Positive transfer from classroom to workplace? Evaluation of an HIV training programme for health care workers.

AJ Edge

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Abstract

Following the availability of antiretrovirals (ARVs) for the treatment of HIV in the public sector from 2004 to 2008, thousands of multidisciplinary health care workers were trained by RHRU on HIV care and ARVs on behalf of the South African Department of Health. To ascertain if, and to what extent, transfer of learning had occurred, a case study approach was used involving a sample of seventy alumni. Data was collected via questionnaire, interview and observation tools. Data collected suggests that transfer of learning took place at some level for most alumni but was weakest with non clinical staff in ARV sites and ward based staff, many of whom did not feel that they treated HIV patients. The study concludes that the 'one size fits all' approach preferred by the Department of Health did not support effective transfer of learning for all alumni mainly due to the subsequent inappropriate training design for many participants and the impact of this on motivation and connection to a less enabling transfer climate. To optimize the possibility of transfer, therefore, HIV training should be specifically designed for the learning needs of each cadre of health care worker with clear expected changes to practice for participants, linked to supporting transfer environments post training.

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Declaration

I declare that this is my own work completed under supervision by Professor Ray Basson of the University of the Witwatersrand.

AJ Edge, February 14 2011

Acronyms

AIDS	Aquired Immune Deficiency Syndrome
ALT	Liver test
ART	Antiretroviral therapy
ARVs	Antiretrovirals
DoH	Department of Health
Hb	Haemaglobin
HCW	Health care worker
HIV	Human Immunodeficiency virus
IRIS	Immune reconstitution syndrome
NGO	Non government organization
OIs	Opportunistic infection
PCR	Infant HIV test
PMTCT	Prevention of mother to child transmission
RHRU	Reproductive Health and HIV Research Unit
TB	Tuberculosis
VCT	Voluntary counseling and testing (for HIV)
WHO	World Health Organisation

1 Introduction

1.1 Background

As part of the Reproductive Health and HIV Research Unit's (RHRU) strategy to support the South African government's approach to managing the HIV pandemic, the organisation designs and facilitates HIV related courses for health care workers across the public health landscape. Following the government's decision in 2004 to provide antiretrovirals (ARVs), a directive was issued by the Department of Health (DoH) to training providers which included basic information such as targeted health care workers for off-site classroom training and titles of the modules to be included. The directive did not include curriculum or preferred approach other than a required 40 hours of contact learning following government guidelines for ARV treatment, and therefore both content detail and methodology were left to the discretion of training providers.

With regards to the target group, the mandate from government was to provide training to multidisciplinary groups to encourage team work and fast track the numbers of health care workers trained. Mobilised by the Department of Health for the off-site training, this multidisciplinary group included doctors, nurses of all levels, dieticians, pharmacists, lay counselors, clerks and other staff working in HIV clinics plus managers and nurse educators.

Although the broad aim of the training intervention was clear, i.e. to develop understanding and expertise amongst health care providers within the primary sector to delivery comprehensive primary and secondary care in HIV including antiretrovirals, due to the diversity of the target group, setting clear learning objectives suitable for everyone who would participate in the same learning event was problematic. The RHRU team of training and clinical experts decided to aim the training at the largest and most appropriate group for such learning, that of the clinical staff including doctors and particularly professional nurses. The learning objectives and content were based on the actual tasks that this group would be expected to perform after participating in the course and a combined methodology of interactive lectures with a case study approach was agreed as the most effective learning methodology. A six part case study was designed for participants to work on throughout the course and structured to reflect a typical patient/health care worker interaction over a period of time and followed specifically the journey of one family.

In recognition of the other groups to be trained, questions relating to the case were developed for both clinical and non clinical participants. RHRU then rolled this programme out to health care workers in both Gauteng and North West province training a different group of learners each month.

The multidisciplinary approach was identified as a concern before the training began and indeed became a clear challenge in the early stages of the course being run. Lay counsellors were particularly singled out as having very different learning needs to professional nurses and doctors. With varying educational achievements and a specific, focused role within an ARV clinic, this group was identified as one requiring a separate course designed to meet their learning needs at an appropriate level. As such a second course was developed to run parallel to the HIV care and ARV course which would specifically address these needs using methodologies more appropriate to this target group such as participatory approaches and reflection on individual experiences. The aim of the ARVs and Adherence course was to develop expertise and skills amongst lay counsellors within the primary sector to provide effective support to people infected with HIV before and during ARV treatment, assisting patients to understand, plan and ultimately adhere to their ARV medication. Although targeted at lay counsellors, other non clinical groups such as clerks, auxiliary nurses and pharmacy assistants were encouraged to join this group as it provided clinical learning in a manner more accessible to non clinicians.

As the training project continued, the diversity of participants increased not only due to profession but also the level of interaction and care provided to HIV positive patients with participants being mobilised by the Department of Health from wards, outpatient facilities and primary health care facilities not yet providing ARV care. Communication through Department of health structures regarding the training was not ideal. Clinic managers received memorandums with course titles, dates and target groups only and many participants were requested to attend courses as late as the day before, who then arrived with little understanding of the purpose. The make up of each group therefore, was only determined on the first day of each course as the DoH co-ordinators did not track where participants were coming from but merely collected numbers expected from sub district co-ordinators.

Based on experience and anecdotal evidence, recommendations were made by RHRU to the DoH on a number of occasions to stratify participants by profession and working context in order for the course to be tailored to different needs and so maximise the time health care workers spent away from their clinics and ensure a more relevant learning experience. Unfortunately, the multidisciplinary, multi site approach prevailed.

Over 5,600 health care workers participated in the courses from April 2004 to March 2008 and it is these two courses which are the focus of this research report and from which the sample of 70 alumni are taken.

Participants on both courses completed a pre and post assessment comprising of multiple choice questions. Most demonstrated an increase in knowledge and skills from their pre to post training assessment which is completed on the final day of training. Participants also indicated a high level of confidence in treating and supporting HIV patients on their training evaluation form. An external evaluation commissioned by RHRU on the relevance, appropriateness and cost effectiveness of the organisation's HIV training programme indicated that from the small sample of alumni interviewed, all found the training to be of benefit.

However, it is uncertain as to whether this increased knowledge and skills and confidence generated by the training was transferred into improved practice on return to their clinics. The purpose of this study is to evaluate whether transfer from the classroom to workplace took place and if the two training courses outlined above improved clinical practice which translates into improved care and treatment of those with HIV and AIDS.

1.2 Historical context

South Africa has more HIV positive people than any other country in the world (www.unaids.org/en/Regionscountries/Countries/SouthAfrica/). The HIV pandemic has continued into the new century, with a steadily increasing number of people infected in each South African province. The strain on healthcare resources and facilities in the worst-hit provinces has been considerable. HIV has created an additional challenge for health care infrastructure. It is a relatively new disease, and many health care professionals had before 2004, little or no formal training in the

management of it. As the number of identified HIV infected individuals increases, the need for quality care through effective treatment and strong health systems is clear. However, the capacity currently available to deliver this is problematic. The South African Government's Operational Plan for the comprehensive care and treatment and prevention for HIV and AIDS (August 2003) states, 'matching workforce capacity with the skilled human resource needs of the operational plan represents a significant challenge for programme implementation.' This challenge includes the need to recruit qualified health care workers, train and retain them and is a challenge that remains over six years into the programme. Indeed, the new National Strategic Plan for HIV & Aids and STIs, 2007-2011 emphasises as a key objective the need to strengthen health systems including capacitating health care workers in order to provide a comprehensive package of treatment for HIV.

Another compounding factor to the capacity challenge is the fact that health care workers are not immune to HIV and, like any other group in South African society, have been hard hit by the disease. HIV has had an impact on the health system also through 'loss of staff due to illness, absenteeism, low staff morale and also the increased burden of patient load.' (Shisana, 2004) Indeed, 13% of health care worker deaths in the period from 1997 to 2001 were attributable to HIV according to Shisana's study (2004) with nurses being the largest contributors to this percentage. As with other areas of public life in South Africa after the first democratic election, the higher education system also underwent review and reform primarily to redress the deep inequities of apartheid. This was not only on an individual level for students of all races to access higher education at the institute of their choice but also on an institutional level. The Higher Education Act 101 of 1997 with amendments made in 1999, 2000 and 2001 was developed during a period of intense political policy based action and included the nursing colleges. The relocation of nursing education to the main stream of education was a slow moving matter to finalise as it included mergers and collaborations with universities. The merging of many of these institutes and stricter control on the numbers of students enrolling saw the number of student auxiliary, enrolled and professional nurses graduating drop in the later 90's and early 2000's. It is only in the past two years that the departments of health and education have agreed to reopen previously closed colleges to increase the number of nursing graduates. Nelson (2004) reported that the number of nurses leaving South Africa in the nineties increased eight fold over that decade alone and that despite ratification

of international non poaching agreements at the turn of the millennium, large numbers of nurses are still registering to work in developed countries. This reduction in nursing graduates available, combined with the impact of HIV, placed strain on the profession as a whole.

In terms of medical and nursing students' access to HIV education, HIV has only recently been integrated into curricula. Where basic nurse training is concerned this has only occurred in the past two years. Graduates therefore leave with little practical knowledge and skills of how to manage HIV patients.

In short, not only has there been a disease ravaging the country with little political support, placing great strain on the public health systems, but also the knowledge of how to manage the disease has been confined to a small number of health care workers and compounded by the relatively small number of qualified professional health care workers available to capacity build.

Six years into the ARV programme, therefore, the need to capacitate all levels of health care workers remains high with an emphasis on capacity building the most accessible health care worker, the professional nurse. It is of no coincidence that nurses form around two thirds of those trained in the two courses outlined in section 1.1.

1.3 Importance of the research

Prior to the increased access to ARVs programme in 2011, Government placed a strong emphasis and therefore, budget, on formal off-site learning to provide a recognised standard programme of education and training to health care workers. Each province set targets for the number of health care workers who needed to be trained each financial year and were under pressure to meet that target. Some clinics receive additional on-site technical support and in service training from donor funded NGOs and academic institutes such as the RHRU with the approval of the Department of Health. However, for many clinics, the once off participation in the courses outlined in 1.1 was the only formal HIV training they receive.

Given the immense task of capacity building all involved in the continuum of HIV care and treatment, and the considerable challenges in capacity outlined above in 1.2, it is

of huge importance to understand whether or not the training provided has been effective. It is vital to ascertain whether or not the training is sufficient enough to make a difference to the management and care of HIV patients in South Africa and if not why not.

1.4 Research aims

The aim of this research was to evaluate if knowledge gained on the course was transferred into improved practice by examining health care workers' perceptions of the training and their practice after training.

1.5 Research questions

Based on the above aims, the following research questions were generated:

1. Was the information shared and knowledge gained on the HIV Care and ARVs, and ARVs and Adherence courses transferred to the workplace?

A number of sub-questions allow this question to be further explored:

1. Did the training have a positive effect on participants' abilities to treat patients?
2. What elements of the training were more useful than others?
3. Was the training valued by participants?

1.6 Method

A case study approach (Cresswell, 1998) was used for this study. Several modes of data collection were used from questionnaires, interviews and observation. From a group of six clinics sampled for the questionnaire and interview phase of the study, volunteers were required to be studied further for a more descriptive evaluation. Ideally volunteers should have come from clinics receiving additional on site support and training and also from clinics only receiving the once off Department of Health training facilitated by RHRU. In practice, a very small number of volunteers came forward from the latter category only. The focus in this latter part of the case study was what the actual practice of health care workers is and how this compares to the learning objectives of the training they participated in. A detailed description of the research methodology follows later.

1.7 Scope, limitations and assumptions

The study is confined to evaluating the impact of the two particular courses outlined in 1.1, HIV Care and ARVs, and the second course developed for lay counsellors, ARVs and Adherence across a sample of six clinics within Gauteng province. A small percentage of the total trained actually participated in the study. (n=70).

The number of clinics and health care workers involvement in the study was dependent on a number of access factors and alumni agreeing to take part in the study. It is possible to make generalizations from the larger sample group of six clinics, however, this becomes more difficult with the deeper, descriptive evaluation following a very small number of observations.

The researcher is the RHRU training programme manager and therefore there may be some bias leaning towards a more positive view of transfer to the workplace. In addition to this, the majority of results were gleaned from questionnaires and the researcher recognizes the limitations of such self reported data.

As most health care workers attending the courses increased their scores on pre and post training assessments during the course, it is assumed that learning did take place and knowledge of how to care for those with HIV increased.

The study is based on adult education theories. It is assumed that theories of work based education can be applied to the medical field. An underlying assumption from the researcher is that different cadres of health care workers learn and respond to training in different ways. The researcher also assumes that the language used with some cadres of health care workers, may impact on the quality of responses. Therefore, every opportunity was made to introduce and conduct the study in the most appropriate language.

2 Literature review

2.1 Evaluation using case study methodology

Depending on the conceptual framework, or on the favoured methodology, there are a wide variety of opinions and definitions of what evaluation is and does. When stripped bare, there are threads of agreement amongst evaluators and theorists. To evaluate, in its most basic, commonly understood way is to find out or state the value of something, so it is of no surprise that the most common thread amongst many authors is that of adjudication. (Basson, 1998; Eisner, 1985; Fetterman, 2001; Hamilton, 1976; Patton, 1997; Worthen and Sanders, 1987; Zolkov, 1996).

Adjudication is described in different ways by various authors such as merit or worth but with the same meaning. In conducting an evaluation, one then is assessing value, worth or merit by answering questions such as, 'is the programme a positive one?', 'for whom', and 'is the pilot of a plan achieving expected outcomes? If not, are the outcomes still positive in some way?' However, there are several questions which arise around the concept of adjudication. For example, is adjudication just a case of the closed question of 'is the project of worth or not' with a yes or no response? Possibly, but a richer, more valid and rigorous evaluation would be less black and white with shades of success and failures highlighted, including contributing factors and subtleties such as variables. The process should include comparisons of outcomes and the factors contributing, checking if they can be replicated, in addition to challenging if the process was correct in its assumptions, theories and implementation. There is variance amongst authors e.g. Fetterman (2001), Patton (1997) and Worthen & Sanders (1987), regarding who are you judging and pronouncing the decision for and different ideas as to who qualifies as adjudicator.

As an example, illuminative evaluation, according to Parlett and Hamilton (1976: 88), seeks 'to describe and interpret, and takes account of the contexts in which educational innovations must function.' They compare descriptive evaluation with the agricultural-botany paradigm which examines 'whether or not an innovation has reached required standards on pre-specified criteria.' In the case of the observation phase of this study, this agricultural-botanical approach would involve using a checklist aligned with the objectives of the HIV Care and ARVs and ARVs and Adherence courses and merely checking them off as and when they are

demonstrated by participants. By focusing on a limited amount of activities, one may actually miss what really happens in the day to day life of a health care worker which could provide valuable information as to what training they really should receive. As Nonyongo (1997) rightly asserts, understanding the actors, their role and connection to the programme is the key aim. Perhaps the most applicable definition of descriptive evaluation for this study is that of Best quoted by Cohen and Manion (1980: 67) in that it is 'concerned with how *what is* and *what exists* is related to some preceding event that has influenced or affected a present condition or event.' As such, an illuminative approach to the observations was pursued in the latter part of this study.

Indeed a variety of approaches were used in this case study including quantitative work in the questionnaire, which many theorists and practitioners agree, strengthens the results. Sharp and Frechtling (1997) support a mixed approach to the extent that they see such designs as having more credibility than studies based on a singular approach. Yin (2009:19) also concurred that 'some case study research goes beyond being a type of qualitative research, by using a mix of quantitative and qualitative evidence.' As the broad approach was that of a case study, the discussion will now focus on this method, its origins, appropriateness and ideas from supporters and detractors.

The origins of case studies in the social sciences can be found in clinical case history (Hamel, Dufour and Fortin, 1993; Simons, 1980). In the same way clinicians use real cases to understand disease diagnosis and treatment, social scientists use the method to further understand particular situations. According to Hamel, Dufour and Fortin (1993: v), the approach can be used in diverse fields, 'but it is the focused *n*-of-one character that sets a case study apart as a method amongst methods'. Stake according to Bassey (1999: 27) defined case study as 'the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances'.

Ostensibly, the method appears straightforward in definition. However, this is not as simple as first appears and there has been considerable discussion as to what a case study is and what constitutes the 'case' of the case study.

Mouton (2001: 149) defines case studies as 'studies that are usually qualitative in nature and that aim to provide an in-depth description of a small number (less than 50) of cases'. From a quantitative perspective, less than 50 is indeed small but from a qualitative perspective where a 'focused *n*-of-one character' is required, 50 is surely rather large.

Miles and Huberman (1984: 28) assist with some of the semantics and bring in references to single and multiple sites. They use the word site to mean case, as 'both refer to the same phenomenon: a bounded context in which one is studying events, processes and outcomes'. Yin (2009: 19) adds to the discussion by emphasising that 'single and multiple case studies are variants of case study design'. Miles and Huberman (1984) broaden the definition so that a case could refer to anything from a program to a family. This wide definition of case was concurred by Cohen and Manion (1989) but is not agreed with by all. Bassey (1999: 21) quotes an attack on case study as a method by Atkinson and Delamont (1985) when the two authors point out that the 'unit of analysis (case) can, in practice, mean just about anything'. Bearing in mind the argument of Miles and Huberman (1984), and Cohen and Manion (1989), they may have a point. Hamel, Dufour and Fortin (1993:35), however, guard against defining a piece of sociological research on the basis of size and number of cases involved. Even if size and number are deemed significant, neither is according to them, 'a paramount issue'. This still leaves a considerable vacuum as to what constitutes the 'case' of a case study.

For Yin (2009: 18), 'a case study is an empirical inquiry that investigates a contemporary phenomena in depth and within its real-life context, especially when, the boundaries between phenomena and context are not clearly evident'. This is a more sophisticated explanation than Miles and Huberman (1984) as it recognises blurred boundaries. In this case study, the boundaries are relatively clear as the phenomenon of off-site learning events are linked to practice in clinical contexts. The boundaries would be more blurred if the case study was looking at on site training within the clinical milieu.

Miles and Huberman (1984: 28) used 'site' as a reminder of the context of the case and stress that 'a 'case' always occurs in a specified setting'. Indeed, a case regardless of how this is defined may have boundaries, but it should not be viewed in

isolation. Context is surely a vital aspect to be cognisant of but which shouldn't define the case study as a research method.

Blaxter (1996: 68) pointed out that 'case studies may be progressed in a variety of ways'. This is further explained by Stenhouse, whose theory Bassey (1999) describes, when he pointed out that an ethnographic case is different to an evaluative case or educational case which are both, he feels different to case study in action research. Yin (2009) agreed that detractors of case studies often confuse the method with purely an ethnographic approach. This is an important differentiation to point out and assists in our understanding of the different ideas of what a case study is. The perspective and preferred approach of the researcher are clearly important influencers as was seen in the earlier discussion regarding the definition of evaluation. Another powerful argument is provided by Yin who, in the 2009 4th edition of his popular 'Case Study research Design and Methods', warns against stereotyping case studies as only a 'preliminary research method'. Hamel, Dufour and Fortin (1993) also note that it is because of the wide range of opinions of the role of case study from 'a scouting expedition' to the method carrying a 'good deal of scientific or disciplinary value,' that the method has been put under the microscope. Yin (2009: 7) stresses that 'every research method can be used for all three purposes – exploratory, descriptive and explanatory.' Again, the three different categories will probably provide three different groups of theories as to what constitutes a case study depending on the researcher's position but few seem to embrace all three purposes.

Indeed, Bassey (1999: 22) noted that Lincoln and Guba in 1985 were concerned that there was 'little agreement about what a case study is'. Bassey himself agreed that even at turn of millennium it was an 'easy question to ask and difficult to answer'. (1999: 22) The debate regarding the definition of case study continues, however as the method can clearly be used in a wide variety of fields and can relate to a such a variety of contexts, programmes and people, there may never be a definitive definition but rather concurrence on the broadness of application.

The debate regarding case study methodology does not end at the definition and since its transference into the social science arena, the pros and cons of the method have been hotly debated. Hamel, Dufour and Fortin (1993) and Yin (2009: 14) point

out prejudices towards case study work such as a perceived lack of rigour, classifying case study research as ethnographic work which takes a long time, and confusion with case studies as a learning methodology where cases are manipulated to achieve certain results. The confusion can cause critics to be overly concerned about researcher bias according to Yin (2009).

Although, Mouton (2001: 150) guards against potential bias of the researcher and lack of rigour in analysis, the theorist does concede that the method provides 'high construct validity; in-depth insights; establishing rapport with research subjects'. Freebody (2003) noted that Stake (1995) highlighted the uniqueness of a case and the researcher's subjectivity within that case as positive qualities. Although one wonders if this is confusing the case study approach with ethnographic research and packaging them as one. He goes on to note Stakes' emphasis on triangulation to assist with subjectivity which would respond to Mouton's concern of research bias.

However, the key debate centres on the consequence of the singularity of a case study approach, which is the issue of generalisation. For Mouton (2001: 150), the main limiting factor of case study as a method is the lack of generalisation of results. This links to his definition of case study cited earlier and also if Hamel, Dufour and Fortin's (1993) n-of-one character is taken literally. If results and conclusions are particular to that individual case then how can they be generalised across a broader population? Cohen and Manion (1989: 125) point out that this is exactly the purpose of case study work i.e. 'to probe deeply and to analyse the multifarious phenomena that constitute the life cycle of the unit with a view to establishing generalisations about the wider population to which that unit belongs'. But what manner of generalisations are we talking about? For Bassey (1999), Stake's focus is particularisation which leads to grand and petit generalizations, the latter being within the study, with the former referring to general statements about the case. Bassey (1999: 32) notes that Stake maintained that assertions or propositional generalizations only 'occasionally may refer to wider populations'. Unfortunately, neither Bassey nor Stake expand on what the criteria for such level of generalisations should be, so interesting though the idea ostensibly appears, it doesn't assist much in the issue. What Bassey (1999: 25) does suggest however, is that 'not all commentators see [generalisation] as an essential outcome.' and points us towards the ideas of Stenhouse who according to Bassey (1999: 26) argued that:

> generalisation and application are matters of judgement rather than calculation, and the task of the case study is to produce ordered reports of experience and invite judgement and offer evidence to which judgement can appeal.

This shifting of who makes judgement on who or what, again echoes the earlier discussion regarding evaluation in general. Stenhouse does move us away from the ambiguity of Stake but the laissez faire approach to using results and experiences appears to avoid the complex question of generalisation altogether.

For those who agree that generalisation from case study work is possible, the link between theories lies in what it is that can actually be generalised. Freebody (2003: 84) notes that Hamel, Dufour and Fortin (1993)

> characterised the singularity of the case as representing a concentration of global processes in local sites, whereby the site is taken principally to be a reflection of larger educationally 'singular' forces or relationships among variables.

This assumption is far more sophisticated than Stakes' particularity and complexity of each case. Indeed, for Hamel, Dufour and Fourtin (1993: 37), the key is representativeness, i.e. the choice of the case study and who and what is involved. For the trio, the 'study proves to be macroscopic through the methodological values' of selection. A case therefore, is not always singular in the strictest sense. In quoting Bourdiue (1992: 57), Hamel, Dufour and Fortin (1993: 35) stress that 'a well constructed single case is no longer singular'.

Freebody (2003) agrees with this argument, as does Yin (2009:15) who asserts that,

> Case studies, like experiments, are generalizable to theoretical propositions not to populations or universes. In this sense, the case study, like the experiment does not represent 'a sample' and in doing a case study, your goal will be to expand and generalize theories (analytical generalization) and not to enumerate frequencies (statistical generalization).

This makes a great deal of sense. Even if a multiple site case study is made up of a representative sample of a large population, it would be unwise to extrapolate percentages and so on across the larger population, but rather methodologies, conclusions and theories which could be further studied in broader or different contexts.

Case study issues do appear to be compounded by ambiguity of ideas. As Bassey (1999: 35) notes, 'neither can we be sure that these writers themselves have clear, unambiguous concepts in their minds and managed to express them coherently'. Perhaps the complexity of the debate and ambiguity of some arguments is due to the paradox which he later describes from Simons' (1996) work. For her, Bassey (1999:36) tells us, 'paradox is the point of case study' with the issues of singularity and generalisation marking a polarity which Simons advises us to look at differently and see that 'there is no disjunction'.

2.2 Transfer of learning

Transfer of learning is a concept that has been investigated and discussed for over a century (De Corte, 1999). Perkins and Salomon (1994:6452) assist in differentiating between transfer and what they term ordinary learning. With the latter, a student may 'show certain grammar skills on an English test (ordinary learning) but not in everyday speech (the hoped for transfer)'. This is a crucial distinction. In the context of this study, a nurse may respond extremely positively to written assessments regarding staging HIV patients according to their clinical condition but in practice doesn't do what is hoped for and continues to allow the doctor at the clinic to perform such tasks. Behaviour modification and applied learning, according to Goldstein (1974), is rooted in psychology and have now been brought into training, development and management. Goldstein (1974) stresses practice and reinforcement to encourage transfer of learning which is a direct application of behaviourist theory which seems out of place in a complex workplace populated by complex individuals where adult education is 'a co-operative venture in non-authoritarian, informal learning the chief purpose of which is to discover the meaning of experience'. (Lindeman quoted by Brookfield in Jarvis, 1987: 122)

As with most definitions, there is a difference of opinion on exactly what constitutes transfer of learning, but on a surface level, Macaulay (2000: 1) states that agreement is generally found in defining the transfer of learning as 'prior learning affecting new learning or performance'. Caffarella (1994) stated that it was the effective application of learning, a distinction shared by Georgenson (1982) cited by Laker (1990). However, it is not just a case of identifying whether transfer occurred or not. Lovell (1979: 166) indicated that transfer should be taken further and defined as the

'measure of the *extent* to which a skill learned in one context can be successfully applied to another somewhat different context.' (Italics added). This implies that the question of whether transfer occurred or not is not simply answered with either yes or no, but rather by if so, how much.

Indeed, Ellis (1965) noted that earlier investigations in the first half of the twentieth century were more concerned with if transfer did occur, whereas studies from the late fifties onwards are more concerned with why transfer occurred. However, even towards the end of the twentieth century, a small number of cynics still questioned if transfer was a possibility (De Corte, 1999). The larger question of why transfer occurs and the various discussions within it will be addressed shortly.

In the late twentieth century, transfer of learning came under a brighter spotlight as the focus shifted from knowledge and academic transfer, into the workplace and improved performance, with the corporate sector in particular looking at the return on investment and if training had impacted on the bottom line (Humphrey, 1991). Brookfield (2005) linked transfer to an organizations budget and in citing Vella, Berardinelli and Burrow (1998) acknowledged that transfer is one of three areas of accountability, with the others being change in learners' knowledge, skills or attitudes, and changes to the organisation as result of new learning. Training is often viewed as a 'silver bullet' by managers to bridge the gap between current and preferred performance levels, and as Analoui (1993: 3) rightly points out, 'what is not often recognized is that training can only constitute a viable solution to inefficiency and low productivity if it can be transferred to the job'. There is often an assumption from managers that there *has* been a change in learners' knowledge, skills and attitudes and that transfer is inevitable (Caffarella 1994). The roles of the various stakeholders will be discussed later but as Perkins and Salomon (1994: 6452) identified, the context of learning usually differs from the context of application, and as such 'transfer is all the more important in that it cannot be taken for granted'. Nor is transfer a singular event. This doesn't come across fully in Brookfield's (2005) account, although he uses the implying term 'change'. Dixon (1991), Caffarella (1994), Laker (1990) and Analoui (1993), all concur that transfer is a process. The latter is more explicit and expands on the idea of change in that 'transfer will inevitably include the psychological process of coping with change – the process of transition'. (Analoui, 1993:156)

From this broad overview of the concept, the discussion will now look at the more detailed definitions of transfer, the issues and debates regarding the concept and how transfer of learning can be supported and maintained.

There appears to be consensus regarding the existence of positive and negative transfer, with somewhat general agreement on what positive transfer entails i.e. transfer of learning occurs when learning in one context enhances (positive transfer) a related performance in another context. There are variances which Laker (1990) points out, but ostensibly most relate to this general agreement. Lovell, (1979: 84) provides a useful example to reinforce the point. If one has mastered a skill in one context and then are called on to use it in another e.g. swimming in a pool, then the sea, there is 'likely to be highly positive transfer of the effects of training'. He also views positive transfer to mean when the original learning makes it easier for the individual to master a new skill, (1979: 166) adding a constructivist approach to transfer.

The real differences appear with regards to negative transfer. Ellis (1965: 25) citing Bruce (1933) and Wylie (1919) pointed out that when a person is required to make new responses to familiar stimuli, the situation 'will lead to interference or negative transfer'. This is very definitive and provides no room for the possibility of positive transfer, although Ellis does concede that results on this issue are 'somewhat complicated'. Perkins and Salomon (1994) and Lovell (1979) determined that negative transfer occurs when learning in one context undermines performance in another. Analoui (1993:102) agrees with this but also recognizes that learning of new knowledge could be completely prohibited by previous learning. He also progressively recognizes attitudes as part of the learning process, whereas Lovell (1979:166) in particular echoes the language of Ellis in discussing stimuli and responses. If different responses are required to known stimuli, learners are, he concludes, 'likely to become muddled over just how to respond…. muddles seem most likely to occur when the responses required …differ in small but important ways'. Using the examples of squash and tennis, Spanish and Portuguese, Lovell seems to have a point but doesn't give any indication of how long the confusion could continue for or how it may be corrected. Perkins and Salomon (1994), however, maintained that negative transfer was only a problem at the beginning of a new

learning experience. This implies that someone is on hand to identify the learner's 'muddles' and point them in the right direction which may not be the case, surely allowing negative transfer to continue until the learner self corrects if possible.

One of the more controversial definitions of negative transfer comes from Cantor (1992) quoted by Brookfield (2005: 627). For Cantor, negative transfer occurs when learners do not apply what they are taught 'but desired outcomes occur anyway'. This odd reasoning seems to rely on chance more than any of the other definitions and doesn't discuss what happens if desired outcomes are not met in any way. It appears to be a highly positive perspective of negative transfer!

Ellis (1965) also identified zero transfer which he assumed to have occurred when there is no effect of one task on another. Ostensibly, this appears to be a logical conclusion. However, if there has been an action or learning intervention which was intended to lead to a consequential action, then the status quo has changed. As a result, the term zero in this instance is really another way of describing negative transfer. Ellis also believed zero transfer to occur when positive and negative transfer events cancelled each other out. This may have been possible in mid twentieth century controlled experiments with few variables, but in the dynamic working environment, this argument is rather far fetched and difficult to assume.

Whatever the definition, whether it is initial confusion of learning or complete non transfer of knowledge gained, what is clear amongst theorists is that negative transfer is to be avoided at all costs. The future of entire training programmes could be determined by such outcomes, as Analoui (1993: 9) warns, 'the success or failure of the training is assessed by the degree of the success or failure which is displayed by the trained individuals in their jobs'.

As transfer is a multidimensional concept (Laker 1990), there are other types of transfer beyond positive and negative transfer which impact on how the concept is perceived and theorised. One element of Laker's (1990) multidimensional transfer is what he terms the 'temporal dimension' which includes transfer initiation and transfer maintenance. Planning and support is different for each of these as, according to Laker (1990: 215), the attitude and needs of the learner changes in these different stages. Initial transfer of learned behaviour is 'typically awkward, difficult and

uncomfortable and frequently leads to failure'. He also argued that artificial reinforcement may be present in these initial phases whereas once the transfer is more embedded, there is more natural encouragement and reward with the learner feeling more at ease with the change. Bearing this dimension in mind, Laker (1990) also poses the interesting question of when, then, is the appropriate time to measure if the outcomes of training have been achieved. The climate, conditions and individual's response may vary across alumni and each will probably be at different points of Schon's action-reflection spiral at any given time. In apparent support of Lovell's constructivist approach, Analoui (1993: 15) outlines vertical transfer as 'a skill or knowledge [which] directly attributes to the subsequent acquisition or performance of a superordinate task or skill'. For example, being able to explain to patients how HIV enters the body and replicates supports learning the more complex area of HIV drug mechanisms and assisting patients to adhere to medication. Analoui's (1993: 15) other kind of transfer, lateral transfer is a kind of generalization that 'spreads over a broad set of situations at roughly the same level of complexity,' such as effective communication skills.

Perkins and Salomon (1994) highlight the more commonly discussed differentiation, that of 'near transfer (to closely related contexts) and far transfer (to different contexts)', which Laker (1990) summarises as the concept of generalizability. In a summary of various sources, Perkins and Salomon (1994: 6453) explain that:

> reflexive or low road transfer [near] involves the triggering of well- practiced routines by stimulus conditions similar to those in the learning context. Mindful or high road transfer [far] involves deliberate effortful abstraction and a search for connections.

This is both an interesting and useful distinction to make. One can imagine that the more mundane and operative a position, the more appropriate near transfer will be, for example a new element to a production line for workers on the line. Whereas the more senior and sophisticated a position, the more abstract learning may be, such as leadership development. The support during and post learning to maximize transfer will differ markedly for each scenario (Laker, 1990; Yamnill and McLean, 2001). However, Perkins and Salomon (1994: 6453) rightly advises that 'near and far are intuitive notions that resist precise codification' and as such one should recognise that there may be many grey areas in between where some learning experiences combine degrees of both near and far transfer possibilities or are somewhere between the two concepts. This transfer continuum is supported by Royer (1979)

cited by Laker (1990). Laker (1990) expands the discussion and draws attention to two related theories, that of transfer through identical elements (near) and transfer through principles (far) as posited Laker cites, by Goldstein (1986). It is crucial to be cognizant of the different theories, relate to where they are relevant and how this relevance impacts on planning, to make any progress towards the ultimate goal of effective positive transfer. Indeed, Yamnill and McLean (2001) warn that whether this goal is achieved or not, appears to be 'dependent on which theory of transfer guides the development and presentation of the training program'.

Ellis (1965) identified that for positive transfer to occur, similarity was key i.e. similarity of tasks in the learning environment to the transfer environment. This emphasis forms the crux of the identical elements theory. Ellis was concerned with the meaning of similarity and stressed that this is a complex variable with some examples providing high levels of similarity and others moderate or low similarity. Indeed, if a variety of tasks are required to be covered within a short learning experience, it is incredibly difficult to simulate or discuss all possibilities in enough detail for all participants. This is also a crucial point to stress in that in addition to the limited number of examples that can be covered in off-site learning, the level at which those examples are similar to what learners will experience may vary. A strong supporter of the adage, practice makes perfect, Ellis stressed that learners must be given the opportunity of learning to learn and in his experiments learners became more efficient, accurate and quicker at responding to situations if repeatedly doing so. As Perkins and Salomon (1994) pointed out, this is often not practical in most learning situations which paints a pessimistic picture for near transfer. Discussing the concept of transfer by affordances, Perkins and Salomon (1994: 6454) summarise Greeno et al's notion that during initial learning, the learner may

> acquire an action schema responsive to the affordances – the action opportunities – of the learning situation. If the potential transfer situation presents similar affordances and the person recognizes them, the person may apply the same or a somewhat adapted action schema there.

In short, if the real situation provides opportunities to put into practice what has been learnt and the learner recognizes them, then transfer will probably take place. What differs here from the stimuli-response language of earlier discussions is the recognition that the potential transfer situation may not simulate exactly what has been covered in the initial learning setting and that learners may have the intelligence to recognise this and react accordingly, possibly using judgement. This may seem a

subtle difference but is important to note as it begins to emphasise the importance of the varying transfer environment and the role of the learner. However, much of Perkins and Salomon's language remains in the stimulus-response paradigm. In comparing high and low road, they logically concludes that low road transfer is more likely to occur but recognizes the limitations of the learning environment in that most learning experiences only allow for a certain number of examples.

Yamnill and McLean (2001: 201) disagree and have more faith in learners' abilities to 'generalize training from one environment to another' even as a result of identical elements based training. This appears to be in recognition of the fact that often the learning environment *is* limited in what it can simulate and often variances in the transfer setting will occur but that this isn't necessarily a barrier to transfer.

Similarity is not a concern for principles theory or high road transfer as Perkins and Salomon (1994) refer to it. Such transfer may appear unlikely as it requires mindful abstraction, which is a skill in itself not necessarily innate in all learners and almost requires additional training to acquire and practice, but transfer is possible if the principles theory is borne in mind during planning. Ironically, high road transfer learning is generally for more senior staff within an organization and the most costly in terms of direct costs and senior staff members' time. If not achieved, this is indeed a gloomy response to the question of return on investment.

Despite being investigated for over a century, there remains a healthy debate regarding theories and practical implications of such relating to transfer. Analoui (1993: 54) argues that the debate is ambiguous and laden with uncertainty and is critical of the conventional approach to transfer of learning which assumes that when behaviour change has not taken place that it is usually the training centres and trainers that are to blame with a suspicion that no learning took place. Another key critic, Marx (1961) is highlighted by Brookfield (2005: 628) who draws our attention to Marx's concern that the traditional approach, 'commodifies the complex process of learning'. Again this refers to the notion of transfer as a separate entity from the individual, the trainer, the workplace, existing as a 'package of decontextualised skills and knowledge' which can be measured in isolation. Yamnill and McLean (2001: 196) also criticise the traditional approach for its perceived 'horizontal link between training and performance' with no concern for other influencing factors. One model which

breaks away from this traditional view and rightly recognizes the myriad of influences is that of Holton (1996) as cited by Yamnill and McLean (2001: 196) and shown in figure 2.1.

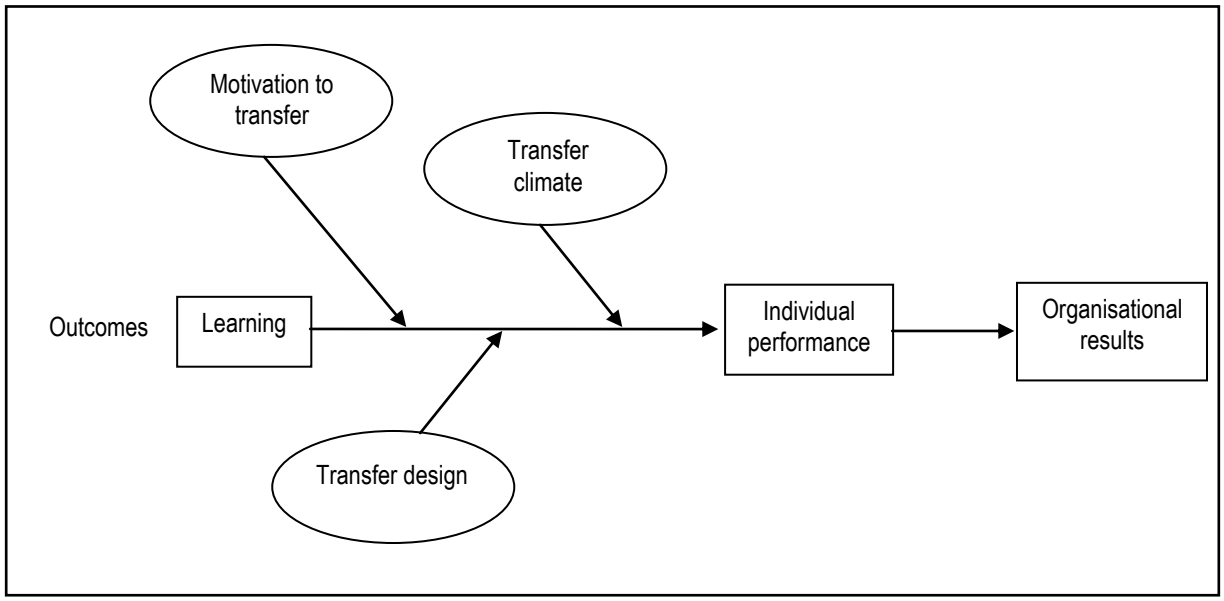

Figure 2.1: Holton's Factors Affecting transfer of Training

What this model clearly shows is that whilst learning may lead to changes in individual performance and ultimately impact on organizational results, three key factors will affect this process, namely motivation to transfer, transfer climate and transfer design. The latter has been touched on earlier within the framework of the identical elements and principles theories, so the discussion will look now at the first two factors in more detail, beginning with transfer climate.

Yamnill and McLean (2001: 203) citing Rouiller and Goldstein (1993) stated that 'organizational climate is at least as important as learning in facilitating transfer'. Unfortunately, this factor is often completely overlooked when assessing the effectiveness of training programmes. Analoui (1993: 160) stresses that often social learning processes within the workplace are ignored and that in the real working world, contradictions, ambiguities, relationships and layers of structures exist. As such, he concludes, 'transfer can not be regarded only as an aspect of learning or even training, rather it ought to be considered as an aspect of organizational reality'. Caffarella (1994), cited by Brookfield (2005: 627), agrees with the vital role played by different contexts:

> Transfer of learning is not a simple process of replication across contexts…critics of adult education programs that can't demonstrate clear transfer of learning, fail to recognize the existence of institutional, political and community factors that prevent this from happening.

Indeed making the correct assumptions with regards to the context and the transfer environment or climate with its interrelated factors including the various players is critical. Even the corporate sector with its eye on the bottom line recognizes the environment as a vitally important component: Is it neutral or supporting? (Humphrey, 1991)

Analoui (1993: 53) indicates that the traditional approach often assumed that the individual would make changes without any further support and from his own research, he concluded that where there was a lack of transfer of learning this was not because learning hadn't taken place but that other individuals in the transfer environment prohibited such transfer, from colleagues and bosses to clients. Laker (1990) agreed that a supportive organizational climate is required for transfer to be initiated and most aspects of this climate relate to the role of management such as setting performance goals, encouragement of risk taking and top management's financial support of training. In citing Goldstein (1986), Laker (1990) also indicated that peer support and feedback is also a factor in increasing the possibility of transfer. Dixon (1990), however, expresses concern over singling out certain aspects of the environment as the key to positive transfer and in particular the role played by the trainer and supervisor. She points out an assumption that if knowledge has been gained in the classroom, it is automatically transferred to work if the supervisor provides enough support. Dixon (1990), rightly points out that environmental factors are more broad and varied than this common argument would suggest and that transfer is part of the learning process. Indeed as Parlett and Hamilton (1972) cited by Boud and Walker (1991: 17), believed, the learning milieu is a 'nexus of cultural, social, institutional and psychological variables'. As each connects and impacts on the other, a unique and complex environment is developed in which transfer is expected to occur.

This complexity is neatly broken down in the transfer climate framework developed by Rouiller and Goldstein outlined by Yamnill and McLean (2001). The framework consisting of eight situation or consequence cues provides a useful guide. Situation

cues refer to elements such as goals given by managers, support from peers and other colleagues, necessary systems and equipment and self control cues with consequence cues relating to feedback on their application of learning, whether positive, negative or non existent and also punishment in the form of ridicule from colleagues for trying something new learned in training. Rouiller and Goldstein demonstrated that when cues varied for learners who had participated in the same training, so did their performance. This indicates that even in the same organization where the same outcomes are expected, learners' climates may be very different.

Analoui (1993:105) agrees that it is a dynamic learning environment 'where individuals including trainees are inevitably exposed to socialization processes.' Analoui spends some time in his 1993 work explaining the importance of this process. In summary, the unique culture of an organization can have a powerful influence on an individual, their attitudes and behaviours. Sometimes to the extent that regardless of what they have learnt, for a peaceful working life, they decide to 'confirm to the prevailing norms and attitudes'. (Analoui, 1993: 96) In order to negotiate the social reality, a trainee must be successfully initiated into the workplace social setting and only then, posits Analoui, can the individual contribute to the success of a training programme by demonstrating transfer of learning. This is an incredibly important aspect to highlight and is further confirmed by Brookfield (2005) who in critiquing transfer, stresses the role played by oppressive social and political structures in preventing the transfer of knowledge and skills outside the classroom. This, he reasoned, is particularly pertinent with regards to critical thinking skills where learners feel able to question familiar assumptions in the safety of the classroom but find it much harder in the real working context. This links to Caffarella's (1994) argument that often changes are required in current practice, organizations or even society for transfer to be allowed to occur and may be delayed or prohibited if others have to agree to the changes. Kozlowski and Salas (1997) cited by Yamnill and McLean (2001: 205) concurred that the context must be supportive *prior* to training and if it isn't or even 'actively discourages the use of new skills', transfer is unlikely.

Having discussed the transfer climate, it is crucial to bring in the role of the learner to the debate and their 'motivation to transfer', which covers a complex array of issues. Brookfield (2005) and Analoui (1993) both realized that much work measuring transfer of learning ignores the learners' own positionality and how learning

experiences are perceived through the different lenses of not only age and learning styles but class, race, gender, ideology, habits and culture. Pea (1987) argued for an interpretive perspective where rather than the prevailing common elements transfer theory, he advocated for appropriate transfer which is socioculturally defined and takes into account the factors outlined above which impact on a learner's thinking. Language, Brookfield (2005: 628) argued is also an issue with 'meaning and consequently transfer of learning, seen as slippery and opaque'. Even when trainers try to be as unambiguous as they can be, they have no control over meaning given to words by learners and no control over what happens with those interpretations beyond the classroom. As Brookfield (2005: 628) summarized, 'to judge the success of programs by the transfer of learning they enable, is from this perspective, based on a false understanding of the nature of communication'. In the South African context where English is the general language of instruction and constitutes some learners second, third or even fourth language, and the multicultural make up of some off the job classrooms, Pea and Brookfield provide powerful insights and hint at the different perspectives through which transfer can be assessed.

It is of vital importance to understand why individuals want to apply what they have learnt (Yamnill and McLean, 2001) in order to support and increase motivation to transfer. Yamnill and McLean (2001) highlight three theories which they claim, underpin motivation of transfer, namely expectancy theory, equity theory and goal setting theory. Expectancy theory, posited by Vroom (1964) and quoted by Yamnill and McLean (2001:197) is the belief that 'a particular act will precede a particular outcome' or put more simply, 'what is in it for me'. This will vary hugely amongst learners ranging from those who are looking for the more intrinsic rewards such as job satisfaction and a sense of achievement whilst others may prefer the more extrinsic reward of a pay increase or promotion. This leads to Adams' 1963 equity theory, discussed by Yamnill and McLean (2001) which argues that everyone wants to be treated fairly. Noe (cited in Yamnill and Mclean, 2001: 199) explained that,

> if an individual feels that by attending training he [or she] is likely to gain equity in pay or other sought after rewards, there is a greater chance that learning will occur, and such learning will transfer to the job.

Therefore, the design and climate could have the most perfect conditions for transfer but if the employee does not feel that any reward is to be gained, it is unlikely to occur. Goal setting theory links to the transfer climate cues and the importance of

having a goal after training which can motivate the individual. Yamnill and McLean (2001) argue that once a goal is set, the only logical thing to do is to try and achieve it or on reflection lower the goal.

These theories of motivation are useful in not only understanding why individuals initiate transfer but also to provide insight into why attempts to change are not maintained. The extent of motivation is critical. Dixon (1990) cites research conducted by Showers (1982) that indicated if initial attempts to use the new skill are unsuccessful, participants are much less likely to try again. This should however depend on the individual, their context and level of motivation but a similar lack of confidence from past experiences was also found to be the reaction of majority group in research by Boud and Walker (1991).

Foley (1995) draws our attention to the model of professional education advocated by Schon, the action-reflection spiral of 'plan-act-reflect –plan-act-reflect….' The action-reflection spiral is a logical one in that for most tasks, learners may not achieve 100% success on first attempt as Laker (1990) suggested, but rather learn from the experience, discuss with colleagues, refer to training material and act once more. This directly links to the temporal dimension argued by Laker (1990) and the different attitudes of and support required by learners at different phases of initiation. Lovell (1979) also concurred that external support is no longer required once a practitioner can effectively self-evaluate, internally plan and improve. This recognition of the different stages for the learner is crucial for trainers and programme designers to be aware of when working with supervisors and colleagues to agree on support required. However, the ability of the learner to reflect surely relates to their level of motivation. If someone has a high level of expectancy, has agreed goals with their supervisor and has a strong sense of reward equity, then one would expect them to be highly motivated and enthusiastically work through a number of spirals until transfer has been achieved. Interestingly, Yamnill and McLean (2001), and Analoui (1993) also indicated that motivation to transfer learning increased if learners perceived training to be relevant to them, which could be compounded by Holton's (1996 cited by Yamnill and McLean 2001), argument that more successful learners are more likely to be motivated to transfer learning.

Much of the criticism thus far has related to the transfer of learning from the classroom to the workplace. A central theme of the debate takes this a step further and compares the prospect of transfer of learning between on and off the job training. Analoui (1993) provided a scale of transfer potential depending on the basic variables. For example, he argued that the potential for transfer is the least if it is a new job in a new workplace with training taking place off-site, and the best potential is an established job in a familiar workplace with on the job training. Location of the learning environment is often a powerful factor where transfer of learning is concerned. Analoui (1993) does concede that off the job training does have a role for example, for more complex learning tasks where uninterrupted periods of time are required for learning. Whereas, 'the simpler the nature of the task, the more likely it is that some form of coaching or 'sitting with Nelly' will be employed'. (Analoui, 1993: 63) Such a method allows learners to be embedded within the prevailing socio-cultural norms. Analoui identifies a number of challenges in off the job training as compared to on the job training. Not only is formal off the job training an artificial environment potentially lacking in adverse factors where learning has to be adjusted and altered on return to the workplace but social skills, structure and primary knowledge in the learning environment may differ from the workplace to the extent that they may be a hindrance but due to the temporary nature of such training, participants often just live with the differences. Away from workplace 'the potential for more effective transfer is adversely affected, and may even result in negative transfer'.

Ashton and Snug (2002) are equally harsh on formal training and the link to transferability of knowledge. Whilst acknowledging the role of formal courses in continuous professional development, they are clear that the contribution to lifelong learning and development is minimal. They cite large amounts of research for workplace learning and focus on Eraut et al (1998) who found that for technicians and professionals alike, on the job informal learning is most common. This almost contradicts Analoui's idea that off the job training is required in some instances. It may also depend on what is the most practical approach. Where a large amount of technical information needs to be shared with a large number of people, everyday action in the workplace is surely not the most suitable learning environment.

Cunningham et al (2004), probably provide the most negative approach to transfer from off-site formal learning to the workplace. However, it would appear to be well informed by research. They indicate that combining results of US research transfer of learning to work may be as low as 10%. Formal off-site learning would therefore appear to be a waste of time, energy and budget according to Cunningham et al. Wexley (1981) would agree, as he provides an example of a week long series of lectures for insurance managers who demonstrated no positive transfer when they returned to their workplace. Although he fails to indicate why that was, if this information was sourced in the evaluation.

Cunningham et al's (2004) own research, they claim, supports that of Yamnill and Mclean (2001) which provided evidence of a higher transfer of learning if there is self management of learning by individuals and the setting of goals by participants. They are adamant, however, that no credible research was known that would shift them from their general position i.e. that transfer is problematic and off-site training has a low transfer rate, particularly if not combined with other forms of on site, work based learning.

Ellis (1965) identified two other important factors which can also influence transfer from one context to another. The first being the time interval between learning and doing and the second, the variety of tasks required. Clearly, he reasoned that the longer the interval and as Caffarella (1994) agreed, the larger the variety of tasks the less sure we can be of positive transfer. Caffarella also identified complexity of the programme's scope, number of people involved and magnitude of changes required as potential barriers to effective transfer. All of which can be linked to the three key factors influencing transfer posited by Holton.

Boud and Walker (1991: 3) refer to Schon's (1987) distinction within the world of practice of, 'the high ground of technical rationality, and the swamp of daily human concerns'. Holton's model recognizes these concerns. Bearing in mind the cautions of Boud and Walker (1991) and Dixon (1991) and the elements of Holton's model, Schon's action reflection spiral, clearly, can only have impact in practice, if all of the elements of the 'swamp' are taken into account as interconnected factors and individual practitioners are afforded what is necessary to move beyond the first action.

There are an abundance of texts providing guidance in terms of how to navigate this swamp and optimize the possibility of positive transfer. Many provide checklists relating mainly to the training programme design (Wexley, 1981; McCain, 2002 and Parry, 1997), which Laker (1990) dismissively refers to as laundry lists. As very few of them pin their advice to a theoretical framework this seems fair criticism. Holton's factors affecting transfer of training model provides three clear areas which human resource developers should be cognisant of and act on where appropriate before any training commences, namely transfer design, transfer climate and motivation to transfer. Much of the guidance provided by theorists already cited here can be placed into one of these three areas.

Designing training shouldn't be left purely to the trainers or skills development planners (Caffarella 1994; Laker 1990; Analoui 1993), but also *visibly* include senior staff members and supervisors. Laker (1990) and Caffarella (1994) also emphasized the hands on role of the supervisor before learning by communicating with employees the importance of the training and outlining support they will receive and afterwards by providing that same support and interest on the trainees return.

However, for any training programme to bear fruit, it is crucial that the ultimate goal of skills and/or knowledge transfer is the starting point (Kirkpatrick, 2005; Analoui 1993; Caffarella, 1994). Laker (1990), and Yamnill and McLean (2001) emphasized that the first step of planning is to identify if the learning required lends itself more to identical elements or principles theory. This is not to exclude the possibility of using both theories as an appropriate framework for different parts of the same course. Laker (1990) advises that the objectives and content of a programme are interrogated thoroughly to ensure that the appropriate theory is utilized at the appropriate point. Once this is agreed, he puts forward simple checklists of his own as to how transfer can be facilitated. Not only would identical elements involve the issues of similarity, repetition within the learning environment and procedural nature of tasks required as discussed earlier but also specifying with participants, 'where and how the training is to be applied to the job' (Laker 1990: 217). From the design perspective, Caffarella (1994) also advises to match strategies to specific individuals or groups with the example that for professions and individuals who need direct line management intervention before changing practice, peer coaching may not be the most effective approach. Clearly, what we can take from this is that even if the

appropriate theory is used to design training, we must not be tempted by the one size fits all approach and the same content should be adapted accordingly.

The preparation of learners is vital and supported by Analoui (1993) who advises that participants must be made aware of the transition ahead. Many training programme managers have little control of the influences beyond the programme which may impact on transfer (Caffarella 1994), but awareness of these influences is critical. The key, according to Shor and Freire (1987) cited by Brookfield (2005), is preparing learners for the potential barriers they may encounter. Laker (1990: 214) draws our attention to the very practical relapse prevention (RP) model advocated by Marx (1986). The model, according to its designer, does precisely what these theorists require in that it 'identifies possible reasons for training failure by using information from past training failures to sensitize trainees to difficult situations' which they may come across. This recognition and communication of the complex dynamic of the transfer climate with participants, appears to be a simple and effective way of increasing the likelihood of positive transfer. Analoui (1993) would probably argue that in addition to discussing past failures as a means to preparing participants, that some time is also spent reflecting with learners on the social framework within their organization. Indeed, proactively working with learners to identify potential barriers in addition to awareness of previous barriers, may strengthen their preparation and enhance effective transfer. This links to the concept of mindfulness, put forward by Perkins and Salomon (1994), and Salomon and Globerson (1987) who emphasize mindfulness as a construct which can bridge the gap between what learners can do and what they actually do. Encouraging non-automatic, usually effortful processes from learners which lead to a generalized state of alertness to the activities they are engaged in, is in direct contrast with a passive reactive mode in which behaviours unfold automatically as is often the case. The success of such mindfulness is probably influenced by both motivation to transfer and the transfer climate.

What is evident is that all three factors identified by Holton, need to be considered before, during and after the actual training event. As Yamnill and McLean (2001: 205) gleaned from Kozlowski and Salas' work (1997), 'systems congruence is essential for transfer'.

The research either conducted or cited by the authors here is set in an American or European business context. Public sector studies have been carried out in the developed world, for example, in England, Bennet and Weale (2008) discovered no significant difference in midwives HIV testing practice between those trained and those not. An Italian study (Gianzi et al, 1992) boasted effectiveness in training HCWs as trainers in HIV prevention and care due to the number of learning sessions which took place, but makes not mention of the quality of the learning sessions or the ultimate outcome, improved clinical practice. Neither seems to assist regarding the issue of transfer in the health sector. Even if they did, it would be difficult to transfer these conclusions to an African public sector setting due to socio-cultural differences.

Gronn (2001) and Dimmock and Walker (2000) guard against the issue of cultural borrowing or diffusion, raising concern over wholesale acceptance of anglo-american policies or conclusions without adapting in line with the local setting. However, the broad frameworks should have relevance. Little research has been conducted to assert whether such cultural borrowing is short sighted or valid. In the nineties, research emphasis was more on participants' response to HIV related training and how the various programmes could be improved.

Research has however, been undertaken more recently in the South African public sector by Khumalo (2000) in his unpublished thesis, 'Evaluating the effectiveness of public sector training and capacity building'. His sample, consisting of staff at provincial level who participated in a combined programme of off and on site training gave mixed results regarding the occurrence and extent of transfer. Driessche et al (2009) established a correlation between demonstrated HIV knowledge and improved practice in the DRC and further improvements post off-site training with monthly observations, participatory problem solving and continuing education. Ajuwon et al (2008) also concluded positively regarding improved practice but from a train the trainer approach with primary health care workers in Nigeria trained to deliver the HIV prevention training. Unlike the Italian study, the impact of training delivery was also assessed such as HIV knowledge in the community and condom use.

There are many HIV related training programmes undertaken in the Southern Africa region for health care workers, but few have evaluated the programmes beyond numbers trained, pre and post assessments and self reported behaviour from alumni.

Those that have, such as I-TECH who conducted a significant evaluation of their Ethiopian based HIV training programme for nurses, are shared on organisations' websites and at relevant conferences via poster presentations rather than via published articles. This study will hopefully add to this body of work.

3 Research Design

3.1 Methodology

As with any work related training, the most effective means of evaluating whether a course has been of use and knowledge gained has been transferred and is used in the day to day work of the participant, is to visit the workplace and question and observe participants in their normal, natural working environment. To this end a case study approach was used in this study.

Although outcomes were incorporated into the course design for some participants and they were ideally expected to achieve certain objectives, it would not have been appropriate in this case to simply check a box as to whether competency has or has not been achieved, although the training objectives were borne in mind during the observations. There are a myriad of influencing factors on whether or not transfer of learning from the classroom to practice in the workplace has or can be achieved. Case study methodologies provide a richer sense of what the normal practice of participants is and not only capture their experience and context in relation to the training courses but may also assist in refining the curriculum of those courses and thus influence the appropriateness of further training. Such depth of information can surely only be gained by using a qualitative, naturalistic approach rather than an outcomes based, impact study approach (Mouton, 2001). As a sound understanding of exactly what health care workers do in an HIV clinic is required, a case study approach is most appropriate. As Cohen and Marion (1980) state, 'The purpose of such observations is to probe deeply and to analyse intensively the multifarious phenomena that constitute the life cycle of the unit'. A proportion of data therefore was generated via 'methods associated with the interpretive paradigm' (Cohen and Manion, 1980) i.e. participant observation and semi structured interviews.

However, the tradition of inquiry 'need not be pure and one might mix procedures from several'. (Cresswell, 1998) Indeed, quantitative data exists in a bed of data for the pre and post training assessments for the total 5600 health care workers trained which was used to reinforce the assumption that learning did take place during the training. A questionnaire approach with a mix of qualitative and quantitative questions was used due to the number of alumni (n=70) involved in the study.

3.2 Sampling

Two provinces where RHRU has facilitated the majority of its training in the two courses in question were communicated with and approval for access to clinics and alumni health care workers requested. Whereas North West Province did not give written approval in time for the field work, Gauteng Department of Health provided both verbal and written support. RHRU maintains a database of all health care workers who have participated in the two courses in question which provided the first sample frame. To select a representative sample would perhaps have provided too large a group, which would have been time consuming and costly to evaluate and not necessary. (Mason, 1996). Deliberate decision or judgement sampling (Mason, 1996) was used to determine fourteen target clinics in Gauteng. The clinics were selected as a relevant range of all clinics who have participated in the training. As Mason (1996) indicates, although the sample may not be a straight forward representation, the units in the sample 'commonly occur in the wider universe.'

In order to establish these typical units, the database was sorted by clinic. Institutes who have supported five or more staff members in the HIV Care and ARVs Course and had representatives participating in the ARVs and Adherence course were isolated and the sampling taken from this majority group or second sample frame. Clinics trained range from those based in tertiary hospitals to primary health care clinics, although the latter were not significantly represented. The sample group (n=70) therefore was selected from the second sample frame to reflect not only those clinics which most commonly sent staff to attend the two courses, but also to reflect the diversity of clinics who attend.

However, from the fourteen deliberatively sampled target clinics, access was gained to only six. Mason (1996) accurately summed up the situation by asking 'once you have identified your sampling units, how certain are you that access to them will be forthcoming.' Indeed, despite having written approval from the Provincial Department of Health there were many other layers of bureaucracy to work through before access was approved at a local level. Therefore, the initial sampling quota was as Mason (1996) advised under 'subsequent systematic review' using the Bertaux and Bertaux-Wiame principle of sampling until reaching saturation point where the data stops telling you anything new. The final group of six clinics reflecting the majority would

allow for some generalisations to be made across that majority, whilst acknowledging that this may not be applicable to all who have been trained.

With deliberate decision sampling there is always a concern for researcher bias. To reduce this, the sampling methodology and final selection was agreed on with two colleagues: one programmatic and one clinical, both of whom know the province and districts we train in well and the different types of clinics.

3.3 Data collection

Data was collected from the six clinics between April and June 2008. The evaluation was introduced and explained to staff at each of the six clinics via a presentation and an information sheet. Once informed consent was given, participants completed the relevant questionnaire focusing on how they felt about the training, if it assisted in improving practice and how, followed by a written assessment covering key aspects of the training i.e. fundamental aspects of treatment of HIV. In total 57 HIV Care and ARVs alumni and 13 ARVs and Adherence alumni completed the questionnaires.

The clinic managers who sometimes participate in the training were interviewed using a semi structured interview schedule to ascertain what change if any they have observed in team members who attended training. The managers oversee participants and therefore alumni of both courses. Of the six clinics, five managers were available for interview, four of whom had also participated in the HIV Care and ARVs course. All five preferred not to be recorded and interviews were captured in writing at the time with annotation immediately afterwards.

The observation element of the study was discussed with participants during the presentation and after the questionnaires had been completed. A doctor and enrolled nurse based in a district hospital ARV clinic volunteered. This clinic received no additional support from an NGO or academic unit before or after the off-site course. Each was observed in a low inference, complete observer manner for two hours and the detail of their experiences described. As both speak zulu or sotho with patients, observations and member check interviews were carried out by team members who had been trained by the researcher in observing and understood those languages to assist with validity.

In order to clearly link the descriptions of daily experiences with the training, observers completed a checklist after observations and interviews which covered the key objectives of the training, indicating which were present during observation or further discussion.

3.4 Data management

The dataform system was used for the questionnaires to minimise human error during data inputting. Once scanned and read by the dataform programme, the data was ready for cleaning and analysis in the computer program Excel. Each clinic was scanned separately and the alumni of the two different courses further separated into different worksheets. Interviews and observations were translated where necessary and converted into word documents the latter of which were returned with checklists to the researcher within 48 hours allowing time for member checking of the information. All data therefore was easily available in a format appropriate for coding, sorting, analysis and interpretation. The original completed questionnaires are filed with informed consent forms in the researcher's office. With the mixed methods used for data collection, inductive analysis took the form of both conversational and descriptive analysis where data was coded and collated into relevant categories or themes. The former focusing on data gleaned from interview and the latter method used to analyse data gained via observation.

3.5 Validity, reliability and issues of generalisation

3.5.1 Validity

This study has been designed with validity of data as a key objective. As 'triangular techniques are suitable when a more holistic view of educational outcomes is sought,' (Cohen and Manion, 1994), every attempt has been made to triangulate the research design. Not only is there a triangulation of methods where the findings of one instrument can be compared with another for the HIV Care and ARVs course, but also investigator triangulation by including other field workers in data collecting; and space triangulation by looking at different clinics across the province both geographically and in the services rendered. There may have been some reactivity during observations, although as Maxwell (1996) points out, this may be less than originally thought and could be more so during interviews where 'what the informant says is always a function of the interviewer.' (Maxwell, 1996). As there is triangulation of investigators, feedback was received from those assisting and indeed

from those within the organization not assisting to ensure interpretations of data are valid.

Before the refining of tools and the developing of research skills is discussed, it is important to acknowledge the role of the researcher. In recognizing the researcher's background, assumptions and interest in the research as training manager, the researcher is surfacing biases and subjectivity. This had less impact on the questionnaires used but as an interviewer, when note taking from memory, when translating and analyzing data collected it was important to be aware of researcher as an instrument and the impact this can have on the study. As Maxwell (1996) points out, 'qualitative research is not primarily concerned with eliminating variance between researchers in the values and expectations they bring to the study, but with understanding how a particular researcher's values influence the conduct and conclusions of the study.' The main researcher bias is that as training manager of the project being evaluated, there is a natural concern to see and hear positive thoughts and actions as a result of the training health care workers have undertaken. Being aware of this bias allowed the researcher to guard against for example, asking leading questions, ignoring poor practice and ignoring outlying data. In short, it allowed the researcher to be as objective as possible within this subjectivity.

The researcher as instrument must be prepared. To know the subject area well, the tools well and the participants of the research well enough to be able to relate to them, to understand how to get the best in terms of accurate data from them by using appropriate demeanors, dress and language. Poggenpoel and Myburgh (2003) use Lincoln and Guba's (1985) term of trustworthiness and warn us that, 'The researcher as instrument can be the greatest threat to trustworthiness in qualitative research if time is not spend on preparation of the field, reflexivity of the researcher, the researcher staying humble and preferring to work in teams so that triangulation and peer evaluation can take place.'

This study is an ambitious one and without working with a team, it would not have been possible. Not only were the training team and other colleagues involved in refining the tools and assisting in developing the skills to use them but also in the analysis. To refine the tools and ensure that data collected would answer the research questions several activities were undertaken. During the course of this

process the researcher and support team also developed the skills to use the instruments.

3.5.1.1 Questionnaire

The questionnaires represent content related evidence. They are directly linked to the curriculum, methodology and objectives of the two courses and therefore' provide an element of validity. McMillan and Schumacher (1993) advise that as well as being clear with regards to which universe or domain of content the test is intended to represent that a 'group of judges' should also be consulted. Facilitators on the courses were asked to comment on the appropriateness and usefulness and add anything they felt was missing which would assist in answering the research questions. Those who train on the ARVs and adherence course suggested that although the structure is appropriate, several of the questions would need to be changed in order to be more relevant to the participants on that course.

This was reflected in the responses from team members who have attended the ARVs and adherence course. On completing the questionnaire, they didn't feel it was as relevant in some places such as the areas of usefulness and what alumni improved on in practice and so the questionnaire in that format wouldn't provide the data to answer the research questions with regards to the ARVs and adherence course. It was subsequently developed to more strongly reflect the curriculum and intended outcomes of this course. Therefore increasing the validity of the tool.

The questionnaire for the HIV Care and ARVs course was further tested by four health care workers based in two of the clinics which RHRU provides clinical support. All four had attended the training and on completion of their questionnaires, the data was captured in an Excel spreadsheet. Whilst many of the questions provided data that would be of use, their responses to the questionnaire highlighted areas which needed further improvement. One person ticked more than one profession as they are both a nurse and a manager. This could have caused some problems in the data analysis so the questionnaire was amended to ask for the most appropriate job title. The ranking instructions for usefulness also caused problems with only one out of the four following the instructions properly. The response of the other three caused concern so they were asked to explain how they had answered. Clearly ranking

more than a small number of options caused confusion so it was decided to use a scale of 1 to 4 for each area rather than asking people to rank the areas in order of usefulness. The same was also the case for ranking the methodologies used in the training. Another concern arose in a double barreled question asking if the training was practical ***and*** easy to put into practice. From the responses we are unable to discern if it was practical and easy to put into practice or one or the other. Therefore the two questions need to be separated. It was also clear that a question regarding the barriers to putting into practice what has been learnt would be extremely useful. For example if a person provides very positive responses but was unable to put into practice what they had learnt, it is important to understand why that was the case and this was missing in the questionnaire. In responding to what areas of practice were improved, again it would be useful for some context and an understanding of how many HIV patients on average the respondent sees each week. The questionnaire was amended to take into account these issues again assisting with validity.

3.5.1.2 Interviews

Rather than a structured interview schedule, a semi structured interview schedule was designed as this will allow 'depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand on the interviewee's responses,' (Hitchcock and Hughes, 1989) whilst still providing direction for the interview. Interviews were to be recorded using a tape recorder and hand written notes during the interview where possible. Unfortunately, clinic managers rarely have the time available which unstructured interviews require and as the pilot shows this type of interview isn't necessary in order to gather the data required to answer the research questions. The interview tool was tested on three managers from North West alumni clinics whilst attending another course. The time taken for the interviews was short at around 15 minutes, due to the time constraints of the training course they were attending. However, this mirrors the demands on a mangers time in a normal clinic setting. Another five to ten minutes was spent member checking. This exercise demonstrated that the tool will probably provide the data required, although this may be surrounded by a lot of other information and opinions! Although it is important to put interviewees at ease and be conversational in approach, Creswell (1998) is correct in reminding us that 'a good interviewer is a listener rather than a speaker.'

It was interesting to note that all three managers expressed a preference not to be audio recorded so the researcher made notes verbatim as the interview was happening and annotated sections afterwards. Despite the interviews being short, it was still a challenge to capture what was said, be attentive, listen and understand. If the full conversation was captured after the interview there is a possibility of 'introducing distortions and making errors.' (Hitchcock and Hughes, 1989) Therefore it is highly preferable to capture the discussion during rather than after regardless of whether a tape recorder is used. Although the three managers didn't seem phased by the level of writing taking place, the researcher felt that she wasn't listening as attentively as she could be and that this was an area to work on. As a result, the researcher used the same tool to interview colleagues to practice interviewing and capturing verbatim what is discussed before the research field work commenced.

3.5.1.3 Observation tool

All observers were non-clinical which links to maximizing the reliability of data collected as they are less likely to be biased than a clinical observer who knows the subject extremely well. As non-clinicians observing predominantly clinicians, observers are more likely to 'record in an objective detached manner' (McMillan and Schumacher, 1993). The process of observation and interview was discussed with the same group of colleagues as the questionnaire i.e. the same 'group of judges' to assist with the issue of validity. As Wentling (1980) advises, a tool 'should be reviewed for clarity, meaning and appearance.' Obviously this is different with the observation tool but still necessary. The group agreed that an illuminative technique was a more valid approach than using for example a checklist of course objectives and looking for only those elements. Each observation was to be recorded by hand during the observation and followed by a member check interview plus discussion regarding areas of the curricula the observee did not have opportunity to demonstrate during the observation to ascertain if understanding of the issues was present. Both of the latter recorded by hand.

A schedule of observation practice was implemented for all four observers to hone their observation skills. Colleagues were observed and member checked regularly and the observation team met weekly to discuss experiences and agree on consistency which increased the reliability of the data collected.

All four observers are non-clinical. As an experiment to evaluate the richness and accuracy of the data captured and contribute to maximizing reliability, dual observations took place on one occasion with each observer team member observing with a clinical team member i.e. two sets of notes being made. Before the observer team member interviewed the observee, the notes made by the non-clinical team member were compared with the clinical team members. The clinical notes had many more clinical terms and abbreviations. There is a difference in the clinical knowledge and skills between the team of four observers with two having a higher clinical knowledge. This was reflected in the notes being made, but descriptions made by the non-clinical team members with lower clinical knowledge were still viewed as providing an accurate account of what was taking place with some areas to be clarified during the member check. This and the other research tools have been tested and refined to the extent as described above providing the researcher with the opportunity to develop skills to maximize the usefulness of the tools. Therefore, the researcher is confident that as Wolcott quoted by Cresswell (1998) describes, an 'understanding' was reached.

There were validity threats which arose during the research some of which were difficult to predict in the planning stages. In this case, the researcher tried 'to rule out most validity threats after the research [had] begun, using evidence collected during the research itself to make these alternative hypotheses implausible.' (Maxwell, 1996). The main threats included the reduction in the number of provinces participating in the study and eventual research sites and the small number of opportunities to observe the volunteers.

3.5.2 Reliability

In terms of reliability, the number of clinics participating in the first phase study should still provide data which can be generalized to similar clinics and allow for some recommendations to be made. With the observation phase of the study there may not be much scope for reliability and thus generalization. However, the researcher must guard against the temptation to make generalizations above the sample type in either case. Cohen and Manion (1980) agree that 'one always faces the problem of generalisabilty in pursuing an in-depth study of a single case.'

To maximize the reliability of the questionnaires, or the consistency of measurement, the ‘accuracy or precision of a measurement procedure’ (Thorndike, 2005), several steps were taken. Human traits as Mcmillian and Schumacher (1993) point out will always involve error. Our role is to control and reduce that error as much as possible. The questionnaire presents the opportunity to underscore reliability via an equivalence and stability reliability coefficient (Mcmillan and Schumacher, 1993). According to McMillan and Schumacher this is the ’comparability of two measures of the same trait given over time.’ As several of my colleagues have attended the two courses, they completed the pre and post training assessments which constitute ten multiple choice questions relevant to the course curriculum and questions regarding the usefulness of the course and level of confidence in performing ARV duties following the course. They have now completed the questionnaire for the evaluation research study which asks about the same content, methodology and objectives but in a different format. From the bed of data of the pre and post training assessments from the training event itself, we were able to determine that there was an improvement in score. Reliability of the multiple choice question section of the tool was attained therefore, as ‘a change in scores across time reflects an actual difference in the trait measured.’ (McMillan and Schumacher, 1993)

Observation practice included observing colleagues based in clinics. As McMillan and Schumacher (1993) state ‘reliability should be established with individuals who are similar to the subjects in the research.’ Volunteer colleagues included doctors, pharmacists, nurses, counsellors and data capturers representing many of the health care worker categories trained on the two courses in question.

3.6 Strengths and weaknesses

The key strengths of the research design were that it used several approaches with validity as a key concern, had support both from government and directors at RHRU which provided supporting man power and budget.

Major weaknesses were the assumptions that accessing clinics once provincial approval was given would be straightforward and that health care workers would be more willing to participate in the observation phase of the study. Another potential weakness is that not all health care workers within a clinic were trained at the same time. Those who have had more time between the training and the evaluation will

have been potentially exposed to more reinforcers and constraints to implementing what they learnt during the training. These elements will hopefully have been picked up in the data and taken into consideration when analyzing data.

A further weakness is that the researcher is the training programme manager and there is a strong potential for bias. The strategies outlined in the previous section will hopefully minimize this.

3.7 Ethical considerations

As with all research there are ethical issues to consider before, during and after the field work for this study has been completed.

The study relies on health care workers (HCWs) within the clinics participating in the research. This had to be voluntary and undertaken with full informed consent. Before completing any questionnaires or interviews or agreeing to be observed, each HCW had to fully understand the aims and objectives of the study. If after attending the briefing on the study they were willing to participate, a consent form was completed including a section signed by the researcher that if at any time the HCW wishes to withdraw then they are free to do so. As HCWs, their managers and provincial staff will all be involved in hearing and responding to results, analysis and recommendations, it is important to protect participants by providing anonymity on all questionnaires and transcripts of other tools. Participant confidentiality is maintained at all times by using a coding system for data and individuals.

The purpose of the training is to capacity build HCWs to provide a quality HIV treatment and care service. It is of paramount importance that field work should not interfere with the provision of services. Therefore, all questionnaires and interviews took place when clinics were at their least busy so as to have a little impact on patient care as possible. Before observations took place, the patient's consent was obtained verbally by the HCW and the observer advised to interrupt the consultation only if they felt that the patient's health was at risk through mismanagement by the HCW.

3.8 Dissemination of results

In addition to providing feedback to participating clinics in a presentation and discussion, the results will be discussed with colleagues within RHRU and the

Gauteng Provincial Department of Health. It is also anticipated that results will be shared with other HIV training providers via posters and presentations at selected conferences.

4 Results

4.1 Introduction

The main question asked by this study is: Was the information shared and knowledge gained on the HIV Care and ARVs, and ARVs and Adherence courses transferred to the workplace?

A number of sub-questions allow this question to be further explored:

1. Did the training have a positive effect on participants' abilities to treat patients?
2. What elements of the training were more useful than others?
3. Was the training valued by participants?

As outlined in chapter 1, ethics clearance was gained prior to data collection and the research instruments used are attached as appendix 1 and described in detail in chapter 2.

The data suggests that transfer of learning did take place but to varying degrees depending on profession, services rendered and the different aspects of the courses.

The table below shows the breakdown of participants across the sites in all three aspects of the study i.e. questionnaire, interview and observation. For clarity 'site' refers to the whole clinic or hospital of which there are many smaller clinics and wards. Managers interviewed were specifically managers of the HIV clinic. Alumni were based in both the HIV clinic and other wards and departments. The term 'external organisation' refers to a non governmental organization officially working in partnership with the Department of Health to improve HIV clinical care and service delivery at specific sites. Data collection tools for all three phases of the study are attached as appendix 1.

Site	HIV Care and ARVs alumni question-aires	Volunteers for observation	ARVs and Adherence alumni questionn-aires	Volunteers for observation	HIV Clinic Manager interview	Manager attend HIV and ARVs course	HIV Clinic support-ed by external organis-ation
Alpha	13	0	1	0	Y	Y	Y
Beta	11	0	1	0	N	/	N
Epsilon	4	2	2	0	Y	Y	N
Gamma	7	0	5	0	Y	N	Y
Omega	12	0	4	0	Y	Y	Y
Zeta	10	0	0	0	Y	Y	N
Total	57	2	13	0	5	4	3

Table 4.1: Participant numbers in phases of study

From the six sites and health care workers available at the time of data collection, 57 health care workers (HCWs) who had attended the HIV Care and ARVs course and 13 who had attended the ARVs and Adherence course agreed to participate in the evaluation. The two groups of alumni constitute 1.25% of the total number of health care workers trained from March 2004 to March 2008. All sites from the sample group and alumni who were available at the time of data collection agreed to participate at some level in the evaluation. HIV Care and ARVs alumni were represented in all six sites, the managers of five HIV clinics within the six sites were interviewed, four of whom had participated in the HIV Care and ARVs course and two alumni volunteered to be observed. The smaller group of ARVs and Adherence alumni spanned five of the sites participating in the study, four of which were represented by the HIV clinic manager. Unfortunately none of the alumni of this latter course volunteered to be observed, despite discussions and support from other colleagues.

As there is limited data for the ARVs and Adherence alumni, this chapter will present this group of results first before moving onto the larger data for the HIV Care and ARVs alumni.

4.2 ARVs and Adherence course

4.2.1 Breakdown of participants

The questionnaire was completed by 8 lay counsellors, 2 pharmacy assistants and 1 each of enrolled nurse, professional nurse and data capturer, all of whom were based in HIV service related clinics. The target group for the course is lay counsellors, but as participants are mobilized by the Department of Health, it is not uncommon for other non clinical staff such as data capturers or pharmacy assistants to participate.

It is however unusual for enrolled or professional nurses to participate on this course. All but one indicated that they saw more than 20 HIV patients a week with the final lay counsellor seeing between 11 and 20 on average. The alumni had been trained as early as August 2004 and as recently as March 2008.

4.2.2 Transferring knowledge to workplace

Several elements of the questionnaire dealt with the main issue of whether participants are using what they had learnt in their work on returning to their clinics. There is also the recognition that there could be barriers to transferring beyond the control of the participants and this was explored.

Amongst the lay counsellors, pharmacy assistants and professional nurse there were no or few reported barriers to transferring their learning to the workplace. An Omega based nurse stated that 'the managers were very supportive and helped me put what I have learnt into practice.' The enrolled nurse from NGO supported Gamma on the other hand, indicated that the clinic manager, her scope of work and fear were all barriers. However, with the majority, including the entire main target group responding positively to this, the indication is strong that knowledge gained on the course was transferred to the workplace.

From the 13, 77% (n=10) found the training practical in its approach. Seven of the eight lay counsellors, a pharmacy assistant and the professional nurse found the learning they had gained whilst on the course was also easy to put into practice on their return to work. The remaining counselor based at Beta, and the pharmacy assistant and enrolled nurse both from Gamma felt that some of their learning was easy to put into practice. The data capturer from Gamma indicated that it wasn't easy due to their scope of work limiting their ability to do so.

As the majority of the target group of lay counsellors indicated that their learning was easy to put into practice and all felt that there were no or few barriers to transferring learning, this provides a positive response to the main research question. The responses from non target groups for this course are on the whole encouraging and indicate that transfer of knowledge did take place.

4.2.3 Improved ability to treat patients

The first sub question focuses on whether the training had a positive response on participants' abilities to treat patients and again a number of aspects of the questionnaire aimed to answer this. In response to the checking question of 'did the course help you on your return', there was a 100% positive response from the sample of ARVs and Adherence alumni. This is very encouraging especially as five of the 13 were not the main target group. Figure 4.1 indicates which aspects of work the course helped to improve amongst the group. As shown, only a small number of participants felt that the course helped to improve their ability to work with traditional beliefs. This may be due to previously existing skills and understanding around this area or may be a reflection on the content and methodology. Unfortunately, the data collected does not assist in understanding this result further.

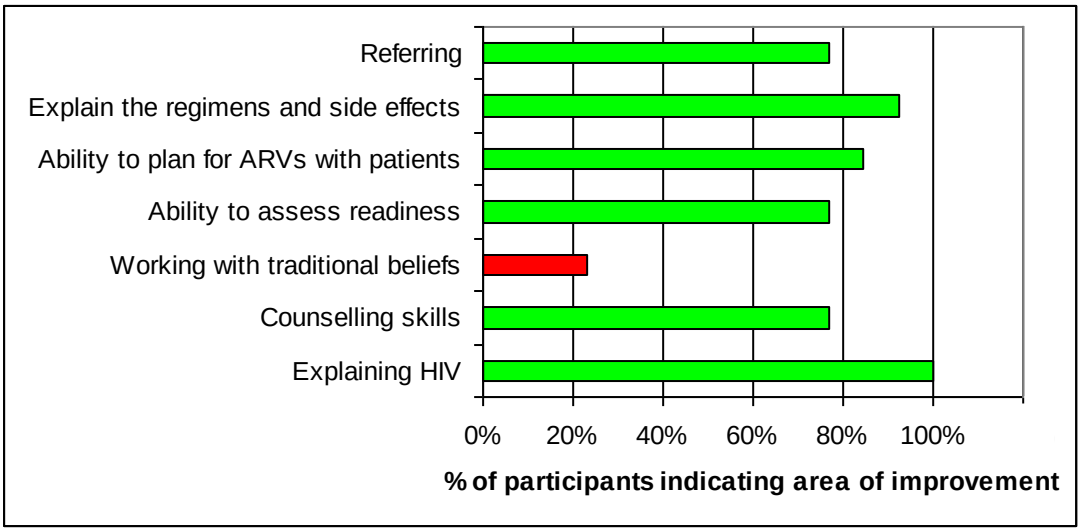

Figure 4.1: Areas of self reported improvement in ARV and Adherence course alumni following the course

The entire group believed that their ability to explain HIV had improved as a result of the course. More than 80% of the group felt they had improved in key areas such as explaining ARVs and the side effects and helping patients to plan for ARVs. The planning aspect is often viewed as specifically the lay counsellors' role as part of the adherence counseling process, so this level of response is worth noting in that other categories of staff are now reporting more understanding and possible involvement in this aspect of care. Over 70% of the group felt more able to assess if patients are ready, refer patients appropriately and counsel patients. Only 60% of the sample represented the target group and as professions varied across the improvement

areas this indicates that the course not only assists the target group to improve patient care but other categories of HCW as well.

Of the 13, 12 felt that their clinics were more effective as a result of staff attending the two courses. The one alumni who was unsure if their clinic was more effective or not was a data capturer from NGO supported site Gamma, who indicated that they had little contact with patients hence the uncertainly.

From free responses to questions relating to clinic efficiency, data was colour coded, categorized and the number of responses in each category noted. The following represents the main categories in order of frequency:

- Busy clinics/access
- Adherence
- Confidence and increased knowledge

Several alumni alluded to an increase in the number of patients accessing treatment which may not necessarily imply good levels of adherence but others also indicated that the quality of adherence counselling had increased, patients were doing well and there was more awareness of defaulters. As one lay counsellor from Omega succinctly put it:

'Patients are improving, they drink treatment on time and CD4 increases.'

Respondents also indicated increased confidence and improved ability to explain things better to patients and support them more effectively.

As part of the questionnaire, alumni were asked to complete six multiple choice questions (MCQ) relating to the core objectives of the course. The questions were similar to those used for the pre and post training assessments during training. Of the sample, 77% demonstrated an excellent understanding of the principles of adherence, good adherence markers to assist patients with planning and the concept of the viral load. Less understood, with only 31% of the sample answering correctly were the criteria for starting treatment, purpose of the CD4 cell count and the counsellor/client relationship. The professional nurse, data capturer and a pharmacy assistant demonstrated a better understanding of the issues than the lay counsellors who had an average score of 3 out of 6 with little difference from those in a supported site and those not. Whilst it is encouraging that learning regarding adherence and the sometimes difficult concept of the viral load continue to be understood, reinforcing

the earlier reported areas of improved abilities, it is of concern that simple aspects such as starting treatment and CD4 counts are less understood. There is a gap therefore, in this sample between improvements suggested in other sections of the questionnaire such as ability to explain HIV, and the actual knowledge level demonstrated via the MCQs. This could suggest that patient care did not necessarily improve to the extent that this group of alumni believed.

4.2.4 Usefulness of training programme content

When asked about the usefulness of the different sessions of the course, there was a positive response with all sessions rated either useful or very useful. Although still rated useful on the whole, the session on tradition beliefs and ARVs proved to be the least useful to participants. The session covering the ARV regimens and their side effects was rated the most useful closely followed by counseling skills and the readiness assessment. The high rating of all sessions with the exception of traditional belief echoes the feedback given by participants on areas they felt they had improved the most as a result of the training.

4.2.5 Value of training to participants

All of the sample group found the training to be of value to them which positively answers the third research sub question. Free responses on the questionnaire as to why alumni valued the training were colour coded, categorized and frequency of similar responses noted. Three main themes emerged from this process which, in order of frequency, are:

- Knowledge of treatment and side effects
- Key adherence issues
- Importance of preparing for ARVs

Counsellors reported an enhanced understanding of the medication and their side effects and in particular the fundamentals of supporting people before embarking on taking ARVs for life. These two elements of understanding the ARVs and the effects they can have on patients and the planning to take ARVs are consistently responded to in a positive manner across a number of questions. This implies that learning was sustained and transferred to the workplace, positively impacting on patient care in these two critical areas. Indeed many of the counselors indicated an increase in

confidence in giving information and support patients throughout the initiation of ARVs. An Alpha based counselor commented:

> 'I didn't know how to explain to a patient how to be safe and adhere but after the training I was able to show the patients, even the dangers of not taking [ARVs].'

Counsellors felt the course was of value to them due to the insight it gave regarding their role and responsibility, counselling skills in general, and in particular the process of adherence counselling and the importance of ensuring that patients are not rushed through the adherence process.

> 'It is very important to understand the importance of counselling, preparing the HIV patient to help them cope with their condition.' Lay Counsellor, Gamma.

One counsellor from Epsilon summed up the general opinion of all respondents believing that the training they received was of value because, 'I now know how to prepare a patient for ARVs so that the patient can adhere to treatment for life.'

From the questionnaire data, the ARVs and adherence course was valued by participants, improved patient care in some areas and indicates that positive transfer of some learning did take place.

4.2.6 Manager interviews

All managers interviewed felt that it was of enormous benefit for the counselors to be trained and that a change in competence had been observed following the training.

> 'Counsellors are preparing the patients and are now confident enough to counsel adolescents.' Alpha HIV Clinic Manager

This agrees with the trend observed in the questionnaire data of improved ability to prepare and plan with patients. As such it strengthens the positive response to the main research question of positive transfer and the sub questions relating to value and improved patient care in preparing patients for ARVs.

Gamma's HIV clinical manager felt that the 'lay counsellors are doing a good job.' Omega's manager concurred that you could 'see the difference' in counselors after training. This would concur with the confidence expressed by alumni in improved abilities whether perceived or real.

However, there was room for improvement as Epsilon's HIV manager indicated that re-education for counsellors was important as they are not always doing everything they should or always following guidelines. She added that confidentiality was not always maintained.

Alpha's manager valued the equal opportunities in training for clinical and non-clinical team members. With managers from Gamma and Omega, she agreed that reinforcement and refresher training was needed for this cadre. This links to the lack of sustained learning demonstrated in the MCQs and the possible gap between perceived and real abilities.

Epsilon manager shared experiences of counsellors being suspicious when the manager or other clinical staff observe their interactions with patients with the aim of reviewing and improving services. 'They don't like it – they think you are spying on them.'

4.2.7 Summary

As no alumni from this group agreed to be observed, there were only the questionnaire responses to training and the managers' impressions of change in practice following training, to work with in relation to the research questions.

In response to the three sub questions, the course appeared to be valued, the majority of it was useful and improvement was perceived to have taken place but this was not across all areas of the course content for all participants. Transfer does seem to have been strongest amongst the target group of lay counsellors and the professional nurse. Both managers and alumni alike felt that the course was of value and that there had been a positive change in practice. However the extent of this improvement based on the above data varied from cadre to cadre and was not unanimous for the target group. Lay counsellors reported improvements which managers concurred with but also noted that more improvements could be made. Counselling skills was rated a useful session by participants but many adherence counsellors should have already been trained on these important skills so the session on this course is viewed as a refresher for participants. With this group, a pattern appeared regarding the need for on going reinforced learning from the low score of

the lay counselors in the MCQs, to manager's impressions of this cadre's response to training and counsellors not being comfortable with being observed. If on-site coaching is not productive, this perhaps underlines the need for ongoing training.

Transfer appeared to be less strong with other alumni. However, this is to be expected for a number of reasons. A data capturer is not expected to counsel patients in adherence. Although some learning on the course could be useful such as the sessions on HIV, ARVs and side effects assisting a data capturer to understand what they are working with, they would not be expected to transfer all what they have learnt due to scope of practice. Pharmacy assistants are a non clinical group supporting qualified pharmacists and as such would be expected to put some of what they learnt into practice such as explaining issues around adherence and supporting patients to take the ARVs but not full adherence counselling. Enrolled nurses however, would be expected to transfer more learning as they are engaging with patients but perhaps not providing counselling in the same structured way as counsellors. The responses therefore of the enrolled nurse were disappointing.

This variance in extent of transfer amongst the study group should be put into context. Of the 13, data suggests that 9 (69%) experienced a good level of transfer of learning. However, the researcher was expecting more alumni to be available and able to participate in the study. Although the percentage is high bearing in mind the multidisciplinary nature of actual participants versus target participants, the absolute numbers involved are small.

4.3 HIV Care and ARVs course

4.3.1 Breakdown of participants

The questionnaire was completed by 57 health care workers across all six participating health facilities with the breakdown of health care worker categories as follows:

Health care worker category	Number	% of total surveyed
Auxiliary Nurse	3	5.26
Enrolled Nurse	7	12.28
Professional Nurse	22	38.60
Clinic Manager (PN)	1	1.75
Doctor	3	5.26

Pharmacist	4	7.02
Lay counsellor	5	8.77
Community health worker	1	1.75
Dietician	3	5.26
Social worker	2	3.51
Clerk	3	5.26
Data capturer	1	1.75
Defaulter tracer	1	1.75
Other	1	1.75
Total	57	

Table 4.2: Breakdown of HIV Care and ARVs alumni completing questionnaire

Participants attended the training as early as April 2004 and as recently as March 2008. Over 60% of the group reported seeing more than 20 HIV positive patients per week, 4% between 11 and 20, 11% between 6 and 10 and 7% between 1 and 5. The remaining HCWs didn't respond to this particular question. When asked why, they indicated that they were ward based or in the outpatient department.

4.3.2 Transferring knowledge to workplace

Several elements of the questionnaire dealt with the issue of whether participants are using what they had learnt in their work on returning to their clinics. There is also recognition that there could be barriers to transferring beyond the control of the participants and this was explored.

Of the 57 alumni, 77% found the training to be practical in its approach. This included all Epsilon and Zeta staff, most of Alpha, Beta and Gamma but only half of Omega. On member check, participants had varying understanding of this question. Many of the negative responses were due to the lack of an actual practical component in the course as opposed to the content being practically orientated.

When asked whether or not the learning was easy to put into practice on return to their clinics the majority responded positively indicating that all that they had learnt was easy to put into practice or some of it had been easy to transfer to their work place, as shown in figure 4.2.

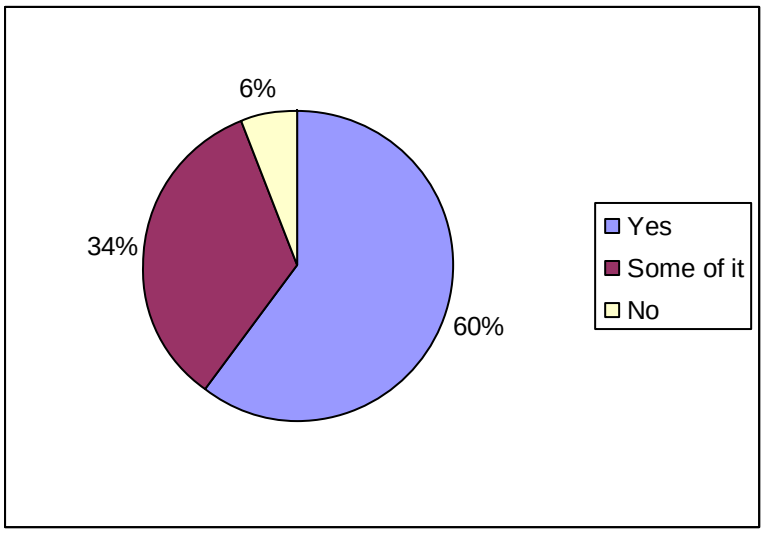

Figure 4.2: Responses to question regarding ease of transferring learning into practice

This potentially indicates that in response to the main research question, positive transfer did take place on some level for 94% of the sample with 60% feeling that there was positive transfer of all that they had learnt.

Just below two thirds of the participants experienced no barriers in putting into practice what they had learnt. This group included all of Epsilon and the majority of Gamma alumni. Nurses working in ARV clinics, the prime targets for the course, were very positive about their ability to put into practice the increased knowledge and skills they had gained on the course.

> 'There were no barriers as I was already working in an ART clinic and I put theory into practice immediately.' Omega professional Nurse

Omega's social worker emphasised the team approach which assisted her. 'We have multidisciplinary team meetings where we discuss patient problems. There were no barriers in the clinic I am working in.'

Such a positive response should be expected by staff working in an ARV initiating clinic as the course is aimed at this group, particularly the nurses in terms of the pitch of the course. Therefore, the higher level of reported transfer and lower level of barriers indicated by participants matches that anticipated by the course co-ordinators and researchers.

However, this kind of support and ease was not experienced by everyone. The 6% who hadn't found it easy to put into practice what they had learnt comprised of two Gamma pharmacists who were both based in the outpatients pharmacy and had little opportunity to practice what they had experienced on the course. The other alumni in this group was an auxiliary nurse from Beta, who although responded positively when asked if the course helped in her work, she experienced unsupportive staff members. Again, this feedback is unsurprising and speaks to selection criteria for the course.

Of those who felt that it had not been easy to put some of what they had learnt into practice, the majority were from Alpha, Beta and Omega. The most frequent reason cited for this was that alumni were not treating HIV patients. As one Beta nurse stated, 'I work in a surgical ward. The number of HIV patients varies and are always referred to others.' This is an unfortunate attitude as due to the high prevalence of HIV in South Africa, all health care workers no matter what their setting are treating HIV patients in some way. The next most frequent reason for not putting learning into practice was that aspects of the course were beyond the alumni's scope of practice. Again, this speaks to the actual target group versus the variety of professions who are invited to the course by the Department of health (DoH). The third main reason was lack of support with three alumni indicating that due to an untrained manager and unsupportive colleagues, they were less able to transfer their learning.

Interesting, of the 60% who reported that it had been easy to put into practice what they had learnt, health care workers from Alpha, Beta, Epsilon and Zeta also indicated some challenges. These ranged from a professional nurse at Zeta describing how her untrained manager did not realise that adherence counselling takes time, to an Epsilon doctor expressing frustration that newer drugs were not available and so patients who required drug changes could not be switched. An Epsilon colleague indicated that although it had been easy to put what she had learnt into practice, a shortage of support staff such as dietician and data capturers in the clinic meant that the professional nurses had to take on these responsibilities, taking them away from other duties where learning had been transferred. Again, this speaks to less positive transfer within the target group caused by not their own abilities or fear but other contextual factors with the clinic manager's perceived lack of understanding ranking highest.

4.3.3 Improved ability to treat patients

In response to the checking question of 'did the course help you on your return' 93% of HIV care and ARVs alumni responded positively. This corresponds with the percentages shown in figure 4.2. However, the way in which it helped and the extent varied significantly with some alumni reporting that it helped in a number of areas relating to the course and others selected only one or two areas of improvement. Figure 4.3 indicates which aspects of work the course helped to improve amongst the group from a checklist given based on course objectives.

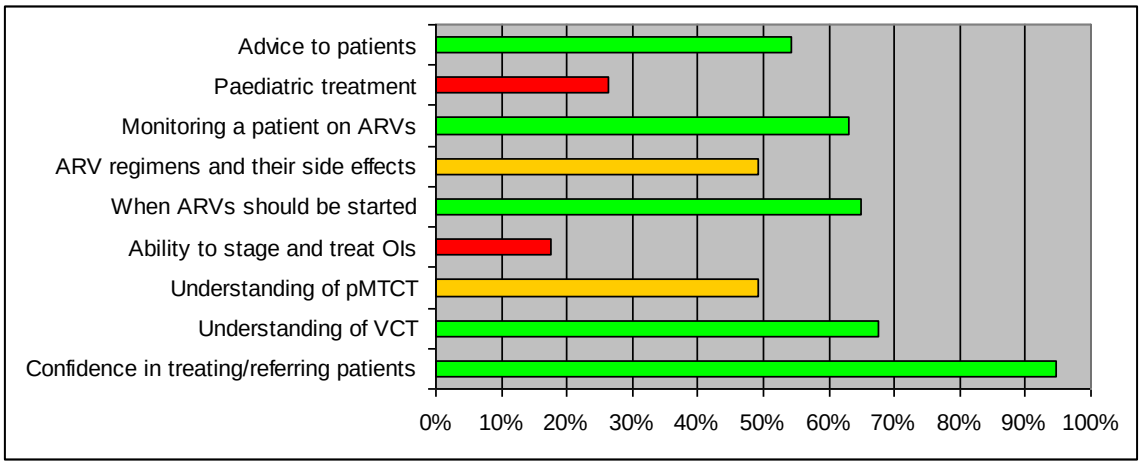

Figure 4.3: Areas of improved practice as indicated by the 57 alumni from the HIV Care and ARVs course

As figure 4.3 shows only 5 of the 9 key areas were identified as areas of improved practice by more than 50% of the group. Most alumni felt their confidence to treat and refer patients had improved. Between 50% and 70% claimed improvements in their understanding of VCT, when ARVs should be started, monitoring a patient on ARVs and generally in the advice given to patients. Of the main target group of 30 nurses, a higher percentage of respondents indicated improvements in PMTCT, treating opportunistic infections, understanding the regimens and side effects, monitoring and paediatric treatment than in the full 57 alumni.

Other areas where alumni based in ARV initiating clinics indicated an improvement in their practice was down referrals, TB and HIV co-infection, defaulter tracing, working as a multidisciplinary team and better understanding their patients' feelings and emotion. Staff in other settings indicated no additional improvements other than

those anticipated by the course. These results go some way to responding to the first sub question of improving patient care in that some alumni felt that they had improved in a number of areas. However, this is not widespread across the group with les than 50% of the sample alumni reporting an improvement in four key areas. What is clear from this is that self reported improvement in patient care varied from alumni to alumni and can be linked to whether or not the participant was based in an ARV initiating clinic or not.

Although there were mixed levels of response regarding personal improvement, ironically there was more consensus when asked about the clinic they were based in as a whole. Of the 57, 49 (86%) agreed that the training had made their clinics more effective and this was felt across all sites regardless of whether supported or not. Of the two alumni who said that the training hadn't made their clinics more effective, a Zeta based professional nurse indicated that this was due to colleagues still not following the South African ARV guidelines and an auxiliary nurse in Beta claimed that although staff had been trained, they were not allocated tasks effectively post training. Of those who were not sure, 2 gamma pharmacists were not working directly in HIV services and felt they could not comment. One concern was raised by a support staff member in Alpha's ARV clinic regarding the effectiveness of a clinic due to the influx of a large number of new staff who the alumni wasn't sure if they had been trained yet, the comment itself placing a value on training. The dietician from Omega indicated 'not sure' but her comment is positive in that she, 'believed the clinic was effective in treating patients before my training since other colleagues were implementing the same knowledge I experienced as they attended the training long ago.'

The free responses to sections of the questionnaire relating to improved practice and more effective clinics were colour coded, categorized and the number of comments per category noted. Categories in order of most commonly noted included:

1. Adherence to ARVs by patients

Improved understanding of the importance of adherence and support given to patients seemed to cut across all cadres of health care workers unlike other themes. Social workers felt more able to support the lay counselors and patients alike, and nurses of all levels, asserted increased understanding of the disease and the

purpose of ARVs more, and felt better able to counsel and support patients and families. A lay counselor from Omega felt their clinic was better able to deal with defaulters and provide further support and a clerical colleague concurred that patients know how to take their medication correctly. This theme also filtered to those working in wards with comments such as:

> 'Because patients on ARVs are being admitted to the medical ward and they do not leave their medication behind.' Beta Professional Nurse

This implies that not only did positive transfer potentially occur with the target group but that some positive transfer of learning also took place in non target groups and the ability to treat patients was improved. Although not the target group, it would be anticipated by course co-ordinators for ward based staff to discuss HIV with their patients more and ascertain if they know their HIV status, encourage testing if status unknown, establish if ARV or other HIV related medication is being taken and ensure this continues even when admitted. According to the questionnaire data, this does seem to have been occurring post training.

2. Access to clinics and treatment

Several alumni indicated an increase in patients coming to their clinics. Early HIV diagnosis, treatment for TB and access to ARVs were the core services emphasized. This not only was in reference to the clinic as a whole, but also individual alumni having the skills to provide effective treatment and care. An Epsilon doctor described that,

> 'The training empowered us with the necessary knowledge required for treating HIV patients, staging, choosing appropriate regimens, importance of excluding TB.'

A Gamma Professional Nurse based in the HIV clinic concurred when she claimed that,

> 'I solve my clients' problems without referring all the time and maintain privacy and confidentiality.'

Such confidence, concurs with earlier data regarding alumni putting into practice what they learnt but is restricted it seems where this theme is concerned to staff based in ARV initiating sites.

3. Teamwork and clear roles

This is an interesting theme which emerged and links closely to that of quality of care discussed later in section 4.3.5. If there is cohesion within a group of health care workers of different cadres and an understanding of one another's roles and responsibilities then a clinic will run more effectively and thus provide a better quality of care. Much of the discussion around team work was linked to learning from one another, supporting each other by sharing information within a clinic and between an ARV clinic and the wards for example, so team work and understanding within a broader structure. Comments made link a sense of team work and understanding to saving time and a smooth running clinic.

4. Information given

Nurses indicated an increase in knowledge and skills, confidence and ability to provide accurate information to patients. A professional nurse at Zeta felt that the training 'has helped us a lot. One is confident to talk about HIV and answer any question that can be asked by a patient.'

5. Referrals

This links closely to the last three themes and relates to correctly referring patients and only referring when it is necessary and when services cannot be offered at the clinic the patient is currently attending. A Beta professional nurse summed this up:

> 'There is a better, improved flow of good patient management in place – in and out referrals.'

With improved referrals, information, team work between clinics and wards, and access to treatment and care, one could infer from this data that the collective ability to treat patients had improved and that this covered non target groups as well to some extent.

It is important however, to also discuss the small number of comments which suggested that clinics were not running effectively. Most are antitheses of the positive themes described above but it would be an oversight to not include them here. Zeta Professional nurses in particular showed concern regarding effectiveness of adherence messaging. This may indicate that although patients are accessing

ARVs not enough are maintaining adherence to the drugs and defaulting. Adherence is not just the role of lay counselors and whilst these concerns reflect negatively on the Adherence and ARV alumni, adherence is also covered in the HIV care and ARVs course and participants are expected to play a role in supporting patients to adhere. Therefore, positive transfer of adherence learning may not be as wide spread as the earlier data suggested. Several comments were also made by ARV clinic based nurses that not everyone is 'working up clients effectively' before referring. Clinics up referring clients for ARVs are expected to have completed standard laboratory tests on patients, the results of which confirm the need for ARVs and assist in the initial management of the patient. If this is not completed, there are potential delays for the patient impacting on the quality of care. Finally, a couple of comments were made regarding the allocation of work to staff within a clinic. A Beta enrolled nurse commented that her manager does not always utilize staff as effectively as they should particularly if they have been trained. A doctor based at Alpha's HIV clinic had also found the clinic manager unsupportive.

In relation to the main research question and first sub question, therefore there is some data to indicate that positive transfer took place and patient care improved but this is not across all aspects of the course or health care cadres or indeed all clinic settings.

The questionnaire included a set of multiple choice questions (MCQs) covering key areas of the course. There was a relatively poor understanding demonstrated, as table 4.3 below shows. The MCQs outlined below were completed by clinical staff only.

	Multiple choice theme and % of correct responses					
Group	**Starting criteria**	**TB/HIV**	**Viral load**	**Monitoring**	**Side effects**	**Paediatrics**
All	36	27	9	10	30	64
20+ patients	32	29	9	6	24	53
Doctors	66	66	33	0	66	100
Pharmacists	50	0	25	25	25	50
Professional Nurses	32	23	5	9	27	55
Enrolled Nurses	25	50	0	0	25	50

Table 4.3: Correct responses to multiple choice questions

Monitoring and viral load was understood the least across all categories of staff and paediatrics the most understood. This was unchanged when those who see more HIV patients were isolated. The results are disappointing and raise concern over sustained learning. They also contradict the confidence alumni expressed in areas of improvement following the course. Less than 30% of the sample indicated an improvement in paediatric care but more than double that demonstrated an understanding in the MCQs. In antithesis to this, over 60% of alumni reported an increase in the ability to monitor patients on ARVs but only 10% correctly answered a basic monitoring question correctly. There was a similar disconnect between reported understanding of starting ARVs and of ARVs and their side effects and responses to the MCQ, although less contradictory in the latter. Although MCQs are not the most robust of assessment techniques they can provide a marker of understanding. The indication here is that there is a potential disconnect between perceived knowledge and abilities and actual knowledge. If actual knowledge is not what it should be, this will have impact when responding to the main research question of positive transfer. If knowledge and skills hasn't been sustained then what is actually being transferred? If negative transfer is taking place then this implies that patient care is not improving as asked in the first sub question.

4.3.4 Usefulness of training programme content

When asked to rate each session in terms of usefulness, all sessions were found to be either very useful or useful with the Introduction to HIV, and adherence sessions rating on average, the highest amongst participants. This links to the most frequent theme of improved clinic effectiveness as described above.

However, due to the multidisciplined nature of the group, it is important to recognize the difference of opinions across cadres. The following three figures show the different responses to the content from nursing staff, doctors and pharmacists, and non-clinical staff.

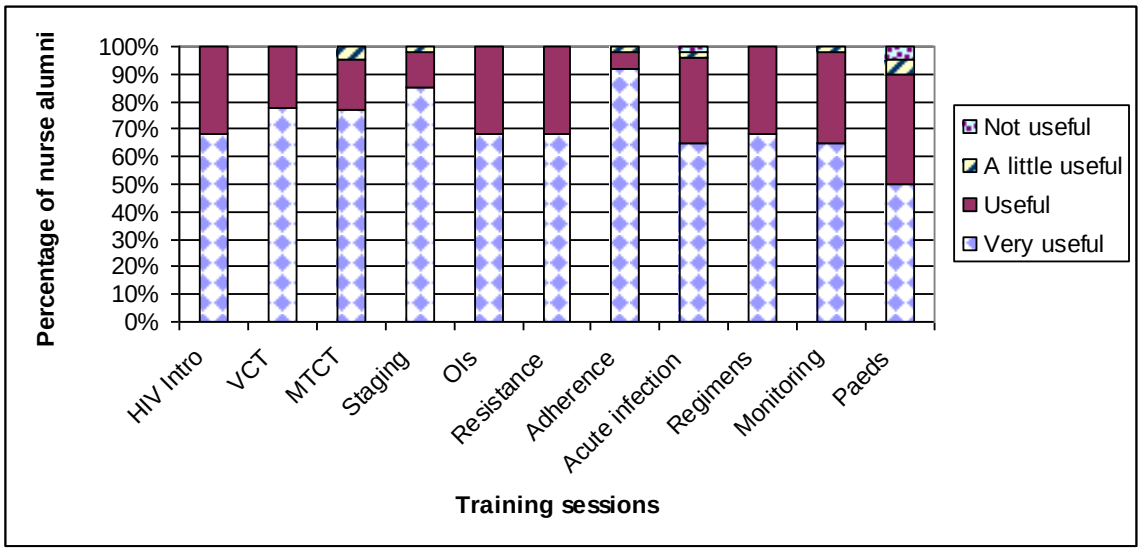

Figure 4.4: Response to sessions in terms of usefulness by professional, enrolled and auxiliary nurses.

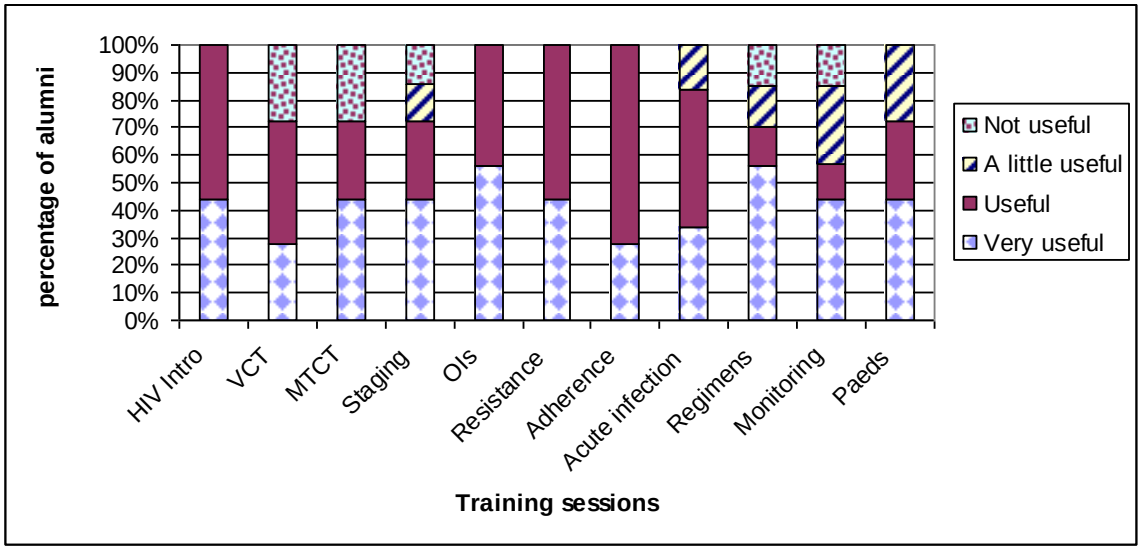

Figure 4.5: Response to sessions in terms of usefulness by doctors and pharmacists

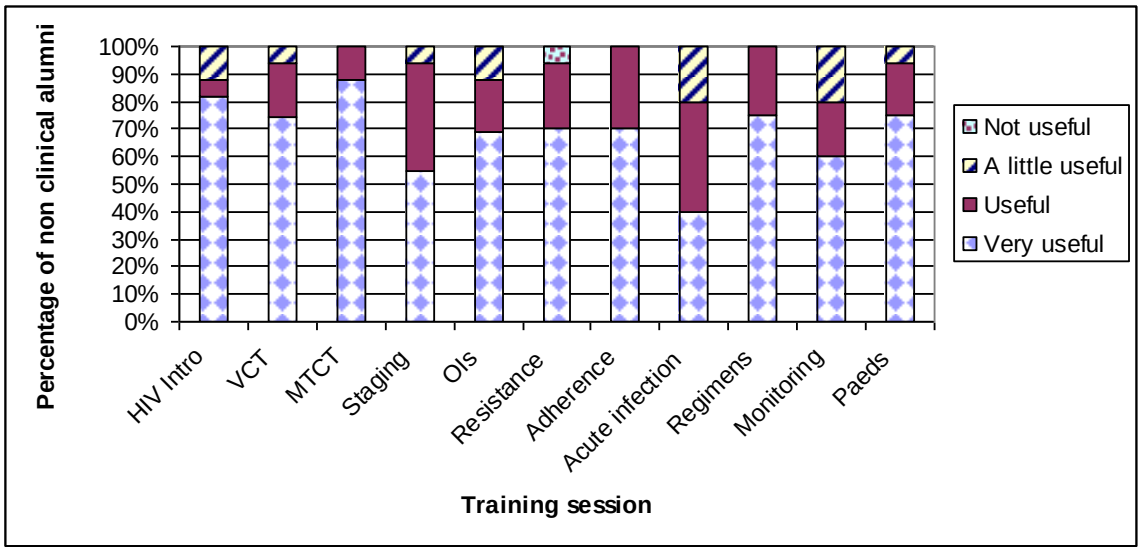

Figure 4.6: Response to sessions in terms of usefulness by non-clinical alumni

As the figures show, doctors and pharmacists found the programme far less useful than other cadres with only between 28% and 58% of the group finding certain sessions very useful and more than 10% of these staff categories feeling that five sessions were not useful at all. Sessions that were deemed very useful included opportunistic infections, regimens and side effects. Adherence, resistance, and the introduction to HIV were also regarded as useful in some way. Interestingly, the non-clinical group found the course almost as useful as nurses but for different reasons with between 40% and 85% finding sessions very useful depending on the topic. Between 50% and 90% of nurses indicated that sessions were very useful. Nurses indicated that VCT, staging and adherence were the most useful, followed by regimens, opportunistic infections, resistance and HIV introduction with paediatrics the least useful. Their non-clinical counterparts felt that the prevention of mother-to-child transmission the most useful and acute infection the least useful.

In response to the second sub question of usefulness, the responses do indicate that the course was useful but this varied across cadres and topics. As the above data shows, nurses found the course far more useful across more topics than doctors and pharmacists. It is interesting that the introduction to HIV and adherence rank so high amongst participants. These are, although the most basic of sessions on the course, often the most universal to any health care worker. Paediatrics and monitoring patients on ARVs are not practiced by all participants so it is not surprising that they are rated the lowest.

The response to being trained in a multidisciplinary group was mixed. 33% felt that it was great and a further 35% felt that it was OK. Of these two responses all were nurses and lay staff with only one doctor indicating that it was OK to be trained in a multidisciplinary group. 16 (28%) out of the 57 health care workers from the HIV care and ARVs course felt that it was OK to be trained together for some but not all parts of the course and 3.5% (n=2) felt that it was not good at all to be trained together. The latter were an Omega doctor and a Gamma pharmacist. Those who only felt that it was OK for some parts were a mixed group of professions across all of the sites except Epsilon. The pharmacists all indicated that being trained as a mixed group was not useful for them and found the content of the course less useful than other participants. As the training is targeted at nurses it is not surprising that nurses

are more content to be trained with others than other cadres who are in a minority with more specific learning needs.

4.3.5 Value of training to participants

The training was of value to the vast majority of the sample group with 52 out of 57 (92%) indicating a personal positive significance. Of the five who indicated that they were not sure if the courses had been of value, one, a doctor from Alpha indicated that he has been working in ARVs for a number of years and saw the course as a refresher rather than new information. At the other end of the spectrum, an Omega administrator attending the HIV care and ARVs course felt it was too clinical for their needs. The remaining three had yet to be given the opportunity to put their learning into practice being based in, for example, out patient departments and pharmacies. All professional, enrolled and auxiliary nurses working directly with HIV patients and those indirectly in wards or outpatient departments found the course to be of value as did all clerks, social workers, default tracers, managers and lay counselors and were distributed across all sites. Therefore there is an indication through the questionnaire responses that the final sub question of value has a positive response. Indeed there appears to be a more homogenous response to this than of usefulness. However, although a large percentage reported to have found the course of value, the reasons for this varied.

From free responses relating to this question, themes emerged from colour coding, categorizing and noting the frequency of responses per category. These themes included in order of most common:

1. Quality of care

Knowledge of issues relating to HIV, leading to increased quality of care which involves spending more time with patients, asking more questions about their situations places health care workers in a position to provide more advice and guidance depending on whether they are suspected of HIV or require further treatment. For the professional staff attending the HIV Care and ARVs course, participants felt more able to attend to the patients holistically and as part of a family rather than on a singular basis. There was a general sense of health care workers in ARV clinics particularly understanding their roles and tasks within that clinic.

> ‘Post training I am able to deliver quality nursing care …I am able to deal with the disease as an individual in the clinic on a daily basis.’ Professional Nurse Zeta

2. HIV/ARV Treatment

Confidence in treating patients after the training was expressed from a number of professions. This included not only prescribing ARVs but also assessing patients according to WHO staging and South African guidelines and treating the opportunistic infection, understanding the disease more, and being able to monitor patients once on treatment to effectively pick up side effects to the medication.

Professional nurses in particular felt able to manage patients but on varying levels from being able to stage and refer to the bold statement of ‘I can manage any HIV patient, even children’ from Omega’s Professional Nurse/Manager. Other cadres of health care workers supported this positivity:

> ‘The training gave me sufficient knowledge and confidence of running an HIV clinic, ARV regimens and monitoring patients.’ Doctor, Epsilon

3. Improved knowledge

Almost all of the participants who valued the training, commented on an increase in knowledge and skills in one or more areas. This increase in knowledge is strongly linked to the confidence expressed in feedback relating to the first two themes of quality of care and treatment. Feeling more knowledgeable following the training, health care workers reported that they were able to better respond to concerns and questions from patients and function more effectively within their clinics. This was reported by not only those directly treating HIV patients but also by other clinical staff and cadres such as defaulter tracers and social workers.

> ‘I had limited knowledge. This made it difficult for me to support and assist patients and be a functioning member of the team. The training assisted to be able to understand ART so that I cold effectively support.’ Social worker, Zeta

Although an Alpha based Doctor was highly experienced at the time of attending the training in 2008, others who attending the course in 2004 and 2005 found it a

valuable learning experience particularly as the drugs were new to the public sector and until that point few clinicians had experience of managing patients on ARVs.

> ‘It was informative and empowering to me as it was the first time that the ART roll out took place.’ Doctor, Omega.

4. Increased HIV Testing

Professional nurses made more comments regarding their increased role in HIV testing than other cadres but this was limited to those directly working in HIV services. This spanned both adult and paediatric testing and from the comments is strongly related to theme one, quality of care and theme three, increased knowledge. This increase in awareness of the importance of HIV testing, the gateway to treatment and care, is best summarized by the following two insights:

> ‘I am now able to stage the patient from the stages done during the course and am able to encourage clients to do [an] HIV test from the history taking.’ Professional Nurse, Zeta

> ‘I am able to advise and refer correctly where there is a need e.g. the mother is positive and the baby not yet tested with PCR.’ Professional Nurse, Zeta

5. Management and planning

Although the aim of the courses did not include management issues, by virtue of the clinical information given and ideas discussed, several participants indicated that the course did assist with their planning particularly prior to the accreditation of their clinic as an ARV initiation site.

> ‘It was a year when ARV clinics started to operate and [the training] assisted in planning, organizing the site and how to educate clients.’ Manager, Omega

This was agreed with by dietician at Omega, Zeta’s manager and an Epsilon doctor.

What came out from these themes is that staff based in ARV initiation sites contributed comments leading to all five themes whereas those in wards and out patient departments had less variety in their responses and valued the training more due to increase in their knowledge. It is not clear from this and when linked with

responses to other key questions such as improved practice if indeed there were high levels of positive transfer in this group.

4.3.6 Manager Interviews

As table 1 shows, managers of all HIV clinics were interviewed with the exception of Beta. Of this group of five, four had participated in the HIV Care and ARVs course and completed the questionnaire. The managers participated in a semi structured interview in which they shared their opinions on the courses, and issues such as team members who benefited most, the impact the training had on service provision and other learning needs. HIV clinics at Alpha, Gamma and Omega have on-site support from heavily funded NGO's, one at each clinic. HIV Clinics at Epsilon and Zeta have no additional capacity building beyond formal courses. As line managers for alumni based in ARV initiating sites, most of their comments are directed towards this group. However, as clinic managers they are also in a position to comment to an extent on staff in other wards and clinics in their relationship to the ARV clinic but less so in terms of the day to day activities of staff in those settings. This bias must be borne in mind when reviewing the data.

4.3.6.1 Transferring knowledge to workplace

In terms of the cadres of health care workers who mangers felt benefited most from the training the response was unanimous. All felt that nurses of all levels gained the most from the course. Epsilon's manager described how her professional nurses are now staging patients and referring appropriately and how 'enrolled nurses can identify patients who are critically ill whilst taking vital signs.' Two managers also included their doctors in this discussion one because their doctor got a new post after the course and the other as the doctor knew what she was doing on her return to the clinic. One of the clinic managers also felt that the pharmacists and dietician benefited from the course. Clerks were also mentioned in this part of the discussion for different reasons. Some clerks returned to their clinics with more confidence and as Gamma's manager emphasised, 'know they are in the front line and must not do damage and have an interest and knowledge of HIV.' Other managers felt the course was too clinical for this group.

These comments indicate that positive transfer did take place particularly for the main target group of nurses in ARV sites and to some extent in other cadres. This

reinforces the self reported positive transfer of learning amongst ARV initiating site based alumni in section 4.3.5.1.

4.3.6.2 Improved ability to treat patients

Themes that appeared in the discussions regarding impact on services and changes in the way people worked included confidence; clinical ability; clear roles and improved relationships with other clinics, wards and facilities. All of these other than the latter echo those themes identified in the health care workers' responses to the questionnaire.

Prior to being trained, managers indicated that doctors often had to consult with senior doctors in other facilities whereas after the course Alpha's manager claimed that 'our doctors and nurses can initiate treatment on their own.' The managers all felt that nurses are implementing what they had learnt from enrolled nurses in ARV clinics picking up on sick patients queuing and fast tracking them to nurses in a wellness clinic staging patients effectively, identifying patients who are clinically stage four and therefore eligible for ARVs and referring them to the ARV clinic. This latter observed improvement is useful as it extends improved ability to those not working in the ARV site and specifically draws attention to improved case finding and correct referral of HIV positive patients.

Two of the managers actively observed team members after the course. Epsilon's manager was very positive: 'Every morning in health talks I would listen and they knew their stuff.' This echoes the high percentage of alumni reporting improved confidence regarding HIV care in the questionnaire. Patient confidence as well as team confidence was mentioned by three of the managers demonstrated in a reluctance to be down referred to a more local clinic once they became stable on ARVs.

Monitoring once on ARVs was identified by three of the five managers as an area of improved practice. Staff were seen to be working differently as they are now familiar with the monitoring process according to the managers. As the manager of Epsilon's ARV clinic put it, 'If a patient is on ARVs for 6 months we do viral load and CD4, if they are on Nivirapine, the nurses know to do ALT at three months. They know the facts.' This agrees with the 60% plus alumni who felt it was an area of improvement

but contrary to the alumni responses in that monitoring was reported as one of least useful sessions of the course and a very low percentage of alumni answered the monitoring multiple choice question correctly.

Managing side effects were included by the managers as an area of improvement and change. Staff are, according to managers, picking up lactic acidosis and know which tests to request and how to manage the patient. Four of the five were advising colleagues in wards when ARV patients were admitted regarding side effects. The manager of Gamma indicated that since August 06 they are moving more towards mixed regimens. 'With lipodystrophy and peripheral neuropathy, we are changing D4T to AZT and the doctors are confident in this and the nurses know how to monitor once they are on AZT with the Hb tests.' This indicates a more advanced level of care and understanding of HIV from the NGO supported site. However, less than 50% of alumni felt that they had improved in managing side effects so transferring this learning into practice is far from universal.

Although not managers of the staff from the wards who attended the course, the managers of Alpha, Epsilon, Gamma and Omega HIV clinics reported a far better understanding of the disease amongst ward based colleagues. This has lead, they felt, to stronger relationships within hospital and clinic structures. Patients are treated differently in wards, they believed, with patients being asked about medication and a greater understanding of adherence to ARVs amongst health care workers not directly working with HIV. This has, according to the managers, assisted with case finding and picking up more HIV positive cases in the wards, including paediatrics.

All managers interviewed expressed a strengthening of relationships within hospitals and clinics and within referring structures. Communication with wards on the whole was reported to have improved and a sense that patients were treated differently.

As Omega's manager described:

> 'I feel the change. If a patient is admitted on ARVs, [the ward] phone and let us know. They understand the treatment and ask the patient where it is and if they don't have it with them, why. We previously had problems with the wards but now they understand – the same time every day.'

More joint meetings were held and referrals improved. Gamma reported a substantial increase in HIV information from other parts of the hospital following the course which has lead to the ARV clinic providing regular talks to colleagues in other clinics and wards. 'The course was a catalyst. We provide in-service every Monday for two hours. There are lots of questions. People don't want to leave!' Omega also run in-service training which is open to staff beyond the ARV clinic where cases are discussed. In-service and on going training of one another was a common feature with incumbent staff training new team members.

However, for Epsilon, cooperation from wards wasn't always consistent and didn't always make the ARV clinic aware that an HIV positive patient had been admitted. The manager indicated that there was a correlation between attitude of ward staff and participating in the course. She indicated that all ward based staff should be trained and that she is in the process of developing a simple checklist for wards regarding admissions and HIV.

Again, data from the different sites is not consistent and although managers concurred that practice had improved as a result of the training for their staff, positively responding to the main research question and first two sub questions, opinions differed regarding staff in other parts of the hospital. There also appears to be a stronger link to and improved relations with wards when the ARV site has additional support from an NGO.

4.3.6.3 Value of course to managers

In general all managers were very positive about the course. This was regardless of whether they had attended or not. The managers found the course to be very useful with all sections well presented. All were very new to ARVs and as Epsilon's manager put it, 'lamivudine! I never thought I'd be able to say it!'

The Gamma manager who didn't attend the training herself saw the usefulness of it.

> 'The training had impact. Attitude was the number one change. Attitude towards the HIV patients. Now we know exactly what we are doing.'

The timing of attending the course was mentioned by two of the managers. One attended whilst she was in the process of establishing an ARV clinic and felt that it

assisted her with the planning process and understanding the clinical aspects her team would have to engage in.

When asked about feedback from their teams following attendance of the course again the response was positive. Participants reported to their managers that they had learnt a lot, that the training was great but a lot of work. On the whole the managers reported that team members returned happy and positive. Gamma's manager indicated that before the course there was little interest in attending 'but now they want more.' There was also a sense that health care workers from other departments and wards were more interested following the course and contacted the ARV clinics for more information. However, feedback wasn't completely positive. A social worker reported that the course was boring as it covered mainly clinical issues which were beyond her interest and understanding. This was echoed by some clerks who felt that as they weren't doctors seeing patients they didn't need to be trained. At the other end of the spectrum several doctors reported that it wasn't enough information, was too short and they wanted more in depth training regarding HIV and ARVs.

Managers felt the training was useful to them to a certain extent but perhaps was too long and clinical. Several suggested that clerks and data capturers are trained separately according to their needs neither with the clinical staff or counsellors. The manager of Zeta indicated that the pharmacy assistant really benefited as they now understand the regimens and the drugs.

This reinforces the feedback given from participants on the course usefulness and value in that those outside of the target group at either end of the clinical knowledge spectrum gained less from the course than nurses. So although there are layers of data to suggest that the course was of value to participants, the level of this is dependent on the scope of practice, role within the clinic and type of service offered..

4.3.7 Observations

Two health care workers, a doctor and an enrolled nurse based in the ARV clinic at Epsilon, were observed. The illuminative observation tool was used for this purpose with semi structured member check interview afterwards plus questions for the observee on areas of the curriculum they did not have the opportunity to demonstrate

during the observation. Both observees attended the HIV care and ARVs in November 2005. This clinic receives no additional support from e.g. an NGO or academic unit. The clinic doesn't stratify patients on different days e.g. certain days for stable patients, others for new patients or families etc. All are given appointments across the week so each clinic day can be varied. However, this variety is usual so the day the two volunteers were observed was no different from other days. The observations took place on the same day in the morning when the clinic was at its busiest. Once all patients have been seen, the volunteers are usually involved in meetings with the team and manager and in-service training. The doctor follows up on blood results and is involved in ward rounds. The enrolled nurse assists with administrative tasks. Both volunteers were observed once for a period of approximately two hours. The observations were then documented and inductively assessed resulting in key areas for discussion here. The observations were also checked against the objectives of the HIV Care and ARVs course.

4.3.7.1 Doctor observation

4.3.7.1.1 Themes

During the observation, the doctor (D) saw ten patients varying from five minutes to 25 minutes in consultation time. From the illuminative evaluation notes, themes emerged from colour coding, categorizing and noting the frequency of responses per category. Themes which emerged from the observation are as follows:

1. Administration

Whilst it is normal for Doctors to write transfer notes as in the case of patient 2, there were a number of other administrative related issues which D had to deal with. Patient 1 arrived in the consulting room without their file and patient 5 does not have the results required for the consultation and has to collect from the nurse before coming back to the doctor. In both of these cases no further consultation took place at that time.

2. ARV related issues

With seven of the patients, D was given an opportunity to demonstrate understanding of ARV related issues such as side effects to the ARVs, immune reconstitution syndrome, monitoring whilst on ARVs and resistance to the drugs.

Five consultations dealt with side effects and included positively checking and re checking for side effects and issues that would require treatment such as patients 2 and 4. Patient 2 gives no treatment problems initially but a short follow up question later in the consultation of 'do you sometimes feel sick?' picked up sore feet or peripheral neuropathy that can be treated and if not picked up can lead to poor adherence. There were however, missed opportunities as again this was not carried out with all patients and some received minimal probing such as patient 7 who is only asked one question regarding their treatment. Patient 8 provided the opportunity for D to demonstrate understanding of nivirapine related side effects and the monitoring required in addition to the physical symptoms. However, D dismisses one side effect as 'not so bad' when it should have actually signaled alarm bells for the potentially life threatening Stephen Johnson's disease. Patient 6, a male, had already experienced the permanent side effect to D4T of breast enlargement before treatment was changed and enquired in the observed consultation about treatment for this enlargement. There was little engagement with the issue from D and incorrect information given regarding the lessening of the side effect.

Three patient consultations included discussion on CD4 cell count and viral loads from enquiring where the tests had taken place such as patient 2, to a more detailed discussion with the patient as in patient 10. However, with patient 10, D is incorrect as the change in viral load could actually happen and may not be a laboratory error. D does not discuss adherence with the patient who could be failing treatment.

Patient 4 provided D with the opportunity to demonstrate understanding of immune reconstitution syndrome from explaining what is clearly to the patient as mentioned earlier to its diagnosis:

> 'Still TB can present that way, I think it will be better to test and know what is going on.'

Resistance was also covered with one patient only, patient 9 where results of previous resistance testing is shared with the patient and links to the next theme which emerged in the observation.

3. Adherence

Issues relating to adherence were also covered with patient 3. This patient missed an earlier appointment and although she explains this was due to lack of transport

funds in the family and that they still had treatment, D refers the patient for more adherence counseling which may involve more frequent visits to the hospital, exacerbating the transport funds issue. Patient 7 experienced early side effects to the ARVs and yet no discussion as to how this affected her adherence takes place. After establishing the lack of resistance with patient 9, D then moves on to check the amount of medication the patient still has left. However, beyond being told the numbers of tablets left there is no further discussion regarding the difference in the number of remaining tablets or possible barriers to adherence. As mentioned earlier, adherence was missed in the consultation with patient 10.

4. Paediatric HIV

Patient 3 presented with her child who had breathing difficulty and a fever. On examination, D diagnosed flu. Although willing to work with the whole family, there was no opportunity to demonstrate a working knowledge of paediatric HIV care. There was no discussion of the child's HIV status or management beyond the symptomatic treatment of flu or discussion with patient 10 regarding her four month old HIV exposed baby.

5. Consistency

All of the patients were treated differently in that none were asked the full spectrum of routine questions and D reacted to the main thing presented. Patient 3, the mother of the child being treated was not asked anything about her health beyond reasons for not attending the appointment. Patient 7, in the early stages of ARV initiation was not examined thoroughly. No physical examination took place even basics such as mouth and heart. Comments regarding side effects were not followed up e.g. how often did the patient feel like vomiting. Other patients not asked about family members and their status such as partners and children. Only three patients were physically examined. A major omission from the consultation with patient 8 was a pregnancy test. The patient complains of not menstruating for a month and so ruling out pregnancy should be factored into the discussion. For reasons which are not clear, D sends the patient for x-rays which are contraindicated in pregnancy and gives incorrect information regarding the reason for lack of menstruation.

4.3.7.1.2 Matching with course objectives

The ten main objectives from the HIV care and ARVs course are:

1. Understand the history and pathogenesis of HIV.
2. Understand the goals of and the process around VCT including new discussions in VCT.
3. Be able to explain MTCT to expectant mothers.
4. Be able to stage patients (adults and children), identify and treat opportunistic infections.
5. Understand what ARVs are and how they work.
6. Know when to start ARV therapy for adults and children.
7. Understand resistance and be able to explain to patients the importance of adhering to their medication.
8. Know what the regimens are in the state programme and the side effects of each drug
9. Be able to monitor patients and know which bloods are to be taken and when for adults and children
10. Understand and be able to diagnose and treat IRIS (Immune reconstitution syndrome)

D touched on several of these within the patient consultations observed namely 1, 5, 6, 7, 8, 9 and 10 although many of these were only superficially demonstrated. Opportunity presented itself in patient 3 to demonstrate paediatric HIV care and MTCT but this didn't happen. Patient 10 also gave the opportunity to demonstrate PMTCT but other than asking the patient of feeding choice for her baby there was no reference to the status of the child or management thereof. However, in the discussion that took place with the observer after the patient had left, D indicated a reasonable working knowledge of prevention of mother-to-child transmission of HIV.

> 'The child had been given Nivirapine but tested positive at six weeks – with a PCR, yes.'

The observations didn't provide opportunity to demonstrate staging or HIV testing, however, when asked about the former, D was able to indicate the clinical staging of patients 4, 7 and 8 prior to ARV initiation. With regards to HIV testing, D indicated that she assists with HIV case finding in the wards but missed opportunities with her existing patients' families.

The six multiple choice questions at the end of the questionnaire echo six key areas of the course objectives. D responded correctly to five of the six and demonstrated

knowledge of starting criteria for ARVs, TB/HIV co-infection, purpose of the viral load test, side effects and paediatrics. Monitoring was answered incorrectly.

From this data, positive transfer of learning was demonstrated but only to a limited extent. Although the doctor scored 83% in the knowledge assessment, and indicated other positive responses in the questionnaire, this was not translated into the levels of improved practice expected. A lack of consistency with patients with no systematic history taking or examination leads to missed opportunities and a sub standard quality of care for most. 10 patients in two hours is sufficiently small to warrant a better quality of service per client. At the time of observation the doctor is providing an unstructured, superficial level of care to patients merely covering the basics.

4.3.7.2 Enrolled nurse observation

In the post observation member check interview, the enrolled nurse (EN) confirmed the day as typical in the duties performed and the busy nature of the clinic and described her main role in the clinic as controlling the queue, 'look for critical patients, give them oxygen if needed and take them to the doctor as priority.' The observation included both triaging and counseling with only one patient out of three agreeing for the observer to remain during the counseling session.

4.3.7.2.1 Themes

Themes which emerged from the observation included:

1. Patient triage

EN spends the first part of the observation interacting with patients in the waiting room, checking their files and directing them either to the scale queue for weighing or to the doctor's queue. This included pushing wheelchair bound patients herself to the correct areas. A shorter length of time was spent weighing some of the patients in the queue and documenting the results in each file. EN was performing a similar balance of tasks for the two hours before the observation. As was seen from the doctor's consultation with patient 5, the triaging was not completed effectively for all patients.

2. Communication

During this initial period, communication is positive with clear questions, directions and pleasantries such as ‘Paul, you are here and didn’t even come to say hello.’ However, when EN is requested to help with the queue of patients waiting for counselling this changes to a mix of both positive and negative communication and begins with [rolling her eyes]’Unfortunately I have to go assist with counselling.’
In the one counseling session which the observer was given consent to remain for, a mother has brought her son, who is in his thirties, to the clinic. EN begins positively by explaining the situation of short staff and that they may not see her next time. However, all communication is directed to the mother rather than the patient who sits quietly in his wheel chair for the entire counseling session and is by and large ignored by EN. For example the mother is asked ‘Have you heard of ARVs before?’, ‘When did you know of his status?’ The counselling ends in clear direction to the patient as to what will happen next and who he must see.

> “Ok please do not hesitate to ask if anything pops out. From here you will go to the Dietician from there you must go to the social worker then to the pharmacist to collect your Vitamins Ok?”

The bulk of the counseling session will be discussed in the two following themes.

3. Adherence counseling

EN follows the early stages of adherence counselling by taking some history covering issues such as when the patient’s mother knew his status, his mobility and treatment support. However, in asking if the patient’s mother has heard of ARV before there is no checking what this understanding is before giving information. EN tells the mother and son that ARVs are introduced when the CD4 is less than 200. Although this is correct, she omits the other criteria for starting ARVs i.e. clinical staging. She then asks about drinking and smoking but touches on no other lifestyle aspects or routine of the patient and incorrectly states ‘when taking these pills you have to change your lifestyle altogether.’ EN also covers the importance of taking medication on time, and that ‘ARVs are like a map that you must follow,’ she then adds the caution regarding treatment failure or resistance without covering it in detail but merely stating, ‘and if you don’t follow the map correctly you will be lost.’ This is a vague explanation of the process and could put the patient off taking ARVs. EN did not check with the patient

to see if they understood what has been said but does asks if they have any questions and is happy with nods from the patient.

4. ARV knowledge

As mentioned earlier, EN understands part of the starting criteria for ARVs and that the lifelong treatment must be taken at the same time and the same dose everyday. Therefore an understanding of the fundamentals is demonstrated.

In discussing the side effects, EN again shows an understanding by indicating that 'not everyone will experience these side effects.' By correctly answering questions regarding when the patient will start therapy and the process he will go through from dietician to social worker, EN appears clear about the journey a patient takes before ARV initiation. In the member check interview following observation, EN added clinical staging to the criteria for starting and was able to name some stage 4 illnesses. EN also indicated the drugs in each regimen and the policy for PMTCT. Understanding of resistance and IRIS was limited but this is to be expected from an enrolled nurse.

4.3.7.2.2 Matching with the course objectives

Referring to the course objectives listed earlier, EN demonstrated very few during the observation. There was a fundamental description of ARVs and adherence as well as starting criteria covering partly objectives 5, 6 and 7 but there were concerning gaps. In the interview that followed the observation, EN indicated knowledge of HIV, testing and PMTCT so objectives 1, 2, and 3 are met. However, objectives 4 and 8 were only partly internalized and EN wasn't as familiar with the other stages of HIV progression as stage 4 and had an elementary understanding of side effects. Objectives 9 and 10 were not demonstrated either in observation or interview.

In answering the MCQs EN selected only one correct answer which was related to paediatric HIV care. Questions regarding the starting criteria for ARVs, TB/HIV co-infection, purpose of the viral load test, side effects and monitoring were answered incorrectly indicating that EN did not retain the knowledge acquired on the course. With EN, therefore there is little positive transfer of learning or improved practice, regardless of how useful she felt the course was.

4.3.8 Summary

In response to the main and first sub research question, there appears to be some level of consistency in the data from the questionnaires and manager interviews. Transfer of learning does seem to have taken place but to varying degrees with more advantageous use of learning in the target group of nurses and doctors in ARV sites. Although targeted at staff, predominantly nurses in ARV initiating clinics, the DoH mobilised participants from all areas of hospitals and clinics with a 'one size fits all' approach. There are indications that other staff in ARV sites have lesser degrees of transfer related predominantly to scope of practice. Naturally, one would not expect a clerk or data capturer to stage a patient or prescribe treatment, although one would hope some less obvious positive transfer through a greater understanding of the care and treatment patients in their clinics experience. Regarding auxiliary nurses, much of the content of the course is beyond their scope of practice. Even if they understand all of the content and are eager to put into practice what they have learnt, they are legally unable to perform certain tasks.

Of particular concern are the comments made regarding the allocation of work to staff within a clinic. Managers according to some alumni's questionnaires are not always utilizing staff as effectively as they should particularly if they have been trained. This links to quality of care. For this to occur, most health care workers should be working at the top of their scope of practice leaving tasks at the bottom end for the health care worker less qualified. If nurses are not, for example, allowed by their managers to put into practice important skills such as staging patients then too much will fall to the cadre of health care workers of which there are least, namely doctors.

Whilst it is clear that full positive transfer would not be expected from all alumni, this data regarding unsupportive managers suggests that full positive transfer was also not attained by all within the key target group.

Variances come into play regarding improved patient care with more improvements emerging from ARV or HIV based services than ward based services. Although wards in hospitals where the ARV clinic is supported by an external NGO appear to have connected the course learning with practice more meaningfully. Ward based staff appear to have increased in confidence and knowledge, particularly regarding adherence but engaged far less with the course as most involved in the study felt that

they were not treating HIV patients. This frequent response indicates that those not directly staging or treating patients with ARVs did not see the entire course as relevant to them due to the nature of their work. Indeed, the course curriculum includes for example the ARV regimens, doses, side effects and how to manage these side effects. This is far less relevant to ward based staff than to those actually initiating patients on ARVs. As with the pharmacists working in the outpatients department, the time out of clinics and wards for this group was not maximised.

However, the observation data does not concur with the above argument regarding ARV clinic based clinical staff and there appears to be limited transfer of learning in both observees with patchy demonstrated knowledge and inconsistency leading to sub optimal patient care during the time observed. Two consultations could have been avoided if the clerk had performed their role as in patient 1 and the EN had triaged patient 5 properly and added results to the patient's file. Although short, these consultations took time away from other consultations where a better level of care could have been provided. This is more of a systemic, performance management issue and speaks to the manager's role within the clinic once again. It may be interesting to note that both observees were based in a clinic without additional support from an NGO. It is also important to note that the number of volunteers for observation was disappointingly low compared to the total number of participants involved in the study and a very small percentage of the 5,500 health care workers trained on the course over the period in question.

Regarding the second and third sub research questions pertaining to value and usefulness of the training, there was a very positive response. However, this varied considerably with higher level clinical staff finding the course far less useful than nursing and support staff. The course was valued more and for more varied reasons by staff based in ARV providing sites than ward based staff and there were differences of opinions on value again depending on the profession and scope of work. Paediatrics and monitoring patients on ARVs are not practiced by all participants so it is not surprising that they are rated the lowest. Although pharmacists may understand the content of the course, if they have little opportunity to put what they have learnt into practice due to their location within a hospital, then time away from their work is wasted. What is of concern is the lack of selection of

appropriate participants for the course. Although trained, some have absolutely no opportunity to put into practice what they have learned due to their role.
Should these pharmacists ever move to a different pharmacy which does involve HIV patients they will possibly require retraining which is not a good use of resources.

The data suggests that transfer of learning and improved patient care has taken place at some level with most alumni but is strongest in nursing staff based in ARV initiating sites. This cadre found the course most useful and placed more value on it than others. As the target group for this course this is to be expected.

5 Discussion and recommendations

From the results, it is clear that transfer did occur in both groups of alumni but was varied for most participants, particularly those who participated in the HIV Care and ARVs course. This relates to much of the recent literature regarding the definition of transfer in that it is not just a case of positive change following a learning activity but the extent of this positive change. It is important to understand the reasons for ranges in extent of transfer within groups who have participated in the same courses. There appeared to be a higher level of transfer within the alumni for the ARVs and Adherence course and although this is a smaller sample group, assessing the reasons why higher levels of transfer took place may assist in understanding the wider variances of transfer amongst the HIV Care and ARVs alumni.

To this end, the results will be viewed through the lens of the Holton model (1996 in Yamnill and Mclean, 2001) and the relating theories for transfer design, motivation for transfer and transfer climate as discussed in 2.2.

Before each factor is discussed, however, it is important to recognize Laker's (1990) temporal dimension concept and how this imprints on the evaluation results. The alumni participating in the evaluation cover a large period of time from over four years since attending the course to a matter of months. This raises the question of where each health care worker is in terms of transfer initiation or maintenance, or where they are on Schon's (1983) reflection spiral, if at all. With such a mixed group in so many aspects, can there be confidence in the results when they have been treated so homogenously within the evaluation? Some participants may have spent long period of time in the initiation phase and others moved swiftly into transfer maintenance. Their response to the evaluation may be heavily influenced by their transfer 'location' and time spent in one or both processes, and so the question of confidence is an important one and should be borne in mind when concluding.

Issues of transfer initiation and maintenance are surfaced to some extent in the results. With adherence training, managers on the whole felt hat counsellors had immediate results, initiation, but that there was room for improvement so clearly the shift into the maintenance phase needs further attention. Whether the call from managers for further training for this cadre is due to a lack of maintenance support

after the transfer initiation flurry or if it indicates a lack of support even in this early phase is not clear from the results. With the HIV care and ARVs course, both observees were trained three years before being observed leaning plenty of time for each to have reached the maintenance phase and have moved through many action reflection spirals. From their observations, neither of these processes is evident. Perhaps they did well during their transfer initiation phase but due to a lack of support or sheer volume of patients, experienced a lapse in transfer. Or, more pessimistically, did they never move beyond the initiation phase and are still, three years down the line, in a state of muddle? As participants were not evaluated in structured timed stages following participation in the course, these are all hypotheses that would need further investigation.

In terms of transfer design, it is clear from theorists that the appropriate theory of transfer must be used if transfer is to occur at any level. As outlined in 1.1, the two courses were designed according to identical elements theory in that the changes in practice expected by the key target participants were used to guide the content. Although there was planning for transfer to some extent no actual theory of transfer was consciously identified and followed. The training therefore was designed according to near transfer principles particularly for clinical staff in ARV clinics especially professional nurses on the HIV care and ARVs course, and lay counselors on the ARVs and adherence course. The objectives, content and activities were based on the roles of these most common health care workers within an ARV care context. For all participants though, the content of both courses is near transfer as it is based in health care practice for health care workers, but this is relative depending on the participant's profession and working context.

As Perkins and Salomon (1994) identified there are shades of grey between near and far transfer. Whilst none of the cadres would be considered as engaging with the training content from a far transfer perspective, there is definitely a spectrum from those who are closer to the objectives and content to those who are less close which would have impact on transfer.

The ARVs and Adherence course alumni probably has the smallest spectrum with all participants involved in the evaluation based in an ARV clinic and the majority representing the key target group. Other participants such as the nursing staff and

pharmacy assistant would be expected to provide adherence counseling at some level with only one alumnus, the data capturer, being the furthest away from the core objectives in terms of expected outcomes. The course was found to be practical in its approach and easy to put into practice with all alumni stating that the course helped them on their return to their clinic. This links to the transfer design whether intentional or not, in that there were higher levels of near transfer for this group. This may be as this was a more homogenous group as all alumni were based in ARV clinics.

With the HIV care and ARVs course, however, there is a larger gap between those who are nearest to the course objectives and those who are furthest away. This sliding scale begins with professional nurses and doctors in ARV clinics who would be expected to connect with all the course objectives. Next would be the pharmacists, enrolled and auxiliary nurses based in ARV clinics who although not expected to practice all outcomes, would be expected to fulfill them according to their scope of practice with an understanding of the other elements carried out by colleagues. The course is a clinical one so next along the scale would be the clinical staff in non ARV settings such as the wards and outpatients department. Some sessions such as HIV information sessions plus testing and adherence objectives are easily transferred to their context whereas others such as opportunistic infections, the drug regimens and side effects are useful but may need an element of abstraction to transfer effectively into their context. This may not be as near transfer as is ideal but it is still a long way from the theory of transfer by principles or far transfer.

The non clinical staff at ARV sites are an interesting group in terms of the sliding scale of proximity to the learning objectives and thus near transfer. As non clinicians, many of the objectives are not relevant at all and way beyond their scope of practice. The information gained on the course, would be just that: information with little practical application. Having a better understanding of HIV and its treatment is useful but much of the course is either difficult for a non clinician to absorb or for them to extract what is relevant and could be useful with some abstraction. For example, the course does not include objectives relating to nutrition and HIV, yet dieticians attended. There may have been aspects in the side effects of ARVs and opportunistic infections which relate to weight loss but these aspects are small compared to the details provided on the full course and much of their time as the

result indicted was wasted. Even if the non clinicians fully understood the information shared and responded positively to the assessments during training, knowing does not necessarily translate into doing if it is not your job to do. Therefore, many of the non clinical group are the furthest away from the course objectives and as such would be the least likely to transfer the learning into changed practice.

As described in 1.1, the participants began as the multidisciplinary group from ARV clinics but slowly expanded over time to include a broad range of health care worker. Granted, they were badly mobilized and facilitators did not know the make up of each group before they arrived, but the training objectives were not adapted over this time period to compensate for mixed groups. The content and cases remained close to what the clinical staff in ARV sites would experience, which brings the discussion to the important aspect of similarity.

At three days, the courses were too short to provide enough similarity for even those participants who were with very near transfer. There was not enough time to provide enough examples of every possible situation and patient a nurse or doctor would be faced with. With a narrow range of examples there was only so much that could be covered even for the most relevant group. There was very little opportunity as Ellis (1965) described to learn to learn. However, the six part case study may have been enough to underscore some key messages, rather than represent the myriad of possibilities a real clinic poses. Some of the participants who were closest to the objectives and had the higher levels of similarity may have had sufficient enough information and scenarios to be able to make the connections on their return to work as Yamnill and Mclean (2001) posed. During the course of the training, there was no specific discussion on where and how to transfer the learning as Laker (1990) advised, as there was the assumption that this would be obvious. For those who the training was not targeted at there were varying degrees of similarity along the same lines as the degrees of proximity to course objectives. General sessions such as introduction to HIV, voluntary counseling and testing, and adherence would be the most widely applicable but much of the training missed opportunities to provide any level of similarity for e.g. a dietician or nurse based in a general ward. Many may have just seen it as useful information without a call to action. The cases follow a family through an ARV clinic and their journey is largely clinical, with little interaction with the clinics social worker or dietician and no connection to admittance on a ward.

There was no case simulation therefore for ward based nurses, pharmacists and very little for dieticians, social workers and other non clinicians. With the training method of lectures and cases, only so much can be covered in time and for some people if not a homogenous group. Trainers and course co-ordinators did recognize that the courses couldn't simulate all for all, hence the various requests to the department of health to stratify participants. Cognisant of this default, trainers and course co-ordinators hoped that the course was not a wasted experience and that some transfer would take place but assumed that participants would do this without being guided explicitly. This is far from reality as the results show and the lack of similarity should have been all the more reason to support learners during the course to make the necessary connections. With non target groups, trainers were not specific in how to translate the content for their purpose. Participants would definitely have to abstract in some way what they needed for their role but were not warned in any way that this additional work would have to occur. There were no explicit discussions in how to abstract elements that are relevant and change practice. Minority groups whether based on profession or services rendered were not catered for and lacked the necessary identical elements and similarity for transfer to occur. Some alumni may have been more able to do this without assistance from trainers as the managers interviewed noted increases in referrals, case finding and better understanding of HIV in general from ward based staff, but many could and probably did struggle to make that connection.

The design did not account for the learning preferences that Cafarrella (1994) pointed out and the same strategy was used for all participants on each of the two courses. The group ranged from doctors and pharmacists who are in pre service training used to lectures, self directed learning and practical application without much support, whereas an enrolled nurse for example, although attending college, is guided more closely through lectures and practical experience. Differences in prior learning experiences and methods may have impacted on those who found the courses less personal.

This brings the discussion to the off-site versus on the job training debate. There is clearly a lack of faith amongst researchers in transfer following off job learning and more so if high road or abstraction required. The courses evaluated here are low road, identical elements learning and both courses are formal off the job experiences

using theory and cases with inconsistent support post training. There was no plan for post training support even when the site was supported by a third party. Again follow up was assumed. Cunningham (2004) discussed the role of self management in effective transfer but this is not a skill used by all and may link to the preferred method of learning as descried above. Based on the literature and studies regarding the topic, transfer in this instance should be incredibly low. In terms of the content, 'sitting with nelly' as Analoui (1993) refers to on the job coaching, is not appropriate where large amounts of information are required to share with large numbers of people. So the off the job approach here was appropriate for some of the sessions such as HIV basic information, voluntary counseling and testing, and adherence counseling.

General information can be given in larger groups but as has been discussed many aspects of similarity are not possible, so specific activities would need follow up, with specific cases for different groups. With some of the smaller minority groups, on site training may be more appropriate and effective. But exactly who would be affected more by the off-site approach? Using Analoui's (1993) scale of least likely transfer where a new job and a new role are trained off-site to most likely transfer where a staff member is trained in their existing job on a familiar role on site, a further layer could be added to understanding why transfer occurred with some alumni evaluated than others. However, the data from this study doesn't necessarily agree with Analoui's conclusions. With the ARVs and adherence alumni, lay counselors are specifically seconded to provide adherence counseling in newly established ARV clinics and therefore have a new job with a new role. The nurses who attended will have probably been involved in advising patients on compliance to their medication such as opportunistic infection prophylaxis, and so have an existing job with a familiar role. As the results indicated, the lay counselors appeared to have as much success in transferring their learning to the workplace as their clinical counterparts. Indeed, bearing in mind some counselors apparent suspicion of 'sitting with nelly', perhaps off-site training really is the most effective and appropriate method for this cadre. This concept of scaling transfer possibilities according to whether the role is new or not, links to the behaviourist paradigm of stimulus/response. Ellis (1965) describes negative transfer as occurring when new responses are required to familiar stimuli and muddles ensue. This again could also explain the difference in responses of alumni from the two courses. Although patients have been advised to comply with

medication for decades, ARVs adherence is a new process for all as ARVs are new to the public sector. Everyone is learning about readiness support, failure to adhere and its consequences at the same time so a new response to new stimuli is required, which Ellis (1965) views as favourable to transfer if learning to learn is allowed. Clinical treatment of HIV prompts new responses to familiar stimuli. Nurses and doctors used to seeing HIV patients and providing what care they can for opportunistic infections and other palliative care, now have a whole new set of actions required for same conditions with the advent of ARVs. On the other hand, post ARV initiation requires new responses to new stimuli such as side effects to the medication, resistance and so on. Therefore clinical staff within an ARV site have a combination of both old and new stimuli each requiring new responses. The potential muddles this can cause may be longer lived than Perkins and Salomon (1994) assumed if the observations from this study are anything to go by, although this is an extremely small sample. Unfortunately, whether stimuli were new or not was not taken into account in the training design and both existing and new stimuli or conditions were presented together without acknowledgement.

Many theorists and practitioners discussed in 2.2 stressed the importance of wide participation in the development and design of training interventions in order to support positive transfer. In this instance, the National Department of Health issued memos to Provincial Departments of Health who in turn communicated the brief details outlined in 1.1 with training providers who then developed the training content. Neither the health care workers themselves nor their direct line managers were involved at any level of this process except for participation in the learning event itself. Line managers only understood the details of what the training was if they attended the course themselves. After the directive was issued and logistics arranged, senior DoH management were more interested in outputs rather than the process or outcomes. Such a lack of interest may not have been shared by the various participant groups and their line managers had they been invited to input into the process beyond course evaluations which provided limited opportunity to influence the design.

All aspects of the training design therefore could have been approached differently for more effective transfer and each aspect can be improved on and even radically changed in the case of the HIV Care and ARVs course, to ensure the wasted

opportunities for transfer are not repeated. However, against all odds it would seem, reasonable levels of alumni found the courses practical and easy to put into practice but this was limited amongst the non target group and usefulness varied across cadres which all clearly speak to the transfer design issues outlined above.

Far less is known about the transfer climates of alumni participating in the study as each is multifactoral and varied, combined with the small amount of time spent per site and space given to this factor within the study. However, important aspects have been gleaned from the results. Before this is discussed, however, there are elements from 1.1 which speak to this factor.

Politically there is support but in superficial way at local level, with financial support to an extent but this is not translated into effective training as advised by training providers such as RHRU. DoH organisers at Provincial level are ticking boxes and reporting on indicators of numbers trained rather than outcomes. There also appears to be an assumption from the Department of Health that the climate in each clinic is conducive to transfer as this issue has never been surfaced. Cafarrella (1994) advised that changes in current practice or policy may be required for transfer to occur and this is certainly the case with the advent of ARV treatment but policy is often slow to filter through the hierarchy of the Department of Health and develop into changes in practice. Other than the obvious barriers of the non target groups, trainers and training co-ordinators also did not anticipate barriers and as such discussion within the training experience of this was limited.

As mentioned, direct line managers were not involved in the design nor did any discussion or directive ever take place regarding their role pre and post training. If the context is to be supportive prior to training for transfer to be more possible then the communications regarding the courses would have had impact. As communication was brief and late, managers and participants perceptions of the courses may have been negative before attending. Managers were not involved beyond organizing who will attend from their clinics so would not be in a position to support staff prior to attending and would have individualized ideas of what their role is with regards to training. As their role was not articulated at any point, it was inconsistent as the results show and varied from clinic to clinic and cadre to cadre.

Unsupportive managers were the exception rather than the rule according to alumni participating and this was more so with the adherence alumni. On going support to counsellors was, in a considerable proportion, rejected out of suspicion so the counsellors as actors within their own transfer climate influenced the level of support and possibly their levels of transfer achieved.

Indeed, the learning/working milieu with its cultural, social and institutional factors was not explored in depth by this study, and the way in which each individual interacts with their environment and how it impacts on their ability to transfer learning is far from understood. Some aspects were surfaced such as managers' influence, scope of practice and fear, and whilst they are not fully representative of the myriad of factors which can influence transfer, the results do shed some light on this area an can be connected to Rouiller and Goldstein's useful transfer climate framework as outlined in Yamnill and Mclean (2001).

As a large proportion of alumni in the study reported that the training was easy to put into practice and had few barriers to doing so, it can be assumed that some or all of both situation cues and the supportive consequence cues are in place in some clinics but it should be recognized that this could vary hugely from participant to participant. The setting of goals is not discussed during training or communicated to managers, however, managers expressed pride in the work of their staff particularly counselors, professional nurses and doctors, and indeed managers do have to report indicators monthly e.g. number of patients successfully initiated on ARVs so there is some formal absolute figures available but whether these are translated to individual goals is unclear. With regards to support from peers, another situation cue, this is felt less so by lower level nurses but appears strongly as a theme within improved practice and clinic effectiveness for other health care workers. References to team work are encouraging as this is not discussed explicitly in training but appears to be a natural process in some sites. If it occurs it is by chance and relates to how managers and staff view the role of training and their participation beyond the individual in development of teams and functioning of clinics. Systems and equipment tend to go hand in hand and with regards to the adherence alumni, little is required other than a good flow of patients. The same cannot be said for the HIV care and ARVs alumni. For those who are providing ARVs there were still issues with systems and equipment such as staff shortages limiting ability to put into practice what has been

learnt and lack of new drugs. However, these cues are more likely to be in place for ARV clinic based staff than other alumni. For the rest of the participants, the non target health care workers, very few of these cues would be in place due to context. How much the cue impacts negatively on transfer would depend on each context and manager. Ward based nurses may want to advocate HIV testing and if test kits are made available, then they would be able to transfer that particular aspect of learning, but such nurses would not as yet have access to ARVs or be able to initiate treatment and would instead, refer. Systems and equipment cues would prevent them from achieving all objectives of the course and so would not be realistic objectives for this group. The same can be said for e.g. pharmacists in an outpatient department not having access to ARV patients or the drugs or a nurse in a surgical ward who would have even less opportunity or enabling situational cues. A larger percentage of HIV care and ARVs alumni had some barriers in putting into practice what they had learnt than the adherence group and the majority of these barriers relate to context or situational cues. Transfer therefore would be highly unlikely with these alumni. Consequence cues are also less relevant for this group as many have not been afforded the opportunity to put into practice all of the course content they have learnt e.g. pharmacists do not initiate, data clerks do not provide adherence counseling, and so on. The consequence cues are much more relevant for those alumni who were able to at least try and transfer learning. There are far more references to positive support with little mention of negative or no feedback apart from untrained managers not understanding processes involved and enrolled nurses frustrated by lack of support from their manager who in turn has a situational cue in place via policy protecting HCWs and patients by indicating what level each HCW can perform to. Only the counselors perhaps feared punishment if observed but this is a perception rather than a reality. Consequence cues therefore appear to be largely positive supporting transfer within the target groups.

Whilst the non target groups stumble at situational cues, the training climate is supporting but far from completely conducive for those who did attempt to transfer learning due to a combination of deficiencies in situation and consequence cues.

Transfer design, climate and motivation are strongly interlinked. As shown, the transfer climate has, for many alumni, had many barriers to transfer. Many of these could have been mitigated with preparation of learners planned into the design and

the relapse prevention model particularly introduced. Enrolled nurses would have been prepared for the limitations of their roles and data capturers likewise, for example. The relapse prevention model speaks clearly to the situation and consequence cues which if discussed with participants during the learning event may have promoted higher levels of motivation to transfer the elements that were appropriate.

As with the training climate, motivation of participants to transfer was not explored in detail in this study but aspects do surface in the results. Positionality is multipronged and was not taken into account in any way in the design of the courses and as Brookfield (1987) warned, could impact on how alumni responded to the training. Indeed, it may also have affected alumni's response to the evaluation. In terms of training design and positionality, even if training was stratified and programmes developed according to professions and services rendered, positionality would still be a factor due to its individual nature. Training providers can be cognizant of this but unless off-site training is enhanced by individual on site support with mentors empathetic to the individuals' multifaceted perspective, the possibilities for transfer will not be increased.

Very few health care workers indicated that their own fear was a barrier to transfer which may imply good levels of motivation unless other barriers mentioned earlier were more prominent that fear was irrelevant. Decreased motivation is linked to failed attempts to practice successfully what has been learnt. This links not only to the individual's perception of failure but also the transfer climate and particularly the support during failed attempts. As discussed earlier, support varied from site to site and context to context which implies that motivation following failed attempts may also have been as varied.

Bearing Vroom's (in Yamnill and Mclean, 2001) expectancy theory in mind, many participants may have wanted some form of recognition for doing more. If this was not forthcoming it could have been another factor which impacted on their motivation to transfer. This isn't always financially related as the theory includes the need for more intrinsic rewards. These seemed to be sought after by, surprisingly, the lower level participants with enrolled nurses in particular expressing frustration at not being utilized in the way they expected. Counsellors receive the smallest of remuneration

as all are volunteers receiving stipends, yet they demonstrated esoteric levels of motivation i.e. being better able to support patients through the process of ARV initiation.

The area of motivation that comes out from the results most strongly is the concept that motivation to transfer can be linked to a sense of relevance of the training (Analoui, 1993; Yamnill and Mclean, 2001). As has been covered in both the transfer design and transfer climate discussion, there are issues of relevance for a number of participants. The non target groups may have switched off even during the learning event if sessions were not perceived as relevant making abstracting the areas that are relevant difficult. Many wards based staff felt that they didn't see HIV patients and as they attended an HIV related course, may have failed completely to see the relevance and so not attempted any level of transfer on their return. As already mentioned, non ARV site and non clinical participants are alienated by some aspects of the training which could have strongly inhibited their motivation to transfer. Within the adherence group, as most sessions were deemed useful and an extremely high level of value was placed on training there appeared to be a sense of relevance which motivated the majority of the group to put what they had learnt into practice, even without all the relevant climate cues in places.

This links to the concept of successful learners being more motivated than others. Clearly, doctors and nurses from ARV sites are already used to some terminology and processes, and would probably be more able to engage with the content. This would compound their motivation to transfer learning into practice and have the opposite effect for those less able to engage with the content such as non clinical staff.

Time interval and variety of tasks are clearly factors in the effectiveness or not of transfer in this instance. The training expected a variety of tasks to be carried out, and for many it is not clear what these tasks will be. Task shifting had not been fully articulated by management and as such staff who had attended were still not utilized at the top of their scope of practice. The training co-ordinators both in government and within RHRU expected a huge change, involving many people covering a large scope. That any transfer took place is astonishing. But as the results show, there is

room for optimism as some levels of positive transfer may have occurred for some alumni. Critics of off-site training therefore have been proved too harsh.

As mentioned earlier, the ARVs and Adherence course appeared to have produced more positive, effective transfer than the HIV Care and ARVs course. In summary, this is due to the proximity of most alumni to the course objectives with even non target participants able to put into practice aspects of what they had learnt. The group had opportunity, affordances to transfer. Adherence alumni valued the training more and had higher levels of relevance so perhaps were more motivated. If these key aspects are taken into account along with other factors discussed within Holton's model, transfer could be dramatically improved for all cadres of health care workers.

What is clear is that one size does not fit all and this is not an appropriate approach to effective training. Several steps need to be taken to avoid such wastage of time for all involved.

Many elements which need to be changed are beyond the role of trainers and planners within RHRU alone but as the first step should be to provide the Department of Health at several levels with feedback on the evaluation findings and the evidence based recommendations, the organisation can work with DoH counterparts to provide effective capacity building of health care workers.

The primary recommendation is for all training to be tailored as closely as possible to the real working needs of each target group. This speaks to as near a transfer possibility as can be designed with the most appropriate levels of similarity built into the training design. Pharmacists and non clinical staff in ARV sites should receive different training than that experienced on the HIV Care and ARVs course. The non clinical staff should be split further with support staff such as data capturers and clerks trained on different issues than social workers and dieticians. Ward based staff should also receive a different version of HIV care and ARVs which is tweaked for their needs and include vital aspects such as case finding, drug interactions and when and how to refer to the ARV clinic. If this is achieved, it should follow that an improved transfer climate will be realized via the presence of more situation cues.

Although there will then be a higher level of similarity, participants should still be explicitly guided as to when and how to use their learning. This can be agreed on with DoH management prior to the capacity building and participants allowed the opportunity to reflect and build their own action plans during their training. Ideally, these should be action plans which can be followed up. Due to the practical nature of the objectives, any off-site training component should be followed up with on site mentoring either by trainers or line managers to ensure a smooth transition from classroom to workplace. Each cadre and their needs should be assessed in terms of off-site training to determine if this approach is actually appropriate. If the group is large and information general, then as discussed, off-site training has a role. If on the other hand, the group is small in number with very specific tasks, then other methods should be considered. Pharmacists, dieticians and social workers for instance, as smallest minorities could fall into this category.

The training design should take into account if changes required by the health care worker are new responses to old stimuli or if the situations and thus stimuli will also be new. This needs to be recognized within the learning activities and to avoid 'muddles' more support given when old stimuli require new responses. Although this language is from the behaviourist paradigm, it makes sense to consider it as a factor influencing transfer within the dynamic workplace

As has been discussed, local management either at district or clinic level have not been involved in the development of the training content and as such have been on the periphery. To establish and underline the importance of their role, they must be involved in focus groups when capacity building programmes are being developed. The same must be said for samples of the target group to ensure true relevance. Participatory involvement by key stakeholder groups is of vital importance to improve not only transfer design but also the transfer climate. Not only could these focus groups assist in developing curriculum, content and methodology but also may be key in identifying real and potential barriers within the transfer climate which can be addressed via more senior DoH management and within the learning milieu. Local management involvement therefore has a number of roles to play, not least of which is goal setting per cadre and being clear as to what their role is pre, during and post training to ensure that the most enabling situation and consequence cues are in place and that these goals are met as a team.

As is clear here, the training and therefore transfer design is easier to influence and can directly link to an improved transfer climate in some aspects such as situational cues. Motivation and how this influences transfer should be positively affected by more relevant training increasing the number of successful learners, and preparation of learners for potential barriers. Other aspects such as individual expectations are far more difficult to have an impact on to improve the possibility of transfer but they should be recognized and discussed during the learning process.

The final recommendation is of the upmost importance, and this is to build transfer evaluation into each programme's design before training commences. Linking back to Laker's (1990) temporal dimension, rather than the eclectic mix of time-since-trained that there was in this evaluation, a clear plan of at least two evaluation points within the short and medium term after training should take place to assess if, when and how alumni shift from initiation to maintenance transfer. Evaluation should also look at other factors such as motivation and transfer climate more deeply than in this case, to strengthen the evaluation results by giving an overall picture of issues affecting levels of positive transfer. Finally, enhancing strategies to secure more volunteers for observation would add further value to any subsequent evaluation.

This evaluation has scratched the surface of transfer issues in relation to the approach taken with the two courses involved and the issues faced by health care workers in the workplace. This introductory work, however flawed, has gleaned interesting findings which can be used to improve such training. If the recommendations described here are put into place and new capacity interventions developed, training transfer amongst health care workers can be further explored, evaluated and continually improved to achieve the ultimate goal of maximum quality care for patients within the public health sector.

References

Ajuwon, A., Funmilayo, F., Oladepo, O., Osungbade, K, and Asuzu, M. (2008). Effects of training programme on HIV/AIDS prevention among primary health care workers in Oyo State, Nigeria. *Health Education*. 108 (6), 463-472.

Ashton, D. and Snug, J. (2002). *Supporting workplace learning for high performance working.* France: International Labour Office.

Analoui, F. (1993). *Training and Transfer of Learning*. England: Avebury.

Bassey, M. (1999). *Case Study research in educational settings*. Buckingham: Open University Press.

Basson, RB. (1998). A Descriptive Evaluation of the Computer Curriculum at Sacred Heart College Primary School, Johannesburg, South Africa – Present Practice and Future Direction. *Mimeo [and in Canadian Journal of Program Evaluation].*

Bennett, C. and Weale, A. (2008). HIV and AIDS awareness: an evaluation of a short training programme for midwives. *Journal of Advanced Nursing*. 26 (2) 273 – 282.

Blaxter, L. (1996). *How to research* Buckingham: Open University Press.

Brookfield, S. (1987). Eduard Lindeman. In P. Jarvis, (Ed) *Twentieth Century Thinkers in Adult Education*. London: Croom Helm.

Brookfield, S. (2005). Transfer of learning. In L. English, (Ed) *International encyclopedia of adult education*. Hampshire: Palgrave Macmillan.

Boud, D. and Walker, D. (1991). *Experience and learning: reflection at work*. Australia: Deakin University.

Caffarella, R. (1994). *Planning Programs for Adult Learners: A Practical Guide for Educators, Trainers, and Staff Developers (1st Edition)*. San Francisco: Jossey-Bass Publishers.

Cohen, L. and Manion, L. (1994). *Research Methods in Education.* London: Routledge.

Cresswell, JW. (1998). *Qualitative Inquiry and Research Design – choosing among five traditions*. Thousand Oaks:Sage.

Cunningham, I. (2004). *The Handbook of work based learning.* UK: Gower Press.

De Corte, E. (1999). On the road to transfer, an introduction. *International Journal of Educational Research*. 31. 555-559.

Department of Health, South Africa. (August 2003) Operational Plan for the comprehensive care and treatment and prevention for HIV and AIDS. www.info.gov.za/otherdocs/2003/aidsoperationalplan.pdf.

Department of Health, South Africa HIV and AIDS and STI Strategic Plan for South Africa, 2007-2011. www.doh.gov.za/docs/misc/stratplan-f.html.

Dimmock, C. and Walker, A. (2000). Globalisation and societal culture: redefining schooling and school leadership in the twenty-first century. *Compare*. 30 (3).

Dixon, N. (1990). *Evaluation: A tool for improving HRD Quality.* Virginia: ASTD.

Driessche, K., Sabue, M., Dufour, W., Behets, F., and Van Rie, A. (2009). Training health care workers to promote HIV services for patients with tuberculosis in the Democratic Republic of Congo. *Human Resources for Health* 7 (23).

Eisner, E. (1985). Education Connoisseurship and Criticism: Their forms and functions in Education Evaluation. In E. Eisner, (Ed), *The Education Imagination*.. New York: MacMillan.

Ellis, H. (1965). *Transfer of learning*. New York: MacMillan.

Fetterman, DF. (2001). Presenting the three steps of empowerment. Evaluation and related facets. In DF Fetterman, (Ed), *Foundations of Empowerment Evaluation.* Thousand Oaks: SAGE.

Freebody, P. (2003). *Qualitative Research in Education: Interaction and Practice* . London: Sage Press.
Foley, G. (1995). A Framework for Understanding Adult Learning and Education. In G. Foley, (Ed), *Understanding Adult Education and Training.* New York: Paul & Company.
Gianzi, FP., Minnucci, P., Bertinato, L., Ceccarelli, S., De Mei, B., De Santi, A., Greco, D. (1992). Evaluation of the impact of a training program for health care workers for the prevention of HIV infection in Italy. *International Conference on AIDS*. Jul 19-24; 8: 211 (abstract no. PuD 9075).
Goldstein, A. (1974). *Changing supervisor behaviour.* New York: Pergamon Press.
Gronn, P. (2001). Crossing the great divide: problems of cultural diffusion for leadership in education. *International Journal of Leadership in Education*. 4 (4).
Hamel, J., Dufour, S. and Fortin, D., (1993). *Case study methods*. Newbury Park, CA: Sage.
Hamilton, D. (1976). *Introduction in Curriculum Evaluation*. London: Open University.
Hitchcock, G. and Hughes, D. (1989). *Research and the teacher.* London: Routledge.
Humphrey, J. (1991). *Training by objective*. Cape Town: Juta and Co.
Khumalo, M. (2000). Evaluating the effectiveness of public sector training and capacity building. Unpublished Masters thesis. Johannesburg: University of Witwatersrand.
Laker, D. (1990). Dual dimensionality of training transfer. *Human Resource Development Quarterly*. 1 (3) 209-223.
Lovell, RB. (1979). *Adult learning*. London: Routledge.
Macauley, C. (2000). Transfer of Learning. In V. Cree, and C. Macauley, (Ed) *Transfer of Learning in Professional and vocational education*. London: Routledge.
Mason, J. (1996). *Qualitative Researching*. London: Sage.
Maxwell, J. (1996). *Qualitative Research Design*. London: Sage.
McCain, D. (2005). *Evaluation Basics*. Virginia: ASTD.
McMillan, J. and Schumacher, S. (1993). *Research in education: A conceptual introduction*. New York, NY: HarperCollins College Publishers.
Miles, M. and Huberman, M. (1984). *Qualitative Data Analysis*. A source book of new methods. Sage: California.
Mouton, J. (2001). *How to succeed in your masters and doctoral studies*. Pretoria: Van Schaik.
Nelson, R. (2004). The Nurse Poachers. *The Lancet* 364, 9447.
Nonyongo, E. (1997). Interpreting the students perspectives on DUSSPRO Tutorial Support and its Implications for a Distance Education Provider. *South African Journal of Higher Education.*
Parlett, M. & Hamilton, D. (1976). Illuminative Evaluation. In D. Tawney, (ed) *Curriculum Evaluation Today: Trends and implications*. London: SCRS.
Parry, S. (1997). *Evaluating the impact of training*. Virginia: ASTD.
Patton, MQ. (1997). What is utilization-Focused Evaluation? How do you get started. In, MQ. Parry, (Ed), *Utilisation-Focused evaluation: The New Century Text*. Thousand Oaks: SAGE.
Pea, R. (1987). Socializing the knowledge transfer problem. *International Journal of Education Research*. 11 (6).
Perkins, D. and Salomon, G. (1994). Transfer of learning In T. Husen, & T. N. Postlethwaite, (Ed), The *International Handbook* of *Education Research* (*second edition*). Oxford: Pergamon Press.

Poggenpoel, M. and Myburgh, C., (2003). The Researcher as Research Instrument in Educational Research: A Possible Threat to Trustworthiness? *Education.* 124.
Salomon, G. and Globerson, T. (1987). Skill may not be enough: The role of mindfulness in learning and transfer. *International Journal of Education research*. 11 (6).
Sharp, L. and Frechtling, J. (1997). *User-Friendly Handbook for Mixed Method Evaluations* National Science Foundation http://www.ehr.nsf.gov/EHR/REC/pubs/NSF97-153/CHAP_5.HTM.
Shisana, O. (2004). *The impact of HIV/AIDS on the health sector*. Durban: HSRC Press.
Simons, H. (1980). *Towards a science of the singular: Essays about case study in educational research and evaluation.* Norwich, UK: University of East Anglia, Centre for Applied Research in Education.
Thorndike, R. (2005). *Measurement And Evaluation In Psychology And Education.* Upper Saddle River, N.J: Pearson Merrill Prentice Hall.
UNAIDS (www.unaids.org/en/Regionscountries/Countries/SouthAfrica/).
Wentling, T. (1980). *Evaluating Occupational Education And Training Programs.* Boston: Allyn And Bacon.
Wexley, K. (1981). *Developing and training human resources in organizations.* Illinois: Scott, Foresman and Co.
Worthen, BR., & Sanders, JR. (1987). The Concept of evaluation. In *Educational Evaluation*. New York: Longmans.
Yamnill, S., and McLean, G. N. (2001). Theories supporting transfer of training. *Human Resource Development Quarterly*. 12: 195–208.
Yin, R. (2009). *Case Study Research: Design and Methods. Fourth Edition.* California: SAGE Publications.
Zolkov, A. (1996). Music Curricula, Mechanical Aspects of Music as A fine Art, and Curriculum Innovation in Namibia. *South African Journal of Education*.

Bibliography

Lynton, R. (1990). *Training for development*. Conneticut: Kumarian Press.
Rainbird, H. (2000). *Training in the Workplace: Critical perspectives on learning in work.* Basingstoke: MacMillan.
Saunders, E. (2002). *Assessing Human competence*. Randburg, South Africa: Knowledge resources.
Schon, D. (1983). *The Reflective Practitioner.* New York: Basic Press.
Spradley, J. (1979). *The Ethnographic Interview.* Florida: Holt, Reinhart and Winston.
Wolcott, H. (1988). Ethnographic Research in Education. In M. Jaeger, (Ed), *Complimentary methods for research and evaluation*. Washington DC: AERA.

Appendix 1
Data collection tools

RHRU
Reproductive health & HIV Research Unit
of the University of the Witwatersrand, South Africa.

ARVs and Adherence Training Evaluation

Dear Health care worker,

It is important for both the Department of Health and the RHRU to find out if the ARV training you attended was useful for you. Please answer the follow questions as fully and honestly as possible. Your anonymous answers will help to improve the quality and content of the ARV course that you attended and identify other training needed.

Please tick the boxes where appropriate and use CAPITAL letters when writing.

Profession – select one

a. Lay counsellor ☐ b. Health promoter ☐ c. Auxillary nurse ☐ d. Traditional healer ☐

e. Other ☐ Please specify:……

Age

a. 18-29 ☐ b. 30-39 ☐ c. 40-49 ☐ d. 50-65 ☐

How many HIV patients do you see each week?

a. 0 ☐ b. 1-5 ☐ c. 6-10 ☐ d. 11-20 ☐ e. 20+ ☐

When did you attend the training? Year…… Month……

PART 1

1. Was the ARVs and Adherence training of value to you?

   a. Yes ☐ b. No ☐ c. Not sure ☐

2. Rate the usefulness of each part of the training by ticking the box which describes how you felt about it. 1 is very useful, 2 is useful, 3 is a little useful and 4 is not useful at all.

	1	2	3	4
a. Values clarification	☐	☐	☐	☐
b. History and general HIV	☐	☐	☐	☐
c. Own experiences of adherence	☐	☐	☐	☐
d. Stages of adherence	☐	☐	☐	☐
e. Readiness assessment	☐	☐	☐	☐
f. Planning for ARVs	☐	☐	☐	☐
g. Predictors of good adherence	☐	☐	☐	☐
h. Traditional beliefs	☐	☐	☐	☐
i. Adult regimens and side effects	☐	☐	☐	☐
j. counselling skills	☐	☐	☐	☐

3. Now, rate the usefulness of the training methods used on the course in the same way.

	1	2	3	4
a. Interactive lectures	☐	☐	☐	☐
b. Role plays	☐	☐	☐	☐
c. Self reflection	☐	☐	☐	☐
d. case studies	☐	☐	☐	☐

4. Was the training practical?

   a. Yes ☐ b. No ☐

5. Was it easy to put your learning into practice at your clinic?

   a. Yes ☐ b. Some of it ☐ c. No ☐

6. Were there any barriers stopping you putting into practice what you had learnt?

   a. Unsupportive manager ☐
   b. Beyond scope of work ☐
   c. Not treating HIV patients ☐
   d. Fear ☐
   e. Tried once ☐
   f. other reason ☐

describe ……

7. Did the course help you in your work when you returned to your clinic?

   a. Yes ☐ b. No ☐ If yes, how? Tick the areas which improved.

   c. explaining HIV and ARVs ☐

   d. improved counselling skills ☐

e. able to work with traditional beliefs ☐

f. improved ability to assess readiness ☐

g. improved ability to plan for ARV with patients ☐

h. explain the ARV regimens and their side effects ☐

k. Improved referral and/or advice ☐

l. Other ☐

j. If other, please provide detail

……

k.If you answered no to question 6, please explain why?

……

……

8. Do you think the ARV training you and your colleagues attended made your clinic more effective in treating patients?

a. Yes ☐ b. No ☐ c. Not sure ☐

d. If yes, explain how and if your answer is no or not sure, why?

……

……

……

9. In what other ways have you learnt about HIV and ARVs?

a. Other classroom based courses ☐

b. In-service training ☐

c. Informal discussion with colleagues ☐

d. Support from another organisation eg NGO ☐

e. Internet ☐

f. TV/Newspapers ☐

10. What areas do you feel you need further training or support in?

……

PART 2. To be completed by all participants from the ARVs and Adherence course

Each of the following multiple choice questions has one correct answer. Please shade inside the box which you think is correct.

1. Which of the following HIV-infected adults can get antiretrovirals (ARVs) on the South African government's programme:
A ☐ Someone with a CD4 count of 135
B ☐ Someone with extrapulmonary TB and a CD4 count of 90
C ☐ Someone with chronic diarrhea and a CD4 count of 280
D ☐ All of the above
E ☐ None of the above

2. **The CD4 count:**
A. ☐ Shows how much HIV virus is in the body
B. ☐ Measures the body's ability to fight disease
C. ☐ If you have AIDS, both the CD4 and viral load will be very low
D. ☐ All of the above
E. ☐ None of the above

3. A person will be good at taking ARVs if:
A. ☐ Passed matric
B. ☐ Attending appointments and taking other medication regularly
C. ☐ Not telling others they are taking medication
D. ☐ All of the above
E. ☐ None of the above

4. Which of the following is acceptable:
A. ☐ a self administered treatment interruption or drug holiday
B. ☐ 3 missed doses per week
C. ☐ Taking a double dose due to an earlier missed dose
D. ☐ All of the above
E. ☐ None of the above

5. If someone has an "undetectable" viral load:
A. ☐ They are cured from HIV
B. ☐ They have been taking their ARVs correctly
C. ☐ They can stop taking their antiretrovirals
D. ☐ All of the above
E. ☐ None the above

6. In a client/counsellor relationship:
A. ☐ Counsellors should be relied on for clients to take their medication
B. ☐ Counsellors should be available 24 hours
C. ☐ If someone fails to adhere it is the counsellors responsibility
D. ☐ All of the above
E. ☐ None of the above

Re a le boha! Siyabionga! Enkosi! Dankie! Thank you!

For RHRU Research Team to complete:
Rural ☐ Peri-urban ☐ Urban ☐
Tertiary ☐ Provincial ☐ District ☐ CHC ☐ PHC ☐
ARV clinic ☐ Wellness Clinic ☐ Referring clinic (TB, Obs and Gynae) ☐

HIV care and ARVs Training Evaluation

RHRU
Reproductive health & HIV Research Unit
of the University of the Witwatersrand, South Africa.

Dear Health care worker,

It is important for both the Department of Health and the RHRU to find out if the ARV training you attended was useful for you. Please answer the follow questions as fully and honestly as possible. Your anonymous answers will help to improve the quality and content of the ARV course that you attended and identify other training needed.

Please tick the boxes where appropriate and use CAPITAL letters when writing.

Profession – select one

a. Professional Nurse ☐ b. Auxilliary Nurse ☐ c. Enrolled Nurse ☐ d. Doctor ☐

e. Pharmacist ☐ f. Pharmacy Assistant ☐ g. Dietician ☐ h. Social Worker ☐

i. Manager ☐ j. Other ☐ ……

Age

a. 18-29 ☐ b. 30-39 ☐ c. 40-49 ☐ d. 50-65 ☐

How many HIV patients do you see each week?

a. 0 ☐ b. 1-5 ☐ c. 6-10 ☐ d. 11-20 ☐ e. 20+ ☐

When did you attend the training? Year…… Month…….

PART 1

11. Was the ARV training of value to you?

    a. Yes ☐ b. No ☐ c. Not sure ☐

12. Rate the usefulness of each part of the training by ticking the box which describes how you felt about it. 1 is very useful, 2 is useful, 3 is a little useful and 4 is not useful at all.

	1	2	3	4
a. History and pathogenesis of HIV	☐	☐	☐	☐
b. VCT	☐	☐	☐	☐
c. MTCT	☐	☐	☐	☐
d. WHO Staging	☐	☐	☐	☐
e. Opportunistic infection	☐	☐	☐	☐
f. Resistance	☐	☐	☐	☐
g. Adherence	☐	☐	☐	☐
h. Acute infection	☐	☐	☐	☐
i. Adult regimens and side effects	☐	☐	☐	☐
j. Monitoring	☐	☐	☐	☐
k. Paediatrics	☐	☐	☐	☐

13. Now, rate the usefulness of the training methods used on the course in the same way.

	1	2	3	4
a. Interactive lectures	☐	☐	☐	☐
b. Small group discussion of case study (Jan and Tanya)	☐	☐	☐	☐
c. Large group discussion of questions to cases	☐	☐	☐	☐
d. Referral case study discussion in small groups (What if…)	☐	☐	☐	☐
e. Large group discussion of referral and advice case	☐	☐	☐	☐

14. How did you feel about being trained with other professions, ie clerks with pharmacists, nurses with doctors etc?

    a. Great ☐ b. It was OK ☐ c. For some parts it was OK ☐ d. It was not good ☐

15. Was the training practical?

    a. Yes ☐ b. No ☐

16. Was it easy to put your learning into practice at your clinic?

    a. Yes ☐ b. Some of it ☐ c. No ☐

17. Were there any barriers stopping you putting into practice what you had learnt?

    a. Unsupportive manager ☐

b. Beyond scope of work ☐
c. Not treating HIV patients ☐
d. Fear ☐
e. Tried once ☐
f. other reason ☐ Describe……

18. Did the course help you in your work when you returned to your clinic?

a. Yes ☐ b. No ☐ If yes, how? Tick the areas which improved.

c. More confident in treating/referring patients ☐

d. Better understanding of VCT ☐

e. Better understanding of pMTCT ☐

f. Able to effectively stage patients and treat OIs ☐

g. Know when ARVs should be started ☐

h. Know the ARV regimens and their side effects ☐

i. Know how to monitor an HIV patient including

which bloods to take when and why ☐

j. Paediatric treatment ☐

k. Improved referral and/or advice ☐

l. Other ☐

j. If other, please provide detail

……

k.If you answered no to question 6, please explain why?

……

……

19. Do you think the ARV training you and your colleagues attended made your clinic more effective in treating patients?

a. Yes ☐ b. No ☐ c. Not sure ☐

d. If yes, explain how and if your answer is no or not sure, why?

……

……

……

……

20. In what other ways have you learnt about HIV and ARVs?

a. Other classroom based courses ☐
b. In-service training ☐
c. Informal discussion with colleagues ☐
d. Support from another organisation eg NGO ☐
e. Internet ☐
f. TV/Newspapers ☐

21. What areas do you feel you need further training or support in?

……
……
……
……

PART 2. To be completed by all clinical staff including auxiliary nurses and assistant pharmacists.

Each of the following multiple choice questions has one correct answer. Please shade inside the box which you think is correct.

1. Which of the following HIV-infected adults can get antiretrovirals (ARVs) on the South African government's programme:
A ☐ Someone with a CD4 count of 135
B ☐ Someone with extrapulmonary TB and a CD4 count of 90
C ☐ Someone with chronic diarrhea and a CD4 count of 280
D ☐ All of the above
E ☐ None of the above

2. With TB and HIV
A ☐ Pulmonary TB is a stage 3 illness
B ☐ With a CD4 count of 50, the patient should complete 2 weeks of treatment before ARVs are initiated
C ☐ Never start ARVs at the same time as TB treatment
D ☐ All of the above
E ☐ None of the above

3. The viral load:
A ☐ Is used to routinely measure the status of the immune system
B ☐ Is used to determine when to start ARVs
C ☐ Should be undetectable within four months of initiating ARVs
D ☐ All of the above
E ☐ None of the above

4. Regarding bloods to be taken, the guidelines advise:
A ☐ Patients on regimen 1a should have FBC every 6 months
B ☐ Patients on regimen 1b should have an ALT 3 weeks after initiating treatment
C ☐ Patients on d4T should have a full blood count 3 monthly on treatment
D ☐ All of the above
E ☐ None of the above

5. With side effects to antiretroviral therapy:
A ☐ All rashes should be biopsied
B ☐ ARVs should be stopped and the patient investigated if they have been on ART for > 4 months and have persistant abdominal pain and vomiting
C ☐ Peripheral neuropathy should lead to immediate interruption of ARV's
D ☐ All of the above
E ☐ None of the above

6. Children:
A ☐ Should be started on ART at all stages of disease
B ☐ Experience similar side effects to ARVs as adults
C ☐ Can usually tolerate ritonavir syrup very easily
D ☐ All of the above
E ☐ None of the above

Re a le boha! Siyabionga! Enkosi! Dankie! Thank you!

For RHRU Research Team to complete:
Rural ☐ Peri-urban ☐ Urban ☐
Tertiary ☐ Provincial ☐ District ☐ CHC ☐ PHC ☐
ARV clinic ☐ Wellness Clinic ☐ Referring clinic (TB, Obs and Gynae) ☐

Guide for manager interviews

RHRU
Reproductive health & HIV Research Unit
of the University of the Witwatersrand, South Africa.

1. Attend the HIV Care and ARVs training run by RHRU and the Department of Health?
   If yes, what is opinion of it? Note: If yes, general assessment form to be completed
2. Team member feedback
3. Managers opinion if didn't attend
4. Cadres of HCW and benefits of training
5. Impact on service provision
6. Changes in the way people worked
7. Other training/support
8. Further training needs
9. Managers training needs
10. Clinic statistics. Number of patients, number on treatment, CD4 counts.

Thank you!

Observation tool

Date: ……. **Code:** …….

Time	**What happened, where, with etc**

Guide to follow up interview with health care workers observed

These are examples of questions and areas which are anticipated to arise during the interviews.

- Give feedback on observation and amend where misinterpreted/inaccuracies
- Was this a typical day?
- What is your work like in the clinic? A typical day?
- What else is done? What was done during observation which is not normally done?
- Experience in HIV work

Wits School of Education

27 St Andrews Road, Parktown, Johannesburg, 2193 • Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: +27 11 717-3009 • E-mail: enquiries@educ.wits.ac.za • Website: www.wits.ac.za

Ggg

STUDENT NUMBER: 0411365/W
Protocol: 2007ECE102**C**

Ms. Alison-Jane Edge
35 Radnor Street
WESDENE
2092

04 October 2007

Dear Ms Edge

Application for Ethics Clearance: Masters in Education

I have pleasure of advising you that the Ethics Committee in Education of the Faculty of Humanities, acting on behalf of the senate has agreed to approve your application for ethics clearance submitted for your proposal entitled:

Positive transfer from classroom to workplace? Evaluation of an HIV training programme for health

care workers.

Recommendation:

Ethics clearance is granted

Yours sincerely

Matsie Mabeta
Wits School of Education

Cc Supervisor: Prof. R Basson (via email)