Standards Organisation (ISO) appears relevant:

> Not only would the development and use of international standards [in e-learning] produce a direct cost saving, but the information technology systems could be used in a wider range of applications, and used more efficiently. Better, more efficient and interoperable systems, content, and components will produce better learning, education, and training – which has a positive effect upon all societies. (cited in Friesen, 2004, p. 62)

The above quotation concludes with a strong assertion about the causal relationship between (interoperable) content and learning—an issue that might require critical

scrutiny in relation to the expansion of the Malawi IRI programme through REFILM project as suggested in this study (see chapter 8).

Mason (1992) explains problems associated with describing how a learning-object might be used to support or facilitate learning by looking at how an individual learning-object, which may be part of a larger collection designed for a particular learning purpose, often requires contextual elements that provide the 'glue' to ensure that the learning-object makes sense and is usable. She asserts that, "the glue and context are not formally expressed, but are hidden or implicit throughout the learning-objects and the description of the learning experiences" (Mason, 1992, p.29). This leads to the discussion on *teacher learning* as another important construct in the present study. First, a look at the notion of 'learning' becomes very important in thinking about how primary teachers in the Malawian context might benefit from use of IRI as an artefact for teacher learning and professional development as discussed in chapters 7 and 8 of this thesis. For this reason, the review in the next section aims at opening up the discussion on concepts of learning and how these might relate to IRI's use for professional development of our target group. This discussion is carried forward in Chapter 7 (*General Discussion)* where an attempt has been made to relate findings from field studies, regarding our respondents' own conceptions of learning and perceptions of education, to what might be an appropriate approach of IRI programming for purposes of CPD of teachers in educationally disadvantaged contexts.

3.3 The Notion of Learning

As pointed out, apart from *(teacher) practice*, the main construct of the current investigation as reviewed in section 3.1, *teacher learning* is another important pillar of intellectual thought that underpins this study. Conceptions of learning have direct implications for individuals' perceptions of education (Stoll and Fink, 1996; Lave and Wenger, 1991), so a good understanding of what is meant by learning is vital because it is these assumptions which will shape the design of interactive radio programmes that could be utilised for education of teachers (in the Malawian context, in this case). Educating and training teachers through the IRI methodology, the focus of this investigation, is essentially about promoting teacher learning through this artefact (i.e. interactive radio/IRI programmes). Thus perceptions of education as an umbrella construct of this study (as explained in chapter 1) requires a comprehensive and elucidative elaboration, but in a study of this scale there is not sufficient space to address all the issues. The discussions in the following subsections are brief and are provided as a 'bridge' to the next main section which examines the *learning to learn* approach for *teacher learning*. Given the interrelationship between these terms ('education', 'learning' and 'teaching'), the approach here is to use the current theorising and taxonomies on learning conceptions as our notional background to assist us conceptualising the construct of perceptions of education.

3.3.1 Conceptions of Learning

The main goal of education has been promoting and facilitating learning (Taylor and Vinjevold, 1999; Stoll and Fink, 1996). According to Sitoe (2006), research and theories

on students' learning conceptions have inspired good practices' in the process of teaching and learning, as learning outcomes turned out to be regarded as related to and influenced by the learners' conceptions of learning. Within research traditions concerned with qualitative educational outputs, linkages between learners' conceptions of learning and their learning approaches, and between these and the ultimate learning outcomes have been empirically examined. For example, Marton and Säljö (1976a, 1976b) came up with what they categorised as two qualitatively different approaches to reading a text (i.e. learning from a text): (a) a *surface* approach, and (b) a *deep* approach. Of particular interest to the present study is the conclusions drawn from the two authors' research, namely that the above-mentioned approaches to learning were closely related to two qualitatively different reading outcomes (i.e. text comprehension). While surface approaches were found associated with lower levels of comprehension, in contrast, deep approaches were seen as related to high levels of text comprehension.

Other studies have brought further evidence of a theoretically coherent chain of relationships linking conceptions of learning, approaches to learning (including learning strategies), and learning outcomes. One of these was by carried out by Van Rossum and Schenk (1984), which indicated that high level learning outcomes were attained through the interplay of what these researchers termed 'constructive conceptions of learning' and deep-level learning approaches. Meyer (1998) has also categorised conceptions of learning as either accumulative or transformative. Unlike the accumulative conceptions of learning, the transformative ones are related to higher order quality outcomes and implied changes in the learner's views of the world. Transformative conceptions fall in line with the thinking in this current study on provision of teacher in-service education

and training by using IRI to raise their academic and professional competences qualitatively. Dart (1998) typified this kind of learning conceptions as qualitative — those that are seen associated to a learning approach involving an emphasis on understanding and on the making of meaning, resulting in higher level learning outcomes. The opposite of this in Dart's categorisation is quantitative conceptions of learning— those found focusing on the acquisition of factual knowledge. Entwistle (1998b, p.2) has added that:

> The conception of learning held by people also affects their approach to learning (deep or surface) ..., while that approach in turn influences the likelihood that they will seek, and achieve, a personal understanding of whatever phenomenon or topic they are addressing.

3.3.2 A comparison of the main taxonomies of conceptions of learning between Western-Europe and Africa

Learning conceptions or conceptions of learning are about people's views and beliefs about the nature of learning. Benchmark studies on learning conceptions have addressed this topic from a phenomenographic approach. According to Marton (1981) such an approach seeks to outline qualitative differences in the way people experience and perceive reality (for example: events, phenomena, things, etc) from their own stated points of view. In the example of western Europe, Banyard and Hayes (1994) have quoted Säljö (1979) in the analysis of the conceptions of learning held by a sample of Swedish citizens within and beyond school/college age, and identified the following conceptions (or 'philosophies') of learning:

1 Learning is about getting lots of information (it brings about increase in knowledge);

2 Learning is memorising (storing information for easy recall and reproduction);

3 Learning is about acquiring facts and developing skills, methods and procedures that can be used when necessary

4 Learning is about abstraction of meaning (making sense of information, extracting meaning, and relating information to everyday life

5 Learning is an interpretative process (it is about understanding the world through reinterpreting knowledge).

For Säljö (1979), these five conceptions of learning underpin qualitatively different and hierarchically related perceptions of what learning is from the viewpoint of the learners. In the case of the current research, the same applies to teachers as learners, as argued in the next two sub-sections. In this sense, conceptions 1 to 3 entail a reproductivist style of learning, while the latter (conceptions 4 and 5) reflect an interpretive/constructivist view of learning, thence entailing an emphasis on understanding.

Another study undertaken in the UK by Marton, Dall'Alba and Beaty (1993) put forth a similar but conceptually more refined description of the six learning conceptions proposed by Säljö (1979):

1 Learning as increasing one's knowledge;

2 Learning as memorising and reproducing;

3 Learning as applying;

4 Learning as understanding;

5 Learning as seeing something in a different way;

6 Learning as changing as a person

Marton et al (1993, p. 297) contend that

> The idea of this more elaborate characterisation of the conceptions of learning is to describe the wholes of which we usually see only fragments in the interview transcripts. The students focus on one aspect or component or on another: they

> very seldom give a full conceptualisation of the phenomenon in question. If we have a better grasp of the whole, it is easier to recognise it through its parts.

The idea for Marton and his co-researchers (1993) was to regard the above conceptions of learning as forming a hierarchical model, in which the ‘lowest’ point (comprising conceptions 1,2 and 3) congregates those perceptions accounting for learning as a process of accumulating factual information, without reworking or processing it in an integrated and coherent way. That is to say those learning conceptions were seen as based on 'non-sophisticated' views of learning. At the same time, learning conceptions standing high in the hierarchy (conceptions 4, 5 and 6) were interpreted as reflecting ‘sophisticated’ views of learning. These conceptions of learning were interpreted as expressing the realisation that learning consists of several processes aimed at integrating new information into a coherent whole, and implying changes in the learner's perspectives of the related subject or phenomenon.

Conceptions of learning in Africa seem to feature slightly different elements. It must be pointed out that, in general, studies on conceptions of learning undertaken in non-European contexts have, to some extent, replicated the general typology of learning conceptions put forth by Marton et al (1993). However, some studies undertaken elsewhere have brought to light some conceptions of learning that, as said earlier, appear less common in the so-called Western contexts. In their study in Japan and Australia, Purdie et al (1996, p. 94) discovered three such additional (new) patterns of conceptions of learning:

1. Learning as a duty; *learning is an obligation necessary for a student* (Purdie et al 1996, p.94)

2. Learning as a process not bound by time or context (learning is not something just related to school)
3. Learning as developing social competence (*"I learn so that I can become a good member of society and get on with other people easily"*).

In Africa, Meyer's study (1997, in Cliff, 1998) on conceptions of learning amongst Black South African university students revealed that a significant number of students perceived learning as a means to attain some kind of empowerment. Of particular relevance to the subject of the current research is Cliff's (1998) self-report based studies which he conducted with the aim of depicting the conceptions of learning held by education postgraduate black students in the country (i.e. South Africa). His informants completed self reports on their philosophies of learning and in interpreting that, Cliff came across two particular aspects: (a) that most students at that level were (still) reporting conceptions of learning that would be typified as 'non-sophisticated' under the conventional categorisation (see Marton et al., 1993); and (b) the researcher was reportedly struck by the evidence of a conception of learning that, in his view, could not be classified as 'fitting' within the conventional taxonomies of learning conceptions— the conception of learning as "a moral obligation or service to the community" (Cliff, 1998, p. 213).

A conclusion can be drawn from these two studies undertaken in South Africa that the emergence of 'strange' conceptions of learning is to be understood taking into account the specific social, cultural and political context of the target group. It has been discussed that studies undertaken in Asia and Australia (Purdie et al.,1996) indicate that learning was, in some cases conceived as a means to an unspecified end, but in South Africa, according

to Meyer (as cited in Cliff, 1997), that end (of learning) was explicitly stated by the students as *empowerment.* Sitoe (2006) interprets this as students' own vivid perspectives towards an improved class status or/and personal material, and/or intellectual fulfilment. Hence, the presumption to be laid with respect to learning as empowerment may be that this conception of learning reflects a strong eagerness of Black South Africans in overcoming the remnant aspects and the enduring effects of social and economic exclusion, to which they were devoted during the recently abolished political system of apartheid. This being the case, it can be assumed that a longstanding strong desire for emancipation may pervasively act as one of the featuring forces of the overall current culture amongst Black South Africans. That culture has the potential to influence people's perceptions (and expectations) about education and, in turn, bring about such a specific conception of learning ('learning as empowerment').

With regard to the conception of learning as 'a moral obligation or service to the community' (Cliff, 1998), it is not far fetched to posit that its emergence could be rooted on the presumption of some of the relics of traditional African culture, namely that of 'humanness', currently echoed quite strongly in Southern Africa (particularly in South Africa) through the *Ubuntu ideology,* and through the African renaissance discourse. *Ubuntu* is a Nguni term that means African humanism, or 'humanness'. Equality, dignity, brotherhood and sacredness of human life are the main values it embraces. This ideology focuses on people's allegiance and relations with each other and fundamentally challenges the underlying individualism of many Western theories of learning. The influential undertone of this term is found in the African Adage: '*Umuntu Ngumuntu*

Ngabantu' translated as *'A person is a person through other people'* (Venter, 2004, p. 24).

Outcomes of the baseline and main study data in chapters 5 and 6 of this thesis have been interpreted as suggesting that the classical conceptions of learning identified by Säljö (1979) and by Marton et al (1993), as well as those 'uncommon' found by Purdie et al (1996), Meyer (as in Cliff, 1997), and Cliff (1998) in non-Western contexts, can also be found amongst both untrained and the so-called 'qualified' teachers in Malawian primary schools.

Based on the above reported conceptions of learning, identified in contexts other than Europe and North America, Säljö (1979, 1978) has acknowledged that (a) the assumption is that learning means different things to different people; and (b) the assumption is that learning does not occur in a vacuum, and that it is not a general phenomenon. Instead, "to learn is to act within man-made institutions and to adapt to the particular definitions of learning that are valid in the educational environment in which one finds oneself" (Säljö, 1987, p.106).These assumptions hold particular relevance for this current study. They have enlightened and guided our quest for conceptualising the construct of perceptions of education from individuals' (i.e. teachers') conceptions of learning in the Malawian context.

3.3.3 Conceptions of learning vs perceptions of education

In discussing this topic, the question to bear in mind is: 'What perceptions of education do Malawian primary teacher educators/developers (and therefore the teachers they tutor) hold? Foley (2000) illustrates the current constructivist learning theories which regard

knowledge as an active construction of meaning through multiple interpretations of phenomena. Thus good learning is thought to be (i) constructive, (ii) cumulative, (iii) self-regulated, (iv) goal oriented, (v) contextual, (vi) collaborative, and (vii) individually different (De Corte, cited in Struyven, Dochy, and Janssens, 2002). Goal-orientation in learning subsumed in both De Corte's framework and in the learning conceptions theories concern student/learner's awareness and orientation towards cognitive goals, that is, what is to be learnt, notably in a formal knowledge-acquisition setting. These goals are generally determined by the curriculum and by the teaching materials, and reinforced by the teacher's guidance. It is within that cognitive level that a teacher is expected to fix, plan and regulate his teaching goals. Hence, from the foregoing review of some studies on learning conceptions, it can be drawn that the conventional conceptions of learning (Säljö, 1979; Marton et al., 1993) are, in the one hand, conceptually congruent with and fit into the *'knowing'* dimension of epistemology, as reviewed in the section on *knowledge/skills* hereunder. At the same time, the conventional conceptions of learning appear to be in conformity with De Corte's framework about learning. It shows, therefore, that the apparently less typical conceptions of learning, such as those identified in Asia and in Africa (as discussed in the previous section), fall outside the conceptual frameworks of both conventional epistemology and theories of learning.

However, the learning conceptions of Asia and Africa ought to be regarded as expressing legitimate experiences, perceptions and understandings about what learning means to different people and that culture has the potential to influence people’s perceptions about education and, in return, bring about certain specific conceptions of learning. It can be drawn therefore that individuals' conceptions of learning might be an outcome of a wider

range of interacting factors in the judgment of formal knowledge, spanning from the actual knowledge acquisition in the academic sense, to knowledge use and usefulness, in a broader signification (Sitoe, 2006). As stressed earlier, this has influenced our thinking about the use of IRI for CPD of teachers in the Malawian context (see chapter 7).

Using the 'atypical' conceptions of learning as reviewed above (i.e. Purdie et al., 1996; Meyer, as cited in Cliff, 1997; Cliff, 1998; Sitoe, 2000) has assisted in our efforts to assess the Malawian primary teachers' perceptions of education to shed more light on teacher development challenges in Malawi. For the purposes of the current study, we propose the conceptions of *learning* and *teaching* to cater for the second-level perspective of the conceptions of learning that embodies the 'atypical' learning conceptions. Understanding that the resulting two concepts (learning and teaching) are not mutually exclusive but rather complementary, we propose the notion of perceptions of education to accommodate both. By proposing the umbrella construct of perceptions of education, we suggest that the way in which individuals/teachers report their perceptions of learning, apart from expressing their experiences and understandings on the learning process, may, implicit or explicitly, include their ultimate perceptions of how knowledge ought to be imparted in the classroom situation. In view of that, we deem that it is worthwhile to pursue insights into the overall teachers' perceptions of education in order to be able to suggest improvements in their own learning as a key factor for their practices. Establishing these innovative ways for teacher learning becomes central to the whole process. This is the endeavour in the next section, which looks into the potential offered by the *learning to learn* approach.

3.4 Teacher Learning: Learning to Learn as an approach

In agreement with findings from Säljö's studies (1987), Marton et al (1993) and Purdie et al (1996), Leach and Moon (2002) have likened the new understanding of how the mind works to the scientific physiology that has transformed medicine. Leach and Moon attribute the current wealth of knowledge on the process of *'learning'* to recent research into the socially situated and distributed nature of cognition. It is defined as dynamic, sometimes delicate, but always highly creative interaction between mind, body, people and their activities— together with the tools and technologies available to them (see Chaiklin and Lave, 1993; Wertsch ,1998; Bransford et al., 1999). This shows that there is an attempt to appreciate the social context of learning and that has significant implications for professional communities such as teachers.

The important point for the present study is that such understanding about learning also applies to processes in the education of teachers whether at pre-service or in-service (Taylor and Vinjevold, 1999; Stoll and Fink, 1996)**.** As there is a greater understanding of that age-old interrelationship between learning and teaching (Leach and Moon, 2002), teacher educators/developers can now exploit the potential offered by this contemporary understanding of the learning process in educating and training teachers. Both old and the new forms of communication technologies can assist in a process of teacher learning (World Bank, 2005). Leach and Moon (1999, p. 6) assert that "the new interactive forms of communication allow us to build into our models of teacher education the characteristics we know contribute hugely to the establishment of an effective learning and teaching setting - pedagogic setting that build identity, personal dignity and above all self-esteem".

Given our interest in the use of interactive radio for effective continuing professional development (CPD) of teachers (see next subsection), we now use the *learning to learn* (L2L) approach in attempting to shed light on the kind of professional growth desirable in a 21st century classroom practitioner. This could help in illuminating the shape and design of an IRI programme that aims to support the CPD of teachers. As a precursor to the discussion in chapter 8, we argue here that a focus on the role of epistemology in helping to shape teaching approaches is likely to be a key element in developing teachers with a capacity to reflect critically on practice. A range of examples from practitioner research (including Hextal et al in Burgess, 2000; Clark, 2005; Rawson, 2000; Fredrikson and Hoskins, 2007, etc), generated from various projects, is drawn upon to illustrate pedagogy which has, at its heart, the notion of critical thinking practitioners.

With the growth of a culture of 'Lifelong Learning', and Continuing Professional Development (CPD), there is an increasing emphasis on the necessity for a professional body which is able to maintain a full and active participation in the knowledge society (Rush, 2008). If under- and un-qualified teachers (the target group of this study), are to take on a positive teaching identity in the classrooms of the 21st century, ways in which they may be helped to understand the sophisticated concept of learning *how* to learn need to be found.

According to Hextal *et al* (in Burgess, 2000, p. 5) the ability to evaluate, research and experiment "are not value added features of teacher quality; they constitute the very basis of competence in teaching – that is reflectivity". However, we argue that the disjunction between education and training in the Malawian teacher education system curriculum (Chimombo, 2007) has endangered critical interplay between practice and reflection as

central to effective performance, and secondly created a wedge to be driven between academic and professional achievement. In Malawi, teacher training colleges are expected to introduce student teachers to a mandated, and partitioned, curriculum (Chimombo, 2007). According to Clark (2005), this is the same with systems in places like New Zealand and England. Rush contends that if teachers are not encouraged to confront constructs which they are expected to learn unquestioningly, there is a danger that this can lead to an uncritical acceptance of the underlying epistemological model which partitions knowledge into distinct 'pillars of wisdom'.

In the case of in-service teachers, the target group for this study, the above revelations call into question the understanding and attitudes held by teacher educators/developers — in the interest of teacher *education* worthy of the name, they inevitably would be expected to possess deeply held, and clearly articulated, views on the nature of effective pedagogy. The knowledge base of these determines the calibre of teaching force that is produced. Where the knowledge base is low as in the case of our target group (see chapter 5 and 6), a focus on the role of epistemology in helping to shape teaching approaches is likely to be a key element in supporting untrained or poorly trained teachers into alternative perspectives, and as suggested by Rush (2008), it may be that focusing on this within a Learning to Learn (L2L) culture fosters a more collaborative model of reciprocal learning and teaching.

Rush points out that the central concept of L2L is not clear cut. The explanation is based on the DEMOS report by Hargreaves (2005), which argues that the confusion is partly as a result of its relationship with a range of other terms that are commonly used in education, such as *problem solving* or *thinking skills* or *critical thinking*, among others. It

is claimed that *training* in relation to these will enhance both learning and learning to learn. Rush also illustrates how confusion still prevails within the mindsets of experts, who, at the inaugural meeting of the recently established Centre for Research on Lifelong Learning (CRELL, in 2006, p. 6) questioned whether 'learning to learn' is different from 'learning'; how different views on learning may lead to different interpretations of the concept of L2L, how close intelligence and problem solving are to learning to learn as they are not identical.

According to Rawson (2000), Learning how to Learn (L2L) posits the notion that intelligence is not fixed; that we may develop capabilities for better learning; that it is more than a 'skills set'. Rush (2008) adds that it is a capacity based on a wider conception of knowledge than the ability to engage in the updating of vocational skills. An explanation given by Fredriksson and Hoskins (2007) shows how L2L contains both affective and cognitive dimensions with the affective dimension referring to social skills such as 'learning relationships', 'motivation', 'confidence', 'learning strategies', and the 'ability to overcome obstacles'. According to this view, the cognitive dimensions are concerned with the 'capacity to gain', to 'process and assimilate new knowledge' and 'students organising their own learning'. Fredriksson and Hoskins are of the view that these dimensions are distinct, but in reality overlap.

The following two phrases are suggested by Claxton (2003, p. 2) to develop an understanding of the underpinning constructs of L2L (a) 'epistemic mentality'- the sum total of the cognitive habits of mind that go to make up one's capacity to learn, and (b) 'epistemic identity'- the sum total of the emotional and personal attitudes, tolerances and beliefs that expand or contract one's capacity to learn. Claxton (2003, p. 5) provides the

notion of the powerful learner: 'the Explorer', 'the Investigator', 'the Skeptic and 'the Finder-Outer'. He unpacks these characteristics by drawing attention to the learning dispositions or character traits that make possible powerful learning, what Elizabeth Henning (2000) calls *deep learning.* Drawing on Vygotsky, Claxton further emphasises that habits of mind are contagious and that a tolerance for hazy or non-articulate ways of knowing is also essential to learning. He argues that people who are more receptive to their own hunches and inklings are better problem solvers than those who must have everything clear-cut. Thus, if these habits of mind are necessary to develop children who are ready and able to learn to learn, then these habits need to be developed in their teachers.

In the light of the above points, the question to ask is 'what might a positive teaching identity look like in respect of learning to learn?' Most scholars on this topic (see for example, Calderhead and Shorrock, 1997; Hayes, 2000; Hutchinson, 1994; Maynard, 2000; Smith, 2005) agree that trainees' teaching identity is partly constructed through the socio-cultural practices of the school and the development of interpersonal relationships with staff; and partly through the powerful influence of mediating cognitive factors such as beliefs, theories, attitudes, understandings, intuitive theories and views of personal competence (Smith, 2005; Hayes, 2000). This view is congruent to that of Giddens, Reckwitz, Schatzik and to an extent, even Bourdieu as discussed in the preceding sections of this chapter. The pre-existing cognitive and social factors are important in promoting the confidence to widen a teaching repertoire, and to become part of a reciprocal network in which trainees see a positive value in being identified as a learner. This positioning of *self as learner* is linked to the development of reflexivity (Monk,

1997), thus trainees may be asked to consider what they see being taught as part of understanding their own beliefs and values in a wider social, historical and cultural context.

In the case of Malawi, Chimombo (2007) has drawn attention to the shortness of training courses as a factor in leaving primary teachers' pre-existing belief sets intact, although other researchers elsewhere (Coleman, 1998; Hayes, 2000, Maynard, 2000) suggest that the role of the mentor (on-the-job training) is pivotal in determining how far the trainee is able to develop a teaching identity as 'teacher as learner'. Again while applauding The Malawi National Education Strategic Plan (NESP) for mentorship of newly trained primary teachers, Chimombo laments the non- existence of such programmes on the ground. In any case where this is in existence, mentors, according to Brown and McIntyre (1995) and Maynard (2000), rarely examine the trainees' underlying rationale for actions and decisions; in this way, the root belief is never questioned. Brown et al say that there seems to be a general assumption that *knowledge of practice* is preferable to *knowledge of theory*; a view which might have arisen due to the re-conceptualisation of teacher education as 'training' in a move to apprenticeship rather than intellectualisation. With this in mind, it becomes necessary to shed more light on issues surrounding teachers' knowledge/skills and how this links up with their practice.

3.4.1 Knowledge/Skills

Eraut's (1994) ideas provide a good starting point in discussing issues of teachers' knowledge/skills and how this links up with their practice. He examines a wide range of issues relating to professionals, their knowledge bases and their practice. He draws

attention to the importance of knowing - the skilled/competent performance of a professional, as opposed to knowledge - the codified, reified, publicly available representations:

> An important argument developed throughout these chapters is that professional knowledge cannot be characterised in a manner that is independent of how it is learned and how it is used. It is through looking at the contexts of its acquisition and its use that its essential nature is revealed. Although many areas of professional knowledge are dependent on some understanding of relevant public codified knowledge found in books and journals, professional knowledge is constructed through experience and its nature depends on the cumulative acquisition, selection and interpretation of that experience. (Eraut, 1994, p.19)

Eraut's quotation indicates a need for examining 'knowledge' as a situated phenomenon, inextricably bound to how it is used, but then he confuses the issue by a reference to 'its [knowledge's] essential nature…' In contrast Gherardi et al (1998, p. 274) introduce the notion of professional knowledge as an emergent property of a particular context of use:

> Knowledge is not what resides in a person's head or in books or in data banks. To know is to be capable of participating with the requisite competence in the complex web of relationships among people and activities.

Gherardi et al here put emphasis on the way in which *social-agents* draw upon knowledge resources to support their engagement in *social practices*. They further elaborate on the role of *artefacts* as part of a community of practice:

> Knowledge within a community of practice and its characteristic ways of perceiving and manipulating objects are encoded in artifacts [sic] in ways that can be revealing. The technology fulfils a mediating function. (Gherardi et al., 1998, p. 278)

As discussed earlier, the point that artefacts can be useful for revealing aspects of (good) practice is an important one, and is the core of this current study. Review of literature in the preceding sections has revealed that knowledge can be regarded as an emergent property within social practices and in this connection, Gheradi et al (1978, p. 278) draw upon Bourdieu when they claim, "it [knowledge] is best understood as a custom or 'habitus' sustained collectively by the members… The 'habitus' is a product of history that ensures the active presence of past experience by orienting perception, thought and action". Proponents of this perspective claim that knowledge plays an active role and can be 'seen at work' in the way that it shapes the perceptions, thoughts and actions of social agents (primary teachers, in this case). By adopting a focus of analysis that encompasses the social network(s) within which practices are enmeshed, knowledge becomes manifest. Instead of thinking of knowledge as some easily identifiable, reified entity that can be analytically isolated, consideration of knowledge as an emergent property (facet/quality/characteristic) that is revealed only when we consider the dynamics of the social network as a whole is recommended. This represents a complete shift from the more prevalent approach that focuses on individual elements within the social network in isolation. This point has been highlighted in chapter 8 to emphasise the need for drawing up IRI *teacher-in-action* (TIA) professional development programmes as part of the proposed *Radio Education for Interactive Learning in Malawi* (REFILM).

The next section picks up on these issues by examining the notion of representations of practice to briefly highlight the significance that different representations can have for social agents (teachers/educators) and their practices. This issue is seen as significant for the current research study because the representations associated with learning-objects

(and the processes involved in making such representations explicit) may have the potential to facilitate discussion and debate about the potential of radio as learning-object and as resource for teaching practice and pedagogic innovation.

3.5 Representations of practice

In his introduction on the topic of representations, Brown (2001) cites the work of Schmidt—in emphasising the need to pay close attention to how artefacts are used in the organisation of work:

> We are far from a grounded understanding of the role of formal constructs in foundation for the design of CSCW systems that support the regulation of work. To get there, it is essential to investigate how artefacts are used as objectifications of coordinative protocols and how the material format of such artefacts support that role. (Schmidt, 1997 cited in Brown, 2001, p.147)

Explicitly, the question is: how do the formal constructs embodied in common artefacts, such as the IRI programme, come to influence or control work practice? According to Brown, investigating this implies a close concern for the use of common artefacts, and the ways in which they organise work, be it in process diagrams of work, or schedules of work in a school or hospital. This is in line with Fischer's (2001) findings on the role of artefacts, and in particular how external and shareable artefacts can offer communities (of interest) the opportunity for social creativity:

> Fundamental challenges facing CoIs [Communities of Interest] are found in building a shared understanding (Resnick et al., 1991) of the task-at-hand, which often does not exist at the beginning, but is evolved incrementally and collaboratively and emerges in people's minds and in external artefacts. Members of CoIs must learn to communicate with and learn from others (Engeström, 2001) who have different perspectives and perhaps a different vocabulary for describing their ideas, and to establish a common ground. (Fischer, 2001, p. 4)

In addition, the following are mentioned as the particular kinds of support that externalisations provide to those engaged in complex design communities where multiple (and sometimes fundamentally different) perspectives are prevalent:

- In creating an externalisation, individuals are forced to make their ideas clearer and more concrete thus moving away from rather vague mental conceptualisations;
- Externalisations provide a means for others to interact with, react to, negotiate around, and build upon an idea, as such they perform the kind of role envisaged by Star of boundary objects;
- They provide a common language of understanding that can provide a bridge across different domains (see Fischer, 2001)

Each of the points made above has a particular resonance for the Malawi IRI programme in its current form as well as in its more expanded form as envisaged in the suggestions contained in this present study (see chapter 8). These suggestions are forwarded while bearing in mind the importance of ***not*** considering any learning-object repository (recorded/programmed radio instruction, in this case) as a simple warehouse— that is to be visited occasionally for potentially useful learning resources which can then be (unproblematically), 'plugged-in' to a teaching situation, but instead to consider the repository as part of a social environment supporting creative dialogue between teaching professionals. In this way, the learning-object metadata (functioning as an *externalised, shareable artefact*) could act as a kind of seed crystal around which the exchange of pedagogic ideas could form.

The process of facilitating this exchange of pedagogic ideas (within and amongst schools) is what we turn to next in looking at innovative modes of providing CPD of teachers in academically and professionally impoverished situations.

3.6 Continuing professional development (CPD) for good practice and school cultural transformation

According to Fullan (1982), "educational change depends on what teachers do and think…It is as simple and as complex as that" (in Stoll and Fink, 1996, p.117). He argues that what they do and think (*that is, their practice*) is fundamentally influenced by *their assumptions* and *values*, which in turn shape *norms*. To this Stoll and Fink (1996) add that in terms of change, underlying values are much more difficult to reach than behaviour and yet it is vital to understand them and how they *motivate norms* and *actions*. They argue that this is particularly important in the sense that *norms, beliefs* and *values* also influence teachers´ perceptions of what it means to be *effective* and *professional.* Since norms, beliefs, traditions and values are the elements that define the term 'culture', Rossman et al (1998) conclude that 'culture', is what defines 'effectiveness' and vice versa.

Borrowing from Giddens' (1987), Bourdieu's (1977) and Reckwitz's (2002) ideas, practice is but a manifestation of the culture of a particular society at any given time. In this sense, the terms '*social practice'* and '*cultural practice'* are closely interrelated. In other words, the debate about teachers' practices is basically a discussion about their cultural practices.

Fink and Stoll (1996, p.157) hint on the following as important elements of culture: "the values, traditions, ceremonies and myths by a particular group of people". The most important aspects of culture are those whose meaning is shared by members of the social system. In the case of a school culture, *the values expressed in lesson plans* and *classroom teaching, the way the staff hold meetings,* and *the decorations displayed in*

hallways are all integral parts of school culture. Within school culture *the different beliefs which influence practices* of different groupings is what is known as 'subcultures'. In this sense, teachers' practices could be viewed as a subculture of any particular school culture.

Sisken (1994) considers that most models of school culture and related literature assume that the *environment* and *cultural world* of teachers in the workplace is a school-level phenomenon. This view is complemented by McLaughlins (1990) who explains that school culture has been viewed by some as more of an agglomeration of several *subcultures*. Stoll and Fink (1988, p. 87) add that various cultures within one school may differentiate themselves: "those of the teachers, pupils, administrations, non-teaching staff and parents". These authors point out that such subcultures may form around interests pertinent to the particular group and create the potential to pull a school in several directions. Stoll and Fink further point at situations in which there is one dominant culture often embodied in the principal´s actions, and one or more smaller subgroups each with their own, different set of beliefs, attitudes and norms; and another situation, particularly in large schools where smaller, closer 'webs' are formed by subsets of colleagues who have common interests. In the end, this is what determines the degree of 'professionalism' within the school or any other institution.

Professionalism is about the quality of practice and the public status of a job (Sockett 1993). With regard to education, Reigner (1994) opinions it illusion to think of teaching quality in terms of technique, nor is it enough to think that subject knowledge alone will yield quality. Teacher professionalism should be seen as a matter of rigorous intellectual and moral quality (Sockett, 1996). The argument is put forward that as long as teachers

are just technicians—teaching this or that mandated curriculum, they can never get really inside this kind of interplay of moral and intellectual life. When professional collegiality is also seen in moral light, life in schools can be transformed (Socket, 1996).

The parallel that is drawn up between 'practice', 'culture' and 'professionalism' and 'effectiveness' in the above argument confirms the observations made in the performance of different types of schools within the context under study (refer to chapters 4, 5 and 6). It is the disadvantaged rural schools with low standards of teacher professionalism that are the under-achieving schools. Sockett (1996) agrees with such a connection in his explanation that an effective culture is a *culture of excellence* and it is a feature of every quality school. Stolp and Smith (1996) also add that an effective culture is one that is a "positive force for excellence in the school……described as an *effective work culture*" (Stolp and Smith, 1996, p.156, own italics).

In practical terms, school culture can be viewed as "the way we do things around here" (Stoll and Fink, 1998, p. 81). Schein (1985) has argued that some aspects of culture, however, are not necessarily apparent even to those who work in the school. Those are the *assumptions* that are taken for granted and eventually drop out of awareness (something that echoes Bourdieu's idea of 'thoughtlessness' of habit as discussed earlier on). However, these hidden assumptions continue to shape how people think about their work, relate to their colleagues, define their mission and derive their sense of identity. An understanding of this is vital for those responsible for staff and school development if they are to make a difference in teachers´ lives as effective practitioners in the classroom.

The process of improving teachers' practices is basically about creating a *culture of learning, teaching and service* (COLTS), which in itself is about improving the overall schools´ cultures thereby making schools effective and vice versa (Shaba, 2003). In what exact way, therefore, is the process of *school effectiveness* (SE) and *school improvement* (SI) dependant on COLTS? Given the educational crisis faced by the Malawian primary and teacher education system, how should IRI be exploited for knowledge development in this area of teacher/school culture transformation? The discussion raised in the following sub-sections is an attempt to answer these questions by looking into the relationship of these key concepts within the school systems change debate.

3.6.1 School effectiveness.

School effectiveness literature attempts to identify those activities and characteristics that, when present in a school, provide the greatest potential to maximize student outcome (Schofield, 1999, p.2). Thus, SE researchers attempt to identify characteristics common to schools which are felt to be 'effective', and then attempt to identify how different characteristics cross-correlate to further increase a schools´ effectiveness potential. Some literature defines school 'effectiveness' in terms of the differences to student outcomes (measured in a variety of ways) that a school makes (through identified school organizational factors) taking cognizance of pupils´ prior learning history and background.

In gathering data and correlation studies, SE research has mostly followed quantitative approaches utilizing surveys and questionnaires. Schofield observes that these studies

have generally been national or regional in focus and have resulted in the generation of several 'lists' of school effectiveness (*see table 1 below*):

FACTORS	**CHARACTERISTIC**
Professional leadership	Firm and purposeful
	A participative approach
	The leading professional
Shared vision and goals	Unity of purpose
	Consistency of practice
	Collegiality and collaboration
A learning environment	An orderly atmosphere
	An attractive working environment
Concentrating on teaching and learning	Maximisation of learning time
	Academic emphasis
	Focus on achievement
Purposeful teaching	Efficient organization
	Clarity of purpose
	Structured lessons
	Adaptive practice
High expectations	High expectations
	Communicating expectations
	Providing intellectual challenge
Positive reinforcement	Clear and fair discipline
	Feedback
Monitoring progress	Monitoring pupil performance
	Evaluating school performance
Pupil rights and responsibilities	Raising pupil self-esteem
	Positions of responsibility
	Control of work
Home-School partnership	Parental involvement
A learning organisation	School-based staff development

Table1: School effectiveness indicators (Adapted from; Gray, Jesson and Reynolds 1996 in Schofield 1999 pp. 2-3)

In a situation like that of Malawi, the above factors should form a basis for the work of teacher/school developers. There is need for the various stake holders in education to reach consensus on which factors need to be achieved as a matter of urgency and then to work coherently towards achieving such goals. As witnessed from the results of the empirical evidence within this study (see chapter 6), consensus at a regional or district level could be problematic if not well coordinated by the Ministry of Education. With regard to problems on reaching consensus of that nature, Scheerens (2000) explains that it was only in the mid 1990s that researchers in the field of school effectiveness had achieved a high degree of consensus regarding those factors that, when found in a school, serve to constitute the school as an 'effective' one. Greater debate emerges when SE researchers begin to investigate differences among school effects or to introduce a temporal framework into their analysis. Consequently, literature is currently beginning to investigate questions relating to consistency of school performance on different effectiveness correlations over time, and/or across different school phases, and/or in terms of effect on schools of differing socio-economic environments (Sammons, Mortimore and Thomas, 1996, pp. 4-5). Additionally, SE approaches have, of late, focused increasingly on micro-analysis of school cultures to deepen the understanding of how SE indicators correlate in particular school environments (see Brown, Ruddell and Duffield, 1996). Given that the interest of this current study lies within teacher sub-cultures, a micro-analysis of school culture would mean, amongst other things, scrutiny of those issues that have to do with good practice and teaching/teacher effectiveness.

Graham et al (2002) provide seven principles of effective teaching, six of which seem directly relevant to this discussion:

- Good practice encourages cooperation among students
- Good practice encourages active learning
- Good practice gives prompt feedback
- Good practice emphasises time on task
- Good practice respects diverse talent and ways of learning
- Good practice communicates high expectations

During The Third Cambridge Assessment Research Seminar in the UK (31 January 2006), Mary James proposed a set of principles that describe a good teacher, clustered around four themes. These clusters of principles seem to be valuable tools for engaging discussion about effective teaching and learning:

Education values and purposes: This is perhaps the most important cluster, since it underlies understandings of later clusters. This principle suggests that effective teachers have a holistic sense of '*learning'* and *learners,* and that their '*practice'* recognises the importance of good relationships alongside the social and emotional aspects of learning. To this effect, teachers' understanding of 'learning' is the focus of empirical studies in this research (see chapters 5 & 6), based on the theoretical discussion carried out in 3.3 above

Curriculum, pedagogy and assessment: this is in recognition that education deals with forms of knowledge that are culturally valued. There is also an implication that learning

is successful when it is dialogic in nature. This allows for teacher recognition of learner prior knowledge and the scaffolding of learning. It is also imperative that assessment is congruent with a complex and longitudinal view of learning.

Personal and social processes: Learning is a social activity and the power of collaborative and informal working needs to be recognised. Effective teachers promote active learner engagement and consider both personal learning and social, grouped learning outcomes. In recognition of this point, a detailed discussion of IRI as artefact for mediating teachers' classroom practices including learner-centred approaches has been presented in the preceding section. Further discussion on how this would apply in the Malawian context is provided in chapters7 and 8.

Teachers and policies: At the heart of teachers' professionalism is a sense that they should be *reflexive* and that their own learning is developed within their service. There is also a need to have consistent policy frameworks which have teaching and learning as their primary focus (James, 2006).

As a contribution to this discussion on *good practice* and *good teaching* at the same seminar, Debbie Mayhill (2006) argued that '*Good*' is a value statement and is therefore a cultural judgment. Countries with the highest achieving schools tend to consider teaching to be a high status profession, attracting highly qualified graduates. She gives the example of the UK where recent years have seen teachers accorded a growing status. She poses the question whether highly qualified graduates necessarily make the best teachers, and whether the skills already highlighted by other speakers (*as above*) be taught through teacher training?

Mayhill's reasoning is that the 'intellectual calibre' of people joining the profession should not be conceptualised in a narrow sense. It inevitably involves a degree of *subject knowledge* but it should also consider *pedagogic understanding*; how to translate and mediate knowledge to learners. It should also involve *critical* and *reflective knowledge* to enable teaching practice to continue to move forward. She stresses that '*Creative adaptation'* is also a crucial aspect of teaching. The ability to mediate policy through a clear understanding of learning is what often sets good teachers apart from those others who consistently resist or passively adopt new initiatives. This point is critical when considering the rollout of the Malawi IRI programme to, especially, rural remote schools where the majority of teachers are unqualified whether in an academic or professional sense.

According to Mayhill, the *desire to 'make a difference'* should be at the heart of *teachers' value* and *belief* systems. High expectations are often related to high outcomes but this involves *teachers aspiring to change* rather than replicate educational outcome patterns commonly associated with particular learner groups. This requires learners to be considered as individuals and teachers to be *enthusiastic about change* and *development*. Teachers also need to be excellent *communicators*. This involves an ability to interact *with learners* and *fellow teaching colleagues*. Another key disposition that Mayhill emphasises is *emotional resilience*. Teachers need to be able to cope with failure and be able to balance this against a drive towards perfection. If this balance isn't successfully struck, it can potentially lead to burn out.

In the end, Mayhill also mentions *context of learning* as an important consideration, and the importance of *ongoing support for teachers' development* whilst teaching as

something that needs to be acknowledged. This point forms a basis of the general discussion (of findings) in chapter 7 and also of the recommendations that follow in chapter 8. Overall, an argument is put forward for an IRI-based CPD that would holistically cater for these pedagogic content knowledge needs and professional dispositions as illustrated in figure 5 (chapter 7).

3.6.2 School improvement

According to Stoll and Fink (1988, p.26), the importance of school effectiveness research is that it provides direction to school improvement (SI) efforts and makes a difference to the lives of pupils in demonstrable ways. This is the link between *effectiveness* literature and *improvement* efforts which, once achieved, will ensure COLTS, and vice versa. It is such achievement that leads to excellence as depicted in figure 5 of chapter 7.

Schofield (1999) makes the point that school improvement literature emerged in part as a reaction against the behaviourists and macro-level focus of the school effectiveness approach, and also in response to changes introduced into the educational systems in Europe, North America and Australasia. The literature attempts to provide school-generated knowledge that allows teachers, principals and local education authorities' greater control over the management of nationally imposed changes to educational cultures (Hopkins, Ainscow and West, 1994, p. 4). *Table 2* below is a summary of the key differences between the school effectiveness and school improvement literatures:

SCHOOL EFFECTIVENESS	SCHOOL IMPROVEMENT
Focus on outcomes	Focus on process
Use of empirical data for decision making at district level	Emphasis on the school as the focus of change and the importance of school culture in influencing policy outcomes
SE programs emphasize equity between/among schools	SI programs focus on teaching and learning
Quantitative research methods	Qualitative research methods

Table 2: School effectiveness and school improvement— key differences in approach (Adapted from Stoll and Fink, 1996, pp. 54-58)

The International School Improvement Project (ISIP) defines school improvement as follows:

> *"A systemic, sustained effort aimed at change in learning conditions and other related internal conditions in one or more schools, with the ultimate aim of accomplishing educational goals more effectively" (*cited in Hopkins et al., 1994, p.68*).*

Implicit in this definition are the following assumptions and programme objectives:

- The school is the centre of change
- School change requires a systematic approach
- The understanding that school change takes time
- A focus on 'the internal conditions' of school
- A (long term) aim being to "accomplish educational goals more effectively" (Hopkins et al., 1994, p.69)

Notwithstanding the above illustration, questions could still be asked, for instance, whether an effective school implies an improving school; whether an improving school is an effective school, and so on**.** In that sense, the review of these key concepts as done above may raise more questions than it has answered. However, the sketched

understanding of the relationship between school effectiveness and school improvement as concepts and processes has helped our endeavours in this study to come up with alternatives in utilising IRI for the high quality services in the professional development of Malawian primary teachers who are the main custodians of the school change process currently taking place in the country. Teacher educators, and therefore those they train should have ample understanding of what these concepts imply in the context of *educationally disadvantaged schools*. Findings from the empirical studies in chapter 5 and 6 seem to suggest that in the endeavours to transform the under-achieving, ineffective schools into effective, improved and highly performing schools, teachers´ knowledge of these key concepts could be a prerequisite to the implementation of good practices in developmental processes. Therefore the question to ask here is: what kind of CPD should be provided through IRI to facilitate this school effectiveness and improvement processes?

For the purposes of the current study, CPD is viewed as a dynamic process of learning that leads to new levels of understanding and heightened awareness of the context in which teachers' work— which may compel them to examine often 'blindly' accepted policies and routines. It is a view advocated by many educationists such as Duke (2003, p.38**)** who contends that:

> …we must go beyond advocating to achieving professional development. Attending conferences and in-service is only part of the professional development learning cycle. To complete the cycle, opportunities must be provided to reflect on these learning endeavours and our teaching experiences with the intent of refining and extending our thinking and learning in education.

The above statement seems to echo our argument for a critical and cognitive approach to teacher development for the target group of this study (preferably through the L2L strategies as discussed in section 3.4). This will help teachers in moving with good practice— from being innate knowledge (as proven in the analysis of empirical data of this study, chapter 6) to real action (practice) in the classroom. Brockerville (1998) asserts that beyond talking about professional development, educators must live it. In situations where teacher receive little (if any) pre-service education and training, like in rural Malawi, educators need a model of CPD that brings groups of teachers together regularly to *reflect* on *who they are, what they value, what they teach, how they teach and why they teach the way they do.* Given the dire shortage of direct support to staff by MoEST, the introduction of IRI in Malawi provides an ideal opportunity for facilitating teacher development that could encourage *reflective practice*.

Therefore of major interest here is the development of professional development programme based on IRI to transform teachers' beliefs, attitudes and pedagogical practice. The work of Adey et al (2004), which is concerned with *deep-seated changes in pedagogic prac*tices seem like a good starting point. The authors describe a researched strand of current practice in relation to thinking skills and the principles that have emerged from it. They present a variety of evidence showing the importance of coaching within a multi-faceted approach to CPD. The authors explore professional development that aims to change teachers' *beliefs* and *attitudes* as well as their *teaching practice*. In suggesting that this cannot come about without addressing both individuals' attitudes to teaching and a whole school's commitment to change, these authors confirm findings in Fink and Stoll's (1996) work as discussed earlier. Adey et al (2004) focus largely on a

series of professional development programmes based on ‘cognitive acceleration’. Because this is an innovation that requires a deep level change in individuals and institutions the authors believe it will offer wider lessons for professional development programmes as a whole. Their findings were that effective professional development depended upon:

- teaching innovations based on theory and evidence, supported with high quality materials;
- sustained professional development programmes using appropriate methods to introduce the innovation
- provision for in-school coaching;
- commitment to the innovation from senior managers in the school who share their vision with department leaders;
- an environment organised to ensure the innovation is maintained;
- teachers working in a group, communicating effectively to share their experiences; and
- support for teachers to question their beliefs, to practice new approaches and reflect on their experiences.

The analysis of data from field studies within this research shows that there is a dearth of continuing professional development of primary teachers in Malawi and that whenever provided, it is not effective (see analysis: baseline and main study, chapters 5 & 6). With regard to the nature of successful in-service programmes, Adey and his colleagues caution that resources alone are unlikely to lead to changes in practice. Teachers need to be supported to implement the curriculum in their own context. In order to successfully change the teaching and learning strategies that are being used within schools, it is important that:

- changes to curriculum are accompanied by professional development which is more than just showing the materials;
- changes aren't forced;
- teachers need to be treated as partners in the process, who are consulted and listened to;
- coaching is available encompassing a wide range of activities including demonstration lessons, observation and feedback, team teaching, peer coaching and video based feedback; and
- there is a recognition that deep change happens over an extended period of time.

Consideration of these points has helped in refining the REFILM project (chapter 8) to its present proposed shape and size in line with the findings of the current study. In REFILM, our concern is on devising programmes that shape teachers' *implicit and explicit knowledge*. It is realised that teachers react to most situations almost instantaneously and professional responses often depend on intuition (see Bourdieu, 1977). As made clear in section 3.3 above, changing the beliefs held by a teacher is linked to the role of teacher's prior understanding of the nature of learning. Teachers have to replace one skill and the knowledge on which it is built, with another. A professional development programme that tries to instigate such changes needs to take into account the individual needs, motivation and expectations of teachers. An innovation of substance needs to be rooted in evidence. In this connection, great emphasis in the empirical studies (chapters 5 & 6) has been placed on participants' understanding of 'learning' and 'teaching' as concepts in order to assess modes of teacher behaviour. Findings from these empirical studies in chapter 6 strongly point to the need for recognition of incentives—the 'what is in it for me?' factor, in development processes (the analysis, reveals that teachers' lack of enthusiasm in staff development activities is

partly due to poor remuneration, lack adequate of stipend and so on). Those involved need to believe that the change being introduced is of value, so there must be evidence that the innovation will have a positive effect on teaching and learning.

In the Adey et al (2004) approach, emphasis is put on the role of coaching. The authors believe that teachers' ideas and beliefs are heavily influenced by mutual sharing and the assistance they encounter within their environment. Coaching allows teachers to share their practice, ideas, fears, difficulties and errors so the process of change becomes less frightening. It needs to take place over an extended period of time and it is not sufficient for a coach to 'drop in' to a school, observe a lesson, make some encouraging comments and move on. A series of coaching sessions which may include the coach modelling, for example, open questioning or wait time, generating activity from all students, promotes a process of conceptual change which re-shapes the teachers' implicit knowledge which, in turn, gradually changes the teachers' behaviour. As the majority of Malawian teachers (especially those under the UTT, T1/T2 band) have low knowledge base, enhancement of teachers' pedagogical content knowledge is the focus within the proposed REFILM IRI project (chapter 8) in order to ensure application of good practice.

The argument in this current study is that IRI's potential in coaching/ mentoring poorly educated/trained teachers into adapting high standards of professionalism makes it (IRI) a paramount strategy for in-service in the Malawian situation. Given that the 'bulk' of teachers in the service are those that 'qualified' through the failed MIITEP, a multifaceted CPD through IRI has been recommended by this study- which encourages school-based staff development processes through peer coaching. This element seems to be completely missing in the current IRI programme in Malawi. Schon (1987) has shown

that reflection is essential to relate new approaches to teachers' own system of beliefs and coaching forms a critical part of this reflective process—assisting teachers to transfer their in-service training to the classroom. IRI as an artefact for this reflective practice in teachers (and its accessibility) makes it an attractive tool for promoting teacher learning (hence good practice) in the Malawian context.

As a way of introducing this debate on IRI as medium for continuing professional development (CPD) of teachers in Malawi, reference is here made to Beeby's (1996, 1980) typology of development and change within the sub-Saharan Africa context. Beeby had produced a typology of stages of development of educational systems, not of teachers. The explanation for focusing on the *system* is that development programmes tend to be systemic. The individual teacher is involved and incorporated through in-service training, but it is the *school system or culture* that is being transformed through such action. Verspoor (Verspoor and Leno, 1996; Verspoor and Wu, 1990 cited in Feiter et al., 1995) has reworked this typology into four stages that mark out when teachers behave:

- in an unskilled fashion;
- in a mechanical fashion;
- in a routine way;
- and as professionals.

With regard to the unskilled stage, teachers' mastery of subject content is weak. They are isolated, poorly motivated, unguided and confusion reigns. The teachers solely depend on recitation, rote learning and memorisation. Quite often there is often only one textbook per class and that is in the hands of the teacher. Naturally, students spend most of their

time listening to the teacher and copying from the board, in typical chalk-and-talk style. Analysis of empirical evidence in this present study suggests that the untrained teachers (UTT) in Malawian primary schools are operating at this stage (see baseline and main study, chapters 5 and 6). According to Beeby/Verspoor, improvement to this stage could be through the introduction of structured teachers' guides, together with training in content and a strengthening of external school supervision and support. In contrast, as discussed fully in chapter 8, the improvements recommended in this present study consider both, pedagogic content knowledge needs of teachers and those relating to contextual (environmental) factors. The suggestion to introduce improvement tools such as the "*How Good Is Our School?*" (HGIOS) and "*How Good Is My Teaching?*" (HGIMT) in the Malawian education system is also presented in chapter 8.

A comprehensive discussion of the other three stages of development is not possible here, but in terms of the evaluation in chapter 6, T1/T2s seem to be at the second stage whereas T3s might be at the third stage of development. It shows that there is need to assist the teachers in the system improve so that they behave as professionals, the fourth stage of development. It also shows that mechanisms for teacher change and development at the professional stage may be completely inappropriate for those at the unskilled or mechanical stage. For example, teachers in developing Third World countries such as Malawi are obviously much more constrained by the poverty of material resources than those teachers in the developed worlds. As Johnson et al (2000) assert, one cannot re-conceptualise, or talk into existence, a chalkboard that does not exist. Within Malawi itself, rural schools are less privileged— therefore according to Beeby's typology, they operate at a less professional level, than urban schools. The point here is that mechanisms

by which teachers in systems at the early stages of development (which is true of the Malawi situation) change their practice cannot be primarily through conversation and re-conceptualisation. Perspectives other than that of the reflective practitioner developed within the context of educational systems in developed countries might be needed for modelling teacher development and change. Whatever the context, serious consideration will need to be given to the complex interplay between a range of factors that influence whether or not CPD has an impact. These factors have been given consideration in our discussion of how IRI can be used to its maximum potential for improved CPD of teachers in Malawi, and they are illustrated in figure 3, below.

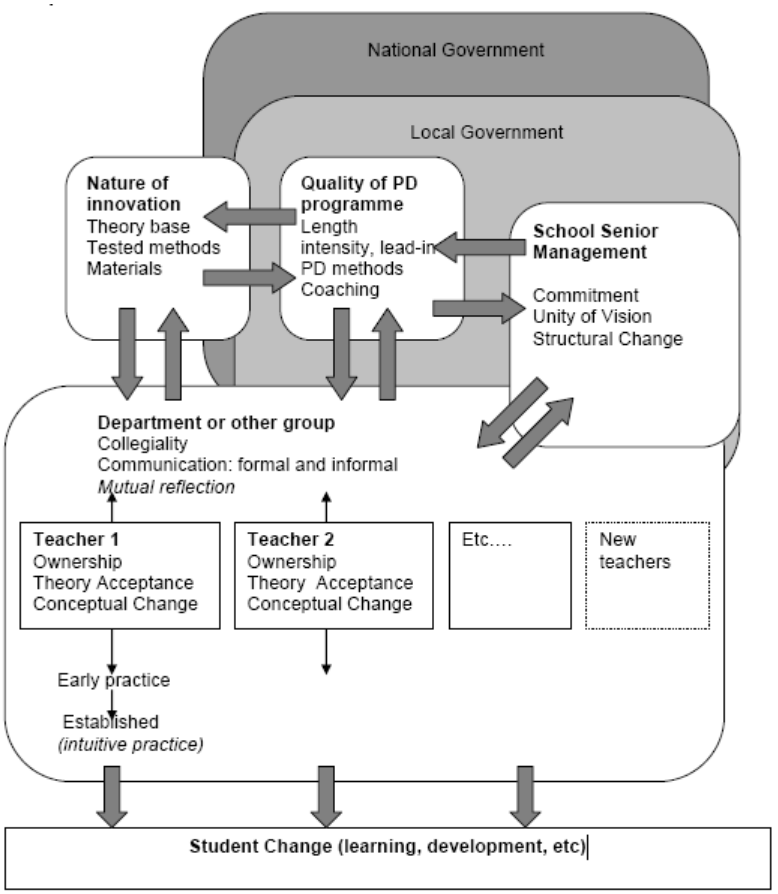


Figure 3: A model of the factors that influence the effectiveness of professional development (Adey et al., 2004)

The model illustrates connections between: a) the nature of the innovation being developed (*e.g. IRI in the case of this study*); b) the CPD processes (e.g. *TIA series on audio-cassettes or through live-broadcast for raising academic, pedagogic and professional knowledge of teachers: school-based staff development)*; c) the school and local education community factors and: d) teacher/student change. The interconnectedness of these is discussed further in chapter 8 when looking at possible modalities for incorporating IRI as an integral element of in-service education in Malawi. Thus, there is need for adopting an appropriate and relevant approach for studying IRI as an artefact in practice. The following section is an attempt to do so before introducing the main discussion on IRI in the next chapter.

3.7 Analytical framework for studying artefacts in practice

In studying the impact of learning-objects that act as artefacts for teachers' practices and how teaching professionals respond to their (learning-objects, such as interactive radio) introduction, it is critical first to establish what the focus (or unit) of analysis should be. A focus on any one of these: *the individual teacher (biographic analysis), the artefact (analysis of interface/internal structure), the social context/situation of use (social interaction analysis)* could yield rich and extensive evidence but would be lacking in providing insight into the practice of the teachers. As a key aim of the current research is to investigate how impacts (if at all) on teachers' practices, and how they (teachers) have responded to its introduction, the analytical framework adopted must provide a means of integrating each of the three elements mentioned above. Such an approach is in line with Engeström's (1993, p. 65) ideas as seen in his discussion of the analytical approach within cultural historical activity theory:

> How can one analyze and interpret data that record and describe human behaviour and discourse? From an activity-theoretical viewpoint, three basic principles should be observed. First, a collective activity system can be taken as the unit of analysis, giving context and meaning to seemingly random individual agents. Second, the activity system and its components can be understood historically. Third, inner contradictions of the activity system can be analyzed as the source of disruption, innovation, change and development of that system, including its individual participants.

Nardi (1996, p. 76) is another writer who has addressed the notion of the 'collective activity system' as the unit of analysis:

> Activity theory, then, proposes a very specific notion of context: the activity itself is the context. What takes place in an activity system composed of object, actions, and operations, is the context. Context is constituted through the enactment of an activity involving people and artifacts.

Nardi seems to be adopting a position similar to that of Giddens' (1993) theory of structuration in elaborating the relationship between the activity of the individual agent and the broader social structures (context) within which they are enmeshed, something that appears to be missing from Engeström.

In terms of innovations in communication technologies, Orlikowski (2000) suggests an analytical focus that foregrounds practice, which she refers to as a 'practice-lens'. Orlikowski (2000, p.405) says that she is:

> …[extending] the structurational perspective on technology by proposing a practice-oriented understanding of the recursive interaction between people, technologies, and social action. I believe such a practice orientation can better explain emergence and change in both technologies and their use. It does so by complementing the notion of embodied structure with that of emergent structure, and the notion of appropriation with that of enactment.

Of particular interest to the current research is the claim made by Orlikowski (2000, p. 408) that:

> …in both research and practice we often conflate two aspects of technology: the technology as artifact; and the use of technology, or what people actually do with the technological artifact in their recurrent, situated practices.

The present research study is an attempt to focus on the latter perspective. Orlikowski has also touched on one of the issues that relate to the ongoing debate in social theory about the relationship between structure and agency — the way in which technological artefacts shape (limit/enable) particular forms of practice. She alludes to this issue when she states:

> These technological properties [those crafted by the designer] may be examined to identify the typical or expected range of activities commonly associated with use of the technology. However, how these properties will actually be used in any instance is not inherent or predetermined; rather it depends on what people actually do with them in particular instances. (Orlikowski, 2000, p. 409)

Orlikowski (Orlikowski, 2000, p. 409) adds that "it is important to keep in mind that the recurrent use of a technology is not infinitely malleable..." In a critique of an article by Rappert (2003), Hutchby (2003) has examined further the degree to which the 'properties' of an artefact are either fixed and causally determinative of social practice or interpretatively flexible and open to various kinds of practice. Hutchby makes the point that the kind of perspective advocated in the work of Grint and Woolgar (1997) (radical social constructionism, technology as text) fails to acknowledge the material aspects of technology and the limits that such materiality places upon social agents. He draws attention to the 'material substratum' of technological artefacts by suggesting an

analytical perspective that draws upon the notion of 'affordances' as developed by Gibson (1986).

Gibson's concept of affordances is used by Hutchby to critique what he refers to as 'extreme anti-essentialism' and instead argues for "recognition of the constraining, as well as enabling, materiality of artefacts" (Hutchby, 2003, p. 442). According to Hutchby, an analytical stance based on affordances means that the potential of the human practices to shape and be shaped by the artefacts used within that practice, is acknowledged. He claims that such approach "opens the way for new analyses of how technological artefacts become important elements in the patterns of ordinary human conduct" (Hutchby, 2003, p. 444). This alternative perspective *is* "grounded in a conception of the constraining, as well as enabling, materiality of the technology as a worldly object (Hutchby, 2003, p. 444). The challenge in adopting affordance as a framework that lies between the extreme positions of artefacts possessing fixed, determinative properties and artefacts as texts open to multiple interpretations, is clarifying whether affordances are facets of the artefact or whether they are only 'observable' when the artefact is in use. It is on this basis that Rappert (2003) takes issue with Hutchby's argument. In defence of his views, Hutchby (2001, p. 9) does appear to offer a clarification of the issue when he says:

> The affordances of an artefact are not things which impose themselves upon humans' actions with, around, or via that artefact. But they do set limits on what it is possible to do with, around, or via the artefact. By the same token, there is not one but a variety of ways of responding to the range of affordances for action and interaction that a technology presents.

In a way, Hutchby is echoing the arguments offered by Reckwitz (as presented earlier) in drawing attention to the way in which affordances 'set limits' on what can possibly be done with an artefact. Gibson (1986) explicitly differentiates his notion of affordances from that of emergent properties but it would appear that there is considerable overlap hence it becomes less helpful to try to differentiate between them. In addition, the notion of emergent structures, as presented by Orlikowski (2000) appears to provide an effective analytical framework for addressing this difficulty.

3.8 Summary

In this chapter, an attempt has been made to develop an analytical framework by reviewing and synthesising a range of literature. In the first part, the review of literature broadly focused on the notion of social practice and in particular how artefacts are used as part of practice, but also how artefacts are important elements in shaping existing and evolving social practices. There is a particular difficulty in developing and using an integrative analytical framework for studying artefacts in use and their influence on practice, which does not emphasise one of the elements (the social agent, the artefact, or the social context of use) above the others. An attempt has been made to establish, briefly, the construct of *perceptions of education* to refer to individuals' beliefs about learning. It has been demonstrated that not all but some conceptions of learning refer exclusively to individuals' conceptions about the nature of learning. Certain 'atypical' conceptions of learning (especially in non-Western contexts) do not dissociate the actual nature of learning from the long term goal of education.

The penultimate sub-section of this chapter has drawn primarily upon the school change literature by various scholars. Of the numerous issues tackled in this chapter, one thing stands out: school change must focus on change in *pedagogic practices* as a way of revolutionising the way schools operate. Examining how this change can best be facilitated is the very reason for the existence of research like the current one. School change literature points to the relative ease of initiating change, yet there is always the increasing difficulty of implementing and sustaining school change. This is where both those who come to assist and those who are there to receive assistance experience a loss of morale. Educators and those assisting them to bring about renewal in the schools need to interpret conceptual framework models like the one referred to above, in the context of their environment, and make it a discussion point to help them consider the different facets or features of their school cultures. It has been suggested that whatever innovation, teachers will perceive it as change, and therefore as a threat (Stoll and Fink, 1996). It is crucial, in any business, that new activities fit with the environment in which the organisation operates and also that the necessary conditions are presented for the required mind shift. A correct 'fit' in the case of the IRI project is expected to lead to the desired change, for example: stimulation of critical thinking amongst teachers, pro-active behaviour of teachers and many other positives that could enhance the organisational culture of the schools. However, lack of 'fit' creates inconsistencies that reduce performance. In order to understand how IRI is in fitting as a tool/resource/artefact for teacher practice change within the Malawian context, intensive empirical studies at two levels had to be carried out in Malawi, as discussed in chapters 5 and 6. Before looking at that analysis, the next chapter attempts to introduce an understanding of interactive

radio (specifically IRI) and its significance as an element of teacher (and generally, social) practice.

Chapter 4 Interactive Radio and its Significance in Educational Development and Teacher Practice

This chapter focuses on the third main pillar of intellectual thought which underpins the current study, namely *the significance of interactive radio in educational development*. There is a vast literature around radio as educational technology, but in a study of this scale limits have to be drawn. Although advantages of radio over other forms of information and communication technologies (ICTS) are inferred, the review literature that looks at the educational role of the different types of technologies from print to computers has been excluded in order to focus the discussion. The purpose here is to highlight interactive radio's significance for teacher learning and development. Overall, literature is succinctly reviewed under a small number of subheadings. The first part introduces radio as both communication and educational technology; the middle part explains the IRI concept and the role of IRI within (professional) teaching practice. The introduction of innovative technologies and pedagogies must always be based on a critical assessment of experiences and options, thus the last part of the chapter is a compilation and analysis of recent experiences of IRI in Africa. The summary section draws a conclusion of discussions within the chapter.

4.1 Radio as communication technology

According to McAnany (1973) radio is the most universal mass communication medium capable of supporting effective local development programmes at a minimal cost. Her account starts with a reflection on the celebrations of the first century of the telephone at the end of the seventies. Together with Jamison, McAnany reckoned that telecommunication would act as a catalyst for a surge in economic and social

development during a period in which television also pervaded the houses of citizens in high income countries. However, they noted that in spite of all that, on a worldwide scale it is the medium of radio that has remained the most potent communication innovation since the development of writing:

> The large- scale manufacture of cheap, battery operated transistor radios has been the breakthrough responsible for pulling most of the world's people into an international communication network. (Jamison and McAnany, 1978, p. 9)

From Mayo's (1995) point of view, across the globe, no other mass medium has attained comparable levels of audience saturation and acceptance (cited in Dock and Helwig, 1999, p.1). It would appear that, today, when continued technological innovation will make computers and other modern ICTS increasingly available to audiences in low income countries like Malawi, the constraints of technological training and electricity supply as well as support infrastructure for highly sophisticated mediums still leaves radio dominant in those countries.

Malawi is a good example: television in Malawi came into existence only in the late nineties and is still considered a luxury of the elite in urban centres. The same is the case with computers which are becoming widely available in towns and cities. However, a growing number of people in almost every village, no matter how small or how isolated do listen regularly to radio (see Anzalon, 1995). As illustrated in chapter 1, the majority of the people in Malawi are in rural areas. Most of these people are physically isolated, illiterate and poor. They read no newspapers and have no access/chance to watch films in the course of the year. As education and communication become increasingly important in the development plans of the country, especially the rural areas (Perraton, 2000), the

government has become increasingly concerned to communicate with more of the population than just in towns and cities. It is for this reason that there is more of a focus by the Malawian government, like other African governments, in the effective use of radio. This can be witnessed in the series of events that took place in 1999 after multi-party government took power in Malawi. New laws relating to media and press were passed and these led to the establishment of community broadcasters who are able to provide information and entertainment programmes in listeners' mother tongues (MoEST, 2007). This meant an expansion in the utilisation of radio as a tool for information and communication compared to the period prior to 1994 where only one national broadcaster (The Malawi Broadcasting Corporation, MBC) was in existence using only two languages (i.e. English and Chichewa). The changes in 1994 meant that the needs of illiterate individuals as well as those with little or no formal education are met. The current press releases indicate that the Malawi government continues to rely heavily on radio to disseminate news about, for example, agriculture, nutritional health and family planning innovation (Malawi College of Distance Education (MCDE), 2008). Mayo (1999) has commented that such methods compare favourably with other methods traditionally used to increase public awareness.

In this sense radio in Malawi has been, and is regarded as, an essential tool for communication and public awareness in ways that other forms of modern information communication technologies (MICTS) can not match. Radio is relatively cheap technology with a very extensive reach (Moulton 1994; Olsson, 1994). Although for many, radio's main potential is regarded as providing a powerful medium for promoting human rights, democracy and active citizenship (Olsson, 1994), in Malawi and elsewhere

in the world, radio has not only been used for information and entertainment in societies. It has also crucially been used for literacy and basic education at the grass-roots level (Potashnik and Anzalone, 1999; Perraton, 2001; USAID, 2007). There is vast literature on the use of radio for both formal and non-formal education, in and out of school settings. Although radio's value for communication may well exceed its value for education, discussion of radio's role in communication development falls outside this thesis. The purpose in the next sections is to review literature relating to the central theme of this thesis—that is, radio's educational role.

4.2 Radio as a tool for (formal) education: An overview

Jamison and McAnany's (1978) observation that education and communication play a critical role in fulfilling development plans in both developed and developing countries is echoed by many other scholars (see, for example, Olsson, 1994; Dock and Helwig, 1999; World Bank, 2005). Information and communication technologies are being employed to ensure the improvement and effectiveness of education as tool for socio-economic and political development. In this connection, Jamison and McAnany (1978, pp- 34-35) critically look at the widely held view that the choice of a medium of instruction will in most cases be a complicated one as it will involve analysis of (a) the learner's needs, (b) of the instructional task and (c) of the locally available media and their costs. The authors challenge this view by raising two lines of evidence: (1) literature that suggests that with a few exceptions, students learn effectively from any medium, if it is used properly – variations in learning outcomes depend much more on how the material is structured and presented than on which medium carries the information; (2) in contrast to the findings of no significant differences across media in terms of learning effectiveness, there are,

striking differences in the cost among media: computer assisted instruction costs 10 to 50 times as much as instructional television, which costs 3 to 10 times as much as instructional radio. Based on these lines of argument, these authors conclude that "…radio should generally be the medium of choice in low-income countries if an electronic medium is to be used at all" (Jamison and McAnany, 1978, p. 35).

With regard to the socio-economically underprivileged contexts, Jamison and McAnany stress that the difficult choice will usually (but not always) be between radio and conventional instruction and not between radio and some other medium. In the same vein, they see the choice of whether to use open broadcast radio or recordings solely depending on local conditions, including the size and geographical distribution of the population.

In contrast, Leach and Moon (1999, p.3) strongly favour the need for use of technologies in a bid to improve effectiveness of educational systems in low income countries, but argue for the universal application of *modern* information and communication technologies (MICTS). They discount the notion of '*digital divide*' as it sanctions as much as describes the inequality, and they claim that, "the common sense notion of the digital divide conceptualises, rationalises, and then determines division rather than illuminating ways in which such divisions can be breached". Thus with regard to technological challenges in Africa, Leach and Moon seem to put blame on misconceptions which legitimise a variety of western assumptions and long held prejudices about the developing world that predate ICT. In their conclusion, they call for a perspective that takes account of global equity, and also provides an effective and

practical response to the challenge of educating the world's teachers rather than one that focuses on equipment and connectivity (Leach and Moon, 2002)

In the context of this study Moon and Leach's argument might sound naïve. Their view on universality in the application/utilisation of MICTS could be viewed as mere idealism in the face of harsh realities regarding socio-economic imbalances in the world — between 'haves and have-nots'. Moon and Leach seem to disregard the absence of altruistic and permanent aid to poor societies or low income countries (see Brock-Utne, 1994), which creates various barriers to ICT use in African schools, viz: poor infrastructure; 'epileptic' power supply; lack of electricity; lack of trained personnel; poverty; inadequate funding and limited or no internet access (Aladejana, 2007). This socio-economic disadvantage makes it impossible to make use of digital connectivity as in developed countries. In addition, inequality in the distribution of resources within each country does not make matters easy. It is for this reason that these education systems have generated searches for ways in which they can address the difficulties they are faced with, which include**:**

> rising unit costs; provision of relatively poor access for rural children; provision of low quality of instruction with the frequent result that learners from these countries acquire less cognitive knowledge than do children of the same age in high-income countries; …slow response in providing education relevant to development goals…(Jamison and McAnany,1978, p. 40)

In this sense, the decision by the Malawian government to revive use of radio as a tool for improving the standards of teaching and learning in primary schools makes common sense. This decision should be seen as a genuine attempt to deal with the educational crisis in the absence of access to modern, highly advanced educational technology.

Most educationists advocate a shift to the technology-assisted classroom as a way out of the educational quagmire (see Potashnik and Anzalone, 1995) but for the reasons already cited, Aladejana (2007) warns that in circumstances as outlined above, an attempt to a *total* shift to technology might be unrealistic. While the possibility exists for utilising ICTS to resolve some of the educational challenges that low-income countries are faced with, as suggested by Moon and Leach, many barriers stand in the way.

Perraton and Creed (2000) point out that both radio and television have long been used for the purposes of raising the quality of education within school as well as to extend teaching to audiences outside the school. Three broad categories are identified for uses of radio in education:

(a) improving education and relevance
(b) lowering educational costs (or the rate of increase of costs)
(c) improving access to education especially in the rural areas.

Extensive surveys on the effectiveness of instructional radio have been conducted. For example, Chu and Schramm (1967) concluded that radio particularly when supplemented by visual material, can teach effectively and, for many purposes, as well as any other media. Bosch (1997) commented that pupils are stimulated to attentive listening, the pedagogic value of which is undeniable. Forsythe (1970, cited in Jamison and McAnany, 1978, p. 31) stressed that:

> Research clearly indicates that radio is effective in instruction. Experimental studies comparing radio teaching with other means or media have found radio as effective as so-called "conventional methods". Even though radio has been criticised for being only an audio medium, studies

> have shown that virtual elements in learning are not uniformly important. In many educational situations, visuals may be more harmful than helpful. Also, the efficiency of combined audio and visual media has been challenged by studies which show that multi-channel communications may not be inherently more effective than single-channel presentations.

Jamison, Suppes and Wells (1974, pp. 33-34) came up with the same conclusion:

> Radio has been used extensively for formal classroom instruction in the United States (more in the past than at present) and elsewhere. There exists, however, only a limited number of good evaluations of the effectiveness of instructional radio. These evaluations indicate that instructional radio (supplemented with appropriate printed material) can be used to teach most subjects as effectively as a live classroom instructor or ITV. Due to the limited number and scope of good evaluations now available, and to the potential economic significance of instructional radio for developing countries, much more research - both survey and experimental-is highly desirable.

Whittemore (1999) agrees that radio is one of the earliest ICTs and that its potential for education has long been acknowledged. Although research on the effectiveness of radio for distance education is limited, it has been shown to be generally as effective as classroom instruction, and in certain subject areas, such as music, it may even be more effective (Tripp and Roby, 1996). Tripp and Roby have given the example of studies by the British Open University which have demonstrated that, amongst other advantages, radio has a greater value for weak students who benefit from radio as a supplementary learning tool. These authors also quote findings of the Agency for International Development study (Trip and Roby, 1996, p. 54) which has shown that radio is more cost-effective and results in a greater learning effect size than textbooks or teacher education. In addition, radio has a huge advantage over TV as a learning tool. It allows the listener to create his own images, based on his own cultural context and perceptions,

to help him make sense of the information, instead of the TV where material comes as part of the package where the cultural environment is an inevitable part of the programme.

In the *traditional approach* to its use, instructional radio has the advantage of teaching subjects in which classroom teachers are deficient or untrained. An added benefit for multi-grade classrooms is that it provides instruction for one group of students while the teacher works with another group. Radio can also bring new or unavailable resources into the classroom (Muller, 1985): dramatic readings, professional quality music, up-to-date news, and cultural lessons from distant regions.

Some of the disadvantages of radio for distance education are that interaction is limited; instructor feedback and clarification is generally unavailable; the instruction is uninterruptible and not review-able; the pace of the lesson is fixed for all students; note-taking is difficult and time for reflection on the content is minimal. To overcome these drawbacks, preparation, supporting materials, and follow-up exercises are recommended when possible (Mclsaac and Gunawardena**,** 1996). In any case, these limitations have been heavily minimised in the new approach, that is, interactive radio instruction (IRI) as discussed in the next subsection.

In the light of the above points, radio technology is an important aspect of educational technology in so far as it makes a controlled contribution to improving the effectiveness and efficiency of teaching and training. Like all other technical devices, the use of radio for formal education brings problems of economics, standardization and integration into the teaching system, the training of teachers, the role of ancillary staff. This point is

further discussed in chapter 8 of this thesis where it is also noted that educational technologies should be considered as a means to the attainment of educational objectives rather than as things in themselves. It is by knowing how to use hardware appropriately that we can change the efficiency and quality of learning to a significant degree (Daniel, 1999). As Paquet and Rosa (2002) have stated, the learning object is a raw material that can be used in different ways. It is the activities that are performed with it and their integration in meaningful scenarios or functions that are important.

With regard to the utilisation of radio in primary or basic education, Perraton and Creed (2000) have identified three approaches:

(a) Direct teaching which substitutes for teachers on a temporary basis.

(b) School broadcasting (providing teachers and learners with complementary resources and learning experience not locally available)

(c) General children's programming (radio programmes on community, national and international stations aimed at children in or out of school)

IRI, the focus of this study, is a variant of the first approach (i.e. direct teaching). Although the direct class teaching approach is somehow similar to school broadcasting in the sense that both are used directly within schools (unlike the non-formal approach which is the more general public domain), the direct teaching approach is different in that it substitutes for teachers on a temporal basis (Perraton and Creed, 2000).

Although the overarching idea for this thesis is radio's role in education, emphasis is on understanding IRI's potential for improving the practice of primary teachers as a way of raising the standard of teaching and learning in schools, hence improved achievement by

learners. Therefore the discussion in the next section concentrates on IRI and not on case studies of radio for school programming or general children's programming. First, its definition is given, followed by brief account of its role as an artefact for good practice, and then finally a review of case studies chosen from effectiveness studies carried out internationally.

4.3 Understanding the IRI Concept

According to recent studies by the World Bank (2005), IRI has emerged as an important option for improving educational quality in primary school classrooms in developing countries around the world. IRI is described as a form of traditional technology that continues to evolve and offer new ways to support educational improvement - it extends the use of broadcast radio from primarily being a tool to increase 'access' to becoming a means of promoting educational 'quality'. In these studies, IRI is defined as "…a distance education system that combines radio broadcasts with active learning to improve educational quality and teaching practices" (World Bank, 2005, p.1)

Dock and Helwig (1999, p. 7) define IRI simply as:

> ...interactive lessons in which an external teaching element, delivered by a distant teacher through the medium of radio or audiocassette, is carefully integrated with classroom activities carried out by the classroom teacher and learners.

The above definitions can be further understood using Cobbe's (1995, p. 3) view when he explains that the basic idea of *interactive radio* is that "both teacher and pupil interact with the audio, rather than listening passively". He views classroom interactivity as a process in which the audio lesson asks the teacher and the pupil to do things or respond

frequently throughout each audio lesson. Cobbe also advises that for this to work, teachers need some initial training in how to use the audio lessons, and both teachers and pupils need to have some supplementary materials. In addition, teachers must have manuals that lay out in detail each audio lesson, and include suggestions as to what they should do, and explanations of what the lesson is attempting to achieve. This is accompanied by some class materials, such as posters, to which the audio lesson can refer, and pupils have printed materials to which the audio also refers and instructs the pupils to use. Initially, this could require a very high level of 'technological' support which would need a large infrastructure. That is why the first stages of most IRI projects become quite a daunting task for low-income countries like Malawi unless externally assisted as it is in the current situation.

Perraton and Creed (2000) identify three main features of IRI as a radio learning methodology:

1. it is designed for direct teaching rather than enrichment
2. broadcasts demand frequent responses by children as they listen
3. projects have generally devoted significant energies and investment in curriculum development so that their development costs have been higher than those of conventional radio

Just as there are many purposes for which IRI is used, there are different types of IRI programmes. However, they all have common elements notably: *systemic instructional design, rigorous formative evaluation,* and *a learner-centred orientation that aims to build delight in learning* (Bosch et al., 1994). Olsson (1994) has commented that IRI has proved to be effective in poorly equipped schools with under-trained and over-worked teachers. Moulton (1994) has observed that by 1990s, IRI had gained worldwide attention

as a low-cost means of aiding effective education in schools with few resources and poorly trained teachers. From a superficial glance IRI can be regarded as a type of distance learning but there are substantial differences between IRI and other forms of distance learning programmes, and the next section attempts to provide a detailed description of these differences.

4.4 IRI as a form of open and distance learning

Distance education, by its very definition, implies that education cannot always be delivered proximal to population groups, or to audiences located in accessible locations (Aledejana, 2007). This is especially true in Africa where 53 countries span the continent; where the ethnic populations are still spread widely in rural areas; where indigenous languages are many (more than 200 distinct languages) and, where transportation of information (either direct or by electronic means) is either absent or complex . For education to be universal and inclusive, it becomes a challenge to either congregate learners (teachers in this case) in centres (colleges) where education can be provided (traditional approach), or to find novel ways to take education to the learners (today's challenge). This aspect of educational technology is the focus of the current study where IRI is presented as a catalyst for teacher learning, hence an innovation for providing teacher support and development more effectively. As an innovation within the open and distance learning (ODL) programmes, IRI has distinct features, which are: *emphasis on quality* of *education*; *outcome-based; active, experiential learning; interactivity within/outside the classroom; audience research, participation and formative evaluation.* These main distinguishing features are further explained below.

4.4.1 Improvement of educational quality

According to Dock and Helwig (1999) the first major difference between IRI and other distance learning programmes is seen in its emphasis on *improvement of educational quality* as its primary goal. They contend that while most distance learning programmes are designed to address issues of access, IRI was first used as a classroom tool to counteract low levels of teacher training, poor achievement among learners, and limited resources. Their analysis shows that while IRI has demonstrated that it can be used to expand access and increase equity in both formal and non-formal educational settings, it retains an emphasis on quality improvement through a development strategy and methodology that requires active learning, attention to pedagogy and formative evaluation as an integral part of its design. For purposes of this study, quality issues have been emphasised over and above mere access to basic education and the section on *context of this study* (ref. chapter 1) has highlighted that *poor teacher training*, apart from shortage of resources, is the root cause of poor achievement in Malawian primary schools.

4.4.2 Interactivity

Perhaps a good starting point for this subsection is by answering the question: In what way is radio *interactive*? Tucker (1988) has described 'interactive media' as systems in which the output from information carriers could be modified by the actions of the user - in other words, learning systems in which the learner is to a greater or lesser degree the author of the sequence of information. By extension, this idea of interactivity covers teaching-learning situations in which the actions of the learner not only evoke a response

from the teacher (human or electronic), but also genuinely influence the course of the lesson. Tucker (1988, p. 3) comment that:

> we are reaching a situation in which interactive media can provide invaluable help in teaching skills, providing information quickly, and improving our grasp of concepts…..for simulations which teach skills or bring about desired behavioural changes, the cost of the original investment can be spread over large numbers of users.

The above explanation by Tucker does not answer the question on *how* interactive radio is, but points to a possibility for manipulating educational media, of which radio is one, for purposes of effective teaching and learning. In their report on '*Improving Educational Quality through Interactive Radio Instruction: A toolkit for policy makers and planners'* (2005), the World Bank research group contend that as radio is a one way broadcast medium, IRI programmes are *not* truly interactive in the sense of two-way communication. But interactivity is achieved "by having a group of students manipulate locally gathered materials such as rocks and bottle caps; participate in games; listen to and respond to information, stories and exercises that are guided by radio characters; and *interact* with other students in the class" (World Bank, 2005, p. 3).

Dock and Helwig (1999) offer yet another explanation when they say instruction by radio is interactive when students actually interact with radio characters (instructors/teachers) who 'teach' subjects such as science, maths or languages. During a 30-40 minutes broadcast, learners could interact as many as one hundred times with the radio instructors *(through* the classroom teacher), thereby creating a three-way interaction of radio teacher-learner-classroom teacher. The radio lessons are divided into segments and in a daily lesson, new materials may be introduced in one segment, while previously

introduced materials may be reinforced through new exercises. Through these, learners *influence* the design of instruction as new instructional programmes are set based on the learners' own experiences. This tallies with Tucker's definition of interactive media as explained above. Use is made of short stories, songs, exercises and games, as well as regular interactive dialogue. Lessons are designed to be upbeat, challenging and happy episodes for the learner. In some cases, student workbooks, posters, and wall friezes are provided to support and enhance the learning. This is a typical traditional '*mono-audience'* IRI system (which is followed by USAID/EDC currently in Malawi) with emphasis on learners and production of learners' programmes (see figure 4 below).

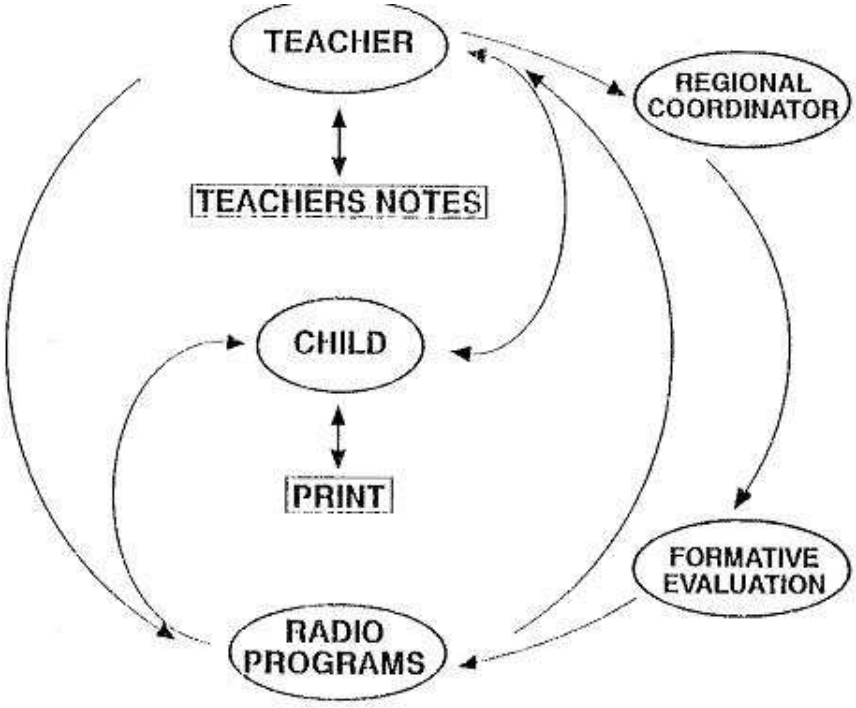


Figure 4: IRI- a traditional 'mono-audience' approach (adopted from OLSET, 1994)

In the new IRI approaches, emphasis is placed on both, teacher learning and pupil learning. It is a '*dual-audience'* IRI system in which teacher development is regarded as the means to ensuring more permanent change in learning and teaching practices through the empowerment of teachers. Although most generic elements are the same, the two systems of IRI differ in terms of delivery mode and content with teacher support and development elements more pronounced in the dual-audience IRI system (figure 3 vs figure 5). It is the dual-audience approach that is advocated by this thesis in chapter 8. The audio INSET component through the *Radio Education for Interactive Learning in Malawi* (REFILM) project, to be supplemented by occasional face to face teacher training, which could possibly lead to a higher teacher qualification is proposed.

A further explanation for interactive instruction is found in the LearnTech study by Moulton (1994) which starts by asserting that all distance learning technologies still simulate true interaction. The study is in agreement with others that radio is a limited interactive medium as it (radio) can pose questions (or solicit responses) but can only simulate reactions to the responses. It is also noted that radio is limited in the extent to which it can adapt its reactions to students' responses. However, this PhD study regards the value of interactive radio in instruction as not being in its ability to engage in conversation (for this is its only real limitation), "but its ability to promote *active learning*" (Moulton, 1994, p.13). Active learning and not conversation is the principle on which this current research study is constructed. An argument is made throughout this thesis that IRI provides teachers with an opportunity to *learn to teach* and there is a need to reinforce this learning so that it becomes *active learning* by promoting deliberate processes of reflective practice amongst teachers. A detailed account on how IRI

technology as object of learning could influence active learning and the embracing of new practices amongst the poorly trained Malawian teachers has been sketched in the previous chapter on artefacts/learning objects and is further discussed in chapter 7.

In the LearnTech's broader definition of interactive radio as active learning, the conversation format is seen as just one form of active learning. Radio here is viewed as a tool for helping students learn from active engagement with other people, that is, peers, teachers. In the same vein radio can also help students learn from *things*, such as what is brought into the classroom for demonstration and what they find outside the classroom in their physical environment. The argument made in this thesis is that teachers learn in the same way as their students, therefore IRI should be exploited for maximum benefit in *teacher learning* and *training*. This point is central to the argument in this thesis.

4.4.3 Active, experiential learning

As seen in the preceding section, active learning is an integral element of interactive radio. Many scholars on this topic agree that what distinguishes the IRI methodology is that learners are required to *react* to question prompts and exercises (through verbal and physical responses to radio characters) instead of *passively* receiving information (Moulton,1994; Olsson,1994; Bosch et al., 1994; Perraton and Creed, 2000). They explain that the method frequently includes group-work, physical and intellectual activities while the programme is on the air. Thus, for both the teacher and learner, the lesson becomes an immediate, hands-on and experiential guide. In a typical IRI lesson, short pauses are provided throughout the lesson - after questions and during exercises - to ensure that students have adequate time to think and respond. Teachers and learners alike

have to come to an understanding that often there is no correct answer- only a number of possible answers, based on different points of view.

In the predominant traditional chalk-and-talk methods (typical of the Malawian classroom practice, *refer to chapters 5 & 6)*, there is very little real interaction between the teacher and the learners and amongst learners themselves. Dock and Helwig (1999), supported by others, portray IRI as a method where interaction is encouraged between teachers and learners as they work together to conduct short experiments, do activities, and solve problems using local resources and imaginative situations and stories. In terms of the purposes of this study, the idea is to go a step further by exploiting IRI to the maximum extent for CPD of teachers to ensure teacher competences in the long term, and in the absence of radio.

4.4.4 Audience research, participation and formative evaluation

IRI programmes are tailored specifically to particular audiences and situations (Dock and Helwig 1999). The current study is concerned with improvement of teaching standards in Malawian primary schools, therefore it is important to assess the Malawian situation, establish the needs and determine the means of utilising IRI to meet such needs. In line with this, chapters 5 and 6 provide findings of empirical studies conducted in Malawi as part of the current research. Moulton (1994) views principles of IRI as putting reliance on audience research, participation and formative evaluation to ensure that lessons are engaging and relevant and that learners can achieve the educational objectives.

4.4.5 Outcome-based

In their opening remarks, Potashnik and Anzalone state that the pedagogy of IRI is more deliberate than active learning alone (Potashnik and Anzalone, 1999, p. vii). This point is reiterated by Dock and Helwig (1999) when they say that IRI series guide participants through a programme of activities related to *measurable learning objectives.* They state that organisation and distribution of educational content is across-curricular thus learning can more easily construct an understanding of the subject being taught. In order for the teacher and the learners to have a clear idea of the process that they are undertaking and of the skills and support that may be required, activities and problems are first modelled by radio characters (instructors). It is this modelling or mentoring/coaching role that is inherent in IRI that makes interactive radio (in the form of IRI programmes) an attractive artefact of teacher practice.

4.5 IRI as a tool/artefact/resource for CPD of teachers

IRI programmes differ in the specific ways that teachers or facilitators are involved in the instructional process during broadcasts and the degree to which they use IRI as a teacher-training tool. It should be remembered that no IRI series has been designed to replace the teacher. Instead, the design of IRI requires the involvement of a teacher or advanced mentor to guide interaction. Most often, the programmes aim to build the teacher's skills and enable the teacher to play a more active role in a student-centred and interactive teaching and learning process (World Bank, 2005). This is the central argument of this thesis.

The teacher's role in IRI has gradually evolved since its inception. Most of the earlier IRI series were organized so that teachers would mainly follow along with the activities and provide follow-up according to the radio characters' instructions. The World Bank study (2005) provides an example of the original IRI Math series in Nicaragua which guided student instruction and then asked the teacher to provide individual support to students who needed it. As discussed earlier, most IRI programs have therefore given classroom teachers a more central role and have introduced games, exercises, and group work that are directed by the IRI characters *but managed by the classroom teachers*. Radio teachers consistently guide questions and answers, organise educational activities, and serve as role models. In this way untrained teachers or those with low levels of teaching skills are coached in various (professional) teaching practices.

According to the World Bank, from the mid-1990s, IRI programmes have emerged as specific teacher-training tools. 'Dual audience' IRI approaches have been developed to help teachers learn active teaching methods for primary mathematics and English. Teachers were *given explicit directions* about why certain types of activities could improve learning and how they might adapt them when IRI was not on the air. This point is critical to the rationale of the current investigation into IRI's influence on teachers' practices in Malawi. The idea is to examine means by which teachers' beliefs and practices are influenced by such an approach, and then use that knowledge for developing an integrated and sustainable CPD of primary teachers.

As discussed in the case studies below, Guinea's IRI programs (since 1998) for French and mathematics instruction have incorporated a reflective teacher-training series that helps teachers assimilate student-centred instructional practices into their own teaching

styles **(**Bosch, 1997)**.** Similarly, the Open Learning Systems Education Trust (OLSET) *English in Action* program (since 1990s) in South Africa helped establish a professional development and support system for teachers that became integral to IRI delivery, monitoring, and evaluation. It included teacher-training workshops, manuals, and regional coordinators whose role was to nurture, advise, and support the teacher (Potter, 1993; Dock and Helwig, 1999). According to the World Bank (2005), the approach is also being applied in Nigeria, where IRI broadcasts provide teachers with recurrent hands-on training that complements other in-service or pre-service teacher-training efforts. It has been strongly argued in chapter 7 and 8 of this thesis that one of the great synergies of IRI is that it can be an effective vehicle for teacher training, even though students, teachers, and the public perceive it as being oriented toward students.

IRI is effective because it can reach thousands of learners, many of whom would not otherwise have access to education, at minimal cost. This has great potential for teacher in-service education and training and forms the basis for this current research. IRI's low per-student cost has enabled countries to keep their IRI programs going strong long after the donor agencies' programme funding has come to a close. Programmes are written and produced in advance, enabling writing teams to incorporate accurate information and interesting academic exercises that teachers can employ with ease (World Bank, 2005). The programmes are always based on local curriculum but can weave in messages about other topics. Through initiatives by international bodies like UNESCO as well as governmental and non-governmental organisations such as USAID, radio has brought curriculum and teacher training to classrooms in some of the world's least-developed countries. For example, promoting IRI for more than 30 years, USAID has reached large

numbers of people in countries as diverse as Bolivia, El Salvador, Haiti, South Africa, Guinea, Kenya, Nigeria, Mali, Zambia, Sudan, Nepal, and now Malawi (Dock and Helwig, 1999). As pointed out, a number of studies have and are still being carried out about effectiveness of IRI, and interest in radio as a tool for education has increased especially in low-income countries (Moulton, 1994; Bosch, 1997). Such studies provide evidence that radio has been a tremendous resource for meaningful teacher learning and professional development.

To avoid serving up simple verdicts or silver-bullet prescriptions for Malawi's educational problems, an attempt is made below, through review of case studies, to provide a balanced account of the successes and failures of the international experience with IRI.

4.6 Review of IRI case studies

The cases of South Africa, Guinea, Mali and Kenya were chosen for their relevance to the aim of the present research study— the focus being investigation of an IRI model to support effective CPD of Malawian primary teachers. Thus cases where IRI was designed for *dual audiences* (i.e. both learners and teachers) were preferred. Secondly, cases were chosen to present IRI's geographic diversity, flexibility and variety of socio-economic conditions in which it has been tried, but strictly on the African continent. In this sense, the research situates the unfolding of events in the richness of local context.

4.6.1 The case of South Africa

The South African radio learning programme is of special interest to this study for a number of reasons, one being that the researcher, having worked for the Open Learning Education Trust (OLSET) a non-governmental organisation that runs the radio learning programme in South Africa, was directly involved in the South African IRI project and therefore has first hand knowledge of it.

Although radio learning in South Africa was introduced as early as 1992 (Cobbe, 1995), innovations for turning it into the current IRI model commenced in the 1990's when South Africa began the process of dismantling apartheid. According to Dock and Helwig (1999) it had become increasingly clear at this time that the importance of English language literacy would assume greater prominence in the anticipated democratic dispensation. A command of English could enable the young 'black' (i.e. all non-white races including Indians and coloureds) South Africans to seek and obtain a considerably increased social mobility and more viable livelihood. Through the widespread use of English, the isolation or separation of the many alienated groups and the stigma felt by the previous dominant group could be lessened, and the creation of the new South Africa could be strengthened. Helwig and his fellow researchers' opinion that leaders of the struggle for a new educational order mainly sought a way to reaffirm the dignity of African languages as well as cater to the need of the children of the marginalized communities throughout the country to learn English. This laid the foundation for OLSET's current three series programme of core curriculum IRI programmes known as *English in Action* (EIA) which, initially, were delivered on audio cassette.

Of great interest to the current study is the knowledge that the South African Radio Learning programme was *fine-tuned*, around 1994, as part of the strategy for enhancing educational quality and equity after the democratic transformation, and especially that it had, and still has, a substantial *teacher support and development component*. The teacher support and development component is *stronger* than in many comparable programs in other countries because of the imperative to build into any lower primary English second language (ESL) programme elements that strengthen teachers' skills as well as provide instruction to students (Cobbe, 1995). The programme was particularly geared to under-resourced classrooms and Cobbe reckons that although experience with primary school interactive radio English programs in Lesotho and Kenya provided a huge bank of ideas and scripts, South African educators and linguists had their own ideas about how to teach language that the existing scripts often could not accommodate. The World Bank study (2005), also notes that the overriding purpose of the EIA programs for junior primary grades was to provide sustained *teacher support* for the new pedagogical emphasis on learner participation in lessons and for the creation of more democratic, fun learning environments for children that would accommodate learners with varied abilities. The IRI programs served as a vehicle for curriculum change and the shift to a broadly constructivist pedagogy (World Bank, 2005). This warranted a de-emphasis on content-driven teaching and a greater focus on competencies in all learning areas, as well as critical thinking, life orientation and skills, health education, and environmental awareness, among other curriculum outcomes. These changes necessitated great sensitivity to how teachers would perceive their role.

The involvement of the researcher (of the current study) in this IRI project commenced in 2003 when he was employed by OLSET as Head of Department (HOD), in charge of Teacher Development. At this stage the programme was working with an estimated 48,000 teachers and 1,600,000 learners in eight provinces, primarily in the historically disadvantaged communities. Teachers in participating schools attended workshops which were conducted jointly with provincial government education curriculum specialists. This partnership with government education services and public broadcasters was deemed critical to program sustainability and to longer-term IRI mainstreaming objectives. The IRI programme depended heavily on support from international donors, particularly DFID (United Kingdom). Dock and Helwig (1999), observe that initial support for the development, implementation and evaluation of the programs had been provided by USAID and NORAD. However, all along the thinking was that eventually the source of funding would have to switch to (local) provincial government budgets (Potter, 2001).

As HOD in charge of Teacher Development and line manager of provincial coordinators, the researcher was responsible for all internal evaluation matters. Feedback from formative monitoring and evaluation revealed great support from learners, parents and teachers. Teachers found that lessons were well integrated, addressing language across the curriculum (see Shaba, 2003). These points are important for the Malawian situation where IRI programme implementers are still battling to get a 'fit' within the new curriculum (PCAR).

Perhaps the most crucial point in thinking about the Malawian situation is what Helwig (1999) and his co-researchers see as 'true innovation' in the South African EIA project. They observe that EIA pioneered some new approaches to IRI that departed from its

original conception. As in Cobbe's remarks discussed earlier, these authors also stress that in the current South African IRI programme, the *teache*r is given a much *greater degree* of *freedom* and *responsibilit*y than earlier second-language programs. Unlike other IRI approaches, the teacher leads the class and provides translation into the mother tongue throughout the programs. In addition, the series depend heavily on a well-developed regional training and institutionalisation plan that *allows teachers to be supported* and print materials to be developed and distributed more easily.

Field research had shown OLSET that teacher in-service as well as pre-service training and supervision are vitally important. The human contact between OLSET, coordinators/trainers, and classroom teachers was regarded as crucial (Potter, 2001). In other IRI projects there is much emphasis placed on reducing the cost of training and supervision. James Cobbe's (1995) work on cost related to the EIA programme suggested strongly that a minimal approach to teacher training would jeopardise the sustainability of the program.

From all accounts of scholars on this subject and the experience of the writer, the South African IRI programme was (and possibly still is) a successful program. Teachers and school directors effectively supported the program as well as the relationship with OLSET. The schools and teachers enjoying the reception of all the basic IRI ingredients: radios, broadcasts, materials, and regular supervision and training. OLSET also developed a teacher support package based on introductory training workshops, *teacher support group meetings* during the school year, classroom visits by regional coordinators, and mid-year and end of year one-day workshops. Parts of this teacher support package involve the use of specially developed audio and video cassettes. It is evident that the

implementation team had taken a great deal of care in the design of the programme. However, all the commentators seemed to agree that for the program to be sustained and expanded, education departments (i.e. area, district, provincial MOE offices) had to fully 'buy in'(see Cobbe, 1994, 1995; Perraton and Creed, 2000; Potter, 2001). In other words, local educational departments have to be willing to (budget) provide funds to ensure sustainability and expansion, in full recognition of the significant costs of training the teachers and funding air time.

4.6.2 The case of Guinea

Guinea on the West African coast, provides another example of how a multi-channel learning approach and IRI can and do improve instruction on a nationwide scale. A study by Bosch (1997**)** reveals that enrolment in Guinean primary schools had been at best round 40% (and closer to 30% for girls). The study also shows that dropout, especially with girls, is frequent, and repetition rampant. Of those learners who attain grade 6 (about 35% of those who start primary school), more than half fail the state exam that allows them to graduate to the seventh grade. The reason for this, according to the study, is not *what* is being taught, but rather, "the organization of the learning processes, the flow of what happens in the classroom—that has to be addressed to provide children with better access to the concepts and topics that make up the Guinean curriculum" (Bosch 1997, p.1).

Bosch's study highlights the fact that Guinea, like other former colonies on the African continent inherited an old-fashioned educational system which it cannot shake off. The educational models Guinea experienced before the country's independence is what has

been termed as “tradition of apprenticeship where the apprentice is a blank slate on which the master imprints his knowledge; the Koranic tradition, where pupils spend years memorizing and repeating Koranic verses; and the French tradition, where form and presentation are as paramount as content mastery” (Bosch, 1997, p 4). Bosch’s explanation is that these have combined to create a post-independence educational culture where teachers ‘deliver’ information to their students through teacher-centred, didactic, repetitive practices that afford children little opportunity to ask questions, draw on their own experiences, or experiment with incorrect answers or hypotheses. Furthermore, Guinean classrooms are described as devoid of any instructional aids. Again this resonates with the Malawian situation. The classrooms are said to be nothing other than “undecorated, tin-roofed spaces where teachers, who must instruct between 50 and 80 students, with nothing other than a blackboard and chalk, and the children have only a blank book and a pen” (Bosch, 1997, p. 6).

The above is the background to EDC’s IRI initiative in Guinea, where it needed to devise a programme that would reach the roughly 22,000 primary teachers in need of support and in-service training. This was achieved through what was called the *Fundamental Quality and Equity Levels (FQEL) project.* This meant production of a series of materials, each of which relies primarily on a different "channel" to communicate important concepts and topics to students and teachers. There are 66 IRI programs per grade for every grade from 1 to 6. The children access this learning channel three times a week during their French and math classes. What is important is that IRI has now become a nation-wide system of teacher support. Bosch’s (1997) observation is that the reach of radio allowed EDC to introduce strategies, ideas, and resources into every classroom in

Guinea in a much more efficient manner than organising the equivalent amount of face-to-face teacher training. A notable aspect of the strategy was that print materials for teacher development purposes were distributed nationwide and were linked to the radio programs in such a way as to be supportive of and complementary to the IRI material.

Of particular relevance to the Malawian situation is that the materials were designed as much for the teacher as for the student. They provide support to the Guinean teachers as they try new practices and new configurations in the classroom. The empirical data from Malawi, as presented later in chapters 5 and 6 indicate that this component is somehow lacking there. Of course some things are common of all IRI programmes: for example, the IRI programs prompt teachers to pair students for certain activities, thus facilitating cooperative learning; they prompt teachers to call on girls as well as boys; and they pose questions directly to students that require higher-order thinking skills such as problem solving and analysis. By doing these things, teachers are supported in expanding their repertoire of instructional practices. However in the Guinean, like the South African and Mali cases, *the print materials* and posters are designed to do this as well, because they provide structured activities the teachers can try, modify, or build on as they gain confidence and become more comfortable with the new practices.

4.6.3 The case of Mali

At the mention of names, many people would easily mistake Mali for Malawi—two different nations, one in the north and the other in the south of the African continent. Mali, like Malawi now, had received assistance from the USAID to start a radio learning programme. However, there is striking difference in the approach to radio instruction in

the two countries. Unlike in Malawi where IRI focuses on learners, Mali's radio instruction was geared specifically towards teacher development. With the interest placed on teacher development in this research, there are some lessons that could be learnt from the Mali experiences, more so for the fact that both projects were funded by the same agency. The Mali 'Teacher Training via Radio' programme is said to be the USAID program to build teacher skills through radio (USAID, 2007) and a report compiled by the International Education Systems (IES) forms the basis of the discussion that follows.

The IES report shows that raising teachers' competences in teaching of reading was the focus in Mali where fewer than one-half of the 12,000 teachers (638 schools) receive coaching in the teaching of reading. The report portrays student performance as reflecting this lack of training: only 23 percent of boys and 10 percent of girls can read a simple sentence in French by the end of grade four. In terms of effectiveness, it is proved through evaluative measures/ indicators that more than 60 percent of participating teachers made progress in using active learning techniques. In an evaluation by Mali's Ministry of Education, over 90 percent of teachers claimed that the radio programs had assisted them in their teaching duties (USAD, 2007).

Like in South Africa and Kenya, radio instruction for teacher continuing professional development (CPD) in Mali goes hand in hand with input in the classroom. The success story in Mali builds on a long history of USAID using radio for in-class instruction. As pointed out earlier, Interactive Radio Instruction (IRI) was originally pioneered by USAID for use as a classroom tool to counteract inadequate teacher training, poor resources, and low levels of learner achievement. Again it is evident from the study that

in its two-pronged approach (learner and teacher focus) IRI is delivering the best results. The approach taken by the Malian Ministry of Education, especially plans to build on the success of the Teacher Training via Radio program and *expand* IRI nationwide, seems a logical one and worth considering for the Malawian context.

4.6.4 The case of Kenya

Although much older than the other IRI projects reviewed, the Kenyan project has been included because of its specific focus on teacher training. It is not IRI as practised today but has a bearing on the model that is discussed for utilization in the Malawian context (see chapter 8). A case study by Kanyanjui (1977) describes the history, operation and existing evaluation information concerning the radio-correspondence approach to teacher upgrading that was used in Kenya. The study noted that the principal efforts of the implementers, that is, the Correspondence Course Unit (CCU) at the University of Nairobi, were directed towards teacher training.

In terms of the purpose and operation of the program, Kanyanjui's study points out that during the 1970s the Kenyan government perceived there to be a major shortage of adequately qualified primary teachers in Kenya. Quoting from the Annual Report of the Ministry of Education, the study reveals that there were 37,923 teachers employed in Kenya's primary schools in 1968. Of these, 10,438 were unqualified. Of the 27,285 qualified teachers, 16,992 were "P3" teachers who were the mainstay of the primary schools, comprising about 60% of the qualified teaching staff and almost 45% of the total teaching staff. The two major teacher-training efforts of the CCU involved creating a

program to upgrade unqualified teachers to the "P3" level and another to upgrade "P3" teachers to "P2."

Kanyajui further indicates that the course for upgrading "P3" teachers prepared student-teachers to pass the Kenya Junior Secondary Examination; after passing the examination, the teacher was eligible for promotion to "P2." The program for unqualified teachers was conducted in two phases. The first is professional training in methods of teaching organised by the Kenya Institute of Education and consisting of a year's study divided into three, short, residential courses during school holidays. Between the residential sessions, the courses were supplemented by radio lectures. Candidates who successfully completed the first phase of the program were then admitted to the second year's academic course conducted by the CCU. The unqualified teachers, however, studied only three subjects (English, mathematics, and either history or geography) at the first-year secondary level. Those who successfully completed the correspondence course and passed the final examination were upgraded to "P3" status.

The correspondence-course material provided by CCU in one or more lessons was *supplemented* by a 15-minute radio program that was *broadcast twice a week* over the Voice of Kenya. These CCU radio programs were allotted a fixed air time from 5 p.m. to 6 p.m. every weekday throughout the year. In his assessment, Kanyanjui reasons that the radio lessons were particularly aimed at the slower student-teachers and were used to pace and encourage them. For example, the radio teacher highlighted the important points in a lesson and to provide a summary at the end of each teaching unit. Occasionally the radio teacher would arrange for a *question-and-answer* type of program in which

problems common to many students were discussed and common mistakes were corrected.

In his study, Kanyanjui reports no completion figures as such but points out that in the four-year period from 1969 to 1972, over 10,000 unqualified teachers successfully completed their radio-correspondence upgrading to the "P3" level. This completion rate is regarded as an important index of success; another is that the supervisors of upgraded teachers, according to Kanyanjui's survey, reported that about 95% of teachers improved their performance after taking the upgrading course.

However, difficulties in comparing radio-trained students with graduates of traditional schooling are noted in the study: no control data are available to allow matching students' backgrounds and abilities, and, as a source of definite bias in favour of the CCU students, traditional students had taken all five examination subjects at one sitting whereas CCU students did not need to. This discrepancy notwithstanding, the difference in pass rates in favour of CCU students was still impressive: the average pass rate for CCU candidates was close to 50%; for others for most years, it was less than half that.

Kanyanjui's study illustrates that Kenya's radio-correspondence courses provided an effective mechanism for upgrading teacher quality. The CCU students were learning the prescribed material. As discussed above, the system's cost was substantially less than for traditional instruction, and, probably more important, it allowed teacher upgrading to occur without demanding either an expansion of the teacher-training force or a withdrawal of teachers from their ongoing teaching responsibilities in the primary schools. With regard to Malawi as focal point of interest in this thesis, it is worth noting

that, the CCU radio-correspondence courses were principally *correspondence* and only complementarily radio.

4.7 Summary

This chapter has revealed that radio has become one of the traditional technologies that continue to evolve and offer new ways to support educational improvements. IRI extends the use of broadcast radio from primarily being a tool to increase *access* to becoming a means of promoting educational *quality*. This is particularly true given the high penetration of radio in many developing or low income countries. Since its introduction 30 years ago, studies indicate IRI's effectiveness in improving educational quality as well as retention rates at the primary school level. Studies also demonstrate IRI's value as an effective mechanism to introduce new pedagogy and curriculum (the immediate need in Malawi). Such findings make IRI a potentially powerful tool for governments in the developing world as they seek to meet the challenge of EFA by improving educational quality and undertaking in-service teacher upgrading. Evidence suggests that while access to primary education has increased in many African countries, following reforms launched in the drive toward EFA, improvements in 'quality' have not matched the gains in 'access'(see chapter 1). Improvement of educational quality remains the most critical challenge for Africa's educational systems (Association for Development of Education in Africa (ADEA), 1999), and the need to upgrade and train adequate numbers of teachers in each country is a significant part of that challenge. IRI has been used for this purpose successfully around the world and in some countries within the African continent. Review of case studies on South Africa, Guinea, Mali and Kenya show that IRI programmes are now emerging as an effective means of supporting teacher development,

in addition to their original focus on the learner. IRI provides daily classroom support to teachers— this is particularly advantageous to under-qualified teachers and to those in the most remote and disadvantaged communities as they get introduced to innovative pedagogy and practices.

In terms of possibilities for the expansion of the Malawi IRI programme as suggested in chapters 8 of this thesis, it is important to note that the world over, the series of IRI (including those reviewed above) have been designed by local specialists (with external helpers) specifically to capture the interest of the local learner/teacher and to meet learning objectives in a particular country (Dock and Helwig, 1999). It is with this in mind that the next chapters on empirical studies were undertaken.

Chapter 5 **Methodology and Findings of the Baseline (pre-intervention) Study**

This chapter describes the results of the first empirical investigation (pre-intervention or baseline study) into teachers' practices in Malawian primary schools. As discussed in section 2.1.4 (methods), in order to use longitudinal qualitative data to its greatest value, it was necessary to devise data collection and analysis processes which allowed earlier data to be analysed in contrast to later data. The processes employed ensured comparison of the two main data sets, baseline data (the focus of the present chapter) and main study data (the focus of chapter 6, next) alongside each other within comparable thematic frameworks. In keeping with the longitudinal qualitative research approach, data collection was handled in two different periods, with approximately ten months interval between the first (*before* intervention) and the second (*during* intervention), and the final (*after* intervention). As explained in section 1.6.2, an add on empirical study (during intervention) was also integrated between these two major empirical studies. Thus, the two sets of data were processed and analysed separately at first, then subsequently a modified comparative analysis of the outcomes of these studies was performed in order to draw the conclusions (see section 6.3).

Before looking at the methodology and findings of the baseline study, the working notion of social practice is recalled using two quotations:

> Activity cannot be understood or analyzed outside the context in which it occurs. So when analyzing human activity, we must examine not only the kinds of activities that people engage in but also who is engaging in that activity, what their goals and intentions are, what objects or products result from the activity, the rules and norms that circumscribe that activity, and the larger community in which the activity occurs. (Jonassen and Roher-Murphy, 1999, p. 62)

> Finally, if social change is a change of complexes of social practices, it presupposes not only a transformation of cultural codes and of the bodies/minds of human subjects, but also a transformation of artefacts (a relationship which deserves closer study than can be offered here). (Reckwitz, 2002a, p. 213)

The quotes above encapsulate two key tenets of a social practice perspective. Firstly, that social practice of which teacher practice is part, is a multidimensional construct. Secondly, that as material objects or artefacts are elements of social practice, it is essential to examine how much objects (interactive radio, in this case) are actually used within a situated, social context (the sampled Malawian primary schools' situation, in this case).

In view of the latter aspect, and also of the evaluative nature of the study, it seemed appropriate to collect data from a variety of respondents in order to reflect as much as possible the social (linguistic, religious, ethnic) and economic diversity that characterises the Malawian education community and this helps portray the most likely practice-patterns of the target group.

A detailed description of the baseline study is presented next.

5.1 Purpose of the baseline (pre-intervention) study

The purpose of carrying out a baseline (or *pre-intervention)* study on teachers' practices was twofold:

- To survey briefly, teachers' practices based on their perceptions of learning and teaching (and education in general), prior to the introduction of IRI
- To assess the participants' expectations of the *Tikwere* IRI programme and the participants' own understanding of roles and responsibilities.

5.2 Methods: *Interviews and Observations*

The outcomes of the baseline study formed the basis for measuring change in teachers' views, attitudes and behaviour over a period of 12 months. This stage of the study involved conducting and processing semi-structured interviews with the target groups—teachers, Primary Education Advisors (PEAS) and officials of the Malawi Ministry of Education.

The contemporary longitudinal study involves repeat follow-ups of a single sample and although retrospective data collection is an important part of this study, the focus is on short-term retrospection to limit deterioration of reliability and validity associated with reflection over long periods of time. Research that seeks to go further back than the recent past may lead to recall problems or post-event rationalisation (Molloy and Woodfield, 2002). An attempt was made to minimise this problem by asking probing and clarifying questions in order to establish detailed accounts.

Interview results were complemented by observations of classroom practice (and school, as a whole). It is important to reiterate that the interviews and observations at each stage were also an integral part of the ongoing formative evaluation process of the IRI programme. For this reason, the design and conduct of the interviews was a compromise and based on the needs of both the current research and the formative evaluation process.

5.2.1 The Interview Method

In designing the interview strategy the following issues were addressed: interview instrument and choice of participants.

5.2.1.1 Instruments and administration

The interview schedule for teachers, as key participants, consisted of four sets of open-ended questions, addressing specific topics thought to be relevant for eliciting teachers' accounts of their teaching and learning experiences as well as their understanding of good practice. Standard (grade)1 teachers were the main custodians of the USAID funded IRI initiative in terms of implementation at the grass-roots level (the classroom), therefore were directly involved in its ongoing work and thus automatically became the main target of this study. Although the term 'primary subject' is used in this thesis, the term 'key participant' is preferred and is henceforth used to refer to this group of participants.

In the first set, questions covered teachers' understanding of effective pedagogy. The questions also covered aspects related to beliefs about learning and teaching— namely behaviours (activities) teachers engage in as classroom practitioners and also as professionals, the conditions (requisites) teachers perceive as being the most important for effective learning and teaching and the kind of regulation–source (external or internal) that teachers think as most influential in their teaching activities.

In the second set, questions were intended to cover teachers' understanding of IRI's potential as an artefact for teacher professional development. Questions also covered the participants' own experiences of the new curriculum with its emphasis on learner-centred approaches and how they envisage IRI's role in the paradigm shift (old traditional teacher-centred to new learner-centred teaching methods) expected of teachers.

In the third set, questions were designed to examine teachers' own views about how their professional support and development needs (if any) were or were not being met during

the period of this study. Questions revolved around issues of induction and training in using IRI for the delivery of PCAR and as a vehicle for teachers' professional development.

These sets of questions are presented in following table:

Set	Aim	Questions
1	Finding out about teachers' understanding of teaching and learning	1.1 What, in your opinion characterises successful learning? 1.2 What is your main goal when teaching the pupils? 1.3 Having said all this, what does good practice mean, in your opinion? 1.4 What do you consider to be your biggest challenge in delivering this good practice?
2	Checking participants' understanding of the potential of artefacts such as IRI as catalysts for professional development	2.1 The new Primary Curriculum and Assessment Review (PCAR) has been running for a good six months now. What has been your experience of it in the classroom, so far? 2.2 The purpose of introducing interactive radio instruction (IRI) will be to enhance/facilitate the implementation of PCAR. In your opinion, how can interactive radio instruction facilitate change in teachers' practices in accordance with PCAR?
3	Identifying issues of induction and training in using IRI	3.1 When you look at the training that you received and the qualifications that you got, what were the strengths and weaknesses of your preparation for fulfilling your duties as a classroom practitioner and as a professional in

		general? 3.2 Successful utilisation of IRI could require the involvement of all foundation phase teachers in team work (e.g. team planning and team teaching). What difficulties if any, would there be in developing team working in your school? 3.3 On a scale of 1 to 5 (1 being very good and 5 being very poor) how would you rate the support and development that you receive from your supervisors: (a) your subject head; (b) your Head of Department (HOD); (d) PEAS? 3.4 What type of in-service education and training or CPD were you involved in: (a) last year; (b) this year?

Table 3: Key participants' (teachers') interview questions

Interviews were then broadened out to include other participants viewed as stakeholders in education. These other participants included head-teachers and officials of the Ministry of Education, Science and Technology (MoEST), both at the district and head office levels. These people were chosen because they were also regarded as 'key informants' in the process of adopting IRI for the creation of a new-teachership in schools. Head teachers were chosen as it is their responsibility to supervise and help teachers on day-to-day basis at the school level. At the district level, it is the PEAS that shoulder the responsibility of supervising teachers and managing schools so they were regarded as potentially key persons in the process of adopting a new-teachership through IRI. Members of staff in the directorates of Basic Education, Planning, Education Methods and Assessment Services were chosen because of their direct involvement in the formulation of legislation and policy for primary and teacher education.

Taking into account teachers' responses about their pre-service training as well as the variation in portfolios of other participants, it is realised that a wide spectrum of social backgrounds was represented in the sample.

The questions for head-teachers were intended to cover their own assessment of teachers' practices in relation to the demands of the new curriculum which focuses on learner-centred approaches as opposed to the existing one based on teacher-centred approaches (see table 4). Head teachers were also asked how they viewed the role of radio in facilitating this change. For the MoEST officials at the district level (District Education Managers- DEMS and Primary Education Advisors- PEAS), it was important to establish their understanding, as teacher supervisors and school managers, of the situation at the school, especially with regards to what and who needed to change, and how and when change should take place if the PCAR-IRI initiative is to succeed. Questions for the MoEST head office staff as policy makers (those in key positions within the Basic education; Planning; Education Methods and Assessment Services Directorates) covered, briefly, an assessment of the ministry's own standards or benchmarks for primary and teacher in-service education and training; and also an assessment of their (ministry) vision for IRI in the professional development of teachers and in improving teaching and learning in schools.

Thus the interview questions were framed as follows:

Target group	Interview questions
Head teachers	1. How would you rate the success of PCAR so far? 2. To what extent will teachers be prepared to adopt IRI and make it part of their practice and what challenges will they face in doing so?" 3. How do you see your role in supporting teachers to meet these challenges?
PEAS	1. What forms of support do teachers and head teachers currently receive in schools from PEAS and how effective do you consider this to be? 2. What is your opinion of .radio learning and its potential for enhancing teaching and learning?"
MoEST Officials	1. In your opinion, what are the major challenges faced by MOEST in providing quality education and training for primary teachers? 2. What is your view of the PRESET-INSET continuum and what strategies are put in place to ensure CPD of primary teachers? 3. What role do you envisage IRI will play in the professional development of teachers as well as for effective teaching and learning of pupils?

Table 4: Additional participants' (stakeholders') interview questions

5.2.1.2 Piloting and reshaping the interview instruments

The process of piloting the instruments started with the translation of interview questions into Chichewa and Chitumbuka. An attempt was made at a literal translation so as to ensure clear correspondence between Chichewa/Chitumbuka versions and the original

ones, which were in English. Yet due to structural mismatches at grammar between the languages, it was occasionally necessary to opt for a more conceptual translation to capture and preserve the connotative meaning of the questions or statements.

The initial drafts of the Chichewa and Chitumbuka translated interview questions and the English versions were submitted to three reviewers from Malawi but based in Glasgow, in Scotland. All three were educators and native speakers.

After feedback, adjustments were introduced in order to clarify items and improve the level of grammatical accuracy. A particular concern was to check if the language should be simplified to enable full comprehension. As a result of the pilot, some items were deemed inappropriate and ended being completely dropped out of the Chichewa and Chitumbuka versions.

5.2.1.3 Procedures

Teachers in six of the eight schools were the main target and were interviewed both individually and in groups depending on the situation. In all, twenty seven interviews were held: fifteen with classroom teachers from the six schools (see appendix A1), six with head-teachers, three with Primary Education Advisors (PEAS) and three with the MoEST officials at head office. The interviews were conducted in Chichewa except in the Northern region where Chitumbuka is the lingua franca. The interviews were administered by the researcher on site and with permission of the schools' authorities. Consent was sought from respondents to tape-record the discussions for further processing and analysis and a digital voice recorder was utilised for this purpose. The questions were not always asked in the order in which they were presented in the

interview schedule. Ultimately, the sequence of the questions would depend on the degree of empathy achieved during the introductory conversations. The latter included a welcome and acknowledgement and initial questions related to the respondents' demographic data and to her/his social background. Probe questions followed whenever necessary either to clarify the main question, or to overcome stilted conversation.

5.2.1.4 Data processing and analysis of baseline study

Interviews were transcribed verbatim and printed for analysis. The analysis was primarily aimed at describing the fundamental aspects of variations in perceptions of effective teaching and learning. Analysis of accounts from non-teaching participants (e.g. education ministry officials) aimed at examining a wide range of issues regarding primary and teacher education, in general.

Therefore coding of the interview transcripts during this stage of the study was in line with Miles' and Huberman's (1984, p. 61) ideas, who suggested three broad approaches to developing codes for analysing qualitative data: *pre-defined (a priori), accounting-skim guided,* and *post-defined (grounded*). The authors also stated that whatever approach is adopted:

> …for all approaches to coding…codes will change and develop as field experience continues. Researchers with start lists know that codes will change; there is more going on out there than our initial frames have dreamed of, and few field researchers are foolish enough to avoid looking for these things. (Miles and Huberman, p. 61*)*

The main type of coding that was used for the interview transcripts was a type of a-priori coding based on the structure of the questions asked on each of the

three themes derived in the baseline study. In both the Chichewa and Chitumbuka versions, the interview transcripts were, on average, two-typed pages, on average for each interviewee. The transcripts were reviewed in these two local languages and then summarised by the researcher in an iterative process. It is the similarities and differences in meaning of the respondents' accounts to which attention was given. Having highlighted typical expressions of the transcripts, further analysis allowed the identification of sets of categories of description for each question. In this way, the variations in answers within each question were mapped out. In other words, to use Patton's (1990, p. 306 and pp. 393-400) expression, the categories of description were arrived at either through the use of 'indigenous typologies' created and expressed by the interviewees, or/and through the 'analyst-constructed typologies' created by the research during the process of data analysis.

Reference to each of the interviewees is made using a standardised identifier to protect anonymity. Within the identifier, the first letter stands for the type of participant (e.g. T for teacher H for head teacher, P for PEA and M for ministry representative). For teachers, the first digit stands for the category in terms of qualification (1 for teachers with 1 year's training, 2 for two year's of training and UTT for the untrained). The second letter refers to the region and the second digit stands for the school. In each case, the last digit refers to the particular participant within the school or institution. Thus T1N2-8 refers to participant 8 (1 year trained teacher at school 2 in the Northern region).

Reference is made (in brackets, after the file name) to the line numbers within the transcript file where the quotation appears.

5.1.2.5 Results of baseline study

In this section, categories of description and the typical sentences or expressions from where they were established are presented for each question in turn— in an order that reflects a descending frequency in which the related answers were observed.

Teachers' interview

Set 1 questions: Finding out about teachers' understanding of learning and teaching

Question 1.1: ***What, in your opinion characterises successful learning?***

Successful learning was found to be perceived within a range of three goals. Teachers' responses to this question expressed perspectives concerned with either acquisition of factual information about the subject matter (for unspecified reason), or with making sense of the subject matter (understanding). Yet, some answers reflected that teachers perceived successful learning as performance–oriented, that is, learners' ability to succeed in given test-like tasks.

Category 1 Responses expressing accumulation of factual information as characteristic of learning

> *"Effective learning is when the pupils have gained some information that they didn't have at first, on a particular topic.* (UTTS2-2)
>
> *"I think it is about a pupil getting lots of information on a subject or topic so she/he really knows about it"* (T2C2-2)

Category 2 Responses highlighting understanding as a characteristic of successful learning

> *"If the pupil can define a concept more clearly and understand it better, then she/he has learnt something"* (T3N1-1)
>
> *"The most important thing is the new way of looking at the subject under discussion. A learner must articulate more clearly and start demystifying it as a sign of having really learnt something from the lesson"* (T3S1-2)

Category 3 Responses suggesting performance as a sign of successful learning

> *"A learner's ability to perform and pass with good grades in a test is definitely one obvious characteristic*" (T1N2-1)
>
> *"If I ask kids in the classroom and they can answer the questions correctly, then I know they have learnt enough about the subject in question"* (UTTC2-3)
>
> *"Children must be able to solve problems, for example, in Mathematics. That will show you if learning is taking place"* (T2S2-2)

Answers in the first and third categories of description were mostly from UTT and T1/T2s and reflected what in the Marton, Dall'Alba and Beaty (1993) hierarchical model (see chapter 3) represents the 'lowest' point of learning— congregating those perceptions accounting for learning as a process of accumulating factual information without reworking or processing it in an integrated and coherent way. These were referred to as 'non-sophisticated' views of learning (or surface learning) as opposed to those high up in the hierarchical model, the 'sophisticated' views (or deep learning). Answers in category 2 were mostly from T3s and reflected mixed ideas of "understanding": understanding content (low level learning) versus understanding the world through interpreting knowledge (high level learning).

Question 1.2: ***What is your main goal when teaching the pupils?***

Analysing the answers to this question revealed respondents' awareness of the close link between the two processes of teaching and learning. However, teaching goals were found

to be perceived mostly within the three categories of description of successful learning as described in question 1.1 above, that is, teaching to pass lots of information to the learner, teaching to enable a certain level of understanding by the learner and also teaching to enable performance in assignment-like tasks. In this sense, one main category of description was identified, which was in line with the non-sophisticated mode of learning or simply (surface approach). However some answers reflected a different reason and goal for teaching— teaching to help pupils adjust in their adulthood life within the society. Such answers seem to be in line with one of the conceptions of learning (learning as developing social competence) in the Purdie, Hattie and Douglas (1996) study which identified this as 'new' and culturally specific conception of learning (see chapter 3). Therefore from this analysis, two categories of description were identified, one that stressed passing information, inducing understanding and enabling performance and the other that put emphasis on teaching for developing social competence of pupils.

Category 1 Responses stressing passing on information, inducing understanding and enabling performance as the goal of teaching

> *"Well, I have to make sure that I cover the syllabus otherwise pupils will not learn much. I would like to try other methods but it's practically impossible so I use the usual methods that learners are used to. I believe that children at this level should be guided by the teacher, which most often requires drilling them (pupils) in various skills so as to deepen their understanding of subject matter"* (T2C2-2)

Category 2 Responses emphasising development of social competence as the goal of teaching

> *"As far as I'm concerned, teaching is not just about feeding the learner with new information but that the knowledge gained helps in her/him adjust to life within his society. An educated person will not only have better economic life but also live better with others because his level of understanding and the way of interacting with the world is improved.* (T3N1-1)

In response to the probe question: “So, how do you actually teach?” UTT and T1/T2s answered in line with their responses to the previous questions on ‘successful learning’ and ‘goals for teaching’ which reflected very much a teacher-centred approach. T3s’ answers to this probe question were different because they reflected a fair understanding of learner-centred practice. For example, they commonly referred to ‘*letting pupils discover, experiment, learning for and from each other*’ and the like. This learner-centred approach in thinking was not in line with their earlier answers which reflected teacher-centred practice. As seen later during classroom observations, this thinking was out of line with their (T3s) actual teaching practice, too. This apparent discrepancy in views versus behaviour is further discussed later.

Question 1.3: ***Having said all this, what does good practice mean, in your opinion?***

Responses to this question were found to pinpoint effective execution of pedagogic practice as good practice. The responses reflected description of good practice in terms of what teachers seem to perceive as critical in being an effective teacher (providing effective teaching and learning), but this seems to be limited to classroom practice only, particularly with regard to the aspects of pedagogic skills and content knowledge. The aspect of general professional dispositions was investigated through several probing questions, and respondents’ answers reflected limited association of this with good practice. Thus three categories of description were identified: category1 was drawn from responses reflecting pedagogic skills as an element of good practice while category 2 was based on responses reflecting possession of content knowledge and category 3 was based on answers relating to professional dispositions (albeit limited to the aspect of collegiality).

Category 1 Responses emphasising pedagogic skills as an element of good practice

> *"It all starts and ends with classroom practice because that is the real measure of effective teaching/teacher. The relevance and appropriateness of methods that are used in teaching the pupils is part of it. The correct methods for assessing if learning has taken place, too"* (T2C2-2)
>
> *"It's a combination of effective classroom management and effective provision of instruction. In order to teach effectively, one has to have good control of the classroom situation"* (T2N1-2)

Category 2 Responses emphasising content knowledge as an element of good practice

> *"The work of a teacher is to teach and the work of learners is to learn. The teacher is effective if she/he knows the subject in and out… teaching, then, becomes effective"* (UTTS2-2)
>
> *"It cannot be anything other than a teacher having full knowledge of the teaching subject— being a specialist in his own area of expertise* (T1N2-1)

Category3. Responses emphasising general professional dispositions as good practice

> *"I believe sound relationship with other members of staff is a critical part of every teacher's effective functioning in the school. You can't operate as an Island in this profession"* (T3S1-2)

The above categories of description (pedagogic skills, content knowledge and professional dispositions) seem to form a logical structure as they all reflect requisites for teacher practice although not in a fixed order of complexity. As pointed out earlier, while ideas on the importance of pedagogic skills and knowledge of content for teacher practice were voluntarily offered, those on the professional disposition were more difficult to formulate and even then, only T3s could give responses relating to issues of collegiality. UTT and T1/T2s seemed to put emphasis on issues of content knowledge and pedagogic skills respectively (categories 1 and 2).

Question 1.4: ***What do you consider to be your biggest challenge in delivering this good practice?***

Analysis of responses to this question yielded two categories of description. Category 1 was based upon responses reflecting emphasis on lack of professional support and development as the biggest challenge to teachers' effectiveness and delivery of good practice. Responses showed that the teachers believed that the gap between pre-service education and training (PRESET) and in-service education and training (INSET) posed the biggest challenge for delivery of quality services in the school. Category 2 was drawn from responses reflecting material conditions within schools as the biggest challenge. A combination of lack of professional support/development and material support was said to be the chief cause for low levels of job satisfaction and morale amongst teachers.

Category1. Responses pointing to lack of professional support and development, as the biggest challenge for good practice

> *"Teaching and learning as the main business of schooling depends to a large degree on the teacher delivering quality services. My question is: how does she/he do that without being properly equipped with skills that the job requires? What is needed is training so that teachers do not feel inadequate to perform their job* (UTTC2-3)
>
> *"Look at it this way: no quality professional development, no quality teacher therefore no quality teaching, no quality learning, no quality schooling and so, lack of quality education. It's as simple as that." (T3C2-1)*
>
> *"Teaching is what teachers do and learning is dependent on this. What pupils learn and how they learn it changes from time to time and teachers need to keep abreast with the changes. The biggest problem that I see is that we do not get the necessary training on an ongoing basis and the pupils are the ones who suffer most. Teachers need ongoing support and development" (T3N1-1)*

There appeared to be a sense of disillusionment (among teachers across the spectrum) due to lack of support and development. Answers also commonly reflected a concern by participants about 'what is in it for me anyway?'

Category2. Responses implying work and material conditions are the biggest challenge for good practice

> *"I think that we are put in a very difficult position. We are expected to perform miracles out of almost nothing! (laughs). Look here (pointing around the classrooms), what do you see? Not even a single text book for learners, no desks for children to sit. You see, this concrete cement is very cold in winter. Now, just imagine a child that comes to school on an empty belly, sits on a cold floor and has nothing to write on and has to share one reading book with 10 other children…. In a class of 110 learners, one teacher, under these conditions, how do you expect us to achieve quality learner-centred teaching as demanded by PCAR and yield quality results? For sure it has to be a miracle!"* (T3C1-1)

> *"I believe that with a bit of good incentive like a good salary, we could be more motivated to go out of our way to teach learners accordingly despite lack of necessary resources in the school. We do not have the necessary teaching and learning materials but with a happy, highly satisfied teachers, learners would be taught more creatively, for example, by experimenting with whatever resources are locally available, as long as class sizes can be reduced"* (T2N1-2).

> *"Many challenges hinder good practice. First and foremost the general working conditions need to be looked into. The teacher-pupil ratio is heavily skewed in our school, actually most schools. Secondly teacher housing conditions...last night for example, my grass – thatched house leaked whole night and I could not sleep. Yet I turned up for duties early this morning and I have put on my best performance in class. I'm sure many of our children come from homes like mine and they cannot concentrate either due to lack of sleep or because they are hungry. Worse for some, they have no warm clothing in winter and yet they have to walk long distances to school. Even if you are so good at your work as a teacher, it's like flogging a dead horse forcing these kids to participate in classroom activities with concentration"* (UTTS2-2)

The overall outcome suggests the two categories as forming a chain of requirements for good practice to be achieved in schools: in order of priority, teachers' professional support and development was first, then work and material conditions. From the responses, reduction of class size was singled out as a prerequisite in ensuring effective teaching as a way of meeting requirements of good practice. The answers reflected a suggestion that even if all the said challenges were removed good practice would remain just an ideal unless the pupil-teacher ratio issue was resolved. In circumstances where you have classes of up to 250 pupils with only one teacher teaching them under a tree (as witnessed by the researcher of this study during field work), it is not surprising that while lamenting about issues of professional support/development and material conditions, the respondents laid heavy emphasis on the issue of overcrowding in classrooms.

Set 2 questions: Checking participants' understanding of the potential of artefacts such as IRI as catalysts for professional development

Question 2.1: ***The new Primary Curriculum and Assessment Review (PCAR) has been running for a good six months now, what has been your experience of it in the classroom?***

Checking participants' understanding of PCAR was considered important as a prelude to discussions around IRI later. Their views about principles for which PCAR stands would reflect their likely reactions to IRI. PCAR was found to be perceived in two main ways. In fact, teachers' responses to this question expressed positive reaction to the initiative in terms of the paradigm shift it is advocating (from teacher-centred to learner-centred approaches) but at the same time these answers reflected concerns (negative reactions) regarding some aspects of PCAR at the school level. Negative reactions were found to hinge mainly on issues of 'capacity building/training' and to a certain extent, 'methodology'. As such, two categories of description were created: category 1 being

positive reactions and category 2 being the negative reactions, which was divided into 'negative reactions concerning capacity building/training' (subcategory 1) and 'negative reactions concerning methodology' (subcategory 2).

Category 1: Responses expressing a positive reaction to the PCAR initiative:

> *"The main aim of PCAR is to place the child at the centre of the learning process. We have been sensitised about the advantages of this new approach to teaching and learning, and it is definitely a better one. You see, current teacher practice is that of chalk-and-talk where the teacher takes the centre stage and the pupil is a passive recipient. PCAR is about the learner taking the centre stage. It's just a question of making that shift of emphasis"* (T3C2-1)

> *"PCAR is suggesting the opposite approach to what most of us are used to practising so it will require mind shift on our part. This is necessary for the sake of the children that we teach because it is them who stand to lose out most if this does not work. PCAR, in my understanding is not just about bringing innovative method of teaching and learning where a child is not just expected to accumulate information for the sake of accumulating it, but also about human dignity of the child— like respecting the child (learner) as much as she/he respects the teacher* (T2S1-1)

Category2. Responses expressing a negative reaction to the PCAR initiative:

Subcategory 2.1: Responses expressing a negative reaction to the PCAR initiative based on the issue of capacity building/training:

> *"This whole question of learners being doers and teachers becoming mere facilitators will remain just an ideal for as long as teachers are not capacitated or empowered in this new teaching and learning methodology. We have not been trained enough on learner-centred approaches that PCAR is advocating and there is no way that teachers will act differently from the way they have been practising in and outside the classroom, without being given the required skills for change"* (T3N1-1)

> *"If the approach is this 'once-off', 'hit-and-run' kind of training on PCAR, you can forget about it. This initiative should not have been embarked upon by the Ministry of Education if financial and human resources required are insufficient. We have gone to a few*

training workshops this year and just when we thought we were getting into the swing of things, training stopped. This is a big problem for us as classroom practitioners" (T2C1-3)

Subcategory 2.2: Responses expressing negative reactions to the PCAR based on methodology

"It's not working, it's not just working! Learner-centred approaches of PCAR will never work in our schools simply because of overcrowding. How do you expect a teacher with 300 pupils with no learning and teaching resources, nothing but mere shade of a tree as classroom, to practice learner-centred methods of teaching? Is it possible to attend to individual learners- slow ones and fast learners, those with special needs? Impossible!" (T3S1-2)

"Teaching Science is difficult and it will take some time before we get used to it. But the biggest problem is with Chichewa, the method being proposed is completely wrong for children in our schools. The PCAR learner-centred approach just doesn't work. There is a lag in learning Chichewa words without first mastering the component syllables through phonics" (T2C1-3)

As seen in the above answers, the general reaction to PCAR is that of acceptance but respondents' answers also reflected serious concerns based on their experiences with PCAR so far. On a positive note, most answers revealed that "PCAR is very nice" and "right for learners", that "PCAR is good because teachers and learners are involved together". On the negative side, answers reflected criticism about lack of sufficient training for teachers but also in terms of teaching and learning methods of the learner-centred approaches in overcrowded classrooms with no learning and teaching resources. Special criticism seems to centre on teaching of the local language Chichewa where, unlike the old traditional methods, pupils are now expected to learn it without first mastering the component syllables through phonics. This seems like a genuine concern on the part of teachers. Recent studies by World Bank early literacy experts have shown that lack of phonics can negatively affect an otherwise good model (such as the "Malawi

Breakthrough to Literacy", MBL) which was designed for teaching English but may need modification for teaching other languages (World Bank, 2005). The T3 group was found to be more knowledgeable about differences between PCAR curriculum and the old one based on teacher centred approaches. Thus T3s were more vocal in articulating these challenges, and also, as it was found out during observations, in resisting PCAR and later on, IRI.

Question 2.2: ***The purpose of introducing IRI will be to facilitate the implementation of PCAR. In what ways do you think teachers' practice would have to change to make best use of IRI and therefore deliver the principles of PCAR?***

Respondents' answers on thinking about how teachers' practices should change in order to make best use of IRI to facilitate PCAR reflected lack of knowledge about the connection between the proposed radio learning programme (IRI) and the PCAR initiative. At this point, radio's main role in the classroom was perceived to be merely for remedial teaching. The following segment of interview illustrates this point:

> *"There is no doubt the usefulness of radio in providing instruction in the classroom. You see, the minute children see a radio, they think entertainment and if lessons are delivered through this medium, it's likely to attract their attention. They start enjoying learning more than when listening to the same teacher for hours to an end. The beauty of using pre-packaged or programmed lessons on radio is that they are expertly constructed to complement the teachers 'real' teaching"* (T3C2-1)

As baseline study 1 was carried out prior to the introduction of IRI, participants' apparent ignorance on the connectivity between IRI and PCAR processes was not surprising. In fact, very little (if any) had been discussed with teachers by MoEST about the planned

IRI programme. Thus most probe questions that were used in the interview revolved around radio learning in its broad sense.

Set 3 Questions: Identifying issues of induction and training in using IRI

Question 3.1: ***When you look at the training that you received and the qualifications that you obtained, what were the strengths and weaknesses of your preparation for fulfilling your duties as a classroom practitioner and as a professional in general?***

Answers to this question indicated strength of their training in the area of general professional skills and some weakness in the content knowledge area. Although there was variation depending on the level of qualification, on the whole answers revealed consensus on the inadequacies of the training with regard to both, pedagogic skills and content knowledge upon teachers' completion of their training. Answers reflected dissatisfaction with the preparation in relation with current thinking on pedagogic practice especially the new learner-centred approaches in teaching/learning demanded by the new primary curriculum and assessment review (PCAR). In terms of ratings per group, it was found out that T3s expressed satisfaction with pedagogic skills and dissatisfaction with content knowledge of their training while T1/T2's stressed weaknesses of content knowledge and pedagogic skills, expressing little satisfaction for either.

> *"I personally feel that the training equipped us adequately with teaching skills plus all other skills expected of a teacher as a professional. A lot was covered in the training course concerning relationships, you know, issues of collegiality and other professional skills apart from how to handle your classroom work. What seems to be lacking, and I don't know if it's due to lack of foresight on the part of planners, is deepening ones subject knowledge. Not much was done in that area so one has to rely on what one gleaned from his secondary education"* (T3N1-1)

> *"If you consider what is expected of us now with PCAR in place, then I have to say no. Very little skills were gained in the two years because actually it was one year of residential training….once I was out into the field, nothing else happened in terms of my own learning. I know how to plan lessons, how to actually conduct a lesson, that's ok, I was trained in those basic things fair enough but it did not fully prepare me for the demands placed on me as classroom practitioner, as professional. And this PCAR thing has just made life hell for us…it is more paper work than teaching kids. If most of us do not follow the new curriculum as expected, it's not because we want to disobey the government but its due to lack of grounding in the new methods"* (T2S2-1)

Question 3.2: ***On a scale of 1 to 10, how would you rate the support and development that you receive from your supervisors: a) Head of Departments (HODs), b) Head teachers and, c) PEAS?***

Here the variable 'rural vs urban' seemed to have minor impact. An average of 3 and 4 out of 10 was scored for HoDs and head-teachers and PEAS respectively in urban schools indicating dissatisfaction more than satisfaction, but showing that support was external more than school-based. The result seems to indicate that while some professional support and development seems to be experienced with PEAS, almost nothing seems to be taking place at school level. Intensive probe questions had to be used for respondents to clarify on what was happening on the ground and it was revealed that their interaction with HoDs and head teachers was purely in relation to the day to day administrative issues through the normal staff meetings. However, in rural schools, the average scores were 4 and 3 for HoDs/head-teachers and PEAS respectively. It was found out that even with PEAS the training was limited to specific aspects of the curriculum depending on prevailing mandates from head office as described in the analysis of responses to the next question.

Question 3.3: ***What type of in-service education and training or CPD were you involved in: a) last year, and b), this year?***

Analyzing the responses to this question pinpointed two main types of training that respondents seemed to see as taking place. The answers reflected that training was perceived to be intermittent and ad-hoc, depending on curricular matters at hand, and that currently training was limited to PCAR issues, as illustrated in the interview segment below:

> *"There's no real difference in terms how many training session one is called to per year. Every year it is once or twice depending on what they (Ministry) want us to be doing. In most cases we are informed about new initiatives like PCAR and that a strategy is in place for capacity building at the school level, but these things just die a natural death. Since January this year, I have been to two training workshops, all about transition from the old curriculum to PCAR. We are still awaiting further training on PCAR* (T2N1-2)

Question 3.4 ***Successful utilisation of IRI could require the involvement of all foundation phase teachers in team work (e.g. team planning and team teaching). What difficulties if any, would there be in developing team working in your school?***

Analysing the responses to this question revealed the non-existence of a culture or practice of team work and sharing of ideas on pedagogical/professional in the majority of schools. Responses pointed to a conditionality of creating such practice as coming from outside (external regulation). In other words, respondents' answers portrayed a disposition which, as described by Taylor et al (1999), is more of civil servant cast, a disposition towards teaching practice that lays far greater stress on the responsibility of the state for what goes on in the school instead of the notion of internalised personal responsibility. Again the statements made seem to carry that "what is in it for me" concern. The following statement by T3C1-1 illustrates this notion:

> *"The way we work currently does not give much room/opportunity for sharing of ideas. We interact for other things like staff meetings, but then, that is for the head teacher to tell us what is new or what to do in terms of administrative issues. As class teachers, each one of us is really on one's own and only if there's a serious concern would one feel like consulting. Otherwise, we each do our own thing. However it would be good if we could start working as a team on some matters especially for the sake of colleagues who might be struggling with certain classroom operations— for example, new colleagues in the school, or those who are not fully qualified. This will require a rule to be put in place, a kind of regulation from above to the effect of compulsory staff development meetings. Otherwise, no, it can't work. To be quite honest with you, I do not have time for small meetings/chats myself, after 8 hours of battling with a class of 130 pupils. At the end of the day, all I need is a good rest and I suppose it's the same with everyone".*

Head-teachers' interview

Question 1: ***How would you rate the success of PCAR so far?***

PCAR was rated by head teachers more or less in the same manner as the previous respondents (i.e. teachers) in the sense that it was seen as stagnating even though the concept was still appealing to them. Blame was put squarely on the authorities' for not providing the necessary support and development at both, classroom and school leadership/management levels. HS4 summarised the common feeling as follows:

> *"Things could have been better. Teacher, and of course the school as a whole, can do only so much, but we are being bombarded by many demands without proper preparation and instruments for achieving them. The PCAR initiative started well because there were preparatory workshops with teachers as well as school leadership. If that was to continue till such time that people felt confident enough to carry on with the work at the grass-root level, we should be talking about real progress today. But alas, no, training has grounded to a halt and teachers are sliding back to the old traditional practices because that is the well-known route".*

Question 2: ***In order to facilitate the implementation of PCAR, the Ministry of Education is introducing radio learning in the form of IRI. To what extent will teachers be prepared to adopt IRI and make it part of their practice and what challenges will they face in doing so?***

Answers to this question reflected substantial knowledge of radio learning but as traditionally used for education, a one way mode of communication for remedial purposes in the classroom. Upon probing further, some answers were based on respondents' view of radio's role in teacher professional development, especially with regard to in-service training on the new approaches to teaching and learning (learner-centred). Head-teachers seemed to see no reason for negative reactions towards interactive radio in schools, particularly as it was a mandate from government and partly because it was seen as a tool to complement the teachers' work in the classroom. However, the challenge identified was in connection with orientation and training, given the current impasse on PCAR training.

> *"Radio will not be coming in the classroom for the first time. Some teacher, especially the older ones, will have used radio before, for remedial purposes. It doesn't replace the teacher but complements their work. I'm not sure about its role in providing training but I suppose, yes, if programmes are devised in such a way to provide specific information to teachers, it would be a wonderful idea. We have to be aware though of the implications for launching such initiatives……look at PCAR itself, we are kind of bogged down and the same thing could easily happen to IRI. In fact if the two processes are linked as suggested, so operations of one are likely to affect the other, don't you think?* (HC2)

PEAS' interview

Question 1: ***What forms of support do teachers and head teachers currently receive in schools from the education district and head offices and how effective do you consider this to be?***

The answers to this question were in line with those obtained in question 3.3 in the interview with teachers, which highlighted a reactionary and sometimes ad-hoc form of training as opposed to well planned, coherently coordinated ongoing in-service training. The answers here confirmed teachers' and head teachers' responses to a similar question in terms of the limited range of training being given— the focus being on one area of the current curriculum. As with teachers and head teachers, answers reflected two dimensions in terms of taking responsibility for the staff development: a) answers that revealed a disposition to the job, one that rests on the notion of personal responsibility for welfare and performance of staff in schools (internalised professional conscience), b) answers that revealed a disposition towards school supervision and management that lays far greater stress on the responsibility of the state for welfare and performance of staff in schools. Thus the two categories were identified as follows:

Category1. Responses revealing stress on personal responsibility (internalised professional conscience) for staff development

> *"I must say that professional support and development for primary teachers is very limited. Right now we are concentrating on PCAR. The rapid changes in education today make it difficult for both teachers and school managers at all levels to cope. There is new thinking concerning curricula, school leadership and management, and many other aspects of education. The government, and that is everyone in the education fraternity, will have to pull up their socks and contribute in whatever little way they can. It does not help waiting for instructions from above all the time because we here, are the ones feeling the heat when teachers start 'crying out'. So, whenever we can, we got to go out there and work with staff despite the limited resources available for us to perform our supervisory work" (PC3)*

Category2. Responses revealing stress on responsibility of the state (disposition of a more civil servant cast) for staff development

> *"The government is finding it extremely difficult to cater for teacher in-service education and development mainly due to*

financial constraints. I think we, PEAS, are in a very unfortunate position as people responsible for supervision of schools. We are in charge of overseeing implementation of every single educational policy from head office therefore, whenever things do not work, the blame is on us. If we were fully empowered and resources were available to us, a better job would be done. We are struggling and through no fault of our own, things don't always work out as planned. For example, teachers are crying out for help with PCAR, particularly in teaching of Chichewa, and nothing is being done currently because we have had no instruction on this on how best to assist teachers" (PS1)

Question 2: How would you rate the success of PCAR so far?

Answers to this question suggested a greater degree of satisfaction than was the case with teachers and head-teachers. PEAS' answers reflected a fair amount of satisfaction even though there was evidence of a realisation that implementation of the programme leaves a lot to be desired. It was found out that with PEAS, the blame was attributable not solely to the MoEST, but also practitioners (teachers and school leaders) for not buying into the new concept, as illustrated in following statement by the chief PEA:

"…so far, so good. The programme was launched and there has been substantial progress in terms of rolling it out nationwide. What we need is to accelerate the training. Once we have fully trained personnel, things will get much better than they are now. Unfortunately there has been a slow down due to resources, but this will be ongoing work so we are likely to pick up from where we stopped. The one worry is that of colleagues in schools (teachers) who are sort of resistant to new ideas. They slow down everything because they are the main change agents and if they do not buy into the principle, there is very little that can be achieved. But overall, things are shaping up well" (CPN1)

MoEST interview

Question 1; In your opinion, what are the major challenges, if any, faced by MOEST in providing quality education and training for primary teachers?

Analysis of answers to this question pointed to problems mainly concerning lack of resources in terms of finance, human and even time. Answers reflected a realisation by respondents about the precarious position in which the MoEST is, in terms of relying on external aid to fulfil its mandate of providing quality primary and teacher education. Financial constraints aside, answers also revealed human and time factors as another challenge. For example, there are more teachers dying of HIV/AIDS than the Ministry can train or produce to work in schools. The financial problem was seen as overriding all others concerning lack of capacity building at district and school levels.

> *"You may be aware that as government we heavily rely on foreign aid. Everything depends on how much money we are given by treasury, and if treasury doesn't have a lot to go round, which means government doesn't have much in its coffers, we try to do with what we have, and that might mean heavy prioritising of our responsibilities. That's why you find that some aspects/areas of our work fall out of the way. It's not that we are unaware of their (areas of work) importance, but there is no capacity for accomplishing everything.. Teacher development, especially in-service education and training is critical but under there circumstances of limited budgets, we have to balance between that against closing residential training colleges where we provide PRESET or limit INSET activities. Usually, the latter is the option. We need highly skilled teacher developers to provide quality INSET but again we still have a long way to go in equipping our PEAS to fulfil that responsibility to a satisfactory level" (M3)*

Question 2: What is your view of the PRESET-INSET continuum and what strategies are put in place to ensure CPD of primary teachers?

MoEST' thinking about the PRESET-INSET continuum acknowledged the importance of a PRESET-INSET continuum but also an acknowledged the dearth of it in the county's primary schooling system. The answers resonated with those which blamed financial constraints as the main cause for lack of progress in this area.

> *"Well, we attach great importance to issues of lifelong learning for all educators in the system. The Ministry has plans laid out for CPD of teachers with clearly identified focus areas. However, quite often everything is bogged down due to resources, especially financial resources. Everything boils down to finances" (M1)*

Question 3: In your opinion, what is the potential of IRI, if any, for professional development of teachers as well as for effective teaching and pupil learning?

Responses to this question revealed perspectives of using IRI mainly for short term purposes related to induction of the new learner-centred curriculum (PCAR) instead of the long term goal of developing a professional teaching force as a way of achieving quality universal primary education— which is the basis of this research study. Answers to this question did not indicate any direct association of IRI with professional development which could mean that in the eyes of MoEST, this is not a priority of the IRI initiative.

> *"We have incorporated IRI into the primary education system for a good reason, to enhance the implementation of PCAR. Teachers will have to be provided with all the help they need to implement this new curriculum and we think IRI is the best way of doing it. It will help in orienting teachers from the old traditional teaching methods that they are used to, to the new thinking of learner-centred approaches in teaching and learning. To be honest, the problems are vast. We still have basic problems of access especially in the rural schools where we have class size of up to 300 pupils to 1 teacher. Now, before we can think seriously about quality, our concern as government is access for the many children that may completely lose out due to teacher shortages. In that sense, the radio learning initiative is coming at an opportune time when we are battling with staffing primary schools in the country. IRI will facilitate delivery of instruction even where human resources are scarce due to its cheap availability and wide reach. What we, as a ministry can do is ensure that our partnership with the donor and funding agencies is strengthened to ensure full and proper implementation of the programme. So basically, I can say that IRI's main contribution will be to enable the majority of our children learn better and improve their*

learning gains. We know from various evaluation reports that girls will be given an opportunity to perform as well as boys and this is an important goal of this Ministry, to ensure equity. In the same way, IRI will help in closing the gap in performance between rural and urban schools." (M4)

5.2.1.6 Development of an analytical framework using interview data

At the baseline stage of the study, teachers' beliefs and practices were elicited through semi-structured interview and then described and summarised into specific categories of description, using thematic analysis approach. The resultant *analytical themes* of teachers' beliefs and practices considered in the baseline study were described as follows:

With regards to understanding of teaching and learning (*analytical theme 1*):

- Understanding of good practice.
- Understanding differences between teacher-centred and learner-centred approaches.

With regards to understanding the potential of artefacts such as IRI as catalysts for teacher learning and professional development- consideration of (*analytical theme 2*):

- What needs to be done
- Who needs to change
- When changes need to happen
- How IRI can help bring about these changes

With regard to issues of induction and training in using IRI (*analytical theme 3*):

- in the delivery of PCAR to pupils/learners
- as a vehicle in professional development

Teachers' accounts of their perceptions about teaching and learning, the potential of IRI as an artefact for their learning and professional development, and aspects of induction and training in IRI were drawn from a wide range of categories of descriptions. The

accounts on aspects of learning and teaching (analytical theme 1) were found somehow logically related and, in some cases, under clear hierarchical structures. They suggest that teachers perceived the actual process of teaching as a transfer of factual information, enabling understanding for specific purposes and enabling application of subject content mainly in assignment-related situations. These categories of description form a logical structure that resembles the ascending sequence within the lower level cognitive objectives in Bloom's (1973) classical 'Taxonomy' of Education objectives, namely knowledge, comprehension and application. Through probing questions on the difference between teacher-centred and learner-centred approaches, it was revealed that with the exception of UTT, teachers have a fair understanding of PCAR principles of leaner-centred education. It has to be born in mind that in the interviews, unless required to clarify the question, teachers were not referred to a particular learning area (subject) or specific teaching situation. All the same, teachers voluntarily reported activities limited to 'giving drills on specific content' and at most, asking learners 'questions concerning the topic'. They made no reference to classroom activities such as "facilitating group work", "learner experimenting" or "discovering". Thus good practice was described within this limited understanding of effective teaching and learning.

With respect to understanding of the potential of IRI as catalysts for teacher learning and professional development (analytical theme 2), participants' accounts had one thing in common: IRI was seen to be a vehicle for remedial teaching. While projecting its potential effects in terms of quality education through ability of teachers to teach the full curriculum and also through improved learner attainment, little else was said about teacher learning and development through interactive radio.

Issues of induction and training (analytical theme 3) yielded various categories of description, the main ones being an overwhelming dissatisfaction with support services and over-reliance on external agencies for staff development (regulatory). The analysis shows that the majority of teachers have a disposition of a more civil servant cast, meaning that they portray a disposition towards teaching that lays far greater stress on the responsibility of the state for pupil welfare and outcomes and hence do not rest on any notion of internalised personal responsibility: this disposition in Malawian schools is a characteristic of weak or ineffective cultures which is contributory to under-performance in underachieving schools (chapter 3). The few schools in which members of staff attain a disposition that rests on a notion of personal responsibility for the welfare and outcomes of learners are the ones that have the possibility to succeed (chapter 6); IRI has, as a side effect of its application in school, the potential to activate such positive attitudes amongst teachers.

Apart from interviews, participant observations were conducted as part of the methodology for the baseline study. The next section is devoted to this discussion.

5.2.2 The Participant Observation Method

Classroom and school observations were undertaken as a follow up to interviews as a way of validating and deepening the exploration into how teachers' beliefs/philosophies affect their practices. By verifying what teachers said in interviews (i.e. what they said, and what they said they do) by physically observing classroom practice, both the validity and reliability in the design of this research study was strengthened (see chapter 2).

5.2.2.1 Participants

Observations involved key participants as the aim was to assess classroom practice and also general professional behaviour. Therefore observations were restricted to the six schools involving the nineteen teachers interviewed earlier. In some cases, when the aim was to capture general professional practice outside the classroom (for example, conduct of staff meetings), observations included other members of staff, too.

5.2.2.2 Instruments and administration: The lesson observation form (LOF)

The lesson observation form (LOF) was used to identify good practice that was already happening (if at all) in classrooms before the introduction of IRI. This instrument was adopted and adapted as a data collection tool in the current study for a number of reasons. Firstly, it is a MoEST monitoring tool pre-designed strictly for purposes of evaluating teaching and learning in the classroom based on PCAR principles (learner-centred education). In other words, it is a document that describes good classroom practice in line with current education policy and legislation for primary schools. Apart from emphasis on checking the application of the learner-centred approach in teaching, the LOF instrument aims to assess the lesson in its entirety, from evidence of proper planning of the lesson, actual conduct of the lesson, all through to post lesson activities. The outcomes achieved through LOF were found to resonate directly with theme 1 as derived through the interview method above. Secondly, the relevance for its use lies in the fact that it is a tool that is currently being utilised by the EDC team in gathering information for their ongoing internal formative evaluation processes. In this sense, there was an opportunity for the researcher of current study to double check some aspects of his

findings by comparing notes with EDC before proceeding to the analysis stage. The LOF uses a point scoring system of 1 to 5 to award points to the teacher against each indicator of teaching practice. A column for comments by the assessor (the researcher, in this case) is provided against each mark entered. These marks were then summarised and described in terms of good practice that was already happening. A copy of the LOF with these indicators under the broad categories of introduction of lesson; development of lesson; methods used; use of teaching and learning resources; teacher level of masterly; appropriate use of language; learner involvement; classroom management assessment methods used and conclusion of lesson, is provided in appendix B1.

As well as using the LOF, a separate research diary was used to record some thoughts as well as reactions to incidents that occurred during observations, or even comments made by participants which had some significance for the researcher. In addition, photos or pictures of events or activities in and outside the classroom were taken using the video camera or a digital camera

5.2.2.3 Procedures

Observations were conducted at both classroom and school level. Fifteen teachers' classrooms were visited twice, making a total of *thirty observations*. Using a point scoring system of the LOF, an overall aggregate was worked out for each category assessed about the teachers' performance in the classroom. As gauging shifts in teacher behaviour meant gaining insight into teacher practice in and outside the classroom, no detailed plan could be made regarding what would and would not be included as observations. However, the observations were subjected to rigorous analysis underpinned

by the conceptual framework developed in chapters 3 and 4 and the analytical themes emerging from the interview findings above.

5.2.2.4 Data analysis

Analysis presented here is structured around two main headings. The titles used have been chosen as they were considered important in drawing attention to the core criteria for evaluating the overall impact of IRI on teachers' practices during the main study (see chapter 6).

Analysing Classroom practice: teaching and learning

The LOF was utilised for assessing classroom practice and a sample of this tool is attached in appendix B1. For UTT, it shows an average score of 2 under items *b* (developmental steps), *B-ii* (methods) and *B-iv (*learner involvement), which reflects a predominantly teacher-centred approach. The observations showed that a tight initial–response-evaluation/feedback pattern with telling/instructing exchanges followed by drilling predominated in lessons. From this evidence, the main focus of cognitive activity seems to be listening, memorising and recalling of what seemed little understood chunks of information. Looking back at analysis of interview data for this group, this type of classroom practice seemed to correspond with their views/beliefs about teaching and learning.

The same pattern seemed to apply to T1/T2s' classroom practice, though mildly modified— their average score of 3 seems to match this slightly less over-reliance on the teacher chalk-and-talk methods. Their articulations on effective teaching and learning

seemed to correlate with the observed classroom practice. T3s' average scores of 4 was a significant improvement on UTT and T1/T2s practice, but still very much teacher-centred. Most T3s occasionally showed eliciting and even attempted use of pupil- led tasks or activities, but overall, teachers gave limited opportunities for pupils to engage in meta-cognitive processing. This was found to be contrary to their articulations on what they thought was effective teaching and learning during pre-observations interviews above. Analysis of their interview responses placed their understanding within the middle point of Marton et al (1993) hierarchy, which would mean practice of learner-centred teaching/learning approaches more than teacher-centred ones, but observations here showed that the opposite was true.

To assess teachers' competences in relation to language teaching (category B-v), the researcher observed a number of literacy skills classes where English was the specific subject being taught. With many years of experience in teaching English as a foreign language in addition to being a teacher trainer, the researcher found it the most convenient way to assess practice in teaching of languages. The same average scores as above (2 for UTT, 3 for T1/T2 and 4 for T3s) were recorded, indicating that language teaching competences of teachers were poor. In these language class observations, most notable was the absence of inference, interpretation and analytical skills. Many teachers showed poor decoding competence and sought to maximise overall interest with an emphasis on "keeping them quiet", what Hugh and Aeth et al (1996) have referred to as face saving strategies and low risk-taking activities. Teachers seemed unsure of how to use the communicative approach advocated in PCAR. In fact, not all UTT and T1/T2s felt confident or comfortable speaking English.

Analysis of teachers' general professional practice

As mentioned earlier, there was no planned method of assessing teachers' general professional behaviour. General behaviour of teachers in and outside the classroom differed from school to school, classroom to classroom and individual to individual. Here only the common traits of teacher professionalism are highlighted. In the classroom situation, the common tendency was that of the teacher as authority concerned with giving instructions and disciplinary measures. This seemed to be the trend even outside the classroom (e.g. on the sports field or at social events). Apart from staff meeting, (four of which the researcher had the privilege of attending at different schools) the other meetings concerned either sports or social events. None of these activities were geared towards staff development and no team work on issues of staff development was noted during the baseline study.

5.2.2.5 Closing remarks on observations

This step of the baseline study yielded some findings which in terms of teacher practice attributes, are similar to those of the interview study. For some categories of teachers, the findings on classroom practice seem to correlate with their conceptions of teaching and learning as evidenced in the interviews. However, another important outcome from the analysis concerns the disjuncture between what teachers say and what they do. The example of T3s can be cited again here: even though they articulated learner-centred teaching/learning strategies during interviews, their actual teaching practices somehow contradicted this. Once probed about PCAR, most T3s had quoted discovery, building on prior knowledge, working in groups and teacher mediation role, as the way children

learn. Yet methods employed in the classroom by these same teachers were just the opposite. In other words, their teaching methods did not differ that much from that of T1/T2s as pupils were never given the opportunity to discover, there was no evidence of building on prior knowledge, and exclusive whole class teaching occurred. Therefore the following is a summary of characteristic features of the classroom practice, at this point, in the six schools under study:

- Lessons were dominated by teacher-talk and low-level questions.
- Lessons were generally characterised by a lack of structure and the absence of activities which promote higher order skills such as investigator, understanding relationships, and curiosity.
- Real world examples were used at a very superficial level.
- Little group work or other interaction occurred between pupils.
- Not much reading and writing was done by pupils. When it was, it was of a very rudimentary kind

5.3 Summary of baseline study

The results of this stage of the study suggest that teachers' understanding of effective learning and teaching, good practice, is limited and this has a direct bearing on their pedagogic and professional behaviour. This is confirmed by the consistency between what teachers said during interviews and what was observed in the classroom. It would appear that their low level of conceptual knowledge, their poor grasp of their subjects largely contributes to the range of errors made in the content and concepts presented in their lessons. Teaching of English, which becomes the medium of instruction after standard (grade) 3, was found to be below standard. Findings suggest that teachers are unable, for example, to process the English tests as they lacked the background in the

discipline. This problem seemed more pronounced with UTT and even those teachers who were professionally qualified but had only a Junior Certificate (JC) as their academic qualification, the majority of T1/T2s. Apart from their low level of reading skills, it was noted that teachers did not have a holistic understanding of what they were teaching and therefore were unable to perceive links between different parts of the curriculum. This had implications for implementing IRI as discussed in the next chapter. It would appear that it is this poor understanding of the subjects that led to these teachers making a number of factual errors.

The majority of participants especially those with few years of training showed a superficial understanding of what makes for teaching and learning which might be the main reason for a lack in implementing leaner-centred practices and a superficial engagement with pupils in their classrooms.

5.4 Conclusions of the baseline study

In the light of the above reported outcomes, it can be concluded that the existing practice of this research's target group embrace the teacher/subject-centred approaches. This is in line with their conceptions of learning as revealed in the interviews and resonates with earlier conclusions about the importance of conceptions of learning in relation to teaching approaches (see chapter 3). The portrayed perceptions about teaching and educating in general, appear to relate to what Säljö (1979) called reproductivist style of learning or process of accumulating factual information without revoking or processing it in an integrated and coherent way. These are 'non-sophisticated' views of learning that result in non-sophisticated ways of teaching and vice versa. Even though there is tendency,

amongst ‘the better qualified teachers’ to articulate modern thinking on teaching and learning, it has not become part of their practice. As a result, practice in the classrooms remains of the traditional teacher-centred type. A number of other reasons including oversized classes and lack of teaching/learning resource materials possibly contribute to this. Operating under those circumstances, passive learning strategy appears to be privileged as the most effective way of teaching and learning. As a result, teaching is predominantly lecture type, chalk-and-talk thus the learning is of rote-memory, where the teacher is the knower who has to fill an empty vessel, and the learner is a passive recipient.

With PCAR running over a year already, teachers would be expected, at this point in time, to be making a paradigm shift from the old to the new one as described above. It has been explained in chapter 1 that the idea of introducing IRI was partly to facilitate (even fast-track) this transition. As pointed out in section 1.6.2 (*limitations*), in order to check on the effectiveness of the IRI implementation strategy employed by USAID/ECD, it had been proposed to carry out an (additional) early study of the IRI impact on teachers’ practice (in June, 2008, six months after the introduction of the Malawi IRI). One of the important outcomes of this empirical study (referred to here as *baseline study2*) was an insight into the complex nature of donor funded development work in Third World countries. The turf wars that the researcher witnessed amongst donor agencies during this field study simply confirmed the well-known belief that whatever the rhetoric, there is no altruistic aid. From the findings of this study (see details in appendix E), it was clear that there were serious misunderstandings between different international donors agencies, many of which seemed rooted in petty competition between the donor

agencies concerned. While they flexed muscles against each other as explained in appendix E, these donor agencies wasted resources (both time and financial) and almost derailed the IRI process by delaying induction/orientation of both school-based and office-based educators. Thus, teachers could not effectively implement the programme on the ground as the USAID could not provide training of teachers while a war of words raged between donor agencies, about which should have the main role in teacher development in Malawi. Field work by the researcher at this point therefore involved a significant proportion of time dedicated to ensuring that the IRI project got off the ground. It was imperative that the programme should run smoothly, not only for the benefit of the schools and teachers involved, but also for the completion of the current research work which depended on teachers' classroom use of IRI. Though belated, this was finally achieved and with the induction of teachers back on track, a full evaluation of the programme's impact on teachers' practices, called the 'main' (or *post-intervention*) study was eventually carried out, as discussed in the next chapter.

Chapter 6 **Methodology and Findings of the Main Study**

Unlike the previous study in chapter 5, the main study was interested in the overall impact of IRI on the practices of key participants, classroom teachers. This field study was undertaken over a period of three months, October- December 2008 on the assumption that participants had had ample opportunity to interact with the IRI programme.

6.1 Purpose of the main study

A more specific purpose of this final study was to assess the impact, if any, that IRI had made on teachers' beliefs/philosophies and practices, and the manner in which change occurred, if at all. Using outcomes of the baseline study as control data, the outcomes of the main study were able to reveal the differences in teachers' thinking and practices *before* and *after* introducing IRI. The process of contrasting earlier data (baseline) to later data (main study) is summarised in a section on *synthesis and comparison of findings* later (6.3). In terms of the broad interest in the IRI activities (for this thesis and for the practical implementation of findings), the main study was a summative evaluation providing summary judgement of the IRI programme thus far. This information was of critical importance for devising innovative strategies in exploiting IRI maximally for CPD of teachers in schools under study (chapters 7 and 8).

6.2 Methods: *Interviews, participant observations and focus groups*

Interviewing and observation of participants remained the main methods of data collection but were enriched by including a pupil classroom environment satisfaction

survey. In addition, focus group discussions were conducted with teachers, head teachers and PEAS from fourteen schools outside the original sample. The next sections discuss each of these methods in detail.

6.2.1 Semi-structured interview survey

This section addresses a range of design decisions covering the interview survey process and associated documentation. As well as trying to clarify the rationale for each individual design decision, discussion on how interviews were actually conducted in comparison to the previous study is included. Given the task of verifying whether any change had occurred and how any changes had occurred as a result of IRI, an interview survey was again regarded as an effective way of eliciting a range of responses. In some cases the participants still had had little or no contact with the IRI programme by the time of this study therefore were able to offer effectively little detailed comments about their own personal experiences with IRI. However, such responses were important as illustrative of the implementation strategies that are required in employing IRI as a learning object for both teachers and pupils.

Compared to the baseline studies (where fifteen teachers from six schools were involved), interviews were held on a wider scale of eight schools, involving nineteen teachers. Head teachers from these schools and three PEAS were also included resulting in thirty interviews altogether. In designing the interview strategy, three issues were considered: (i) choice of participants, (ii) interview documentation and, (iii) pupil interview instruments and use of research assistants.

6.2.1.1 Choice of participants

The interviews at this stage involved the same group of participants in the original sample, with the addition of pupils and extra schools as discussed above. Teachers, head teachers and PEAS were the key participants in the main study because they were regarded as key to adopting IRI and PCAR on the ground. Classroom teachers were the sources of primary data in the baseline studies therefore remained the key informants at this stage. The sample distribution and other characteristics are detailed in provided in appendix A 2. The social and cultural environment of the schools involved has been described in the preceding sections and also in chapter 1. As with the baseline studies, the language used for interviews was either Chichewa or Chitumbuka depending on the location of the school.

6.2.1.2 The interview documentation

Although the interview questions were formulated along the same lines as those in the first baseline study, they were more structured in construction than those in the previous schedules. The interview schedule here consisted of eight open-ended questions structured in the form of a follow up to outcomes of the baseline study. Specifically, questions aimed to cover shifts or changes on teachers' understanding of teaching and learning (analytical theme 1). Within this analytical theme, focus was on teachers' understanding of the differences between learner-centred and teacher-centred approaches; therefore shifts in their understanding of good practice with regard to this paradigm shift. Results of data analysis under analytical themes 2 and 3 acted as a back up to outcomes of the analysis of theme 1.

6.2.1.3 Pupil interview documentation and use of research assistants

The Classroom Environment Pupil Satisfaction and Achievement Instrument (CEPSATI)

Although focus of the current study was on teachers, it became imperative at this stage of the evaluation, to survey the learners' feelings about learning experiences as one way of consolidating the findings in teacher interviews. This was found helpful in broadening means of reliability and validity of the findings of the study.

As the aim was to explore students' own experiences of the learning environment, it seemed plausible to adopt and adapt a research instrument already used for similar purposes. The EPL (2006) CEPSATI form seemed to fulfil those requirements because, a) it was geared towards eliciting evidence from learners (pupils) about their learning experiences at the primary school level, b) the questions asked were based on information from pupils in Scottish schools of a similar age level as those in Malawian schools.

In this instrument, learners were asked to tick 14 items each with four options (*almost always, often, sometimes, hardly ever*). These asked their views on a range of issues including their experience of the teaching and learning process. However, using the Chichewa and Chitumbuka versions of the document at four different schools not included in the original sample, research assistants were utilised for interviewing Standard (grade) 1 pupils and then filling in of the forms. The assistant were fluent in local languages and were recruited from the quality assurance divisions of the MoEST therefore were quite capable assessors. Appropriate training and induction were completed before being deployed to the four different schools. The questionnaire was piloted to check on the clarity of the questions and amended accordingly. This pilot was

also used to cross-check student replies with teacher approaches and interviews. The data collected was transcribed and analysed separately but was used for cross reference purposes only and to check triangulation. In general, findings correlated with those from interviews with teachers about the rise in the level of interest in classroom activities by learners due to IRI.

6.2.1.4 Analysis and results of the main study

Within this section, the analysis is structured around the heading of 'analysis by theme'. The next sections explain the manner in which data or evidence was analysed under this heading.

6.2.1.5 Clarifying analytical themes

In an attempt to provide a constant structure for the analysis of responses from each of the nineteen key participants and for purposes of carrying out a comparative analysis of practice before and after the introduction of IRI, the same themes that were used for analysis in the baseline studies were adopted. The manner in which the three themes were derived has been explained in part 1 of this chapter. Here, only a brief explanation of the meaning of each is recalled— in terms of the manner in which they were utilised for formulating questions of the summative-like evaluation that follows hereunder.

Understanding of learning and teaching

As a follow up on findings from baseline study 1, the questions in this theme explored whether respondents conceived of learning differently from the time before IRI, whether there were changes in their perceptions of how successful learning is achieved and how,

if at all, this had changed their teaching practices. Good classroom practice was analysed in line with the PCAR emphasis on the paradigm shifts from old, traditional (teacher-centred) methods, to the new (learner-centred) learning/teaching methods.

Understanding the potential of artefacts such as IRI as catalyst for professional development

The emphasis in the current Malawi IRI is on learners. Professional development of teachers is assumed to result as an inherent element of the programme activities. Therefore this aspect is of central interest to the current research which aims to feature the CPD component within the Malawi IRI so that it is not just an 'add-on' or 'side effect' of the set objective, but a paramount feature of the programme to ensure growth of more positive teacher cultures that could lead to more effective teaching and learning in schools. This theme therefore puts stress on the professional development role of IRI—by examining participants' own understanding of IRI as a tool for the transfer of pedagogic ideas to promote good practice and innovation.

Issues of induction and training in IRI

This analytical theme attempts to highlight issues related to capacity-building and empowerment of users of IRI but also addresses the different reactions of key participants to that. Induction of participants in any programme should be considered a 'must' if individuals involved in the programme are to participate fully. Without proper orientation or training of key participants, the efforts to implement IRI effectively would be worthless and so would be this investigation into IRI as alternative route for providing CPD of teachers in low income countries like Malawi.

6.2.1.6 Coding of interview transcripts

Following the longitudinal analytical framework, data from the present interviews was transcribed and printed for analysis and coded based on the same themes as the ones in the baseline study. Thus, according to Miles' and Huberman's (1984) ideas, the formula for coding of interview transcripts adopted here was again a type of *a-priori*. A code was created for each of the different questions asked of participants and this code was applied without modification as the coding process progressed. Unlike in the baseline study analysis, this time the initial list of codes was aggregated using the code–family facility within Atlas.ti into various groups that allowed for the extraction of sub-sets of responses in a variety of ways. Although the design of this initial coding scheme is not a sophisticated one, it proved useful for extracting responses in a very flexible way and to make effective comparisons across the various schools involved in the study.

As an addition to the initial coding scheme based directly on the interview questions of the main study, a second set of codes (for the main study) was developed based on the numerous memos that were made as part of the initial coding process. In some cases these memos were used to highlight something in the audio recording which could not be reflected in the transcription. For instance, where a participant smiled/laughed, hesitated, pondered or answered immediately. The memos were also useful in drawing attention to points of agreement or disagreement amongst participants. In addition, these memos were used to record the researcher's own thoughts about how a comment related to a conceptual or theoretical matter. In order to be able to identify which participant a memo related to, each memo was given a short title. Initially these memos were not organised and it was not seen as necessary to adopt a consistent naming scheme for them. Later, the

volume of memos became quite significant and it became necessary to organise and rationalise them as they could then provide a second set of analytical codes that could then be used to enhance the analysis already carried out using the first set of codes. The derivation and use of this second set of codes in many respects is in line with Miles and Huberman's (1984, p. 61) notion of a *post-defined (or grounded)* coding scheme.

The next section on results presents interview transcripts primarily based on the first code but it is supplemented, here and there, with analyses based on the second set. In the second step of this main study, a more extensive use is made of the second code set in presenting analysis of various *observations* conducted in the eight schools in the sample.

6.2.1.7 Analysis by key analytical themes

Analysis of theme 1: Understanding of learning and teaching

Here attention was paid to participants' potential to shift in perceptions towards more rigorous teaching/learning approaches than existed before. This could be interpreted as a sign of good practice. In the context of current transition from traditional teacher-centred to learner-centred approaches in Malawi, good practice was viewed not only in terms of the ability to articulate this paradigm shift in a meaningful way, but also practical understanding of it as discussed under observations below.

Although there were a variety of views about effective teaching and successful learning, most T3 participants in schools that had received induction on IRI expressed a high level of concern for placing importance on: learning as 'understanding', learning as 'seeing things in a different way' and also learning as 'changing as a person':

Q: Can you tell me what successful learning means to you?

A: Well, I believe one has to have a good understanding of the subject matter in such a way that one starts seeing things in a different light… or say, in a more enlightened way. It must be demonstrated that the learner's behaviour has changed and she/he has become more sophisticated and creative in her/his thinking. If the learner cannot apply knowledge gained from learning, then that should be a cause for worry. (T3C1-1)

In comparison with their views during the baseline study, T3s responses on learning indicated a significant shift in thinking. This time they were able to articulate these conceptions of high order in the learning hierarchy compared with the first interviews. Here, the information was offered voluntarily whereas during the baseline study, it was offered only through a great deal of probing

This change in thinking was also noted in the analysis of responses from T1/T2s who had undergone IRI orientation. While they had conveyed a confused, unsophisticated conceptualisation of learning in the first study, this time their answers reflected sophisticated views belonging to the middle point in Marton et al's (1993) learning hierarchy. Of all the groups T1/T2s seemed the most enthusiastic about IRI and this also showed in their classroom practice.

In the case of UTT, it was very difficult to judge if they had gained new ideas about the meaning of learning that could help them implement innovative teaching strategies for delivering PCAR in their classrooms. Their responses did not resonate with the question per se (how they perceived learning) but related to perceptions of education in general:

Q: Can you tell me what successful learning means to you?

A: Well, learning is about gaining information and if a pupil can demonstrate that new information or knowledge about a subject has been gained, then we could say she/he has learnt something (UTTN2-2)

Analysis of UTT's answers to probe questions also shows that even though they were able to articulate how learner-centred teaching/learning could be put in practice, they did not seem to know why these approaches are preferred to teacher-centred ones. More probe questions were used with all categories of participants to elicit evidence on this issue, and IRI-trained T1/T2s conveyed a much better understanding of the differences between these approaches than they did during baseline study, however it is the T3s that seemed to have understood why learner-centred approaches are more preferable to those of a teacher/subject-centred type, and cited the emphasis on learner's responsibility for his/her learning as an important element of learner-centred approaches.

The above was in contrast with those answers from respondents in schools that, to date, had not received induction or training of any kind on IRI. Answers of each category of participants from these schools (appendix A 2) still reflected conceptions of learning as in the baseline study, before IRI.

The analysis on teaching goals also revealed a lack in the understanding of teaching and learning by most under-qualified participants. For example, it has been mentioned earlier that T1/T2s who had been oriented in IRI were found to be the most enthusiastic about the programme but a comparative analysis of their answers to the main versus the probe questions on teaching goals points to serious flaws in their understanding. There were apparent discrepancies in the answers to the main question, "What is your main goal when teaching pupils?" versus the probe question, "So, how do you actually teach?" The answers to the first reflected an attempt at employing learner-centred strategies, those to the second question seemed to focus on teacher-centred practice:

Main question		Probe question
Q: What is your main goal when teaching pupils?	Vs	Q: So, how do you actually teach?
A: When I teach these days I'm conscious of quite a number of things. I do not just look at how much material I have covered but how much the child seem to have understood. With the new emphasis on the learner, I consider my role more of facilitating learning and let the children 'do' as much as they can. This is a huge challenge due to the large numbers of children but I do what I can (T2C1-2)	Vs	A: Let's not forget that the teacher's job is to provide the necessary information to the child so that at the end of the day, the learner is more knowledgeable. As for the teaching styles, well, I use different tactics— for example, question-answer or short explanations or demonstrations and then exercises to test their understanding (T2C1-2)

The response to the main question which was more of theoretical is indicative of a deeper understanding of learner-centred practice, whereas the second answer (what actually happens) points to a teacher-centred practice. The thinking is learner-centred, but the practice is still teacher-centred. Except for UTT, (whose mode of thinking seemed stuck in the old traditional ways) this seems to be the pattern in shifts which was collaborated by analysis of classroom observation data below. However, close analysis of answers from T3s show a correlation of their answers to the above questions but there is then no correlation with actual practice in the classroom practice and their statements. In their answer to goals of teaching, most quoted 'facilitation of learner's cognitive and critical skills' and attempted to justify ways they achieve this by citing 'rigorous, involving and interactive learner-centred methods'. However, as discussed under 'observations', classroom practice remained teacher-centred albeit of a high standard.

Using Reckwitz's (2002a) approach to practice theory, the PCAR-IRI initiative here could be interpreted as a set of new rules which UTT completely fail to 'instantiate', which T1/T2 apply with serious flaws and, rules which are in many cases, dogmatically

resisted by T3s. While the reasons for failure by UTT and the T1/T2 groups of teachers to comply with the PCAR-IRI initiative seem to include the lack of a knowledge base to interpret and apply this approach, environmental issues seem to be the main reason for T3s' resistance to the initiative. This point is further explained chapter 7.

This variation in shifts of views did not manifest in those participants who were still non-oriented or untrained in IRI. Analysis of answers from these participants shows similarity to those given in the baseline study. This was also the finding on how well these participants understood good practice, to date.

In response to the question on good practice, IRI-oriented UTT and T1/T2s were forthright in coming up with answers that reflected a view of good practice as teacher performance in line with PCAR but most could not elaborate coherently on differences between PCAR practice and practice in the old curriculum. Issues relating to staff development, relationships and collegiality were mentioned voluntarily but answers on other aspects of general professional practice such as moral professionalism or teacher ethics were investigated through probe questions:

Q: So what is your understanding of good practice?

A: It's about the manner of rendering your services as a teacher: the way you deliver the curriculum is critical in explaining good practice. As far as I'm concerned, if teaching is of high standard and classroom delivery of curriculum meets the requirements of PCAR, and is on schedule, that is a sign of good practice (UTTS2-2)

Compared to UTT, T1/T2s' answers reflected a slightly deeper understanding of good practice but also in terms of what they perceived as effective teacher/teaching, which essentially was explained in terms of PCAR practice:

Q: So what is your understanding of good practice?

A: The way I see it, you cannot talk about good practice unless you are in fitting with the requirements or expectations of the social context in which you are. So the question is: 'What is expected of you as a standard 1 teacher today?' That is to deliver the new curriculum based on learner-centred principles. Thus, my simple explanation of good practice is effective execution of the new learning and teaching methodologies. I suppose IRI is intended to be the guide in applying these methodologies in the classroom (T2N2-1)

T3s were more thorough in their description, citing many other elements of general professional behaviour as good practice such as cooperation with colleagues, communicating high expectation to learners, meeting high ethical standards of practice and engaging in professional development activities, and so on. Again this confirms that environmental issues more than a lack of knowledge about PCAR-IRI principles are the main reason for these teachers' failure to comply.

Analysis of the answers on what participants saw as major challenges to delivering good practice revealed consensus on what these challenges were even though the order of prioritisation differed from category to category. For UTT the priority order was (from most important to least): lack of professional support and development, large class sizes, and poor material conditions. This was a noticeable shift from prioritising material conditions as number one in the baseline study to issues of staff development. The same thinking was noticed in T1/T2s' answers but for T3s, priority was to sort out the problem of overcrowded classes first, then material conditions and lastly professional support and development. It would appear that with a fairly better educational background, T3s' concerns were 'material' more than 'professional' support. This point further illustrates the importance of 'context' within which practices take place. It could be argued that within the environment in which Malawian primary teachers work, teacher-centred practices are internalised to a point whereby teaching as an activity has collapsed into

mere operations. In this case it would require a great deal of motivation for teachers to reverse, as suggested by Jonassen and Roher-Murphy (1999), their 'operational' mode of practice into actions again. IRI should therefore be used as a tool for building motivation amongst teachers by capacitating them (teachers) with the 'know-how', that is, the knowledge and skills required in implementing PCAR.

Further analysis through the variable 'rural vs urban' revealed that the need for improvement of material conditions was more pronounced in rural schools. Not much variation was witnessed between the inducted and non-inducted staff in terms of these challenges although, in non-inducted schools, there was a tendency to drive home the point of the long-awaited for induction as one example of barriers for applying good practice. T3N2-3 summarised a fairly straight forward perspective that was shared with many other participants:

Q: What do you consider to be your biggest challenge in delivering this good practice?

A: In my opinion, PCAR and IRI will not work unless something is done about the pupil-teacher ratio. I have close to 300 pupils in my class, and although I have an assistant teacher to help but she is untrained, therefore the teaching load is borne by me single-handedly. Do you expect this one radio to act in place of a second teacher? Even if it were effective as a tool for teaching, how can I be an effective learner –centred teacher without proper training, even basic facilities such as a classroom for a start? (T2S1-1, *teaching under a tree*)

While these were the common response, there were exceptions. For example, for HC2 resilience is what mattered:

Q: What do you consider to be your biggest challenge in delivering this good practice?

A: The biggest problem we face is overcrowding in classrooms. It's impossible to expect teachers to effectively implement learner-centred education with these large class sizes and no resources. However, I must say that we somehow learnt a few strategies through the IRI short induction about improvising. One just needs to keep trying out those tactics to improve pupils' learning.

In general, data analysis proved that change or shifts in thinking of key participants (teachers) on their understanding of teaching and learning is not as straightforward a development as thought at first, but a complex one with each category of participants demonstrating their own specific needs and therefore unique trend/pattern of change in practice. This outcome helped the thinking on the overall approach to the envisaged *Radio Education for Interactive Learning in Malawi* (REFILM) project (chapter 8).

Analysis of theme 2: Understanding the potential of artefacts such as IRI as catalyst for professional development and pupil learning

This theme focuses on attitude towards IRI as a tool for teaching, learning and professional growth. Getting some insight into teachers' own views about their experiences with IRI in terms of their professional development (in and outside the classroom) was vital in rethinking the model of an integrated IRI programmes to support CPD. Analysis on this aspect showed a subdivision into four groups in terms of usage (or non-usage) of IRI in schools:

- those inducted and using IRI (4 schools)
- those inducted but not using IRI (2 schools)
- those not inducted and not using IRI (1 schools)
- those not inducted but using IRI (1 school)

Of the eight schools in the sample, six had received induction in IRI and all of them, except two, were implementing the *Tikwere* (IRI) programme (see observations). Participants from the two schools that did not use IRI despite receiving induction presented a number of reasons for their apparent resistance to IRI, which included:

- inadequate training- only one 3 hour orientation/induction course received so far
- lack of resources: e.g. one radio vs 250 pupils per class
- 30 minutes radio segment (with all learning areas pre-packaged) did not fit in with the regular subject timetable
- lack of teacher guides on IRI lessons;
- unsuitability of certain materials, e.g. English too advanced for pupils
- not inclusive, especially for pupils with special needs, e.g. the visually impaired and slow learners

These same difficulties were cited by participants from the rest of schools that were inducted, but these seemed to regard IRI as supportive of their work citing the following benefits:

- some new/alternative methods of teaching, especially teaching of difficult concepts/subject matter
- active/participatory learning
- increased pupil class attendance

With respect to the first bullet point, participants' answers reflected some acknowledgement of IRI's advantages in developing their pedagogical skills, but expressed concern about inadequacies in terms of guidance:

Q: The IRI programme has been running for a good eleven months now, what has been your experience of it in the classroom?

A: I used to put aside certain topics in the syllabus that I was not comfortable teaching because I did not understand the content matter so I couldn't teach it, but now, following the radio instructor, I can teach those topics. I just wish there was a teachers' guide for the IRI lessons with commentaries— that could help with lesson preparation (T1S1-2)

In contrast, responses from the two schools that underwent IRI orientation but did not use IRI indicated no recognition of IRI's influence on their practice. This could be because they had not made an effort to practice it where and whenever possible- just the opposite culture of other schools.

Q: The IRI programme has been running for a good eleven months now, what has been your experience of it in the classroom?

A: With all this baggage (problems) that comes with it, I feel it is better left aside and wait till a mechanism for making it functional is put in place. Otherwise one ends up confusing children in the classroom just grappling in the dark simply because one has no knowledge of the methodology or resources to use it (T1N2-1)

There could be a number of reasons for this attitude despite receiving induction. Analysis through the variables 'rural vs urban' and 'qualification' revealed that they came from rural schools and were trained under the MIITEP programme, which, as discussed earlier was a fast-tracked training programme used for mass production of primary teachers in Malawi and proved ineffective. This could probably be part of the reasons behind low uptake of new initiatives amongst these teachers. According to the MoEST's ranking system, these rural schools were rated as lowest in terms of performance and also as self managing institutions (Ministry of Education, Science & Technology/Electronic Management Information Systems, (MoEST/EMIS), 2007).

An example of such an attitude towards the teaching was witnessed in the discussions with participants of one particular school (the same school that was found to be enthusiastic about PCAR and IRI in the baseline study) which had not received orientation in IRI by the time of the main study. Analysis of their responses reflected different ethos which is more positive— a kind of 'never-give-up' spirit that seemed non-existent in many schools:

Q: The IRI programme has been running for over eleven months now. What has been your experience of it in the classroom?

A: Well, it has been very positive— the interest of learners in school has really improved. Attendance has improved a lot since the introduction of IRI. Things could have been much better with training in IRI, but we do what we can because it is quite helpful in fulfilling some of the requirements of PCAR (T2S2-2)

In general, it appeared that participants who had the opportunity to use IRI regarded as having tremendous benefits for pupil learning more than their own learning as teachers. However, other than the facilitation in teaching difficult subject materials by following the radio teacher, most participants did not see how else IRI was of help in their academic or professional growth.

Q: The purpose of introducing IRI was to facilitate the implementation of PCAR. In what way has IRI influenced your way of doing things in class these days, if at all?

A: I have learnt so much through IRI but I believe there is a lot more of training on it needed until we are fully grounded in its approach and can deliver PCAR accordingly. The main thing that I have gained through the daily lesson broadcasts is variation in teaching methodologies in each of the different subjects. Before I was not aware of the different techniques of applying discovery, groups-work and-methods in such huge classrooms, but now I try them out and sometimes it works. By following the instructions from the radio teacher on how to use interactive approaches I gain new knowledge and skills. Many new terms and concepts and ways of convoying them to learners have been built into these lessons. But there is very little time-30 minutes is too little time. Kids enjoy learning through these interactive methods more than the usual chalk-and-talk question-answer ones. And the radio....it has brought so much joy and fun in the classroom (T2C1-3)

These sentiments were echoed by school leaders (head teachers and PEAS) who seemed to view IRI more directly in terms of its value for professional development:

Q; The purpose of introducing IRI was to facilitate the implementation of PCAR. In what way has IRI influenced teachers' practice, in your opinion?

A: IRI has a lot of potential in transforming not only the way teachers perform as classroom practitioners but the way they conduct themselves as professionals. We have started to see growth of collegiality at the foundation phase level in schools as teachers start working in teams. In some schools team teaching is already well in progress and staff development teams have been established by teachers on their own. This is largely due to the fact that inherent in the IRI approach is the practice of sharing of ideas by staff, especially those teaching the same Standards (grades). It's a pity that some schools have not yet received IRI training till now because their pupils stand to lose out a lot (P4)

In comparison, participants seemed more knowledgeable about IRI this time than in the previous interview. It was evident from the analysis that after so many months of rolling

it out, IRI was being experienced differently by different schools and teachers. There was evidence of acknowledgement of some form of learning on the part of participants but very much of surface type as it was based on *Tikwere* radio lessons where the teacher simply mimicked the radio teacher—a typical example of traditional IRI. The aim in this research was to explore more rigorous forms of IRI that induce deep learning of teachers so that teachers' competences are enhanced in the long term. Therefore issues of training become paramount as discussed in theme 3.

Analysis of theme 3: Issues of induction and training in the use of IRI

This theme addressed an important element of the IRI implementation strategy: teachers' preparation (knowledge) for participation in the IRI initiative. Full participation in the programme by participants necessitates their knowledge about it. Thus, without participants' full understanding of how to use it, IRI would be of little value as attested in the baseline study.

Given the lack on orientation at the beginning of the programme (see baseline study), questions asked here aimed to assess participants' feelings about the current level of support they receive in implementing IRI. Analysis of the responses from participants who had received IRI induction across the categories reflected general dissatisfaction about their interaction with programme implementers and the level of ongoing support:

Q: I am aware that the start to this project was kind of uneven because teachers had to wait for such a long time for induction, but in your opinion, have things changed now, and if so, in what way?

A: The answer is both, yes and no! Yes, because the programme is on air, we can at least access it easily and children enjoy those radio lessons despite the brevity. No, because not much is happening in terms of providing material and professional support. Since conducting the three-hour induction four months ago, we have had no other training. Our

> requests to EDC through the district office (PEA) about need for extra radios have never been attended to. Right from the beginning, we were told to allocation of radio is 1 radio per 55 pupils, but look (pointing to class) I have 175 pupils and I radio. No IRI teachers' guide! (T3C2-1)

This feeling was widely collaborated with other participants during the focus groups discussions. Most responses pointed to the need for effective out reach services in teacher training on an ongoing basis if the PCAR-IRI initiative was to work. There was acknowledgement from head teachers that school leadership needs to be 'jacked up' in accordance with new developments in the teaching profession in general and pedagogic practice in particular:

Q: So how would you rate the success of IRI so far?

A: The start was promising but the state in which the programme is now, I wouldn't say that it has been successful. That lesson broadcast has been going on continuously is true and most schools are able to access the *Tikwere* programme. But that in itself is not enough. Effective use of IRI necessitated a good grounding of teachers into its principles which has not happened. To date many schools/teachers still have to undergo induction. Those inducted still feel somehow confused as the three hour training workshop proved inadequate in covering most issues about IRI as a concept and how it should be applied in practice. It's a pity that such a powerful tool for improving teaching and learning is being laid to waste. Another problem is that the little time that is accorded for inductions is devoted to the classroom practice, nothing else. While there has been an attempt to include head teachers and PEAS, the training pertinent to issues of managing this IRI curriculum at school level is not in sight. So my assessment of progress is that we are still way behind (HN3)

This concern at management level was echoed by District Education Managers some of whom felt that there was lack of collaboration and coordination in issues of teacher training in the use of IRI. This was in connection with the long-protracted IRI inductions which were still outstanding eleven months after inception of the programme. Most PEAS thought the apparent failures in providing adequate professional support and development in IRI, were comparable to those of the PCAR initiative of earlier:

Q: So how would you rate the success of IRI so far?

A: To be frank with you, this project is following the same trend as PCAR: a promising start, no delivery in the end. When the IRI programme was being marketed through the press we were made to understand that the implementers will be hands on— in touch with those of us in MOEST at the district and zonal level, to ensure effective supervision and training, but that is not happening. PEAS are not always directly involved in training and often, we have no idea what the EDC representatives plans are. If eleven months after the inception of IRI some teachers are still awaiting induction, when is the follow-up training going to take place? (P2)

Delays in training were obviously the main concern as the year was drawing to an end yet Standard 2 teachers had not yet been oriented in IRI meaning that they would be unprepared (just like their counterparts at the beginning) when pupils from Standard 1 get to Standard 2 in 2009.

6.2.2 Focus group discussions

These discussions were held in Ntcheu district where the EDC team was still conducting induction for teachers from two zones. Schools involved in the focus group discussions did not form part of the original sample of this study. An opportunity was presented to meet as many teachers, head teachers and PEAS involved in a training event at a venue within proximity of the researcher's residence. In this sense, the focus group on this occasion was used opportunistically as a way of gathering extra collaborative data on pertinent issues. This was considered helpful in strengthening the reliability and validity of findings by cross-checking views of key participants with those of this wider target population. In addition, evidence from these discussions was used in the *analysis by role* as discussed in sections 6.2.21 to 6.2.2.4.

As the interest was to get perspectives of educators at various levels, permission was sought to conduct discussions with each group separately before and after the induction. As part of the discussions, an evaluation form was distributed to educators for them to

evaluate the three-hour long IRI induction course (see appendix B3), and as pointed out, the data gathered was used in the following analysis. A similar evaluation form (though structured slightly differently) was used by the researcher himself to evaluate the training (see appendix B4). The various questions—as well as memos from interviews with the original sample of participants were also used for identifying topics for these discussions, depending on the group. Therefore the analysis now provided is structured around the role of each group.

6.2.2.1 Analysis of role 1: Classroom teachers

In all there were *twenty-eight teachers* (two from each school) involved in the discussions. The same system of using an identifier for each participant was adopted here, simply by numbering them T1-T28 (T for teacher, D for DOC, H for head-teacher, P for PEA and then the number of each within the group). The key issues that emerged from the analysis for the classroom teachers were: training, support/development and knowledge sharing.

Issues concerning training revolved around the practical implications for the use of the 30 minute IRI radio segment in line with the regular subjects. Most participants felt they needed further workshops on the issue of how to synchronise the 30 minutes IRI live broadcast segments with the regular subjects. This implied that it was unclear for these teachers from the induction. For T3, the move or switch from traditional mode of teaching to the new approaches through IRI was a good idea but more practical guidance was required:

> *"One learns a lot by doing things with the learners following the radio teacher's instructions but 30 minutes is very limited time to gain strategies for teaching different learning areas. After all, ones attention is not on the proceedings of the lesson as such, but getting instruction in order to guide learners. With a large class and only one radio, it gets worse. We need more special training on how best to phase in learner-centred education in large classes"* (T3)

On the issue of support, concern seemed to be about both professional and material support. It was expressed that there had been no interaction with IRI programme implementers till the day of induction which was eleven months too late. In the eyes of participants, a whole year was wasted because they had not been given the instruments (information) for implementing IRI effectively in the classroom. Participants also indicated a need for more radios due to large sizes of classes which render the one radio ineffective. Of the fourteen schools, only two reported poor reception as a reason why they were not using IRI, which highlights the need for consideration of recorded audio materials as suggested under recommendations (see chapter 8).

With regard to sharing of ideas, analysis of discussions shows that the main concern was with team work within schools. While there was realisation of the importance/necessity to share ideas on ongoing basis around IRI methodology, logistical as well lack of incentives (such as recognition through certification after completion of training) were cited as barriers to this practice by staff. Various suggestions were put forward, the main one being provision of incentives such as teacher allowance for the extra hours of lesson preparation work, and also consideration for increased stipend for teachers' attendance to staff development activities.

Although it was difficult to assess variation in thinking per specific category of these teachers (e.g. UTT, T1s/T2 & T3s, separately), teachers seemed to agree on IRI's advantages for teaching and learning. Its value as a guide in teaching difficult subject materials was highlighted, but as with the sampled participants, not much else was expressed in terms of what they saw as potential for their own learning, for transforming their pedagogy and personal practise. Expressions of disappointment/disillusionment concerned mainly the long overdue IRI orientation. While some teachers seemed at least appreciative that they had received induction though belated, for many others it was too little too late. The *Teacher Behaviour Study* Form (appendix B2) showed that while it is mandatory for all schools to implement PCAR, only nine of the fourteen that took part in the discussion were using IRI at present. Analysis of the evaluation forms filled in by teachers at the end of the induction showed an average rating of 4 out of 10 reflecting a below average satisfaction, citing limited scope of the course and gross inadequacy in depth as the main weaknesses. Most participants had also alluded to these same reasons for their dissatisfaction with PCAR training during the first interviews. Answers also showed that most teachers still did not have the practical understanding of the link between regular subjects and the 30 minutes compact IRI radio segment. Other concerns raised sounded similar to those expressed by their counterparts in the study sample, especially ones about lack or irregularity of INSET, LTMS and most importantly, large class sizes.

6.2.2.2 Analysis of role 2: Head teachers

This group comprised *fourteen head teachers* from schools that underwent the IRI induction that particular day. For these participants, the main issue that emerged from the analysis was that of capacity building (professional support and development) and material conditions.

In relation to the current reforms in the schooling system, most felt that the onus is on both the MOEST to ensure ongoing support to schools and school leaders to ensure that teachers experiment with new ideas gained from training. An emerging issue was about head-teachers becoming trainers. The analysis of answers from what became a heated debate shows that most feel teacher development is not, and should not, be, their responsibility to train teachers because of work loads. However, participants generally felt that there is need for their own capacity building and empowerment on other school leadership and management areas— for example, how to manage the new curriculum.

> *"Ideally it would be a good thing to have much of development 'in-house', but while this is a most logical route to go, adding extra responsibilities to the already overloaded/overburdened school leaders is somehow unrealistic. Training on its own is quite a heavy responsibility, so for head teachers to take this on, in addition to the day-to-day administration and teaching duties, it is practically impossible"* (H10)

In connection with material conditions, the discussion centred on teaching and learning conditions. Head-teachers saw poor school conditions, lack of basic facilities (such as classrooms, desks) and teaching/learning resource materials as barriers to effective implementation of new pedagogical and professional practice in schools. The issue of overcrowded classes was highlighted as a challenge to the IRI-PCAR initiative.

6.2.2.3 Analysis of role 3: Primary Education advisors (PEAS)

The main issue that arose was that of coordination in managing staff development activities/programmes. The main concern was lack of coordination of IRI activities between the EDC office on one hand, and the MoEST district and zonal offices (where PEAS are based), on the other. Probe questions were used to evaluate issues of school based staff development, and especially the functionality of Teacher Development Centres (TDCS). The responses from participants put emphasis on finding means of establishing staff development teams for purposes of coordinating staff development activities at school level to promote sharing of experiences and ideas amongst teachers. The responses also reflected great concern for the lack of the functionality in TDCS (which are at present solely dependant on community support for finance). For all these reasons, participants seem to express reservations about success in implementing the PCAR-IRI initiative in a short space of time. For PEAS, the real issue to be resolved for reforms to take place at the school level was breaking down the apparent resistance from most school-based educators. Again different views were expressed in dealing with this challenge, with some pointing to the government:

> *"There is not much one can do without support from above. Head-teachers and their teachers think we are the ones failing as education advisors but there is very little one can do without the instruments for performing one's duties. In the case of IRI, it is not clear what our role is except integrate it in our school supervisory work, which is what we are doing"* (P2)

However, other participants thought it was incumbent upon PEAS as overall managers of schools to lead the way in resolving this challenge:

"Yes, it's true that we are faced with serious constraints in performing our duties as school managers but this is the reality of our situation, which may never change. So if we decide to keep waiting for government first to do this and that, old practices will prevail in schools. I believe some things can be done in moving the IRI-PCAR processes forward despite the problem of large classes and lack of ongoing professional and material support" (P5)

6.2.2.4 Analysis of role 4: IRI District Outreach Coordinators (DOCS)

The final group of participants considered is the IRI District Outreach Coordinators (DOCS), whose job it is to train and mentor teachers in IRI. Their functions also include formative monitoring and evaluation of the IRI programme. Located at each of the six education divisional offices, they are expected to cater for schools in all districts of a particular educational division. As part of the core implementation team of EDC, DOCS interviewed had very comprehensive knowledge about radio learning for formal education but analysis of their responses revealed a number of shortcomings about their knowledge of IRI per se. The analysis offered here focuses on their views about their preparation for the work they do, the conditions under which they work and the types of teacher and school cultural change that they (DOCS) are supposed to encourage by implementing IRI.

With regard to DOCS' work as outreach coordinators and their own preparation for performing it, D2's statement fairly summarised the group's feelings:

"We have been given no special training as trainers or as project coordinators. I think the assumption is that because most of us were either head teachers or PEAS before being appointed as DOCS by EDC, we have skills in training, facilitating, which we do have, but IRI is a new thing for most of us and we need more knowledge about it to be able to present the concept to teachers. Lots of literature has been made available to us on IRI in addition to the briefing about our tasks, but other than that not much has been done to deepen our understanding of IRI principles. Look at it this way: I'm supposed to

> *provide training to colleagues on the assumption that I know a bit more about the product than they do, and I need to feel confident that I do"*

Analysis of further discussions on this topic reveal that DOCS were under pressure to deliver quality services to clientele without being properly equipped and yet, from their statements, it would appear that the main reason for not raising this with EDC is fear of losing their jobs. As a result, the programme continues to suffer and teachers and their learners are both losers.

Commenting on conditions under which they work, all participants expressed dissatisfaction with arrangements in terms of work loads. They felt they were too thinly spread out to effect any meaningful change: with one DOC serving up to six Districts (over 500 schools, about 2000 teachers), inevitably results in slow progress in induction and lack of ongoing training. As part of the solution, DOCS expressed a need for revising the implementation strategy so that PEAS can take on some responsibility for IRI training at a zonal level. Otherwise they were agreed on the potential of IRI as catalyst for teachers' professional development as expressed by D3:

> *"We have questioned the limited resources made available for outreach services. Teacher development should be central to the implementation of the IRI programme but we are told that EDC's work is not necessarily outreach, but production. Yet if we are to achieve quality learning, we need to ensure effective teaching in the classroom, whether through IRI or other means. From what we have seen during this short period, teacher development in IRI is likely to lead to new ways of doing things in the classroom"*

The above statement is in line with earlier comments on the current IRI model in Malawi, where emphasis is on the production of radio programmes rather than building capacity and empowerment for their use. Effectively, it means emphasis on delivering services

without worrying much about how it is done. This is exactly what this thesis is arguing against and the discussion in the next chapter picks up on this point.

All in all, analysis of responses from the different groups of interviewees involved in the focus group discussions revealed a range of attitudes ranging from enthusiasm to scepticism about the exploitation of IRI for CPD and its adoption into the education system as a whole. The discussions reflected a need for a more rigorous approach to the implementation of IRI. All the participants were generally positive in the aftermath of the newly finished induction but also expressed great doubts about IRI's success on the ground. Sceptical responses were provided mainly by classroom teachers and head teachers. For teachers and head-teachers, the fact that training was coming eleven months after the inception of the programme was seen as either incompetence or failure on the side of the implementers.

6.2.3 Participant Observations

The presentation here is seen to complement the presentation offered in the preceding sections. Observations were carried out of key participants' activities or actions in and outside the classroom, so as to verify their articulations in the interview survey. A variety of observations were carried out such as teaching and learning, people's actions, spoken comments and written comments. The evidence is presented using the same broad analytical themes as in the previous empirical studies, with special reference to the main theme (theme 1: understanding of teaching and learning). The same procedure as in the baseline study (chapter 5) was followed.

6.2.3.1 Procedure and Participants

The observation of teachers' behaviour in and outside the classroom was restricted to the schools in the original sample that had received induction (see appendix A 2). The same research formula was applied: the researcher at the back of the classroom, taking notes and photographs of certain classroom activities. As the emphasis was on observing shifts in teaching and learning practice (in comparison to the period before IRI), the researcher was more conscious of the effects his presence could have in altering the reality of the observed situation, be it in the classroom or during events outside (such as team planning meetings).

Each teacher was visited at least three times: one observation was conducted during a live radio broadcast lesson where the teacher facilitated the lesson based on instructions from the radio teacher, and two others during regular lessons where the teacher facilitated without radio. The participants from two schools within the sample who had indicated that they had not yet received induction were 'not officially' observed, but were mostly involved in the interview survey as discussed in the preceding section.

In total 39 observations were conducted over a period of three months of this main study involving thirteen teachers that had received induction. Although the LOF was used for classroom practice evaluation, observations conducted were of a wide variety and also of ad hoc in nature. The approach followed can be viewed as a form of bricolage, using whatever came to hand to *illuminate* aspects of teaching and learning practices and the adoption of IRI.

6.2.3.2 Analysis of observation data

The analysis here is presented under two headings within analytical theme1: analysis of classroom practice (teaching and learning) and analysis of general professional behaviour. The findings complement those of the interview survey above and are further synthesised alongside those of baseline study in section 6.3 where a comparative analysis of the findings is also attempted.

Analysis of classroom practice: teaching and learning

As with the baseline study, observation data analysis reflected wide variations in practice amongst the three categories of participants (T3s, T1/T2s & UTT) but at a different level compared with previous findings. A discussion of possible reasons for such variations in practice amongst the three categories of participants and the contrast between their expressed beliefs/views versus their actual behaviour has been presented in 6.3.

In the case of T3s, who had shown a better understanding of IRI and pedagogical principles underpinning PCAR-IRI (that is, learner-centred teaching and learning) it was revealed that their classroom practice contrasted the views they expressed. Overall, they still used traditional methods of teaching and learning (average of 5 all round on the LOF). However, there was a difference between their use of these traditional methods and that of their counterparts, T1/Ts and UTT. The score line of 6 under *B-iv* indicates that T3s showed mastery of the subject matter. The assessment of T3 classroom practice shows that this time there was more rigour in their teaching methods but not focused on learner-centred practice advocated by PCAR: learners were 'engaged' despite the fact that there was little teacher-learner interaction and the learners were usually listeners.

However, there was evidence of active listening (average score of 5 under *B-vi).* A powerful and fascinating example of this was when the researcher observed a non-radio (regular) mathematics lesson by a T3 which was predominantly a teacher monologue. However, this teacher's humour, her skill in story telling and her ability to pitch and relate the content of her lesson to real life, plus her technique of 'stinging' her class along through 'chorusing', all combined into 'oratory' of a high order. The pupils sat enraptured, probably heard her every word and evidently understood what she was teaching. In this sense, whole-class teaching in which teacher dominates the interactions seems an effective way of engaging learners in conceptual development. As discussed in section 6.3, in terms of practice, this is what these teachers interpreted as learner-centred teaching/learning.

While T1/T2s' teaching and learning approaches did not differ that much from those of T3s (LOF overall average score of 5), they generally lacked the composure witnessed in T3 teachers' classrooms. Even though T1/T2s provided a wider range of activities this time (LOF average score of 5 under *B-ii),* these activities were generally not integrated or organised sequentially in ways that assisted the learners to practice the necessary concepts and skills incrementally (LOF average score 3 under *B*). That score line also underlined the point that T1/T2s (as witnessed during the first observations), still confined the content of their presentation to simple information often well below the level required. In some classes an enormous number of questions were asked, most of which merely tested whether pupils were listening or involved simple data recall. In cases where difficult questions were asked and pupils did not understand, their incorrect

answers were often not corrected. Nor did the teachers use correct responses to questions to further develop conceptual understanding.

Observation of regular lessons (non-radio) offered by most inducted T1/T2s showed an attempt to practice IRI-PCAR ideal but with much less success in achieving that goal. For example, following the IRI-PCAR as a rule, the sitting plan for all Std 1 classes follows the group work format instead of the traditional straight, rigid rows. This is to facilitate cooperative learning, where pupils learn for and from one another by working together. However, most T1/T2s, just like UTT, still did not organise the activities or discussions in ways that ensured that learners shared ideas, explained their thinking or solved problems collaboratively (see LOF average score of 5 under *B-vi*, indicated above).

Successful group work requires that learners are set clearly defined task, have the essential foundational knowledge and understanding of the subject matter gained from preceding activities and possessed the reading skills and other communication skills, strategies and attitudes required for working together. Group work takes time and where used without very careful planning and guidance from the teacher as witnessed in observations in T1/T2 classrooms, is an extremely inefficient pedagogical tool.

In almost every area of assessment, UTT seemed to fare the worst. For example, they shared the belief that group work increased pupil participation but seemed to understand it as the only way in which participation could be promoted. While there was an attempt to mediate (albeit unsuccessfully) by T1/T2, with UTT there was none. It would appear these teachers assumed that once learners are in a group, participation and learning will occur automatically. Thus when pupil-led learning was attempted, much time was passed

in superficial and irrelevant discussions by pupils. The LOF average score of UTT remained at 2 all round, showing a dismal shift in practice from the first observations, before IRI. Analysis of their classroom practice further indicates that while IRI radio-based lessons were enthusiastically followed, teaching/learning styles in non-radio classes remained predominantly teacher chalk-and-talk. The lessons observed by the researcher followed the familiar pattern of teacher presenting and some questioning of pupils. It was observed that teachers were somehow unsure how to proceed when pupils failed to answer the questions, especially about word meanings and in such cases the teachers resorted to choral and individual repetition as their primary teaching strategies.

A close look at the lesson plans of this category of teachers showed lack of ability to translate what was planned into a coherent process of instruction. In general, teachers appeared to have a very limited repertoire of teaching methods and were unsure in putting into practice the learner-centred approach as required by the new Primary Curriculum and Assessment Review. In a few cases, evidence indicated no existence of lesson plans and disconnected lesson activities with vague lesson objectives. The tendency for teachers is therefore to stick to the old practices with which they are comfortable— 'business as usual', which in terms of activity theory, is a case of actions collapsing into operations. A strategy to cater for the gap in the academic knowledge base of this group of teachers compared with T3s has been suggested in chapter 8, later.

Notwithstanding these variations and lack of significant movement in terms of pedagogic practices, a number of positive changes amongst all the participants that used IRI were noticed regarding general professional practice. Some improvements were noted in certain professional dispositions, and these are discussed next.

Analysis of teachers' general professional practice

The main sources of data analysed here are the various memos and scripts made in the research diary, about whatever significant activities and incidents took place or comments made during observations in or outside the classroom. Photos of such incidents/activities were also taken and then supplemented afterwards through brief post-observation interviews or the researcher's own reflections. While analysis of classroom observation as discussed above was restricted to data obtained from inducted schools only, here it includes data gathered from all the eight schools. In analysing teachers' professional dispositions, the following were found to be the main developments in participants' professional life:

- Signs of collegial collaboration on staff development issues
- Improvements in teachers' moral professional practice

With regard to growth in collegial collaboration on staff development matters, this was observed in the four schools that had received induction and were using IRI. It was observed that a practice of teacher-to-teacher consultation had developed at schools N1 and C2 where it was almost non-existent prior to IRI whereas in school S1, there were signs that existing collaborations had grown more extensive. During the first month of the main study, there were more teacher-to-teacher staff development meetings (though mostly about radio lesson planning) than the entire two months of visiting the same schools during the first baseline study. Team work seemed to have taken root mostly amongst the UTTS and T1/T2s, but in schools where it was starting to become a feature of organisational culture, all teachers seemed actively involved. While in the past the

tendency was to meet only when called for staff meetings, it was noted this time that teachers met voluntarily to discuss staff development issues. During post-observation interviews at one of the schools, teachers pointed out that with IRI, it had become necessary to do team planning, citing the need for sharing ideas on how best to handle the 30 minute IRI radio segment in line with regular subject teaching (synchronising), which seemed to be the most problematic area.

A remarkable shift was also noticed in the area of teacher ethics and moral professionalism, particularly the teacher-pupil relationship. In line with the IRI-PCAR principles of cooperative learning, pupils sat in groups as before, but this time teachers seemed much calmer and less authoritarian in controlling their classes. During previous school/classroom visits, it was observed that most teachers' concern was 'keeping them quiet' through harsh disciplinary measures. This time around the classroom environment seemed more relaxed and flexibility was somehow exercised on the part of most teachers, (with the exception of UTT) in allowing pupils to express themselves.

The resistance to IRI articulated by non-oriented participants (two schools) was evident in their non-use of IRI in the classroom. Analysis of observation data revealed that in one of these schools, there was a growing resentment to the whole PCAR-IRI initiative. Such negative feelings/attitudes, if widespread, do not augur well for the implementation of either the new curriculum development or IRI. However, as discussed earlier, non-oriented participants from the other school showed a positive attitude towards PCAR and IRI despite the long-overdue induction. Here, the situation could be described as sheer resilience— teachers striving to achieve against the odds. Equipped with the scanty information from the IRI advocacy that came via the press (which many missed) in

earlier days, these teachers seemed to press on: planning together (and sometimes teaching together) and implementing IRI in the best way they could.

An unforgettable scenario for the researcher was when he arrived at this school one morning only to find the head teacher 'manning' a crowd of 350 pupils under a tree while his two Standard 1 teachers were holed up in a classroom trying to listen to the radio broadcast so as to prepare for the lesson during the next broadcast. It was revealed that because of poor reception, it was very difficult for teachers to listen to the lesson with learners around, hence the decision to temporarily remove them from the classroom so that teachers could concentrate better. It was explained that lack of teachers' guides or back-up audio-cassettes meant that teachers could not prepare well in advance for the live broadcast, hence the decision to use the first broadcast for preparation.

The above variations in reactions to IRI and its adoption became a significant factor to the thinking about best implementation strategies for IRI model that could support an integrated CPD programme in the Malawian context under study. In order to do so, it was important first to understand the possible underlying causes of such variations by synthesising and making further comparative analysis of the findings from the three studies.

6.3 Synthesis and comparative analysis of empirical studies

In the preceding sections outcomes of the analysis of two studies (baseline study and main study) on teachers' beliefs and practices were presented. The key respondents (standard/grade 1 teachers) in the evaluation were from primary schools located in distinctive social and cultural environments across Malawi, and the foregoing analysis

was based on investigation of their practice prior to the IRI programme, their reactions to it, their experiences of it and what seems to be the impact on their practices. Here, attention is paid to understanding the complexity of this impact on the various categories of participants and implications thereof.

The analysis shows that Malawian primary teachers in the sample, owing to differences in training, are at various stages of development. This is reflected in the varying concepts and understanding of learning and teaching, reactions to IRI and how it appears to be experienced. In terms of the Beeby/Verspool typology (discussed in chapter 3), the analyses seem to suggest that UTT practice falls under the category of unskilled fashion, while that of T1/T2s resembles a mechanical fashion and T3s a routine way of doing things. None of the categories seemed to have moved stages, although in terms of interview analysis, T3s' beliefs during the main study were close to resembling those of the fourth category—professionals.

The lack of any shift in both understanding of learning/teaching and pedagogical practice witnessed amongst UTT could largely be due to their weak mastery of subject content. As they are isolated, poorly motivated and unguided, the result is confusion hence the apparent difficulties in adjusting to the reforms of PCAR. In this case, a 'one-size-fit-all' type of IRI without teacher development focus (like the current one in Malawi) would not be appropriate for assisting these practitioners in the paradigm shift. In such early stages of development, change of practice cannot be primarily through conversation and re-conceptualisation. In recommendations (see chapter 8), a suggestion has therefore been made for an innovative approach to IRI that would provide relevant practical support for teachers at this stage.

With the T1/T2 in the mechanical stage, typically there is interest in professional development but these teachers were the most bitter about low salaries and insufficient financial incentives in terms of allowances for attending staff development activities. Notwithstanding all this, it has been mentioned that they were found to be most active about IRI activities, paying attention to PCAR and IRI programme in an almost slavish fashion, but without having alternative pedagogic strategies to hand. For such practitioners, Beeby (1996) advocates change and improvement of practice through external agents, meaning that it is the agents that control the process of change instead of teachers themselves. On the contrary, the recommendation in the current study is for improvement through the a 'school-based' Teacher-in-Action IRI series within the REFILM programme as a way of encouraging teachers reflect on their practice and refocus their teaching on an ongoing basis.

In the analyses, T3s were found to have better pedagogic content knowledge than UTT and TI/T2s, and the results from the main study seem to suggest level three within the Beeby/Verspoor typology of development, a routine way of doing things. T3s seemed stuck in traditional teaching practices not out of ignorance or inability but probably due to a routinized mode of doing things— what Bourdieu (1998) has called a 'thoughtlessness' habit of doing things. Another possibility could be sheer resistance to change as discussed in chapter 7. While articulation of differences between learner-centred versus teacher-centred approaches indicated some misunderstanding for TI/T2s, these were clearly stated by T3s, and yet T3s remained predominantly teacher-centred in classroom practice. In this sense, this finding also confirms the claim by Giddens (1998) about the importance of factors other than knowledge and skills in developing practice. The

environment or context within which practices are enmeshed is one such factor. The analyses above have also confirmed that in addition to academic pedagogic content knowledge, various other factors such as work environment also accounted for good practice or lack of it.

6.4 Summary

Practice is not a well established construct. It was conceived and tried out in the framework of the present study to capture the idea that teacher practice should be seen as part of a wider view, embracing both individuals' views about learning/teaching and their professional behaviour. Through interviews, relevant categories of descriptions were formulated and the results cross-checked through participant observations and focus group discussions. The findings seem to confirm that in the Malawian primary education system the old traditional teaching and learning practices, which are teacher-centred, prevail despite the government's reforms aimed at shifting this to learner-centred practices.

These finding also suggest that while making a big difference in pupils' school life in general, and at a basic level provoking new perspectives about teaching and learning amongst educators, IRI has had little impact on teachers' professional behaviour. In addition, these results seem to support the idea that much as the traditional 'mono-audience' IRI is an improvement in transforming a way of delivering curriculum from non-interactive, content-driven teaching to more active, learner-centred modes, this model as employed in Malawi at present, does not seem to go far enough in terms of changing teachers' practices and transforming weak teacher/school cultures to more

effective ones. The UTT and T1/T2 cases as discussed above are typical examples of a learning space where individuals pass through a phase of learning picking up bits and pieces without actively learning from it, hence the inability to apply knowledge in different contexts. The findings also confirm a suggestion made earlier that changing practice of teachers is essentially about changing their culture, and this requires taking into account the context within which practices are enmeshed. Effectively, growing good practice through IRI requires a holistic approach, which attends to issues of teacher learning just as much as organisational learning. The teachers and schools were sampled so as to approximate as closely as possible typical conditions in Malawian rural and urban schools. It would be surprising, therefore, if the findings outlined above are not very commonly encountered across the country.

Chapter 7 General Discussion

This chapter brings together and discusses in a systematic way the main findings of the study. The chapter is organised in six sections. In the first five sections, findings pertaining to each of the five research questions of the study are succinctly reviewed and discussed (7.1 to 7.5). The last section (7.6) presents a summary of the discussion.

7.1 Findings regarding research question 1

Research question 1 is primarily about possible changes or shifts in beliefs or philosophies of teachers due to the introduction of IRI, and how this impacts on their practice. The question looked into the new understanding of concepts, notions and perspectives that grow as a result of IRI. In line with Fullan's (1991) assertion that educational change depends on what teachers do and think, these questions aimed to explore the assumption about a correlation between teachers' individual beliefs and their practice, and what they say they do as opposed to what they actually do. It reads as follows:

> *Are there changes or patterns of change in teachers' beliefs/philosophy about teaching and learning over time after the introduction of IRI? How is this growth (or decline) experienced by teachers and other educators with respect to their practices?*

Taken together, the developments within each category of participants during the evaluation period testify to the complex nature of the construct of social practice in general, and teacher practice in particular (see appendix C). From the analyses, participants within the T3 category were found to be the most complex of them all in translating their innate knowledge into action. At both stages of the empirical study

(before and after IRI), T3s portrayed ample pedagogic content knowledge during interviews, but their articulation stood in contrast with the observed classroom practice. At baseline study, their understanding about the differences between the current teacher-centred approaches (which are less interactive) and the new (interactive learner-centred) approaches could be attributed to the initial PCAR workshops before IRI. While their concepts of learning could be placed at the mid point of the hierarchical model of learning of Marton et al (1993) (somewhere between unsophisticated and sophisticated), their classroom practice often indicated a completely different story and conformed more to a teacher-centred approach. There was a sharp discrepancy between their views/beliefs and actual practice. This contrast in behaviour was found to be even sharper amongst those T3s who had received IRI induction at stage three of the empirical study (main study). As seen from the analysis, after the introduction of IRI, T3s articulated learning concepts that stand high in the Marton et al hierarchy of learning, reflecting 'sophisticated' views of learning. Analyses of responses reveal that by this time, these teachers had ample understanding of the PCAR-IRI principles. In their critique of the programme, these teachers portrayed a higher degree of practical understanding. However, though their classroom practice proved to be of better quality than that of UTT and TI/T2s, practice remained very much of a teacher-centred type.

The above findings seem to refute the commonly accepted view about appropriate pedagogy— that to change a teacher's classroom practice, one must change what the teacher thinks. In this view, emphasis is very much on developing teachers' knowledge so as to change their actions (Stones, 1979). The optimistic approach to the causal link is that changed thoughts cannot but lead to changed actions—there is an unvoiced

assumption that if one knows what to do, one cannot but do it, hence the attempts to build-in coaching and rehearsal in the classroom. The findings about T3s suggest that it is not enough to know what to do— that although knowledge is a necessary condition for teachers to change their classroom practice, it is not sufficient one on its own. It would appear that T3s' ability to put their knowledge into practice is inhibited by those other factors such as the context (environment) within which practices are enmeshed as suggested by practice theorists such as Giddens (1984; 1993), Reckwitz (2002a) and Bourdieu (1977; 1998). In highlighting the importance of context, these theorists emphasise the link between cultural codes, human agents and artefacts (see chapter 3).

The paradigm shifts within the T1/T2s category of teachers portrayed a somewhat different pattern which seemed to confirm the importance of 'knowledge/skills' as a basis for good practice. Analysis of interview data during the baseline study had revealed views about learning that congregate those perceptions accounting for learning as a process of accumulating factual information, without reworking or processing it in an integrated and coherent way, therefore belonging to the 'lowest' point in the Marton et al (1993) hierarchy of learning. Thus, these teachers' conceptions are based on 'non-sophisticated' views of learning. Their thinking at this point in time seemed consistent with their behaviour in and outside the classroom, which was predominantly teacher-centred. However, close analysis of the interview data after the introduction of IRI (main study), revealed that those T1/T2s who received induction articulated conceptions of learning that could be classified at the middle point of the Marton's et al (1993) hierarchy. This was a remarkable shift in thinking during the period before and after IRI. The difficulty experienced in the analysis was in explaining whether the new thinking

was or was not consistent with changes in their classroom practices. As seen from the analysis, there was hyperactivity amongst T1/T2s with regard to usage of learner-centred radio lessons but without applying this in regular lessons (which remained teacher-centred). A good example was how they handled group work in the classroom. To use the activity theory language, with regard to 'operations' (teachers' routine following of radio lessons) as human activity, IRI could be seen as having an effect on these teachers, but without influencing the quality of pedagogical practice. This is to say that the teachers' new thinking about learner-centred approaches and their classroom hyperactivity witnessed after the introduction of IRI, demonstrates that IRI had impact on these teachers, although this was relatively limited. The limitations were demonstrated by the (almost) slavish way that these teachers paid attention to IRI and reforms, instead of being able to alter pedagogic strategies according to the varying teaching situations during non-radio based teaching. In order for IRI to influence quality pedagogic practice substantially, it is recommended that the current 'mono-audience' IRI system in Malawi be fine-tuned into a 'dual-audience' system. This will help teachers to reflect on their practice and reforms, and refocus their teaching on an ongoing basis (see chapter 8).

From the findings, the only difference in terms of activity between inducted TI/T2 and their UTT counterparts after the introduction of IRI was in the attitude towards reforms (as demonstrated in their fervent use of the *Tikwere* IRI radio programme), not necessarily in the shift of practice. Like UTT, TI/T2s' use of IRI usage was limited to radio lessons, only that UTT showed less enthusiasm about IRI. Compared with T1/T2s and T3s, UTT seemed the least affected by both the PCAR initiative of earlier, and IRI that followed later. The results indicate a slight shift in thinking within this group after

the introduction of IRI (main study)—increased awareness of radio's role for formal teaching and learning. It would appear that after eleven months of IRI, UTT still possessed limited understanding of IRI-PCAR concept. Their conceptualisation of learning remained crudely of the lowest level in the Marton et al (1993) learning hierarchy and so was their teaching practice ('surface' type). In comparison, while there was an attempt to facilitate learning during radio lessons amongst T1/T2s, there was none by UTT. Therefore, whenever the *Tikwere* IRI programme was used by these teachers, it was purely for pupils' passive listening to radio characters. In both cases (UTT and T1/T2s), teachers seemed to have accepted the desirability of learner-centred pedagogy, but were unable to practice it.

What becomes clear from these findings is that with UTT and TI/T2s, the deficit view (blaming teachers for their low knowledge base) is the most likely cause for lack of good practice whereas with T3s, it is the selection view (environmental pressure), that hampers good practice.. The T1/T2 practice presents a good example of teachers' own perceptions of learner-centred methods: that it is about engaging learners in some form of activity and the teacher assuming a facilitating role. The teachers' thinking does not seem to go as far as critiquing 'what form of activity'. It can be concluded therefore that, for all groups of teachers, a deep and meaningful understanding of learner-centred practice holds the key to the link between pedagogical content knowledge and classroom actions. Given the varying degrees of academic and professional needs of the target group of this research, a multifaceted IRI-based CPD, which caters for the differing professional development needs of teachers, is recommended for teachers in the sample of the target group (see chapter 8).

7.2 Findings regarding question 2

Findings from research question 2 were supposed to hint at the eventual hallmarks of the current study by focusing in more depth on the evidence for shifts or changes in teacher behaviour and why this should be attributed to IRI. The question reads as follows:

> *What evidence suggests that IRI has contributed to the development and growth (or lack) of new forms of pedagogical and professional practice amongst teachers? Through what mechanisms does IRI seem to affect this change?*

To verify IRI's impact on participants' beliefs and practices, reference is made to outcomes of data analysis in the baseline study (before IRI) versus that of the main study, (after IRI). Another yardstick for measuring IRI's influence is in the notation of differences in 'thinking' and 'practice' that emerged amongst *IRI-inducted teachers* versus the *non-inducted*. Evidence from interview analysis shows that no other related intervention was conducted during the period of the current evaluation study (see appendix A-2), therefore it can safely be concluded that the shifts/changes in understanding of teaching and learning and practice observed between February 2008 and December 2008 was due to IRI. Apart from effects on teachers' pedagogical practices findings point at IRI's influence on teachers' professional practice in general—for example, with regard to dispositions such as teacher collegiality, interest in staff development and moral professionalism.

With regard to growth in collegial collaboration on staff development matters, this growth was observed in the four schools that had received induction and were using IRI. It was observed that in some of these schools, a culture or practice of teacher-to-teacher consultation had developed. In one school there were signs that the existing

collaborations had grown more extensive. During the first month of the main study, there were more teacher-to-teacher staff development meetings (though mostly about radio lesson planning) than the entire two months of visiting the same schools during the baseline study. Analysis of evaluation data from the main study showed that team work had taken root mostly where T1/T2s were in majority. While in the past the tendency was to meet only when called for staff meetings, it was noted that after the introduction of IRI, teachers met voluntarily to discuss lesson preparation issues. During post-observation interviews, teachers pointed out that because of IRI it had become necessary to do team planning, citing the need for sharing ideas on how best to handle the IRI radio segment in line with regular subject teaching (synchronising), which seemed to be the most problematic area.

A remarkable shift was also noticed in the area of teacher behaviour in regard with teacher-pupil relationship. In line with the IRI-PCAR principles of cooperative learning, pupils sat in groups as before, but this time teachers seemed much calmer and less authoritarian in controlling their classes. Pupils seemed more relaxed and seemed to relate at a more personal level with their teachers. During the interview, teachers referred to interactive radio activities as exemplifying of such behaviour. In this sense, IRI is seen to have the potential to transform school and classroom cultures/ practices.

The above points illustrate a kind of learning by ‘osmosis’, which is one form of coaching mechanism within the traditional IRI models. As discussed, in such models IRI is used as an artefact of practice in a traditional way of socialising agents into a particular practice, which unfortunately does not involve the teachers’ deep learning. The aspect of incorporating an element of teachers’ deep learning within the Malawi IRI programme is

what has informed the design of this study. Recommendations on how this could be done by expanding the current Malawi IRI programme (through the REFILM strategy) are discussed in chapter 8.

7.3 Findings regarding question 3

In view of the fact that Malawian primary teachers come from a range of academic and professional, cultural and even demographic backgrounds, it became vital to investigate change in their thinking/philosophies and practices that result from IRI by using these variables. This research question is overridden by other pertinent questions such as: "why do teachers behave as they do?" in an attempt to address the one on "How can I make them behave otherwise?" which is the focus of chapter 8. Emphasis here is on understanding the teachers' un-transformed behaviour first. To address this aspect, question 3 was purposefully formulated as follows:

> *Are there any variations in both the take-up and in the resultant effects of interactive radio programmes amongst different cohorts of teachers? What seem to be the reasons for this?*

The findings about variations in teachers' reactions to IRI (and hence its effect) have been discussed fully under question 1 and 2 above. The main categorisation of participants in this study was according to three variables: 'educational/training background', 'rural-urban' and 'gender'. The variable 'gender' did not seem to have any direct bearing, and so was not included in the empirical studies. Using the conceptual framework developed for this study (chapters 3 and 4), it became clear that educational/professional background as well as the context (or environment) could play a vital role in the uptake of IRI and in how IRI affects teachers' actions.

Within the T1/T2 group (the single largest group), it became necessary to further analyse teachers' reactions and also uptake of IRI based on mode of training that individual teachers had undergone. It was found out that adoption and adaptation ranged from 'strugglers' to those 'just coping' in the following order: MIITEP-trained teachers, 1-full year, IPTE–trained and 2-year trained teachers **(**appendix A1-3). This confirmed findings of the Kunje and Chimombo (1999) study on the quality of teacher education in Malawi which had concluded that MIITEP was the least successful programme in terms of providing academic and professional knowledge required for a 21st century educator. These findings resonate with Eraut's (2000) and Gherhard et al's (1998) assertion about the link between teachers' knowledge/skills and their practice (see 3.7.1). Gherard and his colleagues put emphasis on the way in which social agents (teachers, in this case) draw upon knowledge resources to support their engagement in social practices. Giddens' (1996) ideas of how rules and resources are drawn upon by skilful and knowledgeable agents as part of practice has direct implications too, with regard to the type of grounding required for ill-prepared teachers such as those under the MIITEP, 1-year and IPTE-trained band.

Other studies alluded to in the conceptual framework (developed in chapter 3), that highlight the importance of (conceptual) knowledge for the kinds of teaching practices that promote effective/successful learning include the Webb et al (1995) study, which claims a correlation between teacher knowledge and pupil learning outcomes (cited in Taylor and Vinjevold, 1999). The research used regression analyses of teacher and pupil scores on fractions, electricity and measurement to indicate that in each subject there was a correlation between teacher knowledge and student achievement. There was a

statistically significant difference between first and second year students' understanding of concepts in electricity and measurement. Although no firm conclusions can be drawn, this study suggests that improved teacher knowledge leads to improved pupil learning. As mentioned earlier, a multi-dimensional approach to IRI for dual purposes (teacher and pupil learning) is recommended. In this approach, emphasis is put on empowering teachers as social agents in the 'learning to learn' processes for their own 'deep learning to teach'.

It would appear that the kind of teacher learning that occurs through traditional IRI (as being currently run in Malawi) is of 'surface' type. Given the poor academic and professional background, most teachers outside the 3-year full-time trained cohort have poor knowledge base and therefore struggle to grasp fundamental principles of current reform in education. The argument is that IRI should not be used to reinforce the surface learning of teachers (as is the currently case), but instead, be fine-tuned to enable deep learning (gaining the power to reflect) in teachers. The concern is to change in a fundamental way the routine form of doing things that the current Malawi IRI programme seems to perpetuate. The argument in chapter 8, therefore, hinges on steps towards achieving the good practice alluded to by Graham (2002), Mary James (2006) and Debbie Mayhill (2006) as discussed in section 3.6. Their ideas form the core of the proposed *Radio Education for Interactive Learning in Malawi* (REFILM) project, which is based on the above-mentioned findings of the present study.

A holistic approach to provision of IRI for effective CPD of all cohorts of primary teachers would mean producing and implementing programmes that also make allowances for the environmental pressures that hinder reform in schools. This seems to

be the main factor concerning T3 teachers' uptake of the IRI-PCAR strategies at classroom level. Amongst these environmental factors or pressures in schools is the problem of large class sizes, which make it impossible to achieve active engagement (the cornerstones of PCAR and IRI). The overall quality of instruction is lowered due to overcrowding of classes. It is clear from the analysis of observation data that the extraordinary high pupil-teacher ratios typical in Malawi rural primary schools are matched by the extraordinary ability of primary teachers there to manage such large numbers of learners *in a very basic way*. In the eight schools under study, teachers conducted instruction despite the hugely oversized classes. Such working conditions pose a huge challenge for implementing innovative learner-centred practices, or pedagogic and professional practice. To make things worse, learning and teaching resources are lacking and infrastructure is of very basic kind (if at all). For example, in most rural schools, pupils were seated on floors in extremely close proximity, sharing one book between many of them. It has been argued in the analysis that even though participatory methods within the PCAR-IRI reforms have heavily influenced teachers (for example attempts at cooperative/group work learning), the large sizes of each individual group (sometimes as many as 20 pupils) mostly produce a range of individual work, inattention and focused activity by a few bright pupils on preparing the group report to the class. Observation data indicate that inattentive or disengaged pupils were present in all classes. During post-observation interviews, teachers acknowledged that because some pupils lacked adequate individual attention, they were not mastering the skills taught.

It is these kinds of challenges that led to negative attitudes amongst teachers in some schools which seemed to resist both PCAR and IRI. For example, of the four schools that

received induction, one did not use IRI— citing all the challenges discussed in the preceding sections. On the other hand, of the two schools without induction, one had implemented IRI from the onset. Even as this evaluation study was concluding, this school was still awaiting the IRI orientation, but was persevering. This school seemed to cope with the same general conditions of understaffing and poor school and housing infrastructure. In the analysis sections, such a school is described as one that has staff with an attitude which rests on an internalised professional conscience, on a notion of personal responsibility for pupil welfare and performance. In terms of the cultural theory (see 3.6), such a culture of resilience amongst staff seems to be the result of exemplary school leadership. Such professional disposition provides the crucial inner conditions for growth and for professional development which changes the world in small but significant ways for children (Unwin, 2006). On the other hand, the school that received induction but did not participate in IRI seem to contain teachers who laid far greater stress on the responsibility of the state for pupil welfare and performance**.** This could be associated with a laissez-faire culture which is in itself a sign of poor school leadership. This confirms Debbie Mayhill's (2006) point about the need for creative adaptation (in addition to subject knowledge and critical, reflective knowledge) amongst teachers to enable them move forward with good practice.

7.4 Findings regarding question 4

The discussions under question 3 confirm that teacher practice, especially pedagogic practice, is subject to many internal and external influences. Question 4 places focus on the importance of IRI's role in sustaining the cultivation of knowledge, skills and attitudes amongst teachers as a way ensuring good practice. It is in realisation that after

controlling all other influences, it is the quality of learners' engagement with knowledge of a subject and the teacher's skill in promoting this engagement that is the most important factor in learner attainment. Therefore the findings in this research question draw attention to the importance of IRI's role in sustaining the cultivation of knowledge, skills and attitudes amongst teachers as a way of ensuring good practice.

> *What is the knowledge base of Malawian primary teachers, and in what ways are they able to draw on this in shaping their own learning and practice?*

The analyses both at baseline and main study levels of this research converge on a number of characteristics of classroom life in Malawian primary schools. The main finding about teachers is that the biggest problem in disadvantaged classrooms, for example, UTT and T1/T2s, is a poor grasp (on the part of the majority of teachers) of the fundamental concepts in the knowledge areas for which they are responsible. This finding is in line with Web et al (1995, cited in Taylor and Vinjevold 1999) study referred to in question 3 above, which illustrates the correlation that exists between teacher knowledge and learner achievement. The absence of a focus on upgrading the academic and professional knowledge within the USAID- funded IRI programme in Malawi means that the low knowledge base amongst teachers is perpetuated. The result is classroom learning that seldom goes beyond superficial engagement with either the technologies or substance of conceptual knowledge. Therefore whatever the role of authoritarian system of teacher education and management (as discussed in chapter 1) may have been in initiating the vicious circle of rote learning and creating the climate for its perpetuation, the fundamental mechanism for its propagation is the lack of conceptual knowledge and spirit of enquiry amongst primary teachers.

In the light of the above points, any reform initiatives aimed at revitalising teacher professional development and classroom practices must not only create a new ideological orientation consonant with the goals of the new primary curriculum (e.g. PCAR). They also must deal with what seems to be a far more intractable problem- that of the significant upgrading and 'scaffolding' of teachers' conceptual knowledge and skills. As discussed earlier, this is a prerequisite for teachers' *own learning* and their adoption of active learning methods (PCAR-IRI) in the classroom, and the development of higher order knowledge skills and attitude on the part of pupils. The analyses from observation data confirmed the tendency amongst UTT and especially T1/T2s (who are the majority) to follow procedures without understanding why and how these work. In their classrooms, this naturally translates into rote learning and a failure to engage with the conceptual knowledge underlying the topic. As seen with T3s, apparently because of their better-off academic and professional background, there was curiosity and enquiry into new interventions, hence their unique reaction to IRI. Curiosity and an enquiring mind seem to minimise rote learning and findings seem to point out the importance of teacher self-confidence and growth of knowledge skills in developing curiosity and an enquiring mind. To this effect, a recommendation is made in the next chapter for an IRI-based CPD model that caters for this particular need in teachers.

7.5 Findings pertaining to question 5

This question was added after analyses in chapter 5 where the outcomes pointed to a need to consider the balance between research that reports the developed world experience, (which too often has been formulated in terms of changing teachers' knowledge, Johnson et al, 2000) and the current African perspectives (which tend to focus on contextual

factors and environmental pressures), such as classroom conditions. This question was therefore used to establish the usefulness of practice theory as an analytical perspective for illuminating aspects of IRI usage, which could be missed by other perspectives. The findings in this question were meant to address issues pertaining to the main construct of this study (teacher practice), broadly, by referring to the core theories employed in the conceptual framework of this study, especially activity theory and practice theory. Therefore the question was phrased as follows:

> *Does a practice theoretic approach assist in understanding the responses of teachers and other educators to the introduction of radio instruction?*

The analysis of reactions to IRI globally in the Malawian case, by category of teachers and by school seem to confirm the need for paying particular attention to the social practices within which a new educational technology is enmeshed. The analysis in the above sections shows that an eclectic, practice theoretic approach has the potential for illuminating significant implications of an innovative teaching-learning technology intervention. It can be argued that a practice theoretic approach provides the analytical tools and focus of analysis that emphasises the dynamic and integrated relationships between agents, structures, rules and resources.

Even though some research from the developed world contexts, like that of Bell and Gilbert (1996) recognises the influence of the classroom in shaping teachers' behaviour, it does not give a full account of how different classroom conditions constrain the variety of classroom practice that is exhibited. The approach for this present research has helped to reveal the need for providing better documentation of classrooms: the

environments of schooling. As part and parcel of the main investigation of IRI's impact on teachers' practices, the questions utilised in empirical studies involved turning to the classroom and asking: "What variety of classroom settings are there and how can they be characterised?" and, "Which types of practices survive in which classrooms?"

Differing school environments in an educational system would mean that teachers as classroom practitioners are operating at different professional stages (see 3.6, Beeby/Verspoor typology). For example, in a school system at the professional stage, a rich variety of practices would be expected. While some teachers could be using open-ended investigations, others next door could be using chalk-and-talk. As explained in section 1.1.4, rather than marking one method as superior, it is the diversity that is of interest. Thus the focus of research attention turns from the foreground of the teacher standing alone to the complete picture of the teacher in the workplace. In this way, our approach to teacher development in this IRI research project has become some kind of 'ecological' project. The underlying principles of activity theory have in this case guided the assessment of the dynamic nature between teachers' beliefs or views and their classroom behaviour or practice. It is seen that social agents (teachers in this case) engage in social activity (teaching as human activity) based on how such activity is regulated by elements such as 'context' and 'artefacts'. In the Malawi case under study, teachers have, for a long time, been acclimatised to a receptive mode of operation. This, plus a lack of teaching and learning material sources, does not make the paradigm shifts expected of teachers an easy task. Even though IRI has the potential to affect and manipulate the material, financial and human conditions (and

the constraints) under which it operates, the use of IRI in its traditional form (with a focus only on learners) has eroded this potential of IRI as an artefact with a positive influence on teachers. IRI can purposefully influence not only sophisticated philosophy (or beliefs) in teachers, but also good practice in line with that philosophy. In Malawi, IRI has not been fully utilised for the purpose of mediating between teachers' views/beliefs and their practice. To this effect, chapter 8 of this thesis has been devoted to the discussion on how to re-orientate the current IRI programme in Malawi into one that merges theory and practice thereby facilitating reflective inquiry amongst teachers in adopting and adapting the reforms.

Although not a major focus of the interview and observation data collection methods utilised in this study, both the interview and the observation schedules used aimed partly to document the 'natural history' of teachers- how the behaviour of different types of teachers has evolved to survive in different types of classroom conditions. To enrich the evidence collected, information relating to teachers' professional life was integrated in the documentation of classroom practice during the study. This, in turn, has helped in drawing up IRI strategies for developing and changing practice in the concerned Malawian primary schools through IRI (see chapter 8).

7.6 Summary of the discussion

At both stages of empirical studies of this study, *baseline* and main study (before and after intervention), the researcher examined the factors which accounted for low levels of teaching and learning (hence in learner achievement) in Malawian primary schools. The study revealed that in addition to poverty, lack of teacher development and aspects of

teacher instruction (e.g. ineffective use of teaching time, the use of teaching approaches inappropriate to meaningful learning, a minimal use of teaching aids other than the chalkboard and high levels of teacher-centred-ness) all explained pupil performance. In spite of PCAR and IRI initiatives, findings of this study provide a stark picture of the prevailing methods of teaching and learning in Malawian schools today, predominantly that based on 'teacher centred' approaches. Classroom observation data analysis revealed a limited range of teacher questioning techniques as was the type and frequency of teacher-pupil interaction.

To date, and it is very early in the IRI initiative, the *Tikwere* radio programme is succeeding well in the ideological domain, with many teachers embracing its intentions. However, it has been observed that amongst many teachers both, trained and untrained, rural and urban, male and female, experienced and inexperienced, there is a significant difference between positive attitudes towards the new active learning/teaching ideas and the ability to transfer to them to practice in the classroom. Very few teachers (even amongst the well-off trained mainly, T3s) are able to utilise IRI for translating the very complex logic underlying PCAR into learning programmes and then to effectively mobilising pupil-centred learning. While more than 80 % of primary teachers believe they are practising IRI (with 95% believing that it facilitates teaching of difficult parts of PCAR), this study observed very little real change in schools and classrooms. Despite the stated support for the IRI initiative (and therefore PCAR itself) and the evident good will by the overwhelming majority of teachers, head-teachers, learners and education authorities towards making it a success, teachers feel very insecure. Almost three-quarters of UTT involved in this study believe that PCAR materials are too complex and

that IRI does not provide a sound, practical solution to this. The same applies to T1/T2 crop of teachers, who despite extensive use of IRI, believe that they are not equipped to conduct *regular* lessons and assess learning the PCAR-IRI way. While articulating how an IRI lesson can be conducted, most of these teachers produce mediocre replications of what little they learnt from the induction and through contact with daily radio lessons. The majority of T3s claim compliance with IRI as a means for implementing PCAR. They recognise its benefits in assisting the promotion of experiential learning, but cite problems with large class sizes, lack of materials, and synchronisation or integration of the subjects in IRI with the school time table. Clearly, positive attitudes towards IRI (and PCAR), even where adequate support material is available have not yet been accompanied by the development of skills required to foster active learning, to promote meaningful engagement with concepts, and to integrate the various learning areas with each other.

Furthermore, it has been confirmed in this study that some teachers know more strategies than they actually use (for example, T3s). It was found out that they have knowledge of a greater range of classroom activities than they actually put into practice. From the findings, blame cannot lie with these teachers— the problems arise from failure to find a way of giving a theoretical account of why this is so and how it operates. This seems to be the root-cause of failure in supporting teachers in their efforts to introduce new methods of learning and teaching. The evaluation has confirmed the danger of neglecting teachers as core agents of school change. By concentrating on production of IRI materials for learners (and only paying peripheral importance to teacher development) the USAID/EDC *Tikwere* programme in Malawi seem to be making a minimal difference in

improving the quality of primary education. Consideration of these results together with other factors have helped us to formulate in the last part of this thesis what programme of IRI to support CPD could be envisaged for the future through the *Radio Education For Interactive Learning in Malawi* (REFILM) project. The REFILM strategy encapsulates that combination of *subject knowledge*, *pedagogic skills* and *viewpoints* of what it is to be a better teacher and draws on the experiences in some of the most successful IRI projects on the African continent as reviewed in chapter 4 of this thesis. The aim is to raise the competences of primary teachers in a holistic way so that they are capable of adopting and adapting the new active approaches of teaching and learning.

The data from all aspects of this research project have been used to support the development of the following model:

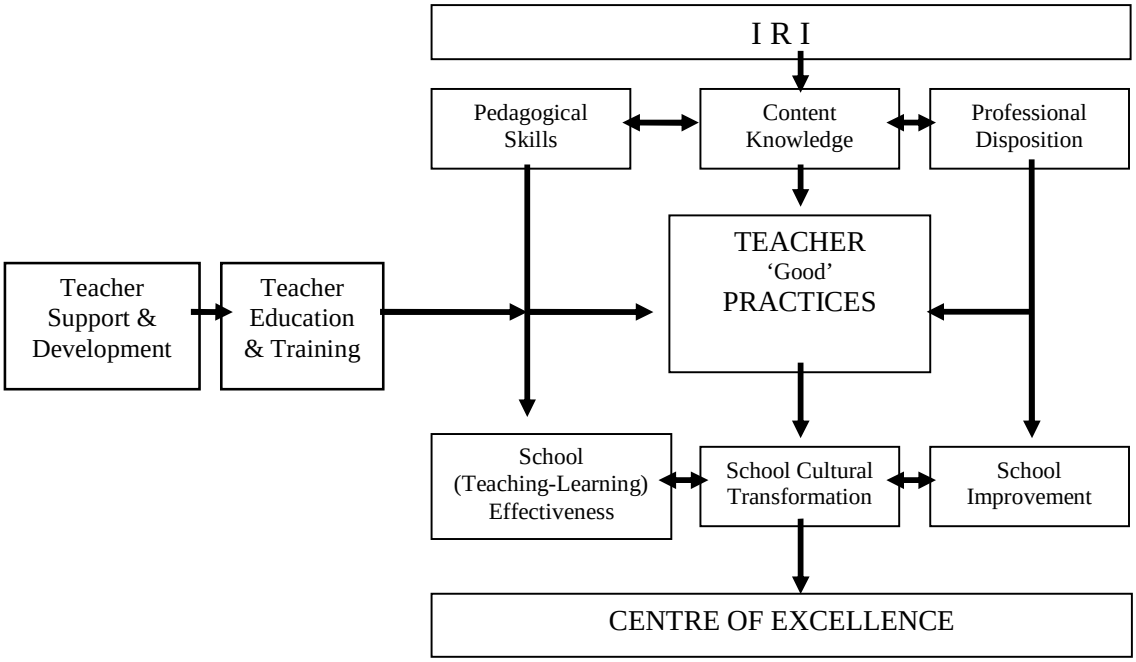


Figure 5: IRI as a condition for good practice and effective teaching and learning

The rationale for radio education through *interactive radio instruction (IRI*) as a basis for providing CPD of teachers should be seen in the context of the 'digital divide' in Malawi, as well as the general economic constraints on educational development being experienced by the country. The benefits for teachers of the proposed expansions in the IRI programme can be viewed through new gains in three major spheres that help to explain characteristics of a (good) teacher as facilitator of learning: 'content knowledge' *(concern with security with the teacher as subject specialist),* 'pedagogical skills' *(concern for methods with the teacher in the classroom)* and 'professional disposition' *(concern for aims with the teacher as professional).* These spheres described as 'pedagogical content knowledge' by Shulman (1987) which encapsulate that combination of subject knowledge, pedagogic skills and viewpoints of what it is to be a better (or effective) teacher have been used in this study for providing an account of why teachers behave the way they behave and how IRI could be operated for bettering the situation. In other words, any positive addition to these interrelated factors is likely to lead to positive changes in teachers' practices which in turn may result in creation of new work cultures amongst teachers— with potential to sustain effective and improved teaching/learning, thereby transforming schools into centres of excellence. Such insight formed a basis for the formulation of recommendations and the drawing of conclusions as discussed in the next chapter.

Chapter 8 **Recommendations and Conclusions**

This final chapter consists of two sections. Section 8.1 presents recommendations for an approach to IRI that might be relevant and appropriate for providing an integrated and sustainable CPD programme for Standard (grade) 1 primary teachers in the Malawian schools under study . These suggestions are based on the discussion of the research findings undertaken in the previous chapters. Section 8.2 contains a concise overall conclusion to this study. Section 8.2.1 contains further practical considerations of challenges that may have to be faced in achieving the suggestions contained in this thesis and the possible solutions to these challenges. Suggestions for further research are also provided (8.2.1.1) before some final remarks to close the thesis.

8.1 Recommendations

From the analysis in the preceding chapters, it would appear that due to the curriculum reforms currently going on within the Malawian primary education system, teachers are grappling with their own responsibility as classroom practitioners and as professionals in general. By emphasising a learner-centred approach in education, the new curriculum together with its attendant assessment requirements has set quite new problems for schools and their teachers.

The requirement of PCAR clearly has challenged classroom procedures that had developed from as far back as the colonial era. Without proper preparation for change, primary teachers in the sample target group seemed to be under excessive pressure in their attempts to carry PCAR through as proposed.

As discussed in chapter1, an over-simplified reduction to a crude dichotomy between ‘traditional, teacher-centred’ and ‘new, learner-centred’ approaches is less than helpful in facing this new situation. Primary teachers have enormous responsibilities which include promoting both the social and the intellectual development of pupils. What is required, therefore, is for teachers and PEAS to work out approaches which are most relevant and most effective in promoting learning and in developing pupils’ abilities and skills across a very wide range of activities. Additionally, they need to work out most effective forms of classroom organisation to achieve these aims given the oversized classes and lack of LTMS. In these identified circumstances, IRI as an artefact of practice should be utilised for helping teachers and their supervisors achieve these competences.

There is not likely to be any simple answer especially as this research indicates that changes to classroom practice can come from change to both teachers' ‘pedagogical content knowledge’ and change to the ‘circumstances’ within which teachers have to work. It has also been revealed that ‘professionalism’, which essentially is about the quality of practice, is a systemic issue rather than an individual one. In addition, professionalism should be regarded as a matter of rigorous intellectual and moral quality (Solar et al., 2001). For this reason, it has been argued throughout this study that in light of the evidence from the eight schools, IRI should first and foremost, be utilised to achieve this goal.

The analyses in chapters 5, 6 and 7 on teacher behaviour in the schools suggest that T3s as a single grouping of teachers have the capability to radically transform their practice (personal action). However, this might not be possible unless there is provision of

in-service training or a CPD programme that could transform the range of acceptable practices (structural reform). Unfortunately, currently there is a complete dearth of CPD for primary teachers in Malawi, in general, and the current IRI practice in the country does not seem to provide the necessary support and development to teachers. In the case of UTT and T1/T2s, the research results reveal that they may not be able to implement the in-service in their classrooms mainly due to their low knowledge base, which makes it impossible for these teachers to translate the complex logic underlying the new PCAR into appropriate learning programmes and hence to effectively mobilise child-centred learning.

The introduction of PCAR in the Malawian primary education system seems to have provoked a great deal of anxiety and insecurity amongst teachers. Unlike the traditional curriculum, in the new curriculum, there is a deliberate and definite attempt to focus on the process of learning as well as on its product. In this new approach, teachers are required to be more creative in mediating between the world and their students, interpreting subject matter and classroom interactions, making sense of students' attempts to learn, and ensuring that their judgments have profound implications for their students' lives. This cannot be achieved effectively without different systems of education and support for teachers. In the context of our target group, the prime focus of teacher professional development must be to address the deep-rooted issues discussed in the preceding chapters. What is required is constant opportunity for teachers at all levels, to study their work, work as they study, and study as they work. This is the goal of the IRI model that is proposed here, under the REFILM strategy — a realignment and expansion of the *'mono-audience'* IRI system

(focusing on learners, figure 3, p. 133) as implemented by USAID/EDC throughout Malawi currently, to a '*dual-audience'* IRI system (one that focuses on *both* teachers and learners). Even if limited to the target group of this study, such expansions (illustrated in figure 5, p. 268) might present immense challenges. However, since a start has been made through the existing USAID-funded *Tikwere* IRI national programme, what is now required is to ensure the redirection of *Tikwere* in such a way that this IRI opportunity is not wasted, but utilised wisely. The following sections look at major areas for consideration in the restructuring of IRI to the needs of the target group, though a possibility exists that this might apply to others across (or outside) the country under similar circumstances.

8.1.1 The REFILM strategy: Suggestions for content and structure of IRI in Malawi

In terms of content, the imperative of REFILM would be to build into the entire foundation phase (Standards 1, 2 and 3) of the target schools, a PCAR-related IRI programme with elements that strengthen teachers' knowledge and skills as well as providing quality instruction to pupils. The programme would be specifically geared towards helping teachers and learners in under-resourced classrooms. Thus while catering for learners' classroom activities through radio broadcast lessons, unlike the present model, there would also be a strong overriding purpose of providing sustained teacher *academic* and *professional learning* through audio lessons complemented by face to face training. Both general academic and professional courses need to be geared towards providing knowledge and skills to enable teachers to adopt and adapt the innovative pedagogical and professional practices. The aim should be that teachers are supported by, and learn from a well-structured and well- planned curriculum and innovative teaching

practices. The REFILM strategy should endeavour to embrace a holistic approach by developing IRI programmes that aim to improve the pedagogic skills, content knowledge and professional dispositions of teachers (as illustrated in figure 5, chapter 7).

8.1.1.1 Deepening teachers' content knowledge

This aspect of teachers' experience focuses on the content of general academic modules for broadening classroom teachers' knowledge base. By collaborating with institutions of higher learning (IHEs— such as University of Mzuzu or University of Malawi, Malawi Institute of Education-MIE) the REFILM project would draw up and offer accredited certificate, diploma and even degree courses aimed at extending the knowledge base of teachers in areas that are lacking. This would require a far more detailed identification of these knowledge gaps for each category of teachers and the post-doctoral tasks as envisaged by the researcher of this study are part of the steps in this direction. As well as collaborating with local IHEs, the Scotland-Malawi Partnership pilot initiative (see SMP, 2008) whose focus is upgrading Malawian primary teachers' minimum qualification from a certificate to a Bachelors' degree level provides an ideal situation for synergising the processes. In this sense, it is thought that between the REFILM project, *Tikwere* programme, concerned IHES and other bodies such as the SMP, an accredited IRI-based CPD programme could be introduced by the year 2011. As in the Kenyan case (see chapter 4), general academic modules would be produced by IHES. However, in the Malawian case, such courses would be run jointly with the rest of the ongoing professional courses under the REFILM project hence combining directly what in the Kenyan case was a certificate course with work experience.

Given the poor academic and economic background of most teachers, the academically oriented courses should ideally promote, amongst other things, what Freire (1972; 1978) calls 'educational/intellectual emancipation' of teachers— a form of 'conscientisation' about their professions. Freire believes that in situations of educational deprivation and political disempowerment, what is required is an education or pedagogy that leads to certain forms of 'enlightenment' and 'critical consciousness'. His ideas about interventions in pedagogy (at times viewed as a twist of intellectual arms to change personality), are directly relevant to the suggestions that are proposed in this study for improving the provision of CPD through IRI.

The argument here is that teachers who are critical thinkers themselves are likely to influence critical thinking in their learners because such teachers will not operate on a 'business-as-usual' basis, but will reflect on their practice and endeavour to continuously refine it. It is this *reflexive practice* that the Freirean idea of "a teacher is a student and a student is a teacher" is all about, and this (reflexive practice) ought to form the core theme of the general academic courses for under-qualified teachers. In this way, teachers could be encouraged to reflect on the fact that 'an educator is but a learner in progress' thereby helping in the removal, in teachers' and learners' minds, the long entrenched view that the teacher is '*all knowing, always right* and the *only source of knowledge on the subject*', as has been the case.

As mentioned earlier, provision of such general academic modules could principally be audio-based and supplemented by correspondence materials. The IHE responsible for accreditation would provide face to face lessons staggered throughout school holidays and short breaks. Depending on capacity, these face to face components of the course could equally be run by REFILM itself in parallel with the non-academic in-service courses which

would form part of the IRI-CPD programme which in turn would be aligned to a particular teacher qualification at national level. Discussions on the issues of production and accreditation were initiated by the researcher of this study upon completion of the last field study in Malawi at the end 2008 but the detailed implications of this would require some further thought.

8.1.1.2 Promoting teachers' own learning about teaching

This aspect of the teachers' experience focuses on *pedagogical practice* enabling teachers as learners to see into practice through understanding the reasoning behind teaching. Learning about teaching or 'learning teaching' would seek to enable teachers to 'see' that teaching is not simply about 'doing' but rather carefully structured, thoughtfully created and deliberately informed. This kind of learning could enhance the construction of the teachers' professional identity, which is critical for the few untrained and the majority under-qualified teachers within the system.

The non-academic professional development courses forming the *TIA series* would be drawn up by the production unit and managed by the Divisional Outreach Coordinators (in conjunction with the PEAS) within the REFILM project. *TIA series* would also be presented primarily through radio (audiotapes and where possible, even live radio broadcast staff development tutorials) to go hand in hand with daily radio broadcast lessons for pupils. In this sense, the overall IRI programme would resemble that of South Africa, Guinea and Mali which also followed a 'dual-audience' system but were not based on an accredited teacher qualification as proposed here.

The ongoing modules making up *TIA series* would also embrace other themes that are largely generic rather than being subject-specific. Apart from topics relating to classroom practice (e.g. lesson planning), this component would cater for issues concerning school leadership and management, short courses on topics including behaviour management, curriculum management and management of transition, for head-teachers and PEAS. At a school level, the capacity to collaborate with others, rather than merely instructing them must surely be an important competence on the part of contemporary professional school leaders and teachers. Lawton (1980, cited in Solar et al., 2001, p. 30) advises that in an era of patient empowerment, "enabling people around us to change is dependent on transforming ourselves first". In this sense, the task for leadership can be described as transformational. Clearly, there is a need to recognise that apart from classroom teachers, head-teachers and PEAS as school leaders also need emancipation.

The investigations carried out in the eight schools seem to indicate that in the present schooling system, even where head teachers aspire for professional leadership, they are constrained by ignorance and the traditional bureaucratic character of their ascribed roles. These factors make head teachers' leadership largely one of administering an existing system and 'power-brokering' within that system. School leaders have to cope with the constant drip of political and bureaucratic pressures in a context of crisis management. School leadership change of this kind becomes a matter of reinvention, a complex and difficult process under any circumstances. Therefore specialised leadership and management training is necessary to assist school leaders in their task of: deliberating with individual teachers about how they conceive their future in a classroom; negotiating

opportunities for in-depth work; facilitating open communication with parents and children; establishing contacts with academics who share the vision; distributing leadership opportunities across a school's faculty; and spending some time themselves in serious reflection about their own situation. As such, leadership courses within REFILM should be geared towards assisting head teachers, PEAS and other school leaders to become transformational leaders, focused above all else on moral and intellectual quality in the school.

With regard to mechanisms for ongoing face to face training of teachers the new strategy is that PEAS would also assume an overall role in the monitoring and evaluation of the IRI programme thereby enhancing DOCS' work in schools. Apart from school to school visits, DOCS and PEAS would utilise Teacher Development Centres (TDCS) for the face to face training at zonal or cluster level. Where possible, the audio-visual resources, for example, a TV set and videos with recorded teacher development programmes could also be deployed at TDCS to reinforce the teachers' experience and knowledge of active, experiential teaching-learning approaches. In the longer term the audio-visual resources could also be deployed to facilitate various other refresher courses for teachers using excerpts from the IRI-PCAR resource catalogues to inform discussions about good practice. Apart from their use for coaching, videos would be utilised for facilitating micro-teaching and peer evaluation during training workshops. The collation of the intelligence gathered during such functions plus that gathered during DOCS/PEAS school visits could also provide a source of data for writing evaluative reports for various quality assurance purposes.

Through the REFILM audio programmes an element of teacher sharing of ideas on a wider scale could be incorporated. Part of the strategy would be to connect existing networks (e.g. British Council, English Language Teaching Contacts Scheme (ELTeCS), Scottish Malawi Network, Global Teachers' Programme, etc) with local schools in order to facilitate the cross-pollination of ideas thus minimising knowledge gaps in certain areas of educators' practices. As well as physical connections, the REFILM strategy could enhance, in some cases introduce, school/teacher improvement programmes like the 'school-wide evaluation' as practised in the Scottish education system. In particular, Malawian schools could be encouraged to adopt and adapt the *"How Good is Our School?"* (HGIOS) tool (www.hmie.gov.uk) which is used as a self-assessment tool for schools/teachers throughout Scotland. A close look at this particular tool versus the identified needs of our target group shows that HGIOS could have a significant role in helping these groups of teachers understand the different kind of roles they are expected to fulfil, and in beginning to understand some basic self-assessment of their work. In this way the TIA courses offered by REFILM could facilitate the introduction and use of a kind of Malawian *'How good is my teaching?'* (HGIMT) tool.

As in the Kenyan model, the REFILM-IRI strategy would aim to upgrade teachers' qualification in a more cost effective way than the traditional training of teachers. Those teachers without a Junior Certificate could be assisted to get one and those already at JC level would attempt getting the Malawi School Certificate of Education (MSCE), whereas those already in possession of MSCE would go for bachelor degree modules—while re-skilling on PCAR. The advantage of this approach is that it helps to address the *"what is in it for me?"* factor which was a poignant issue for most

participants involved in this study. In addition it will allow teacher upgrading to occur without demanding either an expansion of the teacher-training force or a withdrawal of teachers from their ongoing teaching responsibilities in the schools. Figure 6 below, is an illustration of the content and delivery mechanism of the REFILM-IRI strategy.

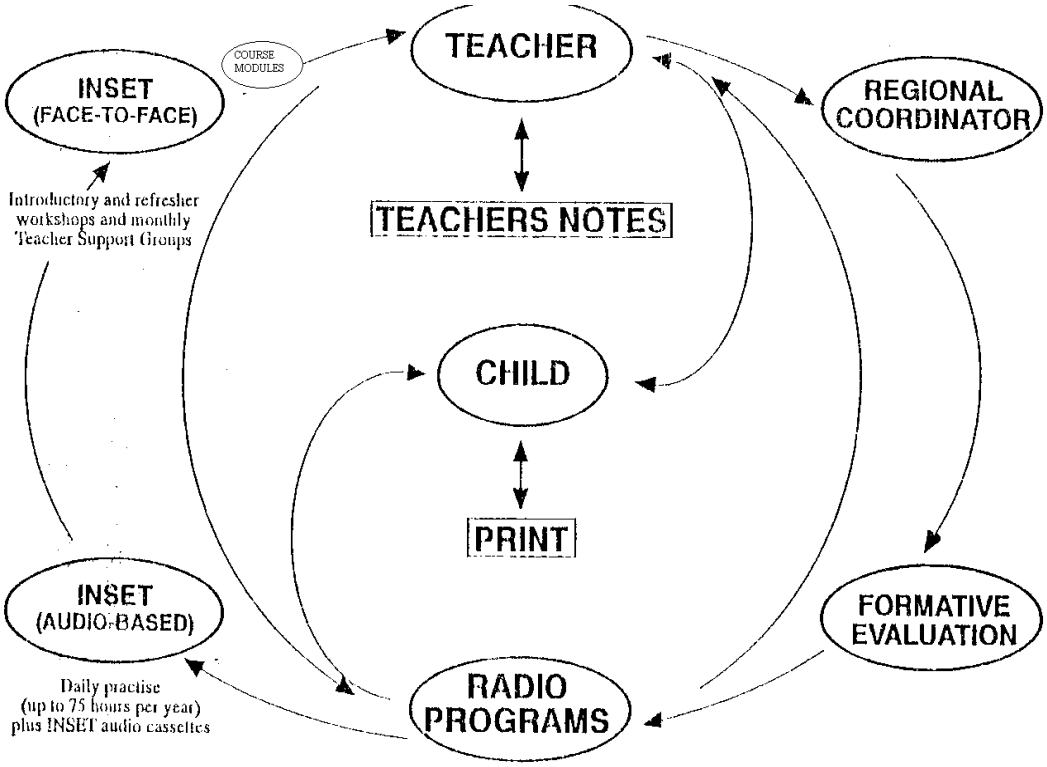


Figure 6: IRI- a 'dual-audience' approach (adapted from OLSET, 1994)

In reshaping and right-sizing *Tikwere* into the above proposed expanded IRI- based CPD programme, and eventually in running such a programme, the following requirements must be addressed:

- PEAS should be directly involved and would work closely with DOCS as in-put personnel for workshops and in researching the existing and changing classroom practice of the school teachers.

- A great deal of care needs to be taken in re-designing the programme. To a large extent, teacher support package will involve the use of specially developed audio and video cassettes. In all cases, audio and radio broadcast courses would cater differentially for all levels with special attention to pacing and encouraging the most needy groups such as UTT and T1/T2s to complete the full course whether for a qualification or merely professional development purposes. As such, this would mean production of a series of materials, each of which will rely primarily on a different 'channel' to communicate important concepts and topics to teachers. Print materials for teacher development purposes would be distributed to schools and would be linked to the radio programmes in such a way as to be supportive of and complementary to the IRI material. Unlike in the Kenya model, these materials would be designed to support the teacher as much as the pupils. In providing structured activities the teachers can try, modify, or build on as they gain confidence and become more comfortable with the new practices.
- Initially, TIA series could be introduced as regular small changes through audio lessons and face to face training workshops. Introducing regular small changes will allow teachers to vary their practice, find successful variations and be prepared for further changes. Such a gradualist policy will allow for an accelerated evolution of classroom practice. Through brief but ongoing training, teachers can be shown how to improvise activities for their pupils to produce own local learning materials (the *Teaching And Learning Using Locally Accessed Resources*-TALLULAR approach).

- To facilitate this kind of development over a teacher's career, there is need to install an IRI programme for professional development that insists teachers spend a certain minimum number of notional hours (probably not less than 75 hours) in each decade of their career, in challenging, rigorous in-service professional development tied to their workplace.
- An important feature of the proposed model is the school-based staff development whereby teachers will be brought together to share their experiences. This could provide a platform for teachers to brainstorm and find possible solutions to pedagogical and environmental challenges which they face, for example how to implement active learning strategies in large sized classrooms. In this way, the variety of different activities could expand considerably. The variety of activities that any one teacher is aware of and might employ multiplies considerably through such contacts. Learning is a social experience so growth is usually fostered through exchange, critique, exploration and formulation of new ideas (Dadds, 1993). In this connection, Candy et al (1985) considers that language interaction in supportive and challenging collaborative contexts is often indispensable. They contend that with the help of sympathetic others, the open-minded teacher-learner can scaffold his or her way to new states of knowing, feeling and acting in the interest of pupils. Talk, as a medium through which this multiple growth takes place needs to be relevant to the task— **'**practice seems to develop best when collaborative talk in the work place or CPD course focuses upon pupil learning rather than extraneous matters, where teachers build up a shared language' (Smyth, 1991, p. 88). Another advantage of the school-based staff development approach is that it could help in cutting down costs

of in-service training by, for example, having effective School Development Teams (SDTS) who are trained staff that take charge of most staff development at the grass-root level. Apart from orientation, systematic teacher support is a necessity for implementation of interactive instruction both during classroom radio lessons and for the adoption of active learning strategies by teachers in their regular teaching. According to Cobbe (1994), supporting teachers' self-help groups costs money, but overall, is less expensive than full-time teacher training.

- Currently, provision of solar-powered and wind-up radios are serving the majority of school populations but in line with the mode of delivery proposed here (audio lessons), schools would better be served by battery-run radios which are more durable. In fact, some schools in urban areas have access to electricity, and in these situations, CDs and DVDs would be more effective although more expensive to produce initially.
- A number of cost elements need to be considered for a “multi-channel” kind of learning (radio broadcast, audiocassettes and the corresponding print media) like the one proposed here. Even though initial costs may rise, evidence from case studies on South Africa, Guinea and Mali show that overall, such a system's cost would be substantially less than for traditional instruction. Cobbe’s (1990) observation is that in other IRI projects there is much emphasis placed on reducing the cost of training and supervision. He warns that a minimal approach to teacher training could jeopardise the sustainability of a programme. Therefore funding for the proposed new programme would require thorough rethink by MoEST and partner

organisations involved in the REFILM project as the USAID/EDC mandate expires in 2010.

- Ideally, the REFILM-IRI course should become part of a national programme of professional development for teachers accredited by appropriate IHEs or TEIs as suggested above. Such an initiative would require agreement and cooperation between the relevant HEIs for the production of academic modules and the criteria for accreditation of the IRI-based course. In the absence of such an agreement, the REFILM project could still offer the course as a non-accredited in-service course for teachers, school leaders and managers.

Whether accredited or non-accredited, national or localised, the proposed strategy is to avoid the 'delivery' concept of educational reform which has characterised the implementation of PCAR and IRI in Malawi. The 'teacher-as-technician' model associated with this concept, in which the teacher is positioned as the uncritical implementer of outside policies is inappropriate for developing a well-educated teaching force. According to Dadds (1996), for several years many have been worried about the tendency towards the technicist, 'empty vessel' models of educational reform in which the teacher's role is to receive, and deliver centrally packaged decisions. She contends that 'delivery' or 'empty vessel' model of educational reform are, essentially, crude behaviourist models which assume erroneously that 'good practice' will come about from those outside schools making judgements for, and on, those inside.

8.2 Conclusions

Essentially, this has been an evaluative but also explorative study. At the heart of this thesis was an interest in checking how communication technology through the medium of interactive radio instruction (IRI) influence not only the 'sayings' but 'doings' of educators, especially classroom teachers. The main interest was finding out what appropriate teaching/learning strategies the respondents (teachers included in the sample) employ, over a number of different lessons, and to determine the consistency by which these strategies were being employed in day-to-day teaching. This was necessary in order to evaluate the impact of IRI on these teachers' practices, which in the end informed the suggestions for a model of IRI appropriate to their (respondents') context. The ultimate purpose of the present study as stated in the introductory remarks is to contribute to insights towards education quality improvement in Malawi by depicting innovative usage of IRI for teacher development.

The researcher's interest in this issue was driven, in part, by the concern that an overly close focus on learners alone (mono-system IRI) might induce a myopic focus on IRI's potential as an educational tool for teacher development whilst perpetuating the more traditional pedagogic and professional approaches. The thesis has attempted to highlight the need to examine closely the relevance and appropriateness in content and mode of delivery of IRI to meet the specific needs within the identified Malawian socio-economic and educational context. Emphasis is on the most significant issues for consideration in trying to create the kind of teacher practice that could be in line with not only the PCAR reforms currently taking place in Malawi, but an ever-changing educational scenario. Furthermore,

the argument in this thesis is that a practice theoretic approach provides the analytical tools and focus of analysis that emphasises the dynamic and integrated relationships between agents, structures, rules and resources.

In terms of classroom practice, findings in this study have confirmed that despite the IRI initiative aimed at introducing active teaching-learning strategies in accordance with PCAR principles, Standard 1 pupils in these eight Malawian primary schools still spend most of their time in class listening to their teachers. It was found out that the dominant pattern of classroom interaction was oral input by teachers with pupils occasionally chanting in response. Although teachers ask questions, these are aimed at data recall or checking whether pupils were listening to the lesson rather than eliciting more challenging responses. It was also found out that classroom tasks, especially in UTT and TI/T2 classrooms, were generally oriented towards the acquisition of information rather than higher cognitive skills. Teachers appeared unable to communicate the attitudes (curiosity, respect for evidence, critical reflection) necessary to the development of higher-order cognitive skills (making observations, asking questions, deriving hypotheses, conducting investigations). Rote learning appears to have built up a self-sustaining momentum, with most teachers agreeing that 'drilling' was an effective way of teaching since children cannot read.

In the case of untrained and under-qualified teachers (including the T2s who came under MIITEP and are now 'certified' as qualified), the diagnosis herein seems to point to these teachers' own lack of conceptual knowledge and reading skills as the foundation on which these traditional practices rest. With limited influence of

IRI, teachers have remained within their own very confined comfort zones and resorted to pedagogies which have enabled them strictly to control pupil access to knowledge. As they are unsure of their own knowledge base, and are also unable or unwilling (for example, T3s) to expand it, such practice, by instinct or design, has ensured that there is no danger of pupils venturing further and threatening the shaky foundations of their teachers.

In the light of the above points, the IRI strategy for teacher support and development proposed here might be thought of as both reactionary and radical. An argument has been put forward that in these school environments within Malawi, IRI should not be used to simply help teachers cover the syllabus. Instead, IRI should be an educational tool for changing or improving, and in some cases actually establishing new, teacher practices— what this thesis has referred to as a *new teachership*. As Fink and Stoll (1988) have argued, changing teacher practice is basically about changing their culture which in turn is critical to transforming school culture (see section 3.6). With effective school cultures, effective teaching and learning is guaranteed and this is what the REFILM project (as discussed above) is about.

Teachers tend to look to external agents, tend to depend on handed-down materials and demand better conditions of service as pre-conditions for improvement. In contrast, the proposed IRI programme aims to help teachers extend their knowledge and skills in a way that will enable them develop creativity for coping with the change under the prevailing conditions. This is important because there seems to be no other simple mechanism for resolving educational challenges in these situations, for example those relating to environmental pressures like large class sizes. These are the kinds of

challenges that present themselves as permanent features of the educational system in low-income countries like Malawi. It therefore makes sense to work towards finding innovative ways of assisting teachers to make adjustments within the new system in which they find themselves—whilst not denying the need for wider change. In recognition of Beeby's (1996) distinctions between systems (see section 3.6), the view taken here is to theorise stasis, although with roots beyond the teacher, as revolving around the teacher himself as classroom practitioner.

The reality is that teaching in contemporary society demands both high academic standards and great moral and practical sophistication. As the rate of change accelerates, teachers and school leaders need to be reminded of the social problems laid daily at their doors, many of which, according to Sockett (1996), can and should be handled by non-teaching specialists, but all of which influence a child's capacity for improved learning. These moral and intellectual capacities are capable of continuous development and refinement. However in the Malawian situation, the dearth on CPD means that profound, regular, and systematic study by in-service teachers is non-existent thus teachers are unable to attain competences of high standard.

From the discussions of chapters 1, 5, 6 and 7, the present system of CPD of primary teachers in Malawi can bluntly be described as *ad hoc ad nauseam.* However, with available aid for educational development in the form of IRI, it becomes necessary that opportunities are not wasted but utilised wisely by assisting the masses of poorly educated and trained primary teachers into becoming professionals capable of profound reflection on practice; competent to enter into a dialogue of the practice they know and the theory or literature they read; able to engage in interpretation and critique with colleagues and with children; and

able to observe, document, and analyze their own practice and experience- able to take that analysis into the 'white hot cauldron' of public forums and public accountability. IRI should be used to enhance instead of undermining collegiality and teachers' capacity for forming good personal and professional relationships with colleagues and learners.

The proposed IRI-based CPD programme aims to enforce some elements of deep learning. As the title of this thesis suggests, it is about establishing a '*new teachership',* a process of '*reprofessionalisation'* of educators by enforcing the Freirean idea of 'learning teaching', where every teacher is a learner thereby transforming schools into learning organisations. In other words, in following the REFILM strategy, IRI would be utilised for promoting a kind of teaching that is also a kind of learning. Unlike the present IRI, through dual-audience system REFILM would promote the 'learning teaching' principle so that it is not only pupils who will benefit from active learning but teachers, too. Currently, this is not happening. In terms of the purpose of this study, to stop learning as teachers, means to stop being useful as effective classroom practitioners, and in a system with a majority of teachers under-and un-qualified, this lack of learning could easily lead to education being in a quagmire as witnessed in this evaluation. There is evidence that either due to inappropriate mechanisms of delivery or wrong content (or both), old traditional teacher practices are not changing as would be expected amongst our target group. In the classroom situation, teachers seem to have grown stale and their lessons have grown tired, hence there is recreation of passive lessons rather than active ones in the classroom.

It is for these reasons that a suggestion has been put forward in this thesis that a specially (re) designed IRI could support an integrated and sustainable CPD of such teachers. In this way, teachers will be assisted to keep learning about teaching, being open to possibilities of

change and being interested in alternative ways of doing things; to be questioning (and possibly changing) some of their own ideas. The willingness of teachers, especially the T1/T2 group to try out new things (for instance, their enthusiasm for the IRI methodology) under difficult circumstances, as witnessed during the evaluation, is admirable. With more support they could probably learn to study and question their work more closely and in depth. The REFILM strategy is meant to encourage learning that reinforces this open-mindedness to new possibilities. In this way teachers will have the resolve to ask searching questions of practice and to confront their existing assumptions. In this way teachers can be helped in working as intellectuals on their own practice, trying to see their teaching through fresh eyes in order to think of it a new.

8.2.1 Further practical considerations

The evidence from this present study seems to confirm the argument that many programmes in developing countries fail because it is difficult to contextualise them and as a result they are unsustainable in the long term (see World Bank, 2005). The study also confirms the thinking that many developing countries are eager to receive much needed materials and services and give only superficial attention to the long term implications of sustainability. The theories and intentions may be sound but the *realities of implementation* under difficult circumstances create huge problems. In these circumstances, it would be preferable to seek collaboration with a local service provider (ideally, an NGO) with the capacity to fund-raise externally for teacher development.

There is a further compelling reason for the establishment of a joint venture with a (preferably local) NGO. As the USAID/EDC mandate for provision of IRI will finish

by the end of 2010, MoEST will then face the financial and managerial challenges of expanding or even just maintaining the existing national programme. There is, in fact, a danger that IRI might 'die a natural death' like other CPD initiatives in the past. If however, a joint venture with an NGO with expertise in this area, such as the *Chakusoza Education Development Trust* (CEDT) could be implemented, MoEST could embark on the suggested changes in the identified schools (or nationally, later) by the end of 2010 as USAID pulls out.

The actual cost elements will be known as other variables reveal themselves later during implementation. Most important, the value of adding a strong teacher support and development component to the existing Malawi IRI programme, as suggested, seem to be a worthwhile investment in the country.

A final consideration in thinking about creating good practice or professionalism amongst teachers is to do with the context of practice as suggested by Giddens (1987) and various other theorists in the field of social practice. If one judges the degree of professionalism of teachers by the degree of job satisfaction (and motivation) to change their practice, then one can look at how that job satisfaction and motivation is differentially distributed. In this sense, the rural-urban disparities in Malawi are instructive.

Teachers in urban schools have much better facilities and infrastructure (though still basic) at their disposal than their counterparts in rural schools. Urban teachers generally enjoy good facilities and resources (for teaching and their own learning), are pressured by expectations of academic success and generally have more motivated learners. Although

they are paid the same salaries as their rural counterparts, they enjoy comfortable housing, food and clothing, access to library facilities and resource centres. This sets a background to the teacher's own personal stock of academic knowledge and the possibility of investing their personal time and resources in professional development. In this case the circumstances explain an educational system that offers professional practice as one of its alternatives. Of course this does not mean that all, or even many, teachers in urban schools automatically act in a professional manner. The point here is that the selection of a teacher's practice is, to a certain extent, one of opportunity rather than deterministic certainty.

In contrast, the teachers in rural isolated schools report to buildings that are basic to the point of perhaps only a hard-floor and roof. The wall and roof may be grass-thatched and may leak. Furniture will be minimal, if it is present. Books, equipment and resources may be non-existent. The overcrowded classrooms are filled with learners who may be disenchanted and poorly behaved. The teachers' own academic and professional background may be poor and their role models may have been people suffering in conditions similar to those they now suffer. As seen in the analysis, their homes may be overcrowded and uncomfortable, just like those of their pupils. Food and clothing may be in short supply. The possibility of owning a car is a dream away. While a number of places are not reachable by PEAS by ordinary car, dependence on public transport to and from workshops, training courses and seminars may make the time away from home for many rural teachers, unacceptably long. This sets a rather different background to the possibilities for professionalism. In these circumstances, where the system seems

to treat teachers as unqualified or mechanical in their work, the possibility for professionalism to survive is considerably limited.

It is anticipated that by exploiting IRI for teachers' competence, both quality and equity of education would be improved- significant learning gains for all participants could be expected, with substantial gains in girls' attainment and closing the urban-rural education gap. If opportunities like those provided by the IRI initiative are not used to help resolve these disparities, then the differences between teachers' experiences in their professional lives will continue. In that case, although PCAR offers a national curriculum on paper, it will nevertheless be differentially delivered because of the said differences. Thus urban schools, at some point, will take PCAR in their stride, while the majority of rural schools (where most teachers are under-qualified) will continue in a state of uncertainty and confusion, as seems to be the case at present.

7.2.1.2 Suggestions for further research

The work in this thesis has reflected the limited experience gained through the IRI programme in the Malawian context. Both the classroom teachers and the service providers did not have full knowledge or experience of IRI as a methodology. Even at the end of the twelve months after the inception of the programme, the experience gained was still limited particularly in relation to usage of interactive radio for improving teaching and learning and applying professional practice of high standards. In light of these circumstances, the current research concentrated on anticipated changes and initial experiences but has not been able to examine improvement in detail in pupil learning and

achievements over time. Assuming that IRI becomes established as an integral part of the Malawian primary education system (supporting teachers and learners), research focussing on the patterns of change in pupils' styles of learning and how this affects their achievements, could offer some valuable insights about the benefits of interactive radio as envisaged by the REFILM strategy.

While addressing the well-known problem of poor teacher practice in Malawian primary schools (Kadzamira, 2006), expansion of this study beyond CPD would make a substantive contribution to educational improvements within Malawi and the sub-Saharan Africa region. For example, further research would aim to implement, monitor and evaluate the appropriateness and effectiveness of the IRI model/approach proposed in this PhD thesis for improving practice in other 'learning communities'. The concern of such a research would be support and professional development, through interactive radio, of all professionals who have the responsibility to 'develop' others, such as: health/medical practitioners, agriculturalists, water engineers, and the like. In the Malawian case, these professionals, due to the non-existence of adult and continuing education facilities receive no additional training as 'trainers' (see Chimombo, 2007). Yet, they are responsible for training local communities on critical issues such as water sanitation, HIV/AIDS, primary health care and hygiene, and other related matters.

In general, IRI offers great potential for non-formal education. Today, there are many examples of cases where IRI has been utilised as the main vehicle for educating, for example, out-of-school youths (USAID, 2007). The imposition of a 'quota system' by the Malawian government on selection into university means that not only those youths who

had dropped out of school will be in the streets, but so also will be the hundreds that complete Form 4 (O levels), but do not meet the new criteria (http://ndagha.blogspot.com/2009/10/issues-with-quota-system-in-malawi.html). Therefore special interest should be on the application of the IRI-based instructional model for non-formal, adult and continuing education.

Final remarks

All told, it can finally be said that the IRI agenda in Malawi should be a welcome one for as long as it is reckoned that a school is a centre of learning therefore the role of a teacher should not be ignored, regardless of technology or methodology. The concern should be how teachers can best maximise pupils' opportunities to learn, which can best be achieved by equipping teachers with the right knowledge and skills that will enable them to utilise existing technologies and new methodologies under the prevailing circumstances. The present study, undertaken in a SSA context, has confirmed what has been the state of the art in the field of teaching and learning: that research on teaching and learning in general, and teacher practice in particular, is as tempting, interesting and prolific an undertaking, as it is muddled and slippery. Understanding teachers' beliefs about knowledge and learning and the interplay with their behaviour or practice remains a challenge that, in some way has to be faced, especially in developing Third World countries, where the clamour for improving education is relentlessly echoing.

Bibliography

Association for the Development of Education in Africa (ADEA) (1999) 'Prospective stocktaking review of education in Africa', *Biennial 1999 on Education in Africa*, Abuja, 17-19 July

Adey, P., Hewitt, G., Hewitt, J. and Landau, N. (2004) *The Professional development of Teachers: Practice and Theory*, Kluwer Academic Publishers, Dordrecht

Aladejana, F. (2008) 'Blended learning and improved science teaching in Nigerian primary schools', *e-learning Africa: the 3rd International Conference on ICT for Development, Education and Training*, Accra, 28-30 May

Allert, H.D. and Nedjl, W. (2002) 'Meta-level category, role in metadata standards for learning: Instructional roles and instructional qualities of learning objects', *Learning Objects, COSIGN 2002: the 2nd International Conference on Computational Semiotics for Games and New Media*, Amsterdam, 1-5 July

Anzalone, S. (ed.) (1995) *Multichannel learning: Connecting all Education*, Education Development Centre (EDC), Washington DC

Advanced Distributed Learning (1999) *The DoD advanced distributed learning strategic plan*, Retrieved 09/11/2006, from http://www.adlnet.org/downloads/156.cfm

Anderson, J. A. (2003) 'The challenges of collaborative knowledge', in *Learning Objects: Contexts and Connections*, C. M. Gynn & S. R. Acker, eds., Ohio State University, Ohio

Angrosino, M. V. and Mays de Perez, K. A. (2000) 'Rethinking observation', in *Handbook of Qualitative Research*, L. Denzin & Y. S. Lincoln, eds., Sage, London, pp. 673-702

Atherton J.S. (2005) *Learning and teaching: Deep and surface learning*, Retrieved 10/07/2008, from http://www.learningandteaching.info/learning/deepsurf.htm

Banyard, P. and Hayes, N. (1994) *Psychology: theory and application*, Chapman & Hall, London

Banda, C. (1998) *A History of Education in Malawi*, Kulima Publishers, Blantyre

Barker, P., Beetham, H., Campbell, L., Donovan, K. and Everett, A. (2004) *Proposal for an instructional methods element*, Retrieved 26/03/2007, from http://www.jiscmail.ac.uk/cgi-bin/webadmin?A1=ind0408&L=cetispedagogy&D=0&H=0&O=T&T=0

Beeby, C.E. (1996) *The Quality of Education in Developing Countries*, MA, Harvard University Press, Cambridge.

Beeby, C.E. (1980) 'The thesis of stages fourteen years later', *International Review of Education*, vol.26, no. 4, pp.451-474

Beetham, H. (2001) 'Developing practice through networks and shared resources', *Educational Development*, vol. *2*, no. 4, pp.186-191

Blaikie, N.W.H. (1991) 'Case study and case records: Towards a contemporary history of education', *British Educational Research Journal*, vol. 4, no. 2, pp.21-39

Bloom, B. (ed.) (1973) *The taxonomy of educational objectives: The cognitive domain*, Editora Globo, Porto Alegre

Bosch, A., Rhodes, R. and Kariuki, S. (1994) *Interactive radio instruction: An update from the field*, Retrieved 05/06/2006, from http://www.aed.org/publications/TechnologiesForEducation/TechEdChapter

Bosch, A. (1997) 'Interactive Radio Instruction: Twenty-three years of improving educational quality', *Education and Technology Technical Notes Series* vol. 1, no.1

Bourdieu, P. (1977) *Outline of a Theory of Practice*, Cambridge University Press, Cambridge

Bourdieu, P. (1998) *Practical Reason*, Policy Press, Cambridge

Bransford, J.D., Brown, A.L., and Cocking, R.C. (eds.) (1999) *How People Learn: Brain, Mind, Experience and School*, Committee on Developments in the Science of Learning, National Academic Press, National Research Council

Bridges, D. (1999) 'Educational Research: Pursuit of truth or flight in to fancy', *British Educational Research Journal*, vol.25, no.5, pp.597-616

Brito, L., Brouser, R., Menezes, A. R. and Mlay, G. (2005) 'Policy development in the south and its international dimension: The Mozambican experience', *A changing Landscape*, NUFFIC's expert meeting, Hague, 22-23 August

Brock-Utne, B. (1994) 'Will cultural conditionality in the lending for education become more explicit in the new decade?' in *States or Markets? Neo-Liberalism in the Educational Policies of Sub-Saharan Africa*, Brock-Utne, ed., Education in Africa, 3(1)

Brockerville, G.T. (1998) *Professional development and action research*, Retrieved 17/10/2006, from www.stemnet.nf.ca/Community/Prospectus/v4n4/research.htm

Brookfield, S. D. (1995) *Becoming a Critically Reflective Teacher*, Jossey-Bass, San Francisco

Brown, D. B. (1991) *Human Universality*, Temple University, Philadelphia

Brown, B.A.T. (2001) 'Unpacking a timesheet: Formalisation and representation', *Computer Supported Cooperative Work*, vol.1, no. 10, pp. 293-315

Brown, K. and Cole, M. (2000) *Cultural historical activity theory and the expansion of opportunities for learning after school*, Retrieved 02/20/2007, from http://lchc.ucsd.edu/People/Localz/MCole/browncole.html

Bruner, J. (1996) *The Culture of Education*, Harvard University Press, Cambridge, MA

Burgess, H. (2000) 'What future for initial teacher education? New curriculum and new directions', *The Curriculum Journal*, vol.11, no.3, pp.405-417

Campbell, L. M. (2003) 'Engaging with the learning object economy', in *Reusing Online Resources: A sustainable approach to e-learning* (pp. 35-45), A. Littlejohn, ed., Kogan Page, London

Calderhead, J. and Shorrock, S. (1997) *Understanding Teacher Education*, Falmer Press, London

Candy, P., Harri-Augstein, S. and Thomas, L. (1985) 'Reflections and the self-organised learner', in *Reflection: Turning Experience into Learning*, D. Boud, R. Keogh and D. Walker, eds., Kogan Page, New York

Chaiklin, S. and Lave, J. (1993) *Understanding Practice: Perspectives on activity and context*, University Press, Cambridge

Chimombo, S. (2007) 'The role of donor and civil society organisations in the education sector in Malawi', *Review of Comparative Education and History*, vol. 13, no. 2, SACHES

Chimombo, S. (1999) *Implementing Educational Innovations*: *A study of Free Primary Schooling in Malawi*, Unpublished D Phil Thesis submitted to the University of Sussex

Chu, G. and Schramm, W. (1967) *Learning from Television: What the research says*, Institute for Communication Research, Stanford, CA

Clark, J. (2005) 'Curriculum studies in initial teacher education: the importance of holism and Project 2061', *The Curriculum Journal*, vol.16, no. 4, pp. 509-521

Clark, R. (1972) *Report on an experimental course in the use of a two-way radio in adult education for the Lilongwe Land Development Programme*, Centre for Extension Studies, Limbe, Malawi

Claxton, G. (2003) 'Learning to learn: a key goal in 21st century curriculum. Futures meeting the challenges, qualifications and curriculum authority', *Expanding the Capacity to Learn: A New End for Education?* BERA keynote Speech, Warwick University, Warwick, Retrieved 02/02/2007, from www.qca.org.uk/futures/claxtion

Cliff, A.F. (1997) *Teacher-learners' beliefs about their own learning: impacts of further formal study*. Retrieved 10/01/2008, from http://www2.auckland.ac.nz/cpd/HERDSA/HTM/LeaderSup/CLIF.HTM

Cliff, A.F. (1998) 'Teacher-learners conception of learning: Evidence of a 'communalistic' conception amongst postgraduate learners?' *Higher Education*, vol. 35, no. 2, pp. 205-220

Cobbe, J. (1994) *Report on the Economics of OLSET's English in Action*, Open Learning System Education Trust, Johannesburg

Cobbe, J. (1995) *Economics of Interactive Instruction: The Case of South Africa*, Education Development Centre, Washington

Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*, Routledge Farmer, London

Coleman, J. (1998) 'Social capital in the creation of human capital', *American Journal of Sociology*, vol. 2, no. 94, pp. 85-120

Dadds, M. (1993) 'The feeling of thinking in professional self study', *Educational Action Research*, vol.1, no.1, pp.287-303.

Dadds, M. (1996) *Supporting practitioner research: a challenge*, Paper presented to conference, Supporting Practitioner Research: a Challenge, University of Cambridge

Daniel, J. S. (1999) *Distance learning in the era of networks: What are the key technologies*? Retrieved 21/02/2007, from http://www.col.org/forum/daniel.htm

Dart, B. (1998) 'Teaching for improved learning in small classes', in *Teaching and Learning in Higher Education* (pp.222-249), B. Dart & G. Boulton-Lewis, eds., Council for Educational Research, Melbourne

De Feiter, L., Vonk, H. and Akker, J. Van Den (1995) *Towards more Effective Science Teacher Development in Southern Africa*, Free University Press, Amsterdam

Department for International Development (DfID) (2003) *Malawi: Country Assistance Plan 2003/04-2005/06, DfID*, Lilongwe,

Dock, A. (1999) "Success and sustainability", in *Interactive Radio Instruction: Impact, Sustainability, and Future Directions*, in A. Dock and D. Helwig, eds., Education and Technology Technical Notes Series vol. 4, no. 1, World Bank, Washington, DC

Dock, A. and Helwig, J. (eds.) (1999) *Interactive Radio Instruction: Impact, Sustainability, and Future Directions*, World Bank, Washington DC

Downes, S. (2004) 'Resource profiles', *Journal of Interactive Media in Education*, vol. 2004, no. 3, pp.77-79

Duke, D.L. (2003) *The Challenges of Educational Change*, Kogan Page, New York

Education Development Centre (EDC) (2008) *IRI monitoring and evaluation report for the last half of 2008*, EDC, Blantyre

Education Development Centre (EDC) (2008) *Quarterly report: 1 January –30 April 2007*, EDC, Blantyre

Ehrmann, S. (1998) 'Studying teaching, learning and technology: A toolkit from the flashlight program', *Active Learning* (IX), 38-42

Eisner, E. (1998) *The Schools We Need*, Retrieved 20/11/2006, from http://www.ed.stanford.edu/suse/home04-01-01.html

Engeström, Y. (1993) 'Developmental studies of work as a test bench of activity theory: The case of primary care medical practice' in *Understanding Practice*, S. Chaiklin & J. Lave, eds., Cambridge University Press, Cambridge, pp. 64-103

Engeström, Y., and Miettinen, R. (1999) 'Introduction' in *Perspectives on Activity Theory,* Y. Engestrom, R. Miettinen & R. L. Punamki, eds., Cambridge University Press, Cambridge, pp. 1-16

Entwistle, N. (1998) *Conceptions of learning, understanding and higher education,* SCRE Fellowship Lecture, Retrieved 11/01/2007, from http://www.scre.ac.uk/fellow/fellow98entwistle.html

Early professional Learning Project (EPL) (2006) *Early Learning,,* Stirling Institute of Education, Stirling

Eraut, M. (1994) *Developing Professional Knowledge and Competence*, Falmer Press, London

Eraut, M. (2000) 'Non-formal learning, implicit knowledge and tacit knowledge in professional work', in *The Necessity of Informal Learning*, F. Coffield, ed., ESRC Report Policy Press, Bristol

Eraut, M. (2004) 'Informal learning in the workplace', *Studies in Continuing Education*, vol.26, no.2, pp.247-273

Field, J., Gallacher, J. and Ingram, R. (2009) *Researching Transitions in Lifelong Learning,* Routledge Education, London

Fischer, G. (2001, 9-13 December, 2001). *External and shareable artifacts as opportunities for social creativity in communities of interest,* Paper presented at the Computational and Cognitive Models of Creative Design, Key Centre of Design Computing and Cognition, University of Sydney, Heron Island, Australia

Forsythe, R. (1970) *Instructional radio:* A position paper, unpublished paper, Stanford University (ERIC; ED 004 933)

Foley, G. (2000) 'Teaching Adults' in *Understanding Adult Education and Learning*', 2nd edn., G. Foley, ed., Allen & Unwin, NSW, pp. 34-58

Fredriksson, U. (2004) 'Quality Education: The Key Role of Teachers', *Education International,* Working Papers No. 14, September 2004

Fredrikson, U., and Hoskin, B. (2007) 'The development of learning how to learn in a European context', *The Curriculum Journal*, vol.18, no.2, pp.127-13

Freire, P. (1972) *Pedagogy of the Oppressed,* Sheed and Wald Ltd, London

Freire, P. (1998) *Teachers as Cultural Workers: Letters to Those Who Dare Teach,* Westview Press, Colorado

Friesen, N. (2004) 'Three objections to learning objects' in *Online Education Using Learning-object,* R. McGreal, ed., Routledge, London, pp. 59-70

Fullan, M. (1982) *The Meaning of Educational Change*, Teachers College Press, London

Fullan, M.B. and Stiegelbauer, S. (1991) *The New Meaning of Educational Chang*e, Cassell, London

Gale, T. and Densmore, K. (2000) *Just Schooling: Explorations in the Cultural Politics of Teaching,* Open University Press, Buckingham

Garmston, R. J. (1987) 'How administrators support peer coaching', *Educational Leadership*, vol. 45, no.2, pp.18-26

Gherardi, S., Nicolini, D. and Odella, F. (1998) 'Toward a social understanding of how people learn in organizations', *Management Learning,* vol.29, no.3, pp.273-297

Gibson, J. J. (1986) 'The theory of affordances' in *The Ecological Approach to Visual Perception,* J. J.Gibson, ed., Lawrence Erlbaum Associates Inc., New Jersey, pp. 127-143

Giddens, A. (1979) *Central Problems in Social Theory,* The MacMillan Press Ltd, London

Giddens, A. (1984) *The Constitution of Society*, Polity Press, Cambridge

Giddens, A. and Turner, J. H. (1987) *Social Theory Today*, Polity Press, Cambridge

Giddens, A. (1993) *New Rules of Sociological Method: A positive critique of interpretative sociologies* (2nd ed.), Polity Press, Cambridge

Giddens, A. and Pierson, C. (1998) *Conversations with Anthony Giddens,* Polity Press, Cambridge

Goodyear, P. and Steeples, C. (1999) 'Creating shareable representations of practice' *Association for Learning Technology Journal*, vol. 6, no. 3, pp. 16-23

Graham, D. (1998) *Ethnography in Action: Progressive Focussing of Research Questions- The OLSET Radio Learning Programme*, Open Learning Systems Education Trust, Johannesburg

Graham, C.R., Tripp, T. R., Seawright, L. and Joeckel, G.L. (2002) 'Empowering or compelling reluctant participants using audience response systems', *Active Learning in Higher Education,* vol. 8, no. 3, pp. 233-256

Grint, K. and Woolgar, S. (1997) *The Machine at Work: Technology, Work and Organisation,* Polity Press, Cambridge

Guba, E.G. and Lincoln, Y.S. (1981) *Effective Evaluation: Improving the Usefulness of Evaluation Results through Responsive and Naturalistic Approaches,* Jossey-Bass, San Francisco

Hakim, C. (1987) *Research Design: Strategies and Choice in the Design of Social Research,* Routledge, London

Hargreaves, A. (2005) *About learning,* DEMOS Report of learning Working Group, London

Hargreaves, D. (1995) 'School culture, School effectiveness and School improvement', *School Effectiveness and School Improvement,* vol. 6, no.1, pp. 23-466

Haycock, K. (1998) *Teaching and California's Future: Good Teaching Matters…..A lot,* The Education Trust, Washington

Hayes, D. (2000) *Melting influences in the preparation of student primary teachers: issues relating to the school placements.* Paper presented at BERA. Cardiff University, 2000

Head, B. (1974) *A Question of Power*, Heineman Educational, London

Henning, E. (2000) *Teaching qualitative methodology for educational research: Cultivating communities of deep learning practice.* Unpublished report for Rand Afrikaans University, Johannesburg

Hitchcock, G. and Hughes, D. (1989) *Research and the Teacher*, Routledge, London

Holloway, S.L. and Valentine, G. (2000) *Children's Geographies: playing, living, learning*, Routledge, London

Hopkins, D., Ainscow, M. and West, M. (1994) *School Improvement in an Era of Change*, Cassell, London

Horton, J. and Kraftl, P. (2006) 'What else? Some more ways of thinking and doing children's Geographies', *Children's Geographies*, vol. 4, no. 1, pp. 69-95

Hutchby, I. (2001) 'Technologies, texts and affordances', *Sociology*, vol. 35, no. 2, pp. 441-521

Hutchby, I. (2003) 'Affordances and the analysis of technologically mediated interaction: A response to Brian Rappert', *Sociology*, vol. 37, no.3, pp. 581

Hutchings, P. (ed.) (2000) *Opening Lines: Approaches to the Scholarship of Teaching*, Carnegie Foundation, Paolo Alto

Hutchinson, D. (1994) 'Competence-based profiles for ITT and induction: the place of reflection', *British Journal of In-Service Education*, vol. 20, no. 3, pp. 119-129

Huberman, A.M. and Miles, M.B. (1984) *Innovation up Close: How school improvement works.* Plenum Press, New York

Hysamen, G.K. (1994) *Methodology for the Social and Behavioural Sciences*, International Thomson Publishing (Southern Africa (Pty) Limited, Johannesburg

Hysamen, G.K. (1998) *Descriptive Statistics for the Social and Behavioural Sciences*, J.L. Schaik, Pretoria

IEEE (2002) *Final Draft LOM Standard v1.0*, Retrieved 20/01/2008, from http://ltsc.ieee.org/wg12/20020612-Final-LOM-Draft.html

IEQ/Malawi Partnership (2001) *Malawi: Country Survey*, IEQ, Johannesburg

Information and Communication Technologies in Development. Retrieved 12/12/200,9 from http//www.cia.gov/publications/theworldfactbook/geos/mi.html

JISC (2002) Circular 2/02: *Exchange for learning programme* (X4L). Retrieved 08/1/2008, from http://www.jisc.ac.uk/index.cfm?name=circular_2_02

James, M. (2006) *Ten Principles from the UK's Teaching and Learning Research Programme*, Retrieved 31/01/2008, from http://www.cambridgeassessment.org.uk/ca/Keynotes/Article?id=116722

James, M., Black, P., McCormick, R., Pedder, D. and William, D. (2006) 'Learning How to Learn, in Classrooms, Schools and Networks: aims, design and analysis', *Research Papers in Education*, vol. 21, no. 2, pp.101-118

Jamison, D.T. and McAnany E.G. (1978) *School Broadcasting*, Sage Publications Inc., London

Jamison, D., Suppes, P. and Wells, S. (1974) 'The effectiveness of alternative instructional media: A survey' *Review of Educational Research*, vol. 44, no. 1974, pp. 1-67

Jenkins, E.W. (1995) 'Central policy and teacher response: Scientific investigation in the national curriculum of England and Wales', *International Journal of Science Education*, vol. 17, no. 14, pp. 471-480

Jenkins, R. (1996) *Social Identity*, Routledge, London

JISC (2002) Circular 2/02: *Exchange for learning programme* (X4L). Retrieved 08/1/2008, from http://www.jisc.ac.uk/index.cfm?name=circular_2_02

Jonassen, D. H. and Roher-Murphy, L. (1999) 'Activity theory as a framework for designing constructivist learning environments', *Education Training Research and Development*, vol. 47, no. 1, pp. 61-79

Johnson, D. (2006) 'Investing in teacher effectiveness to improve educational quality in developing countries: does in-service education for primary mathematics teachers in Sri Lanka make a difference to teaching and learning?' *Research in Comparative and International Education*, vol. 1, no.1, pp.73- 118

Johnson, S., Monk, M. and Swain (2000) 'Constraints on development and change to science teachers' practice in Egyptian classrooms', *Journal of Education for Teaching*, vol. 26, no.1, pp. 9-24

Joyce, B. and Weil, M. (1986) *Models of Teaching*, 3rd edn, Prentice-Hall, Englewood Cliffs NJ

Kadzamira, E., Chibwana, M., Chatsika, M. and Khozi, J. (1999) *Gender and Primary Schooling in Malawi*, Report sponsored by The Forum for African Women Educationists (FAWE), Ministry of Education and Institute of Development Studies, University of Sussex

Kamangira, S. and Kasambara, G. (2001) *A look at educational trends in Malawi*, Unpublished paper presented at IMBIZO conference, Durban, 2-3 July

Kinyannjui, P. (1977) 'In-service training of teachers through radio and correspondence in Kenya', in *Radio for Education and Development: Case Studies*, P. Spain, D. Jamieson & E. McAnany, eds., vol. 1, World Bank, Washington, pp. 240-356

Knorr Cetina, K. (2001) 'Objectual practice' in *The Practice Turn in Contemporary Theory*, T. R. Schatzki, K. Knorr Cetina & E.V. Savigny, eds., Routledge, London, pp. 175-188

Kollock, P. (1998) 'Social dilemmas: The anatomy of cooperation', *Annual Review of Sociology*, vol.2, no.24, p.183-185

Kunje, D. and Chimombo, J. (1999) *Malawi: A baseline study of the teacher education system*, CIE-University of Sussex Institute of Education, London

Kunje, D. and Stuart, J. (1996) *An Evaluation of the Emergency Teacher Programme in Malawi: An interim Report*, Centre for Educational Research and Training (CERT), Zomba

Latour, B. (1987) *Science in Action*, Harvard University Press, Cambridge

Lave, J. (1988) *Cognition in Practice*, Cambridge University Press, Cambridge

Lave, J. and Wenger, E. (1991) *Situated Learning: Legitimate peripheral participation*, Cambridge University Press, Cambridge

Leach, J. and Moon, R.E. (1999) *Recreating Pedagogy in Learners and Pedagogy*, Paul Chapman, London

Leach, J. and Moon, B. (2002) *Globilisation, Digital Societies and School Reform: Realising the Potential on new Technologies to enhance the Knowledge, Understanding and Dignity of Teachers*, The Open University Press, Milton Keynes

Le Compte, M. and Preissle, J. (1993) *Ethnography and Qualitative Design in Educational Research*, Academic Press Ltd, London

Leigh, S. and Cash, F.P. (1999) 'Effectiveness and methodology of IRI' in *Interactive Radio Instruction: Impact, Sustainability, and Future Directions*, A. Dock & J. Helwig, eds., vol. 4, no.1, pp. 27-35

Leisering, L. and Walker, R. (1998) 'The dynamics of modern society', *Journal of Social Policy*, vol. 28, no. 3, pp. 543-575

Lemke, J. (1997) 'Cognition, context, and learning: A social semiotic perspective' in *Situated Cognition: Social, Semiotic, and Psychological Perspectives* (pp. 37-56), D. Kirshner & J. A. Whitson (Eds.), New Jersey: Lawrence Erlbaum Associates.

The Learning Technology Dissemination Initiative (1998) *Evaluation Studies*, Retrieved 12/07/2008, from http://www.icb.hw.ac.uk/ltdi/ltdi-pub.htm

MacAnany, E. (1973) *Radio's Role in Development*: Five strategies to use, Academy for Educational Development, Washington, DC

MacIsaac, M. and Gunawardena, C. (1996) 'Distance education', in *Handbook of Research Traditions and Technology*, D.H. Jonassen, ed., Simon & Schuster Macmillan, Washington, DC, pp. 93-111

Malawi College for Distance Education (MCDE) (2008) 'Radio education in Malawi', *Report on Previous Strategic Plans for Radio Learning programmes*, Ministry of Education, Science and Technology, Lilongwe

Marton, F. (1981) 'Phenomenography: Describing conceptions of the world around us' *Instructional Science*, vol.10, no. 1, pp. 77-200

Marton, F. and Saljo, R. (1976a) 'On qualitative differences in learning II: Outcome as a function of the learner's conception of the task', *British Journal of Educational Psychology*, vol. 2, no. 46, pp. 4-11

Marton, F. and Saljo, R. (1976 b) 'On qualitative differences in learning II: Outcome as a function of the learner's conception of the task', *British Journal of Educational Psychology*, vol.2, no. 46, pp. 115-127.

Marton, F., Dall'Alba, G. and Beaty, E. (1993) 'Conceptions of learning', *International Journal of Educational Research*, vol.4, no.19, pp.277-300

Marzackk, M. and Sewell, M. (2001) *What is a Focus Group?* Retrieved 06/08/2007, from http://www.ag.arizona,edu/fcs/cyfernet/cyfar/focus.htm

Mason, R. (1992) 'Evaluation methodologies for computer conferencing applications', in *Collaborative Learning Through Computer Conferencing*, A. R. Kaye, ed., Springer-Verlag, London, pp. 105-116

Maxwell, J. A. (1996) *Qualitative Research Design: An Interactive Approach*, Sage, London

Mayes, T. (2003) 'Vision and theoretical perspectives-introduction', in *Reusing Online Resources: A Sustainable Approach to e-learning*, A, Littlejohn (ed.), Kogan Page, London, pp. 9-11

Mayhill, D. (2006) *What makes a good teacher*? Retrieved 31/01/2008, from http://www.cambridgeassessment.org.uk/ca/Keynotes/Article?id=116722

Maynard, T. (2000) 'Learning to teach, or learning to manage mentors', *Mentoring and tutoring*, vol. 6, no. 1, pp. 17-30

Mayo, J. (1995) 'Radio's role in education and development: Introduction and overview', in *Interactive Radio Instruction: Impact, Sustainability, and Future Directions*, A. Dock, & J. Helwig, eds., vol. 4, no. 1, pp. 27-35

Mbewe, S. (2002) *Free primary education and increase of educational inequities in Malawi*, Unpblished report, Chancellor College, Zomba

Mbeki, T. (2001) 'I am an African: Quest', *An African Journal of Philosophy (Special issue on African Renaissance and Ubuntu Philosophy)*, vol. 15, no. 1-2, pp. 10-13

Meyer, J.H. (1998) 'A medley of individual differences', in *Teaching and Learning in Higher Education*, B. Dart & G. Boulton-Lewis, eds., Council for Educational Research, Melbourne, pp. 42-710

Miles, M.B. and Huberman, A.M. (1984) *Qualitative Data* Analysis: *A Sourcebook of New Methods*, Sage, Beverly Hills, CA

Milner, M., Chimombo J. and Banda, T. (2001) *The quality of primary education in Malawi: Some policy suggestions based on a survey of schools*, United Nations Education and Scientific Cooperation (UNESCO), Paris

Ministry of Education (1994) *Basic Education Statistics*, Basic Education Directorate, Lilongwe

Ministry of Education, Science and Technology (MoEST) (2007), *National Education Strategic Plan*, 2007-2016, Planning Directorate, Lilongwe

Ministry of Education, Science and Technology (MoEST) (2007) *National Education Strategy Plan 2007-2016 (NESP)*, Electronic Management Information Systems (EMIS), Lilongwe

Molloy, D., Woodfield, K. and Bacon, J.C. (2002) *Longitudinal Qualitative Research Approaches in Evaluation Studies*, National Centre for Social Research, London

Monk, M. (1997) 'In-service for teacher development in sub-Saharan Africa: A review of literature', *Educational Researcher*, vol. 30, no. 64, pp.234-359

Moulton, J. (1994) *Interactive Radio Instruction: Broadening the Definition*, LearnTech, Johannesburg

Morgan, D.L. (1998) *Planning Focus Groups: Focus Group Kit2*, Sage Publications, London

Muller, J. (1985) *Radio for Literacy. A Reader on the Use of Radio in Literacy Programmes*, German Foundation for International Development, Bonn

Myers, M. D., and Klein, H. K. (1998) 'A set of principles for conducting and evaluating interpretive field studies in information systems', *Management Information Systems Quarterly*, vol. 1, no. 23, pp. 1-25

National Statistics online (2005) *Malawi Statistics*, Ministry of Education, Science and Technology, Lilongwe

Nardi, B. A. (1996) 'Activity theory and human-computer interaction', in *Context and Consciousness: Activity Theory and Human-computer Interaction*, B. A. Nardi, ed., MIT Press, Cambridge, MA, pp. 7- 16

Nardi, B. A. and O'Day, V. L. (1999) *Information Ecologies: Using Technology with Heart*, MIT Press, Cambridge, MA

Nias, J. (1987) *Seeing Anew: Teachers' Theories of Action*, Deakin University Press, Geelong

OECD (2002) *What Future Schools?* OECD, Paris

Oladejo, J. (1991) 'The Teacher Factor in the Effective Teaching and Learning of ESL in Developing English Speaking Countries: The Case of Nigeria', *Journal of Multilingual & Multicultural Development, vol.* 12, no. 3, pp.195-204

OLSET (1994) *The OLSET Radio Learning Programme for Educational Development: Curriculum Document Number1,* Open Learning Systems Education Trust, Johannesburg

Olsson, M. (1994) *Institutionalising radio Science in Papua New Guinea: a response to teacher demand for interactive radio instruction,* Education Development Centre, Washington

Orlikowski, W. J. (2000) 'Using technology and constituting structures: A practice lens for studying technology in organizations', *Organization Science*, vol. 11, no. 4, pp. 404-428.

O'Sullivan, M.C. (2005) 'What is happening in the classroom? A common sense approach to improving the quality of primary education in developing countries', *Teacher Development*, vol. 9, no. 30, pp. 301-314

Patton, M.Q. (1990) *Qualitative Evaluation and Research Methods* 2nd edn, Sage, Newbury Park, CA

Patton, M.Q. (1986) *Utilisation-focussed Evaluation*, 2nd edn, Sage Publications, Thousand Oaks

Patton, M.C. Q. (1980) *Qualitative Evaluation Methods*, Sage, Beverly Hills, CA

Paquette, G., and Rosca, I. (2002) Organic aggregation of knowledge object in educational systems', *Canadian Journal of Learning and Technology,* vol. 2, no.3 pp. 328- 335

Parlett, M. and Hamilton, D. (1977) 'Evaluation as illumination: A new approach to the study of innovatory programmes', in *Beyond the Numbers Game,* Hamilton, ed., Macmillan, London, pp. 6- 22

Perraton, H. (Ed) 1(993) *Distance Education for Teacher Training,* Routledge, London

Perraton, H. and Creed, C (2000) *Applying new Technologies and Cost-effective Delivery Systems in BasicEeducation,* United Nations Education and Scientific Cooperation (UNESCO), Paris

Perraton, H. (2001) *Teaching the Teachers,* IMFUNDO Briefing Paper

Peshkin, A. (1988) 'In search of subjectivity-one's own', *Educational Researcher,* vol. 17, no. 17, pp.17-265

Potashnik, M. and Anzalone, S. (1999) 'Forward', in *Interactive Radio Instruction: Impact, Sustainability and Future Directions,* vol. 4, no. 1, A. Dock & J. Helwig, eds., World Bank, Washington, pp. Vii-Viii.

Potashnik, M. and Adkins, D. (1996) *Cost Analysis of Information Technology Projects in Education: Experiences from Developing Countries, Education and Technology* Technical Notes Series, vol. 1 (3), World Bank, Washington, DC

Potter, C.S. (1993) *Evaluation Design for English in Action,* Open Learning Systems Education Trust, Johannesburg

Potter, C.S. (2001) *Evaluation Report on the Development of 'English-in-Action' over 1998 and 1999,* Open Learning Systems Education Trust, Johannesburg

Purdie, N., Hattie, J. and Douglas, G (1996) 'Student conception of learning and their use of self-regulated learning strategies: A cross-cultural comparison', *Journal of Educational Psychology,* vol. 88, no.5, pp. 88-100

Rappert, B. (2003) 'Technologies, texts and possibilities: A reply to Hutchby', *Sociology*, vol.37, no. 3, p. 565

Rawson, M. (2000) 'Learning to Learn: more than a skill set', *Studies in Higher Education*, vol. 25, no. 2, pp. 225-238

Reckwitz, A. (2002a). 'The status of the 'material' in theories of culture: From 'social structure' to 'artefacts', *Journal for the Theory of Social Behaviour*, vol. 32, no. 2, pp. 195-217

Reckwitz, A. (2002b) 'Toward a theory of social practices', *European Journal of Social Theory*, vol.5, no. 2, pp. 243-263

Reigner, P. (1994) *The Illusion of Technique and the Intellectual Life of Schools*, Phi Delta Kappan, New York

Richards, G. (2002) 'Editorial: The challenges of the learning object paradigm' *Canadian Journal of Learning and Technology*, vol. 28, no. 3, pp. 23-40

Richardson, V. (2003) 'Constructivist Pedagogy', *Teachers College Record*, vol. 105, no. 9, pp. 1623-1640

Rist, R.C. (1998) 'Influencing the Policy Process with Qualitative Research', in *Handbook of Qualitative Research*, 2nd edn, N.K. Denzin, & Y.S. Lincoln, eds., Sage, Thousand Oaks, CA, pp. 101-115

Robson, C. (2002) *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*, Blackwell Publishing, Malden

Rossman, G.B., Corbett, H.D. and Firestone, W.A. (1998) *Change and Effectiveness in Schools: A Cultural Perspective*, Sunny Press, New York

Rush, L. (Ed) (2008) *An alternative perspective for ITT: Learning to learn and its basis in personal beliefs about knowledge*, Escalate Final report, 2008, Retrieved 06/08/2008), from http://www.escalate.ac.uk/1504

Rust, Val D. and Dalin, P. (1990) *Teachers and Teaching in the Developing World*, Garland Publishing, Inc., London

Sachs, J. (2003) *The Activist Teaching Profession*, Open University Press, Buckingham, Philadelphia

Säljö, R. (1987) 'The educational construction of learning', in *Students Learning*, J.T.E. Richardson, M.W. Eysenk, & D.W. Piper, eds., Open University Press, Milton Keynes, pp.101-108

Säljö, R. (1979) 'Learning in the learner's perspective 1, Some common-sense conceptions', Reports from the Department of Education, University of Gothenburg, no. 76 (As summarised in P. Banyard & N. Hayes (1994), *Psychology: Theory and Application*, Chapman & Hall, London

Sammons, P. (1994) 'Findings from school effectiveness research: some implications for improving the quality of schools', *Improving education: promoting quality in schools*, P. Ribbins & E. Burridge, eds., Cassell, London, pp. 56-79

Schatzki, T. R., Knorr Cetina, K. K., and Savigny, E. V. (eds.) (2001) *The Practice Turn in Contemporary Theory*, Routledge, London

Scheerens, J. (2000) 'Improving school effectiveness', *Fundamentals of Educational Planning Series*, Nr.68, United Nations Education and Scientific Cooperation (UNESCO), Paris

Schein, E.H. (1985) *Organisational Culture and Leadership*, Jossey-Bass, San Francisco

Schiofield, A. (1999) *Whole School Development: Towards a Co-oordinated Strategy for School Reconstruction in KwaZulu-Nata*l, Discussion Document, KwaZulu-Natal Department of Education, Durban

Schon, D.A. (1983) *The Reflective Practitioner*, Basic Books, New York

Schon, D.A. (1987) *Educating the Reflective Practitioner*, Jossey-Bass, San Francisco

Schon, D. (1998) *Teachers as Collaborative Learners*, Open University, Buckingham

Schmidt, W.H., McKnight, C.C. and Raizen, S.A. (1997) *A Splintered Vision: An Investigation of US Science and Mathematics Education*, Kluwer Academic Publishers, Dordrecht

Schulman, L. S. (1987) 'Knowledge and teaching: foundations of the new reform', *Harvard Educational Review*, vol. 57, no. 10, pp.1-22.

Scotland-Malawi Partnership (2008) *Higher Education Series*, Edinburgh, Retrieved 05/01/2009, from www.info@scotland-malawipartnership.org

Scottish Executive Education Department (2000) *A Teaching Profession for the 21st Century*, The Stationers Office, Edinburgh

Scottish Education Department (2000) *How Good Is Our School*? Retrieved 02/02/2009, from http://www.hmie.gov.uk

Searle, J. (1995) *The Construction of Social Reality*, The Penguin Press, London

Shaba, C. (2003) *Formative Monitoring and Evaluation of the OLSET IRI programme*, OLSET, Unpublished Report, Johannesburg

Shadish, W. R. (1986) 'Planned Critical Multiplism: Some Elaboration', *Behavioural Assessment* vol. 7, no.8, pp.75-103

Sitoe, A. (2006) *Epistemological Beliefs and Perceptions of Education in Africa: An Explorative Study with High School Students in Mozambique*, University of Groningen, Groningen

Smith C.A. (2005) *How useful are concepts of learning approaches to thinking about early professional learning?* Contribution to Early Professional Learning Project (EPL) mini conference, Stirling University

Smith, M. K. (2000) *The theory and rhetoric of the learning society', The Encyclopaedia of Informal Education,* Retrieved 12/08/2008, from http://www.infed.org/lifelonglearning/b-lrnsoc.htm.

Sockett, H.T. (1993) *The Moral Base for Teacher Professionalism*, Teacher College Press, New York

Sockett, H.T. (1996) 'Teachers for the 21st century: Redefining professionalism', *NASSP*, vol. 50, no. 4, pp. 26-29

Solar, J., Craft, A. and Burgess, H. (eds.) (2001) *Teacher Development: Exploring Our Own Practice,* The Open University, Milton Keynes

Star, S. L. and Griesemer, J. R. (1989) 'Institutional ecology 'translations' and boundary objects: Amatuers and professionals in Berkeley's Musuem of Vertebrate Zoology', *Social Studies of Science*, vol.19, no. 3, pp. 387-420

Stoll, L. and Fink, D. (1996) *Changing Our Schools*, Open University Press, Buckingham

Stoll, L. and Fink, D. (1988) 'Educational Change: an international perspective', *International Journal of Educational Management*, vol. 2, no. 3, pp. 26-31

Stones, E. (1979) *Psychopedagogy: Psychological theory and the practice of teaching*, Methuen, London

Stones, E. (1994) 'Assessment of a complex skill: improving teacher education', *An Assessment in Education,* vol.1, no. 12, pp. 235-251

Stolp, S. and Smith, C. (1996) 'Cultural leadership', *NASSP*, vol. 60, no. 530, pp. 157-160

Struyven, K. Dochy, F. and Janssens, S. (2002) *Students' perceptions about assessment in higher education,* Paper presented at the joint Northumbria SIG Assessment and Evaluation conference: Learning communities and assessment cultures, Newcastle, England.

Strydom, A.E. (1981) *An Empirical investigation into the utilisation of the school radio services,* South African Institute for Educational Research, Pretoria

Solar, J., Craft, A. and Burgess, H. (eds) (2001) *Teacher Development: Exploring our own practice,* The Open University, Milton Keynes

Taylor, N, and Vinjevold, P. (1999) *Getting Learning Right: Report of the President's Education Initiative Research Project,* JET, Johannesburg

The Nation (2000) 'Where has all education gone?' 20 July, p.2

Trigwell, K. (2000) 'Phenomenography: Variation and discernment' in *Improving Student Learning, Proceedings of the 1999 7th international Symposium*, D. Rust, ed., Oxford Centre for Staff and Learning Development, Oxford, pp.75-85

Trigwell, K. and Ashwin, P. (2006) 'An Exploratory Study of Situated Conceptions of Learning and Learning Environments', *Higher Education*, vol. 8, no. 51, pp. 243-258

Tripp, S and Roby, W. (1996) 'Auditory presentations in language laboratories,' *Handbook of Research for Educational Communications and Technology* , D.H. Jonassen, Simon & Schuster Macmillan, New York, pp. 821-850

Tucker, R.N. (1988) *Interactive Media*: *The Human Issues*, Kogan Page Ltd, London

United States Agency for International Development (USAID) (2003) *Country profile: Malawi*, USAID, Lilongwe

United States Agency for International Development/Education Development Centre (USAID/EDC) (2007) *Tikwere! Startup*, Education Development Centre Inc, Washington

United States Agency for International Development (USAID) (2007) *Teacher Training via radio in Mali*, Retrieved 24/01/2009 from http://www.usaid.gov/our_work/education_and_universities/basic-ed/mali_radio.html

United Nations Organisation (UNO) (2004) *HIV/AIDS statistics, Report on Malawi*, United Nations Department of Information, Washington

United Nations Education and Scientific Cooperation (UNESCO) (2003) *World education forum: Applying new technologies and cost-effective delivery systems in basic education*, International Institute of Education, Paris

Unwin, T. (2006) *Educating and training out of poverty? A Status Report*, Retrieved 30/12/2006, from http://www.norrag.org/pdf/NN37.pdf

Valentine, G. (1999) 'Being seen and heard? The ethical complexities of working with children and young people at home and at school', *Ethics, Place and Environment*, vol. 1, no. 2, pp. 141-155

Valerie, E.P. (2002) 'Putting Knowledge to Work Effectively: Assessing information needs through focus groups', *INSPEL*, vol. 36, no. 4, pp. 254-265

Van der Kamp, M. (2004) 'Lifelong learning and north-south cooperation', in *From Social Exclusion to Lifelong Learning in Southern Africa, CDS Research Report no. 21*, P. Boele van Hensbroek & H. Schoenmakers, eds., *Groningen*, pp. 7-18

Van Rossum, E.J. and Schenk, S.M. (1984) 'The relationship between learning conceptions, study strategy and learning outcome', *British Journal or Educational Psychology*, vol. 9, no.54, pp. 73-83

Venter, E. (2004) 'The notion of Ubuntu and communalism in African educational discourse', *Studies in Philosophy and Educ*ation, vol. 23, no. 2-3, p.149-160

Verspoor, A.M. and Leno, J.L .(1996*) Improving teaching: a key to successful educational change*, Education and Training Department Report No EDT50, The World Bank, Washington, DC

Verspoor, A.M. and Wu, K. B. (1990) *Textbooks and educational development*, Education and Employment Division, Population and Human Resources Department paper, PHREE/90/31, The World Bank, Washington DC

Verspoor, A. (2004) *The Challenge of Learning: Improving the Quality of Basic education in sub-Saharan Africa*, Association for Development of Education in Africa (ADEA), Paris

Voluntary Services Organisation (VSO) (2002) *Country profile: Malawi*, VSO, Lilongwe

Vygotsky, L.S. (1978) *Mind in Society: The Development of Higher Psychological Processes*, Harvard University Press, Cambridge, MA

Webb, T. (2006) 'The Choreography of accountability', *Journal of Education Policy*, vol. 21, no. 20, pp. 2001-214

Wellington, J. (2000) *Educational Research: Contemporary Issues and Practical Approaches*, Continuum, London

Wenger, E. (1998) *Communities of Practice: Learning, Meaning and Identity*, University Press, Cambridge

Wertsch, J.V. (1998) *Mind in Action*, Oxford University Press, New York

Whitehead, J. (2000) 'How do I improve My Practice? Creating and legitimating an epistemology of practice', *Reflective Practice*, vol. 5, no.1 pp. 91-104

Whittemore, L.E. (1999) *The development of Radio, Annals of the American Academy of Political Science*, 142, Supplement: Radio 1-7

Wiley, D. A. (2000) *Learning Object Design and Sequencing Theory*, Unpublished Thesis, Brigham Young University

Wiley, D. A. (2003) *Learning objects: Difficulties and opportunities*, Retrieved 31/10/2005, from http://wiley.ed.usu.edu/docs/lo_do.pdf

Wiley, D. A. (2004) *Commentary on: Downes, S.* (2004), Resource profiles, Journal of Interactive Media in Education, 2004 (5), Retrieved 24/1/2006, from http://wwwjime.open.ac.uk/2004/5/wiley-2004-5.pdf

World Bank (2000) *Can Africa Claim the 21st Century?* World Bank Development Research Group, Washington

World Bank (2005) *Improving educational quality through interactive radio instruction: A toolkit for policy makers and planners*,Working papers series no. 52, World Bank Development Research Group, Washington

A1 Particulars of the Baseline Study

School	Education District	Education Division	Participant Code	Sex	Years of training & Mode	Class Size (learners)	CPD/INSET Attended Jan 2007 - Dec. 2008
							Type
S1	Blantyre City (Urban)	Southern	T2S1-1	F	2 -MIITEP	113	PCAR (x2) IRI orientation
			T1S1-2	F	1 FT	170	"
S2	Zomba Rural (Rural)	Southern	T2S2-1	F	2 MIITEP	79	PCAR (x2) IRI orientation
			UTTS2-2	F	UTT	77	"
C1	Lilongwe city (Urban)	Central	T3C1-1	F	3-MASTEP	75	PCAR (x2) IRI orientation
			T3C1-2	F	3-FT	77	"
			T2C1-2	F	2 FT	75	"
			T2C1-3	M	2-MIITEP	75	"
C2	Kasungu (Rural)	Central	T3C2-1	F	3 FT	143	PCAR (x2)
			T2C2-2	F	2-MIITEP	101	"
			UTTC2-3	F	UTT	101	"
N1	Mzimba North Mzuzu City (Urban)	Northern	T3N1-1	F	3 FT	70	PCAR (x2) IRI orientation
			T2N1-2	M	2-IPTE	70	"
N2	Nkhatabay West (Rural)	Northern	**T1N2-1**	F	2-MIITEP	118	PCAR (x2)
			UTTN2- 2	F	UTT	117	"

Totals: T1s (2); T2s (6); T3s (4); UTT (3) = 15 participants

KEY:

MIITEP: Malawi Integrated In-service Teachers' Education Programme (1 year in-service + residential training during holidays)

MASTEP: Malawi Strategic Teacher Education Programme (3 years: in-service + residential training during holidays)

IPTE: Integrated Primary Teacher Education (one plus one: 1 year residential training, I year in-service)

2 FT: 2 years full-time training

1 FT: 1 year full-time training

UTT: Untrained teacher

A2. Particulars of the Main Study

School	Education District	Education Division	Participant Code	Sex	Years of training & Mode	Class Size (learners)	CPD/INSET Attended Jan 2007 - Dec. 2008
							Type
S1	Blantyre City (Urban)	Southern	T2S1-1	F	2 -MIITEP	113	PCAR (x2) IRI orientation
			T1S1-2	F	1 FT	170	"
S2	Zomba Rural (Rural)	Southern	T2S2-1	F	2 MIITEP	79	PCAR (x2) IRI orientation
			UTTS2-2	F	UTT	77	"
C1	Lilongwe city (urban)	Central	T3C1-1	F	3-MASTEP	75	PCAR (x2) IRI orientation
			T3C1-2	F	3-FT	77	"
			T2C1-2	F	2 FT	75	"
			T2C1-3	M	2-MIITEP	75	"
			T2C1-4	M	2-IPTE	75	"
C2	Lilongwe (Rural)	Central	T3C2-1	F	3 FT	143	PCAR (x2)
			T2C2-2	F	2-MIITEP	101	"
C3	Kasungu (Rural)		UTTC2-3	F	UTT	101	"
N1	Mzimba North Mzuzu City (Urban)	Northern	T3N1-1	F	3 FT	70	PCAR (x2) IRI orientation
			T2N1-2	M	2-IPTE	70	"
			T2N1-3	F	2 MIITEP	70	"
N2	Mzimba South (Rural)	Northern	T2N2-1	F	2-MIITEP	118	PCAR (x2)
			T1N2-1	F	I FT	115	"
N3	Nkhatabay West (Rural)		T1 N2-3	F	1 FT	114	"
			UTTN2-2	M	UTT	98	"

Totals No. of schools: 8
T1s (3); T2s (9); T3s (4); UTTs (3) = 19 participants

KEY:

MIITEP: Malawi Integrated In-service Teachers' Education Programme (1 year in-service + residential training during holidays)

MASTEP: Malawi Strategic Teacher Education Programme (3 years: in-service + residential training during holidays)

IPTE: Integrated Primary Teacher Education (one plus one: 1 year residential training, I year in-service)

2 FT: 2 years full-time training

1 FT: 1 year full-time training

UTT: Untrained teacher

B1

Instrument 1: Lesson observation (LOF)

Syllabus	Yes	No
Available		
Logically sequenced		
Sufficient detail to facilitate their use		

Item	Available	Detailed	Updated
Schemes of work			
Lesson Plan			
Assessment tools & records			

Time table	Yes	No
Displayed		
Followed by the teacher		
Follows recommended time allocation		

Lesson Preparation

Rating 5= Excellent, 4= Good, 3= Satisfactory, 2=Needs improvement 1= Unsatisfactory

Item	**5**	**4**	**3**	**2**	**1**	**Comments**
A. Introduction						
• Relevant to the lesson topic						
• Arouses learner's interest						
• Links with previous lesson						
• Brief(up to 5 minutes)						
B. Developmental Steps	**5**	**4**	**3**	**2**	**1**	**Comments**
• Instructors are clear						
• Activities are relevant to the topic						
• Activities are sequenced						
• Simple to complex						
• SNE friendly						
ii. Methods	**5**	**4**	**3**	**2**	**1**	**Comments**
• Participatory						
• Appropriate						
• Varied						
• Motivating						
• SNE friendly						
iii.Teaching and Learning Resources	5	4	3	2	1	**Comments**
• Available						
• Adequate						
• Relevant						
• SNE friendly						
• Effectively used						
iv. Teacher's level of Masterly	5	4	3	2	1	**Comments**
• Has good knowledge of content						
• Simplifies content to level of learner with SEN						
• Facilitates acquisition of skills						
• Has the ability to integrate theory and practice						
v. Appropriate use of language	5	4	3	2	1	**Comments**

• Follows the language policy for instruction						
• Uses language at the level of learners						
• Voice is loud and clear						
• Uses gender-sensitive/appropriate language						
vi. Learner involvement	5	4	3	2	1	**Comments**
• Learners participate in a variety of exercises to practice skills						
• Peer leer learning						
• Learners encouraged to clarify or ask for help						
• Timely completion of tasks						
vii. Classroom management						
• Learners sitting orderly						
• Mention learners by names						
• Girls and boys interacting freely in the classroom						
• Teachers able to respond to classroom needs						
• Corrects bad behaviour through reinforcement and promotes good ones						
• Classroom displays at appropriate height, clear, adequate and attractive						
• Facilitates systematic movement from one task to another						
• Learners raises hands to answer questions						
viii. Assessment						
• Assessment is integrated with teaching and learning						
• Peer assessment						
• Use of learners self-assessment						
• Low order questions used (knowledge/comprehension)						
• High order questions used (Application to Evaluation)						
• Assessment items relevant to learning outcomes						
• Use of a variety of assessment methods						
• Use of a variety of assessment techniques						
ix. teachers Qualities						
• Sober minded						
• Uses acceptable language						
• Demonstrates responsibility towards learners						
• Accountable to learners						
C. Conclusion						
• Lesson is concluded						
• Main points of the lesson are summarized						
• Uses questions to enhance understanding of main points of the lesson						
• Involves learners						

3. Researcher's Evaluation of the lesson

• Learning outcomes are achieved	**Yes**	**No**
• Learners are able to answer questions orally/written		
• Learners are able to carry out activities in groups or individually		
• Learners are able to apply knowledge and skills learned		

(Adapted from MoEST)

B2.

Teacher Behaviour study

School:_____ Zone:_____ District:_____
Teacher Name:_____ Date: _____ Attendance: Boys:___ Girls:____
Start Time:_____ Finish Time:_____ Subject: _____
Intro or Review*(circle)* Teacher's academic qualifications:_____
Professional qualifications:_____ How long have you been teaching?_____

1. How many times have you used Tikwere radio lessons in the last week?

5 times	3-4 times	1-2 times	never

2. Questioning

a. How many relevant questions does the teacher ask?

	Open		Closed	
	Girls	Boys	Girls	Boys
Tick:				
Total:				

b. Analyze the amount of reinforcement provided for answers

No reinforcement	Poor reinforcement	Good Reinforcement

2. Participatory Activities

a. Does the lesson include any of the following:

Category	**Time** How much time is spent on this? (in minutes)	**Appropriate** Was the time allotted appropriate? Y or N	**Participation** How many learners were involved? 1=some 2=most 3=all	**Relevance** Was the activity related to the objective? 1 = not 2 = partially 3 = directly
Non Instructional time				
Lecture				
Discussion / Questions				
Individual work			(b:__ /g:__)	
Pair work			(b:__ /g:__)	
Group work			(b:__ /g:__)	
Role Playing			(b:__ /g:__)	
Game Playing			(b:__ /g:__)	
Songs			(b:__ /g:__)	

B3

Instrument 3: Monitoring of training (Participants' Evaluation)

Place of training:_____ District:_____ Date:_____

1. Was the venue suitable Yes ☐ No ☐

Comments _____

2. Timing: a) Was the duration sufficient for the training? Yes ☐ No ☐
Comments _____

b) Was time adequate for each training session? Yes ☐ No ☐
Comments _____

c) If no, for which activity was time too limited?
Comments _____

3. How long is the distance from your duty station to the venue of training?
_____

4. Have you attended any professional training before? Yes ☐ No ☐

If yes, what was it about? _____

5. Is this training addressing your professional needs? Yes ☐ No ☐

Comments _____

6. Does the training address special needs education challenges?_____

7. What good classroom practices have you acquired from the training that you can apply when facilitating/teaching?_____

8 a) Were the necessary training materials available and accessible to participants?

Yes ☐ No ☐

b) Were the materials accessible to trainees with special educational needs?
Yes ☐ No ☐

9. What were the major successes of the training?
10. What were the challenges during the training?
11. Suggest areas for improvement
12. Any other comments about the training?

B4

INSTRUMENT 4: MONITORING OF TRAINING SESSIONS (Researcher)

Place of training:_____ District:_____ Date:_____

Name of the monitor:_____ Designation:_____

Number of participants invited: ☐ male ☐ female

Number of actual participants in attendance male ☐ female ☐

1. a) Was the venue suitable? Yes ☐ No ☐

   Comments _____

   b) Was it disability friendly? Yes ☐ No ☐

2. Number of groups in the class ☐
3. Average number of participants per group ☐

Comments _____

B5

Instrument 5: Monitoring of Tikwere Radio Programmes (Classroom)

1a. Is the Tikwere Radio programme being used in your classes? [Y/N]
1b. If not, why not?
1c. If yes, how well?
   i. Little/no participation (switches on radio but does nothing else)
   ii. Some participation (switches on radio and follows some directions, but not all)
   iii. Strong participation (follows all directions with enthusiasm, and elaborates on the lesson)
2a. Did the teacher conduct post-broadcast activities? [Y/N]
2b. If no, why?
2c. If yes, how well?
   i. Completed all activities as required
   ii. Completed some activities
   iii. Completed none
3a. Does the teacher synchronize regular and Tikwere lessons? [Y/N]
3b. If no, why?
3b. If yes, how?
   i. Plans regular lessons around Tikwere schedule
   ii. Ensures coordination between Tikwere and regular lessons
   iii. Separates Tikwere from regular lessons completely
4. What does the teacher find:
   a. difficult in using/following Tikwere lessons?
   b. easy in using/following Tikwere lessons
5. Other comments on Tikwere lessons.

B6

Classroom Environment Pupil Satisfaction & Achievement Instrument

This is a survey about your class. It will be used to find out what helps you learn, and how teachers can make learning easier for you. You are the researcher here, and your answers will be part of a big project looking at how people learn to be teachers. Most of the questions originally came from pupils like yourselves, so you will find them easy to understand.
This new version has been developed from the previous one entirely through pupil participation. We have been able to shorten it quite a bit, thanks to your efforts in completing the long version. Thanks for your help and for taking this project seriously.
Please do **not** write your name on the form, to make it totally anonymous and confidential.

About you:

What subject are you doing in this class? ……. Your Year Group? …….....

I am a Girl O	Boy O

All you need to do is tick the circle (O) next to your chosen answer. For all your answers, "Almost always" includes "Always" and "Hardly ever" includes "Never".
We hope you enjoy being a researcher!

The survey starts here:

1. I do as well as I can in this class.

Almost always O	Often O	Sometimes O	Hardly ever O

2. The teacher keeps the class under control.

Almost always O	Often O	Sometimes O	Hardly ever O

3. The teacher is helpful when I am struggling with work.

Almost always O	Often O	Sometimes O	Hardly ever O

4. The teacher knows the class well.

Almost always O	Often O	Sometimes O	Hardly ever O

5. The teacher treats me with respect.

Almost always O	Often O	Sometimes O	Hardly ever O

6. The teacher makes lessons fun.

Almost always O	Often O	Sometimes O	Hardly ever O

7. The teacher takes time to explain things when we don't understand them.

Almost always O	Often O	Sometimes O	Hardly ever O

8. The teacher listens to me.

Almost always O	Often O	Sometimes O	Hardly ever O

9. I experience different activities during the lesson.

Almost always O	Often O	Sometimes O	Hardly ever O

10. In this class, pupils help each other

Almost always O	Often O	Sometimes O	Hardly ever O

11. I carry out research to answer questions that puzzle me.

Almost always O	Often O	Sometimes O	Hardly ever O

12. I pay attention to the teacher during this class.

Almost always O	Often O	Sometimes O	Hardly ever O

13. I receive the same encouragement from the teacher as other pupils.

Almost always O	Often O	Sometimes O	Hardly ever O

14. I get the same opportunity to contribute to class discussions as other pupils.

Almost always O	Often O	Sometimes O	Hardly ever O

Thank you for completing this questionnaire – we really appreciate your help with this!
If you have any comments about the way your class works, please write them in this box:
Have you completed one of these forms before?

Yes O	No O

If you are waiting for everyone else to finish, here's a space to draw a map of your school, showing where this class is taking place. Thanks again!

(Adapted from EPL, Stirling University)

C Synthesis and Comparative analysis of Findings

Baseline Study I

Study	Analytical Theme	Results
Baseline Study I	***Understanding Learning & Teaching.***	*UTTs* • Learning: increasing knowledge; memorising and reproducing; applying (accumulation of factual information) • Teaching/learning approaches: teacher-centred, no attempt at learner-centred teaching • Vague understanding of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as: a) effective teaching which was understood as ability to pass on content knowledge; b) collegiality, especially peer professional support *T1s & T2s* • Learning: increasing knowledge; memorising and reproducing; applying; understanding of content • Teaching/learning approaches: predominantly teacher-centred, <u>*no*</u> attempt at learner-centred teaching • Confused views about and practice of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as: a) effective teaching which was regarded as ability to pass on content knowledge, enable understanding of content by learner (emphasis on content knowledge of the teacher), b) relationships with colleagues *T3s* • Learning as: understanding • Teaching/learning approaches/goals • Understanding of differences between *learner-centred* vs *teacher centred* approaches • Good practice understood as •
		UTTS • Learning as: • Teaching approaches/goals • Understanding of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as *T1s & T2s* • Learning as: • Teaching approaches/goals • Understanding of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as *T3s* • Learning as: • Teaching approaches/goals

		• Understanding of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as

Study	Analytical Theme	Results
Baseline Study I	***Understanding the potential of artefacts e.g. I.R.I as catalyst for teacher learning and professional development***	• Bare knowledge of IRI and its potential for CPD • Understanding of radio's role in formal education: UTTs & newly trained T2s -no idea; T3s & long serving T2s- radio as tool for remedial teaching purposes. • No other communication technology available for teaching & learning
	Issues of induction and training in IRI	• Low level of participants satisfaction with professional support and development • Current INSET initiatives and status: PCAR – only x3 initial training workshops, none further. No other type of INSET • Level of participants satisfaction with PCAR training: o - infrequency of training (lack of progression) o - not addressing core issues, e.g. large class sizes vs learner-centred teaching/learning; vs lack of LTSMs o - what is in it for me?: no incentives e.g. remuneration adjustments in relation to refresher courses; inadequate stipend.

Baseline Study II

Study	Analytical Theme	Results
Baseline study II	***Understanding the potential of artefacts e.g. IRI as catalyst for teacher learning and professional development***	• Knowledge of IRI and its potential for CPD: IRI associated with radio learning for *remedial teaching* purposes • Usage of IRI in sample schools: one listened to daily lesson broadcast, five didn't. • No other communication technology available for teaching and learning
	Issues of induction and training IRI	• Current INSET initiatives and status: IRI- advocacy over press, no training/induction. • No other ongoing INSET

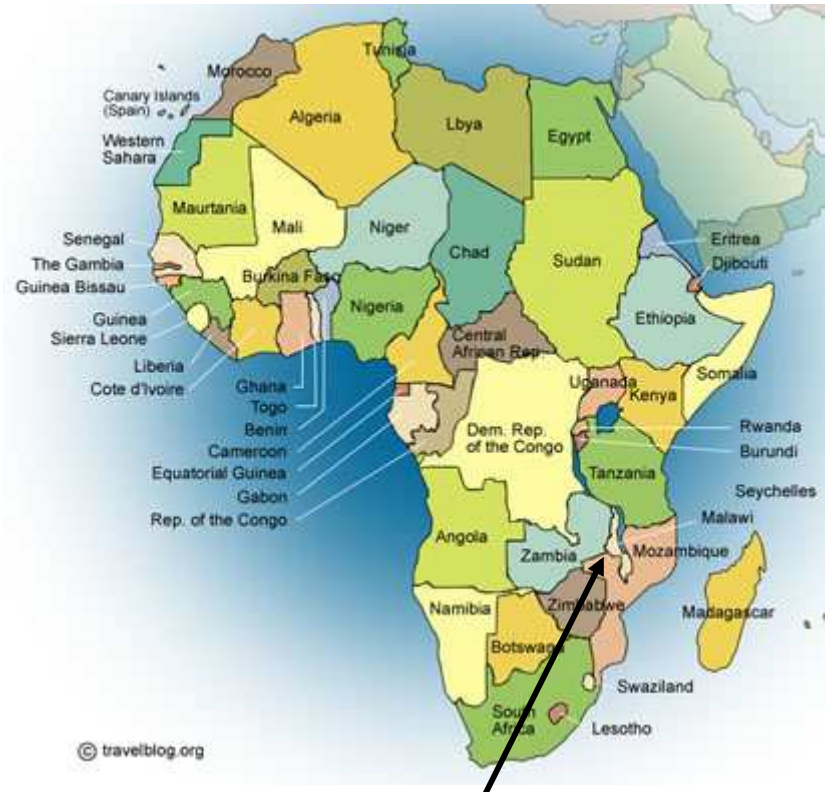
Main study

Study	Analytical Theme	Results
Main study	**Understanding learning & teaching**.	**PARTICIPANTS INDUCTED/TRAINED IN IRI** *UTTS* • Learning: increasing knowledge; memorising and reproducing; applying (accumulation of factual information) • Teaching/learning approaches: teacher-centred, no attempt at learner-centred teaching • Vague understanding of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as: a) effective teaching which was understood as ability to pass on content knowledge; b) collegiality, especially peer professional support *Noticeable shifts*: -growth/increased value for collegiality with regard to school-based staff development -2 out of the 3 participants used radio in the classroom, but none (0) tried IRI methodology in non-radio lessons *T1s & T2s* • Learning: increasing knowledge; memorising and reproducing; applying; understanding; developing social competence • Teaching/learning approaches: predominantly teacher-centred, trying out learner-centred teaching • Confused views about and practice of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as: a) effective teaching which was viewed as ability to pass on content knowledge, enable understanding of it, enable social competence of learner (personal & material gains); b) relationships with colleagues *Noticeable shifts:* *-expanded understanding of learning to include understanding and social competence* -desire/some confidence to try out learner-centred teaching methodologies (long serving T2s) - 6 out of 8 participants used radio in the classroom, 4 tried the IRI methodology in non-radio lessons *T3s* • Learning: increasing knowledge; applying; understanding; seeing something in a different way; changing as a person; developing social competence (personal & material gains) • Teaching/learning approaches: fair attempt of mixed approaches, teacher-centred & learner-centred • Articulate description of differences between *learner-centred* vs *teacher-centred* approaches but ambivalent (?) application of learner-centred teaching/learning • Good practice understood as: effective execution of the collective core responsibilities of the teacher, i.e. effective teaching for successful learning of pupils: emphasis on teachers' content knowledge, pedagogical skills and professional disposition. *Noticeable changes: - increased understanding of learning/teaching processes and of what makes for good practice (including* ' deeper' learning) and less emphasis on passing factual information as effective teaching -confidence in applying (albeit not successfully) the IRI methodology (learner-centred & active learning) - all 2 participants used radio and 2 tried the IRI methodology in the non-radio lessons, except chichewa

Study	Analytical Theme	Results
Main study	**Understanding learning & teaching**	**PARTICIPANTS <u>NOT</u> INDUCTED/TRAINED IN IRI** *UTTS* • Learning: increasing knowledge; memorising and reproducing; applying (accumulation of factual information) • Teaching/learning approaches: teacher-centred, no attempt at learner-centred teaching • Vague understanding of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as: a) effective teaching which was regarded as ability to pass on content knowledge *Noticeable shifts* - *None* - 1 out of the 2 participants used radio in the classroom, none (0) tried IRI methodology in non-radio lessons *T1s & T2s* • Learning: increasing knowledge; memorising and reproducing; applying; understanding of content • Teaching/learning approaches: predominantly teacher-centred, *<u>no</u>* attempt at learner-centred teaching • Confused views about and practice of differences between *learner-centred* vs *teacher-centred* approaches • Good practice understood as: a) effective teaching which was regarded as ability to pass on content knowledge, enable understanding of content by learner (emphasis on content knowledge of the teacher), b) relationships with colleagues *Noticeable shifts:* - *None* - 1 out of the 4 participants used radio in the classroom, none (0) tried IRI methodology in non-radio lesson T3s • Learning: increasing knowledge; applying; understanding; developing social competence (personal & material gains) • Teaching/learning approaches: mixed approaches, teacher-centred & learner-centred • Ample understanding of differences between *learner-centred* vs *teacher-centred* approaches, minimum application in the classroom • Good practice understood as: effective teaching with emphasis on execution of teachers' knowledge of subject, his ability to enable understanding of subject matter by learners, and his relationships with colleagues. *Noticeable changes:* - *None* - the participant used radio, and tried the learner-centred methods in the non-radio lessons

Study	Analytical Theme	Results
Main study	***Understanding the potential of artefacts e.g. IRI as catalyst for teacher learning and professional development***	• Knowledge of IRI and its potential for CPD: -IRI associated with radio learning for *remedial teaching* purposes (UTTs, T1/T2s) - IRI viewed as a tool for *learning to teach* (T3s) • No other communication technology available for teaching and learning
	Issues of induction and training IRI	• INSET prior to IRI : PCAR (limited to x3 training sessions) • Current INSET initiatives and status: IRI- advocacy over press, no training/induction. • No other ongoing INSET currently

D. Map of Africa & Malawi



Appendix E

Summary of findings: Baseline Study 2

This stage of the baseline study took place in February and March 2008, three months after the inception of the USAID funded IRI programme in Malawi. As mentioned earlier, the purposes here was different from that of baseline study1 which was mainly about establishing the status quo prior to IRI (pre-intervention phase), whereas here the interest was in finding out how the programme was being experienced by key participants (during phase). In terms of the dual interests of the researcher (as co-founder of the IRI project and as PhD researcher), this phase aimed to gather information on the practical implications of the current implementation strategy of the Malawi IRI programme. While feeding into the general formative evaluative cycle, this second baseline study provided an additional opportunity, as explained in the research design chapter, to check on the emerging changes or patterns of change in teachers' practices.

As with baseline study I, interviews and observations were the chosen methods for this stage of field study. It was expected that the introduction of IRI in Malawian primary schools would be preceded by orientation and induction/training of respondents (teachers) on the IRI methodology, but it was quickly discovered at the beginning of the interviews that for various reasons this was not the case. It was found out that the respondents had little knowledge about IRI and as a result were not implementing it in the classroom. For this reason, the original interview plan for this stage had to be modified so as to make it relevant on the ground.

Certain questions in the original schedule which specifically aimed to assess signs of shifts/change in teachers' beliefs/thinking or views as a result of IRI had to be dropped out in favour of those that could illuminate the current situation. Checking on how they (teachers) and other participants perceived the programme and what they thought needed to be done (in terms of capacity building/training) for the programme to be more beneficial became our priority. Therefore the following specific questions were included, though not necessarily asked in the order as presented below:

- So, tell me, when and how was this idea of IRI introduced to you?
- Given the fact that no induction has been provided— and this might sound silly, but if you were asked to describe what IRI is about, what would you say?
- If you look back, what do you see as a change in your classroom, even in the least of it— for example, in the way you teach and the new ways learners are picking up in learning or any other changes in general that you have noticed after the introduction of IRI?
- Based on your experiences so far, what are the main issues and areas which the MOEST and USAID/EDC need to look into if the PCAR-IRI initiatives are to be successful?

Unlike in the previous interview where data analysis was carried out after completion of evidence elicitation, the analysis this time was carried out during data collection. This allowed the researcher to identify and correct data collection problems pertaining to the existing situation as explained above. In terms of the interview process, the same system of probe questions was used either to clarify the main questions, or to overcome the lagging of the conversation.

Here, it is important to point out that apart from interviewing teachers, a lot of time and energy was put into consultations with USAID/EDC and the MoEST to understand but also help rectify

the problem, especially with regard to induction/training of teachers in IRI. Details of the researcher's efforts to revive the process and bring back the programme in line with the implementation strategy are contained in a separate field work report. In short, training of teachers had been delayed mainly due to turf wars between donor agencies operating in Malawi. It was revealed that EDC as programme implementers contracted by USAID had been barred from training teachers by another donor/funding agency which regarded teacher development in the whole of Malawi to be within its area of jurisdiction, which meant that USAID/EDC did not have a mandate to train. As noted earlier, this had serious implications, not only for the current research, but for the success of the whole IRI programme. It was in the interest of the researcher as both, co-founder of the Malawi IRI project and as a PhD researcher, to assist in resolving the turf wars being fought between the concerned development agencies. The programme would not achieve its potential benefits for pupils and teachers if not resolved. More importantly, this could cause great difficulties for the current study which aimed to evaluate the potential of IRI as a vehicle for the CPD of serving teachers, and its possible role as a catalyst in bringing about positive changes in the culture of schools. Thus, the impasse could adversely affect important aspects of the current research study.