

Doctorate in Education

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What are the links between service costs/practice issues and population characteristics: The case of vision screening for amblyopia in four and five year olds.

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## Abstract

‘Health for all Children’ (Hall and Elliman, 2006), gives clear recommendations regarding the screening of young children for possible visual difficulties, the focus of which is the detection of amblyopia, defined as, ‘poor vision due to abnormal visual experience early in life’ (Webber and Wood, 2005). This policy with its recommendation of the screening of all children between the ages of 4 and 5 was found to be delivered in many ways by different Health Authorities up and down the UK. This raises various questions, including: ‘What are the determinants that drive the approach taken in terms of implementing this policy?’

There is a large body of literature suggesting a link between deprivation/poverty and increased health issues; (Aber *et al.*, 1997; Bramley and Watkins, 2008; Howard *et al.*, 2001; Scott and Ward, 2005). There is also evidence that there is a link to amblyopia specifically, (Williams *et al.*, 2008).

This research has looked at links between three variables relating to vision screening for amblyopia in four and five year olds; service costs/funding, practice issues and population characteristics. With regard to the last it looked specifically at levels of deprivation as measured by Indices of Multiple Deprivation, or IMD scores (Noble *et al.*, 2008). IMD scores are a useful way of capturing levels of deprivation in a particular area in that as well as providing an overall ‘score’ for deprivation, it is possible to see how this score has been made up from various

indicators relating to different aspects of an area. The rationale behind this approach is that where several aspects of an area can be described as involving deprivation, these aspects combine and exacerbate each other producing an effect that is greater than the sum of its parts. This 'exacerbation' is taken into account in the formula for calculating the overall score.

In order to obtain information about cost and practice issues, a questionnaire was issued as a Freedom of Information (FOI) request to each of the 152 Primary Care Trusts (PCTs) which made up the map of service delivery in England at the time of the request. Use of an orthoptist (the key medical practitioner regarding eye muscle control/movement and amblyopia) was found to be the most significant factor in terms of practice and also costs for the screening. In particular, use of an orthoptist resulted in a greater and more up to date range of tests being used as well as in a higher cost for the service.

Following this collection of quantitative data, a number of follow up questions were pursued by telephone/email/interview. These 'case studies' were a sub-sample of orthoptists selected on the basis of peculiarities suggested by their returns from PCTs or because they are 'key players' regarding the work of orthoptists.

One determinant regarding the approach to practice/cost is that eye-care services may be taking account of the socio-economic make-up of an area when deciding how/whether to deliver the screening to the 4 and 5 year olds within it. Using all data and therefore including PCTs that don't

screen, there was a significant relationship between deprivation and use of orthoptists ( $p < 0.05$ ). Orthoptists are more likely to deliver the screening in areas of deprivation.

Practice issues were found to follow from the use of orthoptists as opposed to school nurses/school nurse assistants to deliver the screen. Furthermore, there was an increased cost in using orthoptists to deliver the screen.

The 'mechanism' that results in the use of orthoptists to deliver screening in areas of deprivation, is a combination of this group of professionals engaging actively and using their discretion to commission an orthoptist screen, but also the use of a notion of 'local justice' as exhibited at a textual level in the guidelines on clinical commissioning (as well as in the Hall report itself). Whilst policy exists requiring a thorough visual screen for all children including those in areas of deprivation, it is essentially the conscience of orthoptists (facilitated by their professional discretion) that ensures that children in areas of deprivation are more likely to receive the screen from this key medical practitioner in the area of children's eye care.

## Chapter 1, Amblyopia defined, the study in outline and three levels of social policy

### Introduction

In this chapter I will define amblyopia, which is the target of the visual screen on or before school entry. I will also give a clear outline of the study positioning it within my area of work. I will make clear the research question which throws up a conundrum best tackled on three separate levels; a societal level, a group level and an individual (practitioner) level, all of which can be understood in a social policy context. Finally there are some reflections on a first local study (conducted prior to the national study and sometimes referred to as a local pilot) before some concluding remarks for Chapter 1.

### Amblyopia; description and prevalence

Amblyopia can be simply defined as, ‘poor vision due to abnormal visual experience early in life’ (Webber and Wood, 2005). This simple definition needs some unpacking. The following definition in Attebo, Mitchell et al. (1998) may help in this respect:

Amblyopia is a unilateral or bilateral reduction of best-corrected visual acuity, for which no organic cause can be detected on physical examination of the eye and which, in appropriate cases, is reversible by therapeutic measures

(Von Noorden, 1990)



Whilst amblyopia can be bilateral (affecting both eyes), it is nearly always unilateral, reducing the sight in just one eye. The notion that there is no organic cause is central to understanding amblyopia. The development of a young child's vision is dependent on the build-up of connections between the eye and brain. If these connections are impeded or interrupted in some way, for example if the vision in one eye is not properly in focus, or if one eye has drifted from the brain's expected target, the weaker or 'unhelpful' image tends to be ignored by the brain and vision fails to develop as well as it should in this eye. On examining the weaker (amblyopic) eye, no organic reason will be discovered; indeed all the structures of the eye will appear perfect, since the problem is essentially with the brain not making use of this eye fully, rather than with the structure of the eye itself.

Indeed the main risk factors for amblyopia are refractive error (the need for correction with glasses) and strabismus (misalignment of the eyes known commonly as a squint), or a mixture of these two. There is a fourth possible cause where the vision has been obstructed for some reason.

Amblyopia then can be classified into 4 main groups: These are anisometropic; where the cause is specifically due to a refractive error of one dioptre difference between the eyes (i.e. the weaker eye had not been corrected by glasses), strabismic; where the cause had been a squint, mixed; where both of the previous two are present; and stimulus deprivation, where there had been an obstruction (e.g. a ptosis or drooping eyelid) during the development of the child's vision. (Attebo, Mitchell et al. (1998), Webber and Wood (2005)).

Attebo, Mitchell et al. (1998) describe amblyopia as 'the commonest visual disorder in childhood with a prevalence of between 1% and 5%'. There have been many estimations of prevalence but Attebo's Australian study is perhaps the most thorough. Others include Webber and Wood (2005) who suggest that amblyopia 'affects approximately three per cent of the population' and Von Noorden (1985) who estimates that it 'occurs in 2-2.5% of the general population'.

The reason that it is important to screen for amblyopia is twofold; firstly it is reversible, and secondly, it has been noted that reduction of vision in the amblyopic eye carries with it an increased risk throughout life of loss of sight in the other (healthy) eye. One study puts this risk as 'at least three times that of the general population', (Rahi *et al.*, 2002). Furthermore, Von Noorden (1985) quoting Tommila and Tarkkanen (1981) notes that, 'The fact that the amblyope is exposed to the potential risk of blindness from loss of the good eye by disease or injury (Tommila & Tarkkanen 1981) adds urgency to our efforts to learn more about this disorder.'

The best age at which to screen for amblyopia has also been the subject of much debate, but the consensus would now seem to be aged four or five, i.e. on school entry. Indeed this is the recommendation of the Hall report (Hall and Elliman, 2006) following extensive research. The reasons for this are cost efficient in that you have a 'captive audience' at school entry, and also that this is an early enough age for any amblyopia that has already developed to be rectified. Furthermore, testing at age four or five is more reliable than testing younger (more distractable) children. Whilst a few PCTs conduct screens earlier, the terms 'school entry screen' has been used throughout.

### An outline of the study

The purpose of this study was to explore the link between amblyopia which is screened for in most Health Authorities on school entry, and practice around screening technique in terms of the factors affecting practice. This was done by issuing a questionnaire to each of the 152 Primary Care Trusts (PCTs) which existed at the start of the study. (PCTs were the providers of the screening prior to 1<sup>st</sup> April 2013 and the introduction of Clinical Commissioning Groups or CCGs). The questionnaires were followed up with case studies of a number of orthoptists involved in the delivery of screening. The idea here was to see whether at a national level there is the kind of discrepancy that was found in a local study between the skills and resources applied to the screen and the socio-economic makeup of the area as measured by the Indices of Multiple Deprivation, or IMD scores (Noble *et al.*, 2008). In the local study, the two PCTs which made up the Health Authority had very different levels of deprivation as indicated by their IMD scores (YHPHO, 2011). The more deprived PCT was found to receive far more skills and resources in terms of the screen than the more affluent PCT. The focus of the current study has been to explore issues around the cost/practice of the screen and the population characteristic, deprivation at a national level. The research question specifically then is: What are the links between service costs/practice issues and population characteristics regarding the school entry screen for amblyopia? The subsidiary questions are how can the emergent patterns best be understood in terms of societal, group and individual issues?

### How the study fits within my area of work

As a qualified advisory teacher of the visually impaired (ATOVI) I have, since 1997, been providing advice to schools to ensure that pupils with a visual impairment are fully included in all aspects of the curriculum, in a large southern Local Authority. I became Principal Advisory Teacher (supervising and managing the work of the ATOVIs) in 2001. I was more recently (in September 2010) appointed to a neighbouring Authority to provide the same role for them in terms of visual impairment.

The research question as already noted relates to the links between service costs/practice issues and population characteristics in the vision test on school entry. The interest here is in exploring possible variation between and within different PCTs/Health Authorities.

#### A description of the background to the study

This study follows on from a short piece of research undertaken locally in my own Health Authority. I collected data through Freedom of Information (FOI) requests on the outcome of the screen of 4 to 5 year olds. What I found was that the two Primary Care Trusts (PCTs) that make up the local Health Authority had radically different outcomes in terms of pass rates and referral on, consistently over the last four years. It seemed to me that there were two particular factors at play; one was deprivation, with very different levels of deprivation between the two PCTs and lots of literature on the effect of deprivation on child health, including amblyopia (Williams *et al.*, 2008). The other was that the practice was very different between the two PCTs.

‘Health for all Children’ (Hall and Elliman, 2006), the revised 4<sup>th</sup> edition of a report from a joint working party on child health surveillance, gave clear recommendations regarding the screening of young children for possible visual difficulties. This policy with its recommendation of the screening of all children between the ages of 4 and 5 was found nationally during the study to be delivered in many different ways by different Health Authorities across England. Furthermore, at times it was found to be delivered differently within the same Health Authority. This raised the question of the determinants that drive the approach taken in terms of implementing this policy. These determinants were divided into those around practice (and an assumed relationship to cost) and to those relating to the population itself and specifically the issue of deprivation.

#### A statement of the value of the study

This is a deviation from my usual area of work since amblyopia generally affects only one eye and as such is considered a minor impairment. The bulk of my work has been with children who are blind or severely partially sighted, i.e. those experiencing visual difficulties with both eyes. However, there is a suspicion amongst the professionals that I work with that there may be a number of children sitting in classrooms who are not accessing the curriculum as easily as they might, perhaps for the want of something as simple and as readily available as a pair of glasses. Similarly, children who are monocular (relying on the vision in one eye) may still require some intervention from, in this instance, orthoptists. The loss of some vision in one eye in early childhood (the effect of untreated amblyopia) is, fairly easily addressed, usually through a patching regime on the good eye in order to develop connections between the weaker eye and the brain. To screen for and discover amblyopia provides the opportunity to remedy one of the few

reversible visual difficulties in young children, a difficulty that can cause severe problems in later life should the vision in the only remaining good eye deteriorate (for example due to age related macular degeneration). Whilst amblyopia is not a life threatening condition, treatment of it can improve the quality of life of people (particularly as already noted, in later life), considerably (Attebo, Mitchell et al. (1998)). The value of this study is that, in providing a careful analysis of the different approaches to screening, it allows for considered debate regarding the best way forward in terms of screening for amblyopia. Furthermore, it brings to the fore the issue of deprivation and its link to the method of screening.

#### Relevant literature and research

This will be dealt with in some depth later in the report. However, central to the theme of this study is the revised Hall report (Hall and Elliman, 2006). Some key points from this report of a government working party on child health surveillance, in this instance regarding visual impairment, are as follows;

‘on the evidence available, the Working Party believes that the gold standard would be an examination of all children between the ages of 4 and 5 years of age.’ (p231)

‘social class plays a significant part in determining age of presentation for children with amblyopia.’ (p231)

‘Screening by orthoptists has been introduced in more districts but it is too early to determine how much this has resulted in improvements in service or outcomes.’ (p232-3)

‘A visual assessment by an orthoptist should be carried out on all children between the ages of 4 and 5 years. Some districts already have the staff to do this and need only to restructure their community programme, but in others it may take a few years to introduce.’ (p236)

‘Research is continuing on the natural history of amblyopia and the development and evaluation of vision in infancy, with the eventual aim of *preventing* amblyopia.’ (p237)

The Hall report makes it clear that the primary requirements for the condition (amblyopia) to be a suitable target for the screening are met. These requirements are laid out on the NHSs website

<http://www.screening.nhs.uk/criteria> as follows:

1. The condition should be an important health problem
2. The epidemiology and natural history of the condition, including development from latent to declared disease, should be adequately understood and there should be a detectable risk factor, disease marker, latent period or early symptomatic stage.
3. All the cost-effective primary prevention interventions should have been implemented as far as practicable.

However, Robson’s (2002) caveats regarding an ‘experimental’ approach remind us of two problems about this hypothesis; firstly that any statistical association is only ever partial, and secondly, that an association does not in itself deliver an explanation.

Following the local study I felt that there were two major factors that may have contributed to the patterns that emerged from data about the screen. There were factors to do with differences

between the population of 4 and 5 year olds in the PCTs from which the data was drawn (specifically levels of deprivation). Equally, there were differences in the implementation of the screening policy between the PCTs. The tie up with costs was the third aspect of the screen to be explored.

This research then has sought to find links between three variables relating to vision screening for amblyopia in four and five year olds service costs (funding), practice issues and population characteristics. With regard to the last it has looked specifically at levels of deprivation as measured by IMD scores (Noble *et al.*, 2008). It is hoped that the findings will be of use in understanding the delivery of other preventative screens, and will highlight good practice in this area.

Following the findings of a local study, a provisional hypothesis was posited that levels of deprivation in an area would have an effect on the choice of approach to screening in the current study. Following the local study it was also hypothesised that a more rigorous orthoptist delivered approach to screening was *more likely* in deprived areas in the current study. Furthermore, it was presumed that this more rigorous approach to practice involving screening delivered by orthoptists, would tend to come at a greater financial cost.

### Hypothesis



The more deprived PCTs as measured by IMD scores(Noble *et al.*, 2008), are more likely to receive the more rigorous and more expensive orthoptist delivered screen at a national level across all respondents ( $p < 0.05$ ).

Following this collection of data, a small number of follow-up telephone/email/face to face interviews were conducted to further explore the relationship between the variables of cost, practice and population characteristics (in terms of deprivation). These were conducted with a sub-sample of orthoptists selected on the basis of peculiarities suggested by their returns or a shared interest in the work. They are the case studies already referred to earlier (above) and form the qualitative data to go alongside the quantitative data in a mixed methods design for the study. A full exploration of method (both quantitative and qualitative) as part of this flexible design is given in Chapter 3.

### Summary

This study has followed on from a short piece of research undertaken previously in my local Health Authority. Deprivation had clearly had an effect on practice (this was stated openly when explaining in follow up interviews, the reason for the two approaches taken in the local study). For this thesis, the hypothesis was made that this would also be so (there would be a connection between deprivation and use of orthoptists for the school entry screen) at a national level.

The design of the Institution-Focused Study, or IFS (quantitative data collection followed by qualitative follow up interviews) was used again in this thesis. Indeed the IFS is very much a part of the thesis to the extent that it constitutes the local study on which this thesis was able to follow up. This thesis was more quantitative in its approach than the IFS. The qualitative follow up interviews were more ‘light touch’ than in the IFS, this was because the case studies cannot claim to be indicative of the larger (national) picture, they will simply represent interesting aspects of the bigger picture. The ‘meat’ of the thesis study is held within the quantitative data collected from Primary Care Trusts (PCTs) from around the country. Theory from the domain of social policy was brought to bear on this data. In particular, the ‘mechanism’ for the link between the determinants of deprivation and practice/cost can be understood at a societal level in terms of local justice(Elster, 1992), at a group level in terms of street-level bureaucracy(Lipsky, 1980), and at an individual level in terms of personal construct theory(Kelly, 1955/1991). These theoretical positions will be examined fully in Chapter 2.

The structure of this thesis report then will be as follows; Issues of epistemology and theory will be looked at as part of a literature review in Chapter 2. Chapter 3 will deal with issues of methodology for both the quantitative and qualitative aspects of this flexible design. Chapter 4 will deal with the local study and an analysis of quantitative findings from the present research. Chapter 5 will look at the qualitative findings and begin a discussion regarding the findings of the thesis. Chapter 6 will pull the previous chapters together by way of some conclusions. There will also be some personal reflections on the work in this final chapter.

## Chapter 2, Issues of epistemology and theory; a literature review

In this chapter I will deal with two connected issues, first the epistemological issues that have influenced my choice of method and second the theoretical approaches that I will use to help interpret my findings.

### Epistemology – Garfinkel’s approach to explanation

In ‘Forms of explanation’, Garfinkel (1981) notes that in the field of social research there are explanations everywhere but that it is not always made clear how this can be so (that there may be many, often conflicting, explanations pertaining to the one social phenomenon). Furthermore it is not at all clear how, or indeed if, these conflicting explanations can be resolved. In terms of this current research, an example might be that ‘flag-waving’ has been suggested as an explanation of how street-level bureaucrats facilitate the use of orthoptists in areas of deprivation. This phrase has come from one of the qualitative interviews, in which Ariana (an orthoptist) felt that, ‘When an organisation bids for screening they are likely to ‘wave the equality flag’. Flag-waving then is a possible explanation, but to give one further explanation for this current piece of work, clinical commissioning guidance, it has been suggested, has been used to address the unfair gradient of increased deprivation resulting in increased health issues. There may of course be many other possible explanations but I will stick with these two for the moment. These two explanations can be seen as competing. One is the action of an individual who is waving the flag of inequality, and the other is the result of a system that is set up to address inequality in health. The issue here then is an example of the structure agency debate, in this instance around causation for the clear correlation between deprivation and use of orthoptists.

Garfinkel suggests that a model (or paradigm) of a form of explanation for an ‘object’ can be described as an explanatory frame. In the particular example of this thesis, the object is the significant relationship between use of orthoptists and deprivation. The form (or paradigm) of the explanation is, in one explanatory frame, flag-waving (which can be seen as relating to the agency of front line workers) or use of clinical commissioning guidance to address health inequality (which can be seen as relating to the structural ‘safety nets’ in place regarding health inequality).

The difference in the explanatory frame then in this example relates specifically to the type of question being asked. A question around flag waving might be described as a who/agency question, whilst a question around clinical commissioning guidance might be described as a what/structural question.

Garfinkel suggests that a quick diagnostic inference is useful in terms of understanding what question the explanation is really answering. What is the root question that in this instance results in the explanation that people are flag waving/the clinical commissioning guidance is adhered to? In short, it would seem to me that the question is, what is the mechanism that causes the significant relationship between use of orthoptists and deprivation?

In the sphere of the social sciences it is hard to avoid the structure agency debate. In this study it can be posed as, is the system producing flag-waving individuals, or are flag-waving individuals producing an egalitarian system?

Garfinkel points out that any explanation tends to focus on those factors which are seemingly the most prevalent. However, there is always a danger of describing these factors as the cause when actually they are simply things that occur with the object (in this instance, with the deprivation/use of orthoptists link). I need to then, in Garfinkel's view, acknowledge at this point then that my own explanatory frameworks (which appear stuck at a structure/agency roadblock) are to some degree value laden since there is no ultimate test that they are causal.

I am interested in social justice and it is my contention that social justice, through the structure of the clinical commissioning guidance and the agency of flag wavers as I have called them, is the causal mechanism for the link between use of orthoptists and deprivation. Structure and agency of themselves should not necessarily be separated. It is perhaps not a useful dichotomy since in order to really understand one you need to hold the other static. Individualist explanation needs to hold the social structure stationary, as a given, in order to understand the individualist aspects of the situation. Similarly structural explanations will tend to make universal assumptions about the individual players and therefore negate their essential individualism.

In seeking to go beyond relativism Garfinkel suggests that the suppressed premise is that obviously values are purely subjective and there is nothing to say about whether one value is more significant than another. This is equally so in attempting to understand the individuals involved in the commissioning process that results in the deployment of orthoptists in areas of deprivation. He suggests that it is not possible, but also not useful to answer both the questions relating to explanations involved in the dichotomy structure/agency. Garfinkel feels that the structural explanation is more useful especially since it is invariably the structure that individuals, attempting to initiate change, make some adjustment to. (Again, I must state that I am interested in the changing of structures where health inequalities are concerned). As Garfinkel puts it:

It does not help to be told that everyone is Xing because everyone else is. What we want to know is not 'Why is everyone Xing?' taken one by one but rather in the sense of 'Why does this practice of Xing exist?' The answer to this structural question gives us an explanation of the overall practice and importantly tells us how to go about changing the practice. Notice that the strategy of changing X-behaviour of individuals one at a time is futile. For each individual the pressure of the others is sufficient to guarantee the X-ing. On the other hand if we have a structural explanation for the overall practice, we get an idea of how to go about changing everyone's behaviour.

(Ibid) pp165-166.

In the case of the current research, the suggestion is that to try to understand the individual motivations of individual flag wavers would be futile and in any case not helpful. In contrast,

understanding the structural significance of the clinical commissioning process (and more specifically monitoring this) is of value, since it helps in facilitating the X-ing behaviour which in this case has been described as flag-waving. In short flag-waving can be understood not as a mechanism for social change in and of itself, but as an example of a street-level (front line) behaviour that, facilitated by the structural measures specified in the clinical commissioning guidance, can bring about social change.

My difficulty with Garfinkel's work relates to his need to 'tidy things up'. I prefer to allow false dichotomies to remain exactly that – false. Let's talk instead about the real world in which things are invariably messy rather than neat and tidy.

#### Let's talk about sex

I wish to hold two points of view at the same time. I wish to hold a position that says the orthoptist is an essential cog at the centre of the structure of policy implementation, in understanding this cog I am closer to understanding the way in which policy is not just delivered, but also actually made by those on the front line of public services. The policies of the Hall report (Hall and Elliman, 2006) and the review and subsequent guidance on clinical commissioning (Marmot, 2010) are key in directing the actions of this cog.

I also wish to hold a position which says that the orthoptist is a person, and to fully describe the numerous variables involved in the discretionary decisions and actions of that person I need to

draw, not on a structural mechanistic schema, but rather to draw on a robust psychological model of the person which allows for agency such as ‘discretion’ within a wider, work context.

In short, I wish to describe the orthoptist structurally since this is an important (perhaps central) cog in the machine of policy implementation. However, I also wish to avoid this mechanistic schema, since there is a limit to the extent that ‘individual differences’ within the person (as well as within the system) can be accounted for in this way.

There are two possible ways out of the conundrum outlined above; however, only one of them is really ever used. The first is to revert to what Irigaray (1977) calls male discourse; by this she means discourse which contains an overwhelming desire to find singular, ultimate truths. Irigaray, in true psychodynamic style, provides the symbolism of the phallus for this kind of ‘singular’ discourse. The second, which is rarely if ever used, is to adopt what Irigaray puts forward by way of a feminine language or discourse. The symbolism of the feminine lips (vulva) is used in describing such a discourse...

You may perhaps be able to see that when one starts from the ‘two lips’ of the female sex, the dominant discourse finds itself baffled; there can no longer be a unity of subject for instance. There will always therefore be a plurality in feminine language... there is always for women ‘at least two’ meanings, without one being able to decide which meaning prevails

Irigaray, (1977), p65



This thesis could continue in the feminine form in which (if Irigaray's proposal is accepted) this section started, by continuing to present two truths side by side. Or I could revert to type and tidy up any inconsistencies to arrive at singular 'truths' about orthoptists (this I feel is the direction in which Garfinkel wishes to travel). However, I wish to be more radical than either of these possibilities...

#### Let's talk about intersex\*

\*Where 'the immediate assignment to male or female [is] difficult', Warne, (1998)

Essentially critical realism (the standpoint taken in this thesis) falls somewhere between a (positivist) realist position and a more 'slippery' relativist position.

In a similar vein, as will be shown in the discussion of theory later in this chapter I have sought to combine social science and psychological perspectives. I have also drawn on a particular psychological theory, Personal Construct Theory (Kelly 1955/1991) which 'marks precisely the kind of modern-postmodern mix', Raskin (2001), which psychologists have for some time been striving for, indeed it bridges a gap between these perspectives. Similarly, structural views relating to the delivery of services (in this instance the school entry screen) can and have been combined with personal views which account for the agency (discretion) of front line workers and managers.

There have then at times been issues around structure and around agency which rub awkwardly with each other. I have not wished to 'tidy things up' to arrive at singular truths when such truths are untenable. I have taken the position at times that, 'It doesn't have to be 'true' it just has to be useful'. There have been times when, despite my gender, I have held two positions at the same time, but for the most part my position has I hope been that of intersex. This leads us to the issue of critical realism (as a middle path).

### Critical realism

Robson (2002) notes that realism has been reformulated e.g. Bhaskar (1978) and Harré (1986) to take account of some of the insights provided by constructivism. Wetherell and Still (Sapsford and Open University, 2001) give a useful introduction to the debate around this reformulation under the title 'Realism and relativism'. Essentially the reformulation involves placing critical realism somewhere between an outdated (positivist) realism and a 'slippery' relativism.

Harré (1992) takes issue with what he sees as a fundamental flaw in the position of relativism, noting that at the very least, there must be the reality of people and discourses and furthermore that the use of these discourses makes life possible. 'A condition for the viability of Gergen's relativism is that the beings who are involved in the switch of 'realities' are all language users sharing a human form of life.' (Harré, 1992). This is not dissimilar to Kelly's (1955/1991) sociality corollary. Kelly defines this in the following way, 'To the extent that one person construes the construction processes of another he may play a role in a social process involving the

other person.' Kelly's personal construct theory is described by Stevens, (1998) as containing what he calls a 'minimum realism' i.e. 'that at least some aspects of reality are independent of our sense experiences, ideas and wishes'. The aspect of reality that both Stevens and Harré refer to can be described as social interaction/conversation. In order to take part in such an 'exchange' the two (or more) participants *must* make use of certain shared realities, not least of which is a shared language.

Whilst Wetherell and Still (in Sapsford & O.U. 2001) suggest that, 'Bhaskar has little enthusiasm for a scientific social psychology, and would probably accept Gergen's (1985) argument that social psychology is history rather than science', Robson notes that 'Harré argues for an interpretative social psychology', an approach that falls within Robson's view of critical realism. Robson (2002) proposes that those that take a qualitative or 'flexible' designs approach to research '*need* not shun being scientific' (p18, original emphasis). It is in this sense that I am using the term critical realism. In short I wish to take a scientific look at data produced from questionnaires regarding the school entry screen, without assuming a positivist, and frankly unobtainable, 'high ground' of pure science.

Groff, (2004) helpfully delineates three strands of critical realism; ontological realism, epistemological relativism, and judgemental rationality. It is the second of these, epistemological relativism, that most closely mirrors my own philosophical stance. Whilst the differences between these theses on critical realism should be of interest to any scholar in the social sciences, they are not directly relevant here and I shall stick to a clear presentation of the ideas around epistemological relativism and thus of my stance in assuming a critical realist position.

Epistemological relativism: ‘Knowledge claims, he [(Bhaskar, 1978)] claims, are socio-historical artefacts; they are produced rather than discovered, and they change over time.’ Groff (2004) p19. Furthermore, ‘knowledge must be understood to be fallible’ (Ibid) p19. This is important since normally when we talk about knowledge we refer to something that is both justifiable and true. Bahaskar (1978) separates these two notions with this statement. It is possible that we are justified on the basis of a thorough ‘scientific’ research approach to lay claim to truth, but we must understand that this is fallible (i.e. it may prove to be false). Groff sums this up well in stating that, ‘the implication of accepting a ‘fallibilist view of knowledge’ is that there can be no difference in kind between knowledge and well-supported-beliefs-that-might-be-false.’ (Ibid) p19.

It should be noted here that I am not interested in an understanding of ourselves as thinkers (an ontological task), I am interested in our understanding of knowledge (an epistemological task). The term epistemological relativism, as Groff explains, does not come from an understanding that we are all separate thinkers and therefore hold different (relative) views of the world, but rather that the nature of knowledge itself (which is in fact a social not an individual enterprise) is such that we must use the term relativist because it is produced rather than discovered and changes over time, i.e. is fallible. This is as much true of the natural sciences as it is of the social sciences.

Finally, ‘epistemological relativism is associated with the view that scientists’ descriptions of the world are always theoretically informed (a position that is implicit in the view that the cognitive task undertaken by scientists is to use concepts to produce other concepts). Groff (2004) p20. In the context of the current thesis, the data has been generated and analysed both thoroughly and

scientifically. The findings add to our knowledge of the school entry screen and have been produced from the thorough (scientific) processes outlined, and will be fallible as with all findings in the face of changing times. I will show below that theories that have proved useful in other research (around local justice, street-level bureaucracy and personal construct theory) have been used to produce a new theory to explain the ‘mechanism’ by which the more deprived PCTs have tended to make more use of orthoptists in delivering the screen. For the purposes of this thesis, the mechanism can be understood at a societal level in terms of local justice, at a group level in terms of street-level bureaucracy, and at an individual level in terms of personal construct theory.

In summary then, the study used a flexible design taking a critical realist approach (a scientific approach that draws on both positivist and more relativist perspectives). Secondly it employed a case studies method in terms of the qualitative data. In order to make sense of the practice in a particular area/PCT it was necessary to conduct telephone/email (and in one case face to face) interviews with some of the practitioners involved in delivering/researching the screen. Thirdly, it was a mixed methods design in that prior to the interviews, it was necessary to have collected quantitative data regarding the screening of children on entry to school (in the term in which they are five).

#### Theoretical Approaches – ‘professional discretion’ as a key theme within the work

The extent of ‘discretion’ can be seen as a function of the model of professionalism. Broadfoot, P. et al (1993), Freidson, E. (2001), Halpin, D. (2006), Hargreaves, & Goodson, I (1996), Hoyle, (1974). ‘Discretion for whom?’ is an important part of this debate. One view of professionalism is that it belongs to an elite group of individuals who through dint of their qualifications are

entitled to some discretion in their work. Discretion in terms of the choices they (at times unilaterally) make to achieve outcomes, in terms of their working conditions (for example hours of work) and in terms of their role in implementing and perhaps even forming, the policies of their seniors (essentially the specification of desired outcomes). This notion of professionalism tends to hold in the Health Service much as it does in Education despite the emergence of newer ideas such as democratic professionalism (Apple and Beane, 1995). Indeed it might be suggested that these older ideas regarding professionalism are more prevalent in the Health Service, with the doctor being an almost archetypal example of such a professional. The very clear hierarchical nature of the Health Service may be integral to this notion of professionalism. The ophthalmologist (the eye doctor), unless it is an orthoptic/optometrist fast-track clinic where patients never see an ophthalmologist, will have the ultimate say over the approach taken to the treatment of a patient. The orthoptist may be the first to see the patient and ‘prepare the ground’ for the ophthalmologist by, for example, checking the patient’s acuity (measuring their distance vision – their ability to make out detail at a distance of six metres), but it is the ophthalmologist who will decide on treatment. The exception here is issues to do with eye muscle control/movement and amblyopia which may be caused by either non-alignment of the eyes or differing prescriptions between the eyes. Orthoptists were indeed found to be key players in the implementation of the policy on screening as specified in the Hall report. Use of orthoptists was also found to provide the clearest indicator regarding the rigour of practice and also the attendant costs.

There are three kinds of theory that help with the analysis of professionalism. The first of these is local justice (Elster, 1992), which looks to make sense of the unequal spread of a scarce resource

(in this instance the labour of orthoptists). Secondly street-level bureaucracy (Lipsky, 1980), which is used to explain how, because of the discretion of professional workers, policy around the screen is essentially ‘made’ within the public sector work space (in this instance the PCT) rather than in some aloof Whitehall committee room. Finally, these actions require an actor, and personal construct theory (Kelly, 1955/1991), is used to explain the psychological motivations of the principal actors (in this instance head orthoptists).

### Local Justice

Variations in practice from area to area may be analysed in terms of the notion of ‘local justice’, described by Allen, Griffiths and Lyne (2004) as follows:

The notion of ‘local justice’ (Elster, 1992) refers to the conceptions of justice that are deployed by those people in a position to influence the distribution of scarce resources.

(Ibid) p428.

The notion of ‘local justice’ is contrasted with ‘global justice’ by Elster (1992) as follows:

Roughly speaking, globally redistributive policies are characterized by three features. First, they are designed centrally, at the level of the national government. Second they are intended to compensate people for various sorts of bad luck, resulting from the possession of “morally arbitrary properties.” Third, they typically take the form of cash transfers. Principles of local justice differ on all three counts. They are designed by relatively autonomous institutions which, although they may be constrained by guidelines laid down

by the center, have some autonomy to design and implement their preferred scheme. Also they are not compensatory, or only partially so. A scheme for allocating scarce medical resources may compensate patients for bad medical luck, but not for other kinds of bad luck (including the bad luck of being turned down for another scarce good). Finally local justice concerns allocation in kinds of goods (and burdens), not of money.

(Ibid) p4.

The particular notion of justice itself is perhaps more tricky in this instance and requires some unpacking. Moreover, it is the particular view of ‘justice’ that is employed locally in distributing scarce resources (in this instance a health screen) that is relevant to this study. Elster describes the major theories of justice as ‘justifying deviations from equality’. (Ibid) p200. There may be many reasons for wishing to do this, the reason that approaches most closely the circumstances of the study is given thus; ‘equality of outcome may require preferential – that is, unequal – treatment of these individuals, so as to offset the original inequality’. (Ibid) p202. For the purposes of the current study ‘these individuals’ can be read as children on school entry in the more deprived PCTs which are disproportionately screened by orthoptists, and ‘the original inequality’ can be read as the poorer health and consequent implications (including visual implications) of deprivation.

### Street level bureaucracy

Lipsky’s (1980) notion of the ‘street-level bureaucrat’, has proved particularly useful in attempting to understand how the pressures from above (in terms of budget) as well as professional pride in



delivering good service to the citizen (child/family), interact to create the implemented policy of school entry screening.

In this section I will look at the writings of various scholars including Meyers and Vorsanger (2003), Smith (2003) and Hill (2009) regarding Lipsky's (1980) concept of the 'street-level bureaucrat' (SLB). The relevance of this literature to the current study will be made clear with respect to the role the orthoptist in terms of delivering the policy of screening for vision on school entry. Ideas around what might *drive* the street-level bureaucrat are given from a psychological rather than a sociological perspective. Kelly's (1955/1991) Personal Construct Theory is found to be particularly useful here (see below). It will be suggested that the discretionary decisions faced by the SLB and resultant 'devices' and outcomes rely on the particular constructs that drive the individual conscience of the SLB as well as the structural policy and institutional culture within which they find themselves.

Meyers and Vorsanger (2003) in writing about Street-level bureaucracy and the implementation of policy, suggest that the various scholars of SLB may appear to have come up with contradictory findings regarding the extent of the discretion that they are able to exercise, and even whether their discretion is good or bad for democracy and the implementation of policy. However, the authors feel that this is due to shortcomings in the theory, methodology and contextualisation of the studies concerned, rather than with contradictions fundamental to the concept itself, or profound disagreements between the scholars themselves. They feel that if context is sufficiently accounted for then a model for SLB influence can be ascertained. That is to say that once the

top-down requirements of policies and systems are taken into account, then and only then can reliable work on the 'effect' of SLBs be undertaken. As well as a tension in Meyers and Vorsanger's (2003) chapter between different paradigms and the most appropriate one to use to 'catch' the elusive discretion effect that the SLB exhibits, there is also a tension between top-down and bottom-up explanations of policy implementation.

The authors explore research from various perspectives regarding SLBs. Perhaps the most compelling arguments come from a paradigm more sensitive to individual differences and therefore more appropriate for investigating something as personal as 'discretion'. The authors cite favourably in this respect the work of Maynard-Moody and Musheno (2003) who provide narrative 'stories' from front line workers in schools, welfare offices and vocational rehabilitation. They (ibid) conclude, 'street-level decisions and actions are guided less by rules, training, or procedures and more by beliefs and norms, especially beliefs and norms about what is fair' (p6).

There is a danger however with the vast majority of work examined by Meyers and Vorsanger, of falling into the worst excesses of the positivist scientist. The authors appear to be hoping that once all contextual factors are taken into account, it will be possible to accurately model the effect of the SLB. This is a very deterministic perspective allowing little room for any self-determination on the part of the SLB. However, were it possible to bring to the fore the individual differences of SLBs, there is a danger that having taken account of all other contextual influences (it is hardly necessary to state the difficulty, perhaps impossibility of this) that the resultant 'relativist' model would simply read SLB A does as SLB A is, SLB B does as SLB B is

etc. The converse argument, the positivist ‘dream’ with which we started this paragraph, is that once all contextual influences are understood, the behaviour of the SLB is guided by these influences, indeed the SLB *is* the sum total of the context in which s/he finds her/himself in. This is social determinism at its worst.

Meyers and Vorsanger counter these possibilities (of ending up with an over determined social constructivist perspective, or an individualistic relativist position) by steering a middle ground: 'It is clear that hierarchical accountability structures and formal policy directives influence but only partially control the actions of front line workers' (p251). However, they remain on the social constructivist side of things. They come close to ascribing some individual influence in identifying – following Sandfort’s (2000) work on inter-agency collaboration – the importance of the factor they describe as ‘collective schemas that staff develop to make sense of their task environment’ (p251). The word ‘collective’ is the key here and the sentence would read very differently without it because it would introduce individual determination. But SLBs are all about the discretion that they use to influence policy implementation. This is acknowledged when the authors write 'We need to develop more fully integrated theories of how these political, organizational and individual factors channel street-level discretion into specific directions through policy design, organizational features and professional norms and culture' (p251). So here, 'individual factors' are part of what 'channel' street-level discretion. The authors' difficulty then, in summary, is allowing some individual discretion (essential to the definition of SLB) within what is essentially a deterministic social constructivist paradigm.

Smith (2003) comes at the issue of SLBs from a different point of view and feels that it is necessary and indeed important to look at the performance of SLBs from the perspective of the citizen who is on the end of discretionary decisions regarding scarce resources. The scarcity of resources can indeed be seen as something that puts the SLB in a difficult position regarding their duties to citizens (different that is from a worker in a profitable private sector company). Smith (2003) notes that there is a danger when the public resource being offered is scarce, of alienating citizens: ‘Brodkin (1997), Lipsky (1980), Prottas (1979), Wilson (1978) and others have argued that street-level bureaucrats are inevitably put in a position of rationing services due to a lack of resources to meet demand. The result is inequality, bias, alienation and a denial of citizenship rights as street-level bureaucrats adopt coping mechanisms to deal with their on-going resource and demand problems’ (p362).

The argument that from a citizen’s perspective, there is a necessary ‘friction’ with the SLB becomes particularly compelling when one considers the viewpoint of Reich (1964) who felt that government benefits are in fact the ‘new property’ and should be protected and legislated for in the same way as other kinds of property. Might a citizen feel that their child’s orthoptist performed eye test had been ‘stolen’ from them were it to no longer happen? After all, we as citizens do in fact pay for the services we receive through our taxes.

Hill (2009) contrasts the work of writers influenced by Max Weber who describe bureaucratic personalities slavishly implementing policy to the letter, with the views of writers such as Michael Lipsky who describes front line workers as powerful figures who, with varying degrees of

discretion, are not only delivering but also making policy through their particular take on implementation. Firstly arguments in support of bureaucratic personalities are looked at, and whether they are made in institutions or selected for purpose by institutions. Secondly the concept of street-level bureaucrats, Lipsky (1980), and their role in not only implementing but also producing policy, is explored, ‘the devices they invent to cope with uncertainties and work pressures, effectively become the policies they carry out.’ (Lipsky, 1980) p. xii. Furthermore, ‘the development of practices that enable officials to cope with the pressures they face’, Hill (2009) feels is key here (p261).

Hill clearly values Lipsky’s input into the discourse regarding front line workers and the implementation of policy. The implementation process would seem from this viewpoint to be more of a two way thing (bottom up as well as top down) than previous literature on bureaucrats, and particularly bureaucrats in the public sector, had allowed for.

The literature review above, regarding street-level bureaucracy comes from the discipline of political science. However, perhaps unusually for this discipline, there is at the centre of the discourse a person, not simply a role within a structure, but a person, complete with agency, who must use their discretion to deliver scarce resources to the citizen. What is being outlined in the literature can equally be understood, not from a political science perspective, but from a social psychology perspective.

The idea that, for the SLB, ‘the devices they invent to cope with uncertainties and work pressures, effectively become the policies they carry out’ (Lipsky, 1980) p. xii) will be central to this study

and any further work. Rosa (head orthoptist in both this and the local study) is clearly struggling with, on the one hand a wish to deliver a school entry screen by an orthoptist, and on the other, the need to deliver a cost effective service. The decision to evaluate a school nurse delivered screen following training from orthoptists, alongside an orthoptist delivered screen, can be seen as a ‘device’ to (hopefully) settle both conscience and budget constraints. The hope will be that the school nurse screen (following training) will be as effective as the orthoptist screen. Whether this turns out to be the case remains to be seen.

The discussion that is being outlined here regarding street-level bureaucrats (SLBs) is really the discussion between social constructivists and personal constructivists – to what extent are we held within social constructs that determine our behaviour, and to what extent are we able as individuals to experiment with our world in order to arrive at our own personal constructs that work for us in our daily lives?

It may help here if to give an example of the way an individual may be both constrained by a system but also remain an individual within it. Understanding this is central to understanding the competing pressures that a street-level bureaucrat (Lipsky, 1980) feels.

Having just moved from one Authority to another doing, ostensibly, the same job, I became acutely aware of differences in culture between the two work places. The job of the teacher of the visually impaired (of which I am one and for whom I was the Senior Teacher, i.e. manager) is

essentially to ensure the inclusion of children with visual impairments in whatever educational placement they may be in (including the home for pre-school children). However, there are subtle differences in the way that the word 'inclusion' is interpreted and operationalized between the two teams. An example of this would be the arrangements for a day of activities designed especially for school age children, often in two separate age groups, who are visually impaired. The teams in both Authorities would agree on the need for such a day so that children with a low incidence disability can meet each other and take part in fun activities adapted to their needs that they may not otherwise get the chance to participate in. However, the arrangements for getting children there are different between the two Authorities. Where I worked previously, it was up to the parents to deliver and pick up their children. In the new post it was made clear to me that if for any reason a parent can't deliver or pick up, the team will step in wherever possible and offer lifts. Whilst this may appear an arbitrary difference in practice, to me it felt like an affront to my understanding of inclusion. Central to this understanding is the idea that the children we work with are children like any other, but who just happen to be blind or partially sighted. So my test regarding inclusion is invariably, 'what would be the expectation regarding my own children' (both of whom are fully sighted). Clearly, if I couldn't get them to a specially organised event outside the jurisdiction of the school, they just wouldn't go. Furthermore, if a special team of teachers offered to step in with a lift for my children it would feel like patronage.

There are other (contrary) arguments regarding inclusion that could be made, for example that children who are blind or partially sighted *are* different, and that possibly my understanding of inclusion seeks to ignore this difference in some way. However, the way in which I had constructed inclusion, so familiar and agreeable to me in the previous Authority, had become a part

of me. I think it is not too strong to say that it is not just what I do, but it is also in some way ‘who I am’.

So, soon after starting my new post, I was faced with a situation in which one of the children I was teaching braille to in school had submitted a request to attend the activity day, and then the parent had indicated that she couldn’t get the child there. It was clear within the team that I would step in and organise a solution for the parent to this problem. However, I couldn’t do it, I just couldn’t do it. To continue with the terminology of this chapter, I found myself as a street-level bureaucrat (SLB), charged with delivering the policy of providing access to an activity for children with a visual impairment, but this time within a culture that expected lifts for children whose parent/s are unable to take them – something that conflicted with a fundamental belief system, what Kelly (1955/1991) would call a core construct, within me. What I did was what all street-level bureaucrats (SLBs) do, I used discretion and found a ‘device’ that would allow me to satisfy my conscience *and* deliver to the requirements of the team culture (unwritten policy). I was teaching another child braille in the same school, and this child hadn’t requested to attend the activity day. Her mother also works in the school and I was able to give her details of the day again, together with a special request... If her daughter was going, could she also take the other child? This is indeed what happened. This is the kind of arrangement I regularly come to with parents of my own children’s classmates. Both conscience and team requirements were satisfied.

This (by comparison trivial, but none the less heartfelt) example from my own practice has hopefully demonstrated the kind of situation that an SLB at the centre of this study, the head



orthoptist Rosa, had found herself in, with both conscience and team requirements (in her case the need to deliver a service within budget) in mind. Her ‘device’ was that: ‘If the screening carried out by school nurses after training by orthoptists is as effective as the screening carried out by orthoptists, this would satisfy both my conscience and the budget.’ The word ‘conscience’ can, following the introduction of theory from Kelly (1955/1991) now be replaced with ‘core construct’.

Whilst my own example doesn’t have immediate budgetary overtones, it does perhaps show firstly, how discretion can be used when delivering (in this case unwritten) policy, and secondly the power of core constructs when guiding actions.

### Personal construct theory

What has been re-introduced here in my own story is the idea that it is possibly something much deeper than conscience that is at play. The term ‘core construct’, Kelly (1955/1991) has been introduced to describe something that is so important to you that it is in a sense integral to an aspect of who you are. It is possible that the head orthoptist (Rosa) doesn’t just think that orthoptists (who regularly assess children’s vision in hospitals) are the best people to carry out a test of a child’s vision at a school entry screen; it may be that her belief in this is, in a sense integral to her identity, a core personal construct. As noted previously, being an orthoptist then possibly isn’t just what Rosa does, it really is to some extent *who she is*.

Kelly suggests that each of us creates our own understandings (personal constructions) of the world. Whilst everyone construes things differently, everyone's personal constructions must also be influenced by everyone else's, i.e. social, cultural influences (a degree of external 'reality'), if only so that we can make some kind of sense of each other. This is what he describes as the sociality corollary.

Some of the key aspects of Kelly's theory are summed up by various writers as follows:

'Constructive alternativism'

- Each individual person is seen essentially as a 'scientist'
- The need to understand, predict and have an effect upon the world is not simply a need of scientists, but is a fundamental attribute of the way each individual person exists in the world.
- Understanding another person was to Kelly achievable only in so far as one can know how that person goes about making sense of (constructing) his or her world.

'The credulous approach'

- The credulous approach implies a belief in what the other person says is true for them and is viable for them.
- The approach implies work on the part of the listener to suspend his or her own personal perspectives in order to understand the theories of the other person

‘Minimal realism’

- There *is* an integral universe, though no one person has direct access to it.

‘Sociality corollary’

- Each individual has a unique personal construct system which makes total sense to that individual.
- For all individuals this construct system is to some degree shared (that is, we share some common understandings) and is also to some degree unique.

Bannister and Fransella (1986), Dalton and Dunnnett (1992), Stevens (1998)

Kelly's personal construct theory (PCT) is an idiographic approach to the construction of personality/identity in that it takes account of the whole individual rather than focusing on an aspect of the individual which can then be generalised to others (as might be done with quantifiable notions of introversion/extroversion for example). It is therefore a pertinent tool for those on the humanistic/experiential wing of social psychology. However, since our constructions are situation centred as well as time centred, it is also of use to those who take a social constructionist approach. There is an issue in this latter approach concerning whether we make our constructions or whether our constructions (which may be social in origin, e.g. regarding the role that orthoptists are expected to play in society) construct us. The view taken in this thesis

is that in our social world, beliefs and actions are mutually interdependent, Dallos (1996) p120. Our constructs (for example regarding being an orthoptist) result in actions which in turn are reinforced or questioned by another person's constructs and resultant actions. A 'questioning' may result in some change in the original construct.

Central to Kelly's view is that people are in a sense, scientists, constantly testing out their personal constructs of the world against the (real) world itself. At times these constructions work well and are therefore reinforced, at other times they may jar against an external reality and need rethinking (as they did when I changed Authorities). At no time will this be more so than at times of great change. Whilst any time in recent history (certainly within the last ten years) can be considered a time of great change within the National Health Service, the introduction of GP commissioning and the associated dissolution of the Primary Care Trusts (PCTs), has been a particular time of change in terms of the understanding of professional identity for any health professional including an orthoptist. Furthermore the current 'austerity measures' have brought a huge amount of change to all areas of the public sector. This is so in both health and in education, the two areas of the public sector most closely related to this study.

#### Personal Construct theory and change – the concept of 'hostility' (to change)

Kelly, (1955/1991) suggests that bipolar constructs are used to 'predict how the world and its inhabitants might behave.' Raskin, (2002). The metaphor of *personal scientist* is used, as the theory suggests that people constantly test how their personal constructs fare in terms of predicting life events. Constructive alternativism is the fundamental philosophy behind personal construct

psychology. This states that there are an infinite number of ways in which any given situation can be construed (have bipolar constructions applied to it). Furthermore, if one way of construing the world is not working for a person (i.e. it is not providing good predictions), it follows that the person, as personal scientist, can find a new, creative way of construing the world.

Kelly's concept of 'Hostility' is used to describe a situation in which a person continues to use a construct even when it is no longer providing the expected evidence. Fransella & Dalton, (2000) give a good example of this in describing a person who stutters in social situations. The person (Luke) exhibits hostility when he begins to make progress (i.e. when he begins to find that he does *not* stutter in social situations). The evidence that he stutters in social situations is no longer available to him which threatens his very sense of self. 'When he is fluent with others he gets evidence that he cannot properly construe – he just does not know how to behave as a fluent person – it has too little meaning for him. He returns to stuttering in situations in which he was becoming fluent.' (Ibid) p43. Thus, to recap, 'hostility' within the remit of personal construct psychology relates to the notion that the person is continuing to use, and validate, a construction (e.g. 'in a social situation I will stutter') where there is strong evidence that this is no longer necessarily so.

Raskin (2002) uses the concept of hostility to suggest that some scholars, including Stevens (1988), consider personal construct psychology to be on the realist end of constructivist theories. Raskin is right to reflect that Stevens' views contain what Stevens himself refers to as a 'minimal realism' (ibid). Raskin (2002) refers to scholars such as Stevens as seeing 'the world itself as unyielding in its essential qualities, rendering constructions that effectively reflect these qualities

as intrinsically more useful than others.’ Equally, to ignore the evidence regarding this minimal real world would be hostile.

Those on the relativist end of the spectrum of personal construct psychologists also make use of the concept of hostility; it is simply that it is applied within a slightly different world view to that of a ‘minimal realist’ such as Stevens. It is possible to conceive of a world, an era, a culture, in which stuttering is a positive social advantage. In such a world there may be a difficulty for those who, for some reason, were unable to stutter in social situations. In this instance, the example given above of the ‘hostility’ that the person who stutters adopts when he stops stuttering might simply be applied in reverse. (The sense of self of a person who doesn’t stutter may be fundamentally challenged should they begin to stutter – as per the rest of society – in social situations). The relativist might say that such a world is equally possible, right here right now, whereas the minimal realist would tend to say that bipolar constructs, used to ‘predict how the world and its inhabitants behave’, would find that this is not currently the case. In other words, whilst it is perfectly possible to conceive of another world/era/culture, personal construct psychology tends to work, for the minimal realist, because we share a degree of understanding about the current one.

To recap then: In order to function effectively in the current world, certain assumptions are sensibly made and tested, including the observation that to stutter in social situations is usually socially disadvantageous. It is this kind of assumption that Stevens refers to when he talks about a minimal real world. The concept of hostility can be applied equally in the most relativist world

view in which there is perhaps more literally, ‘an infinite number of ways in which any given situation can be construed.’ With respect to understanding the personal traits of another individual, the usefulness of the (already mentioned) concept Kelly called ‘the sociality corollary’ is immediately apparent.

The issue of ‘hostility is a useful way of understanding the difficulty involved in changing as a person. If the example of a change in stuttering behaviour is substituted with a change in work behaviour/arrangements, then the difficulty I experienced in changing jobs is perhaps better understood.

Bruner (1956) heralded the personal construct theory as ‘being the single greatest contribution of the past decade to the theory of personality’ (p355). Personal construct theory’s continued commitment to understanding the idiosyncratic manner in which individuals construe and order their world makes it radical still (Fransella, 1988). Kelly (1955/1991) construed people as scientists in the sense that they place their own interpretations on the world and from these form hypotheses and predictions about the future. It is important again to note that Kelly’s theory is not a relativist stance. This point is made clear with a quote from Kelly himself:

We consider a construct to be a representation of the universe, a representation erected by a living creature and then tested against the reality of that universe. Since the universe is essentially a

course of events, the testing of a construct is a testing against subsequent events. In other words, a construct is tested in terms of its predictive efficiency. (Kelly, 1955/1991, p9)

Sach's (2001) 'activist identity' shares much in common with Kellyan ideas about education. Her emphasis on the individual/collaborative problem solving aspect of teaching fits well with Kelly's already noted construction of people as scientists in the sense that they place their own interpretations on the world and from these form hypotheses and predictions about the future (Solas, 1992). Perhaps even more striking is Sach's notion of the importance of constructions (both in terms of understanding your own, but also in terms of understanding those of other people):

'the teaching profession at the individual and collective level should acknowledge the importance of professional self-narratives (Gergen and Gergen, 1988). These are culturally provided stories about selves and their passage through lives that provide resources drawn upon by individuals in their interactions with one another and with themselves. For Gergen and Gergen, 'narratives are, in effect, social constructions, undergoing continuous alteration as interaction progresses... the self-narrative is a linguistic implement constructed by people in relationships to sustain, enhance or impede various actions. Self-narratives are symbolic systems used for such social purposes as justification, criticism and social solidification' (Gergen and Gergen, 1988). The teachers themselves construct these self-narratives, and they relate to their social, political and professional agendas. These self-narratives are stories of stories, they are reflexive in that they are understood both by the individual and by others.

p157 (Sachs, 2001)

Compare this to Salmon's elaboration of Kelly's description of personal constructs:

construct systems are personal. But this does not make them solipsistic. Though each of us inhabits a unique experiential world, meanings, if they are to be viable, must be built



together with others. The human enterprise depends on a sharing of social reality. The sense which we make of our lives must also make some sense to others.

pp21-22 (Salmon, 1995)

## Summary of Chapter 2

In this chapter I have dealt with the epistemological issues that have influenced my choice of method. Following that I looked at the theoretical approaches that I have used to help interpret my findings. In this regard I looked at the writings of various scholars including Elster (1992) on local justice, Meyers and Vorsanger (2003), Smith (2003) and Hill (2009) regarding Lipsky's (1980) concept of the 'street-level bureaucrat', and a number of writers regarding Kelly's (1955/1991) personal construct theory. The relevance of this literature to the current study was made clear. I then provided an example of a situation in which I myself as an SLB needing to satisfy both the unofficial (unwritten) policy of the team regarding activity days and transport, and the calling of my own conscience based on a 'core construct' concerning inclusion, produced a device that was able to satisfy both. It was then made clear with respect to the role of the head orthoptist, how this plays out for her in terms of delivering the policy of screening for vision on school entry. Ideas around what might drive the actions of the street-level bureaucrat (SLB) were explored further from a psychological rather than a sociological perspective. Kelly's (1955/1991) personal construct theory was found to be particularly useful. It was therefore suggested that the discretionary decisions faced by the SLB and resultant 'devices' and outcomes may rely on the particular constructs that drive the individual conscience of the SLB as well as the structural policy and institutional culture (including that of local justice) within which they find themselves.



### Chapter 3. Methodology

In this chapter I will lay out the method involved in collecting the quantitative data, the qualitative data, and, as part of the latter, the work done with a repertory grid.

#### Methodology for the quantitative data

The methodology for the study was that of a mixed methods approach in that the primary data comes from a questionnaire on the school entry screen and practice that is implemented in delivering the screen in terms of personnel, tests used, analysis done, costings carried out, the setting used for the screen and so on.

In order to obtain information about cost and practice issues, a questionnaire was issued as a Freedom of Information (FOI) request to each of the 152 Primary Care Trusts (PCTs) which had made up the map of service delivery in England (these have now been rearranged into Clinical Commissioning Groups or CCGs). This was felt to be the most efficient way of collecting a large amount of comparative data. There was a common sense view that a more thorough screen delivered by orthoptists would cost more. One of the questions on the questionnaire asked explicitly:

Do you try to cost the visual screen?

Yes    ☐                      No    ☐

If yes:

Please specify the cost of the visual screening either before or on school entry:

What is included in the costs (please state below with costs if known):

(See Appendix A for the full questionnaire).

The questionnaire consisted of three sections which amounted to 7 questions in total:

1. After an initial indication of whether the PCT screens or not, respondents (FOI Officers in the first instance) were asked to specify the cost of screening 4 and 5 year olds in their particular PCT. (Questions 1 and 2).
2. They were then asked to identify various aspects of the practice of screening used in their PCT, including test used, threshold for referral/treatment, personnel used and setting. (Questions 3 – 6).
3. They were then asked to specify which quartile they felt their particular PCT fell into in terms of levels of deprivation, where 1 was the most deprived and 4 was the least deprived quartile. This information was already known to me and the question was included to explore perceptions of deprivation rather than actualities. (Question 7).

Levels of deprivation were already known by the researcher for each of the PCTs from some research undertaken by YHPHO (YHPHO, 2011) in which each of the 152 PCT was given an IMD score based on an amalgam of smaller (postcode) IMD scores.

The questionnaire was sent to all 152 PCT's (Primary Care Trusts) that were in existence at the time of the study. One of the first difficulties was finding out where exactly to send the questionnaire since some of the PCT's had already clustered into CCGs (Clinical Commissioning Groups), a change required by government by 1<sup>st</sup> April 2013. For example, a number of London PCT's had clearly joined together in the cluster South East London (Southwark, Lewisham, Bromley, Lambeth and Greenwich). However, freedom of information officers for the PCT or cluster were identified. Because of the clustering, the number of e-mails sent came down from the expected 152 (one for each PCT) to 100. The picture became even more complicated when it was clear that many of the PCT's commissioned other organisations, for example local hospitals, to carry out the school entry screen. It was also clear that parts of some PCTs are covered by one organisation in terms of the screen, and other parts by another organisation. Subsequent to the first e-mails, further e-mails were sent to organisations identified from the initial round of 100 e-mails. Of the 100 e-mails initially sent and subsequent follow-ups to further organisations indicated, a final set of 86 completed questionnaires were returned. The reason for the high level of return (57%) was that the questionnaire was issued as a freedom of information request. The freedom of information officers (once identified as being responsible for oversight of the organisation/s delivering the screen) were required to either send a response detailing the answers to the questions I posed them, or to provide a reason why they were unable to do this. The reason for the 43% of missing returns from respondents (which equally could be considered high for a freedom of information request) was due to being unable to find a way to the appropriate organisation/s and associated freedom of

information officer rather than an inability to provide the information. It was simply that even with several redirections of the request to further organisations; the questionnaire did not reach the appropriate target audience in terms of freedom of information officers. The initial responses were entered into SPSS (Statistical Package for Social Sciences). Cluster analysis was applied to them and it was clear very early on that there were essentially 6 groups and the key information, or key variable, was the personnel carrying out the screen. If the screening was carried out by an orthoptist, certain variables would then be ticked off, for example, muscle checks, binocular checks and so on as part of hospital procedures. The 6 groups then were around PCTs that only used orthoptists to screen (group 6), those that only used personnel other than an orthoptist (group 1), mixed groups that tended to use either one or the other. Only one group, group 2 had a fairly equal number of orthoptists and non-orthoptists delivering the screen (7 and 8 of each respectively).

The 6 groups were compared in terms of deprivation indices and it was clear that there was a link between the groups and deprivation ( $p < 0.05$ ) in a Chi Square test.

### A word of caution

Gephart (1988) provides a salutary tale about the validity or otherwise of statistics, but also of the level of trust that people are prepared to invest in them. He describes the collection of data regarding a newly implemented bowel training programme by Gubrium and Buckholdt (1979) in which they looked at the production of statistics in order to evaluate the programme. Firstly they note that there is a suggestion that the statistics have been manipulated to some extent in order to

raise the status of the programme being evaluated. This is done, for example, by not counting occasions which should have been counted, on the basis of the patients 'intention', e.g. she had not intended to soil herself. Secondly, Gubrium and Buckholdt (1979) point to the immense faith that practitioners still then have in this 'hard data' that they have collected...

Gubrium and Buckholdt determined that, for institution staff, "hard data are believed to mirror the 'real stuff of behavior better than any other form of description" (p. 119). "This image reflects a view of descriptive rigor present in modern society at large" (p. 119), a view that accords a factual status to quantitative data that seems denied to qualitative data. And yet, by identifying the circumstantial rules and glossing practices by which hard data are produced, they are able to conclude that "the imprecision and lack of concreteness present in hard data are at least equal to that present in any other form of data" (p. 135).

Gephart (1988) p19

It is difficult to imagine how the data collected for the local study through FOI requests could have been manipulated with a particular view in mind since it was not clear what kind of pattern if any was being sought when requesting the data. However, Gephart (1988) is an important reminder of the fallibility of quantitative techniques.

With this in mind I turned to a more qualitative approach as part of this mixed methods design, in order to talk to a number of orthoptists about the practice involved in the school entry screen for vision and the possible implications of the different socio-economic make-up of the PCTs in terms of population.

One (head) orthoptist, Rosa, took part in both the main study and the local study (see Chapter 4).

### The inclusion of case studies

This thesis is essentially an argument constructed at three levels (society, group, individual) to explain discovered quantitative patterns in terms of approaches to implementing the policy of screening 4 and 5 year olds. In order to begin to make sense of the quantitative data it was necessary to introduce some qualitative data in the form of case studies. Hartley (2004) gives a useful overview of case study research as an approach. Most importantly for this study she notes that, 'A case study is not a method but a research strategy. The context is deliberately part of the design. As such, there will always be too many 'variables' for the number of observations made and so the application of standard experimental or survey designs and criteria is not appropriate.' (pp323-324). It is in this sense that the term 'case studies' is used here, not as a design but as an approach within a mixed methods design. It is an approach that cannot sustain the rigorous requirements of an experimental design but which never-the-less is an important and thorough approach to understanding the meaning of quantitative data. There are of course some downfalls (as with all methodologies) in adopting a 'case studies' approach for the qualitative data. Robson (2002) notes with reference to Bromley (1986) that 'science is not concerned with the individual case' (p179). However, it is not necessary to abandon a scientific approach simply because, unlike in an experimental design, the focus here is on a single, or a number of single cases. A thorough look at issues around epistemology and methodology is given in Chapters 2 and 3 respectively.

### Summary of the design



The design was flexible as opposed to fixed, a distinction usefully drawn by Robson (2002). ‘Fixed’ is used by Robson to describe the kind of quantitative design in which a hypothesis is drawn up before the collection of data, the method of collection is also clearly laid out beforehand. In short, ‘fixed’ is essentially reserved for that class of social research that constitutes an experiment. In contrast, the work undertaken here was flexible in approach in that it was not clear from the outset what kind of pattern the quantitative data from the questionnaire would produce regarding the school entry screen. However, the data collected was quantitative initially and a hypothesis was possible. The usefulness of Robson’s terms, fixed and flexible, lies in the fact that they capture the quality of the approach rather than the format of the resulting data. To recap then, the design was flexible, and this nomenclature was preferred to ‘qualitative’ (the term usually used in contradistinction to experimental/quantitative designs) since it was felt that flexible better described the approach taken whilst still allowing for the inclusion of quantitative data and a hypothesis.

#### Methodology regarding the qualitative ‘case studies’ data

In total 11 questions were posed to 5 interviewees. All interviewees were orthoptists by training. All except one (a research orthoptist who had practiced previously) are currently involved in practice as an orthoptist. Not all questions were posed to all interviewees. The exception was Nicky, the 5<sup>th</sup> interviewee who is in a position to have a good overview of practice across the country – all questions were posed to Nicky. For the others there were particular questions that arose from their returns regarding the quantitative data, or questions that arose from previous interviewees, or that I wanted a ‘second opinion’ on. In this way, even before the data received from Nicky (who answered the questions by email); I had covered each question at least twice, i.e.

with two different interviewees. Each question was therefore answered (including Nicky) by at least 3 of the 5 interviewees. Thus the research technique was a combination of ‘snowballing’ questions as they arose and triangulating questions that had already arisen. Questions 1, 3, 5, 10, 11 (See Table 1, below) were asked first as Orla was interviewed first, by telephone. The first question asked was ‘Does it matter if children aren’t screened?’ The full list of questions is given in Table 1 below. The orthoptists are given in the chart in the order in which they were interviewed. All were interviewed by phone except Mari who was interviewed face to face due to proximity. As already noted, Nicky, who answered all questions and is not therefore included in the chart, provided answers by email. All phone interviews and the face to face interview were written up and emailed to the respondent. Any amendments made were included so that an agreed account of the interview was arrived at. (Rosa is the same Rosa of the local study and the repertory grid).

Table 1; full list of questions spread across interviewees prior to all questions being asked of Nicky

Orla	Ariana	Mari	Rosa
1. Does it matter if children aren’t screened?	1. Does it matter if children aren’t screened?		
	2. Why are some PCTs further ahead in delivering the Hall agenda of an orthoptist screen?	2. Why are some PCTs further ahead in delivering the Hall agenda of an orthoptist screen?	
3. Is her understanding that Hall recommends an orthoptist delivered (not led) screen?	3. Is her understanding that Hall recommends an orthoptist delivered (not led) screen.	3. Is her understanding that Hall recommends an orthoptist delivered (not led) screen?	
4. Why should the population characteristic (deprivation) affect use of personnel?	4. Why should the population characteristic (deprivation) affect use of personnel?	4. Why should the population characteristic (deprivation) affect use of personnel?	

5. Is money fed into areas of deprivation (which could be used to fund an orthoptist screen)?	5. Is money fed into areas of deprivation (which could be used to fund an orthoptist screen)?		
		6. What do you think about the idea that all that is needed is a really good acuity test?	6. What do you think about the idea that all that is needed is a really good acuity test?
		7. Is screening good use of an orthoptist's time?	7. Is screening good use of an orthoptist's time?
		8. Good practice in terms of screening follows from the type of personnel used (orthoptist)?	8. Good practice in terms of screening follows from the type of personnel used (orthoptist)?
		9. Why don't they seem to use orthoptists to screen in London?	9. Why don't they seem to use orthoptists to screen in London?
10. Why would respondents over-estimate deprivation?			10. Why would respondents over-estimate deprivation?
11. Is there a skew towards more deprived children in the children that present at the clinic?			11. Is there a skew towards more deprived children in the children that present at the clinic?

### Methodology regarding the repertory grid

The repertory grid is a technique developed by Kelly (see discussion of his theoretical work in Chapter 2) in order to provide researchers with a way of gaining a snapshot of a person's construing (literally the constructions that an individual person uses in order to make sense of the world around him/her). Individual elements (which tend to be people/roles) can be provided to the person or elicited from the person. The person is then asked for bi-polar adjective pairs (called constructs) which fit with the elements such that two people/roles personify one end of the bi-polar construct, whilst the other bi-polar end of the construct is personified by a third element

(person/role). These groupings, called triads, are the starting point for a more general scoring of the entire element/construct matrix.

I have, personally, found the repertory grid a helpful way to think, usually with my line manager, about issues affecting the team. It has also proved to be a useful way to help me think about how she is thinking and vice versa. At times I have given her a blank repertory grid of elements and constructs that I have already filled in. It has been satisfying to see the extent to which we think along similar lines about things, and also to explore any differences that arise. One of the particularly creative things about this way of working is that there are no ‘right answers’ or even ‘correct’ ways to use the grid. However, this particular grid, having been given rather than elicited, can equally be thought of as more like Likert scale rating.

The grid (See Repertory grid 1 below) was given to the head orthoptist Rosa in order to explore themes regarding the screen that had arisen in the course of interviewing her.

#### Use of the repertory grid – some introductory explanations

Kelly’s (1955/1991) repertory grid should be seen as a tool rather than an instrument, a process by which personal constructions can be explored rather than captured. Beail (1985). A good example of this is seen in Taylor and Hallam’s (2008) exploration of the learning of older students (over the age of 60) in terms of musical skills at the keyboard. Repertory grid interviews are used to explore what their learning *means* to them. Such a sensitive and personal issue could never be

entirely ‘captured’. However, a repertory grid interview, which explores issues in a very non-directive way, is shown here in Taylor and Hallam’s (2008) work to be a useful tool as compared to, for example, a tick box questionnaire or structured/semi-structured interview. In such instances respondents must ultimately opt in or out of or score/develop certain pre-ordained (given) constructions when answering questions. This of course can be very useful when gathering and comparing a large amount of data, but in unpacking individual people’s feelings about their musical learning, or in the current instance, experiences of delivering the school entry visual screen, the repertory grid has much to offer.

By way of a contrasting approach to the use of repertory grids, Paull (1992) provides some detailed analysis of the grids produced in a study of ‘personality, attitudes and self-concept in physically disabled children’ but appears to have lost sight of the personal stories that any grid should reveal in favour of attempting to generalise the results statistically. Whilst some very detailed statistical analysis is possible with repertory grids, it is the personal ‘story’ behind the grid that gives it its power.

Kelly's Personal Construct Theory (PCT) was used to investigate the possibility of coming to understand someone else's understanding (Rosa's). The principal tool was that of the repertory grid, an example of which was prepared for Rosa, before she added her own ratings to it separately from me. It was hoped that due to the insight gained into Rosa's construing, I would be able to fill in the grid in a similar fashion –completing it as if I was her.

The repertory grid (a tool for studying the particular constructions that the individual arrives at in understanding the world) is a useful tool for those on the humanistic/experiential wing of social psychology. However, since our constructions are situation centred as well as time centred, it is also of use to those who take a social constructionist approach. There is an issue in this latter approach concerning whether we make our constructions or whether our constructions (which may be social in origin, e.g. regarding the role of an orthoptist) construct us. The view taken in this thesis is that in our social world, beliefs and actions are mutually interdependent, (Dallos, 1996). Our constructs (for example regarding the role of an orthoptist) result in actions which in turn are reinforced or questioned by another person's constructs and resultant actions. A 'questioning' may result in some change in the original construct.

The particular attraction of Personal Construct Theory and the repertory grid is the possibility of analysing (at times in a quantitative fashion) something that is by its very nature, a qualitative phenomenon, in this instance Rosa's current understanding of her work on the screen.

The design used here is similar to a design used by Thomas (1979) in which the researcher and the participant each produce a repertory grid with their own individual constructions of a given situation. The grids are then swapped to be scored by the other person. In this instance I indeed scored a grid with Rosa's constructions on it, but the reverse was not done. The reason for this is that the stated aim was for me to understand Rosa's construing of her work around the screen. Rosa's understanding of my construing was not a significant factor here.

The grid below (Repertory grid 1) was given to Rosa in order to explore themes regarding the screen that had arisen in the course of an interview with her. An explanation of how to complete the grid is given below grid 1. The constructs (the titles of rows) were given to her following previous discussions with her about the work. The elements (titles of columns) were arrived at in a similar way. This enabled the process to be carried out by email, but is no substitute for the usual process of arriving at both constructs and elements through face to face discussion. This was an area that could be improved upon.

Repertory grid 1."To think about factors affecting the school entry screen"

	Demographic of area (IMD scores)	History of practise (what's happened previously)	Finance of screen	Skill set of practitioners	Personal stance of head orthoptist	Role of local Hospital	
No or little discretion for head orthoptist							Lots of discretion for head orthoptist
'Stable' influences (on screen)							'Moveable' influences (on screen)
Important effect (on screen)							Unimportant effect (on screen)
Money based issue							Skills based issue

Local issue							National issue
‘Political’							Non-‘political’

Explanation given regarding how to complete repertory grid 1 (above):

‘I would be really grateful if you would fill in the above (Repertory) grid for me. If you feel that you have ‘No or little discretion’ over the Demographic (IMD scores) – a reasonable assumption! – you put a 1 in the first box. If – in the unlikely circumstance – you felt you had ‘Lots of discretion’ regarding the Demographic, you would put a 5 in this box. If you felt it was somewhere in between you would put a (whole) number between 1 and 5. Continue along each row so that low numbers (1&2) indicate degrees of agreement with the left hand statement, high numbers (4&5) indicate degrees of agreement with the right hand statement. Try to avoid 3s (non-committal) if possible.’

I have known Rosa for three years and our work has overlapped many times in the course of my work as Senior Teacher for the Visually Impaired for a South coast Education Authority. I very much value Rosa’s advice on issues to do with visual impairment. One of the challenges in carrying out this exercise was attempting to dissipate as much as possible the divisions between researcher and participant. The reason for this was that the purpose of the exercise was for me to



come to understand Rosa's understanding using a personal construct theory approach. This was to be a joint venture rather than an abstract study of one person by another. However, this was not entirely successful and indeed the terms participant and researcher have been used throughout. This seemed to be a more 'honest' position than to presume that we were both either participants or both researchers. My motivation throughout the exercise as already stated was to better understand her work situation and constructions around the screen.

The purpose of the grid was explained to Rosa. The issue of confidentiality was discussed and it was agreed to change her name. It was pointed out that it would need to be made clear that she is a head orthoptist since this is a significant factor in the exercise. She was happy with this. I also (with her agreement) have stated in general terms the area of the country in which she works rather than state the precise Health Authority. Once she was familiar with the format of the repertory grid, she was able to fill in the blank grid provided to her.

If time was unlimited I would have conducted repertory grid interviews with each of the five orthoptists in the case studies, rather than just the one with Rosa, which rather than being elicited face-to-face as it should have been, was presented to her in order for her to complete.

#### Ethical issues for the whole thesis

The ethics form (agreed by email) is included in Appendix C. It is worth noting that the letter approaching respondents in terms of informed consent (Appendix D) does not make it clear that data will be treated anonymously. However, this was done verbally with respondents in terms of

the qualitative data and is an agreed aspect of any Freedom of Information Request in terms of the quantitative data. My own address was given for return of the form.

Ethical considerations:

- The first thing to state regarding the quantitative collection of data from the questionnaire is that the presentation of the data was done entirely anonymously. It was not possible on completion of the thesis to identify which PCTs, for example, do not conduct any screen on school entry regarding visual issues.
- Regarding the (qualitative) interviewing of orthoptists involved in/who have a professional interest in the carrying out of the screen, the only conceivable risk for participants was that the interview may be thought provoking and may have possibly touched on subjects of an emotional nature regarding the lives of the children tested. However, this was not in fact an issue.
- Informed consent should have assured the participant of anonymity in the write up. It did not, however, this was strictly adhered to.
- It was made clear verbally to the respondents in the qualitative work that I was happy to share with participants any findings that were later written up in the research paper.
- It is possible that my area of work provided me with easier access to those who undertake the tests than that afforded to a researcher who is not an 'insider researcher'. However, this area of work is sufficiently distant from my own to state that there is no risk of a misuse of my professional position. For example I am in no way involved in the management of the individuals I have interviewed. There was not, as far as I am aware, a feeling of undue

pressure to take part in an interview. It is possible, however, that the answers provided were influenced by the fact that they were being provided to a researcher in a related line of work. Use of a Freedom of Information (FOI) request would have been an unfair way to collect data for an insider researcher, but as already stated I am not and thus was not party to ethical difficulties around such a scenario.

Anonymity proved harder to ensure than I had expected. This was so for both the quantitative and qualitative data. I have an unusual surname, so the area of the country (if not exact location) of the local study, could be guessed at from an online search of my name.

Presentation of quantitative data anonymously needed some careful consideration. In one instance it was made apparent which Strategic Health Authority (SHA) data on deprivation refers to, but since this information is in the public domain and does not single out individual PCTs, this seemed acceptable, as well as pertinent to the study.

The qualitative data also posed some ethical issues in terms of preserving anonymity. The particular roles of respondents may have given some clue as to their identity. For this reason the exact role of the respondent who was ‘in a position to have a good overview of practice across the country’ was not made clear. Similarly, whilst there is more than one ‘research orthoptist’ working in the country, this reference to her working role narrowed down the possibilities of her identity but does not define it. All the names given to respondents in the qualitative work were of course pseudonyms.

### Mode of dissemination

Between the local study and the writing of this thesis there was a call for papers from the International Research Society for Public Management (IRSPM) for their 2012 conference in Rome, around the theme of, 'Pressure Management and Frontline Supervision in Street-Level Bureaucracies'. Specifically the theme was as follows:

Street-level bureaucrats actually decide about 'who gets what, when and how' (Laswell, 1936). Although in varying degrees, discretion is inherent to their work. While direct oversight on their behaviour is difficult, police officers, teachers, environmental inspectors and other public servants working at the street-level to a certain extent have to make their own judgments. They do so often in situations that are unforeseen and hard to manage. At the same time these street-level bureaucrats see themselves confronted with sometimes contradictory policy goals, pertinent performance targets, organizational reforms, financial cutbacks and increased societal demands. Frontline workers are hence typically located at the heart of multiple expectations and pressures that may be potentially conflicting.

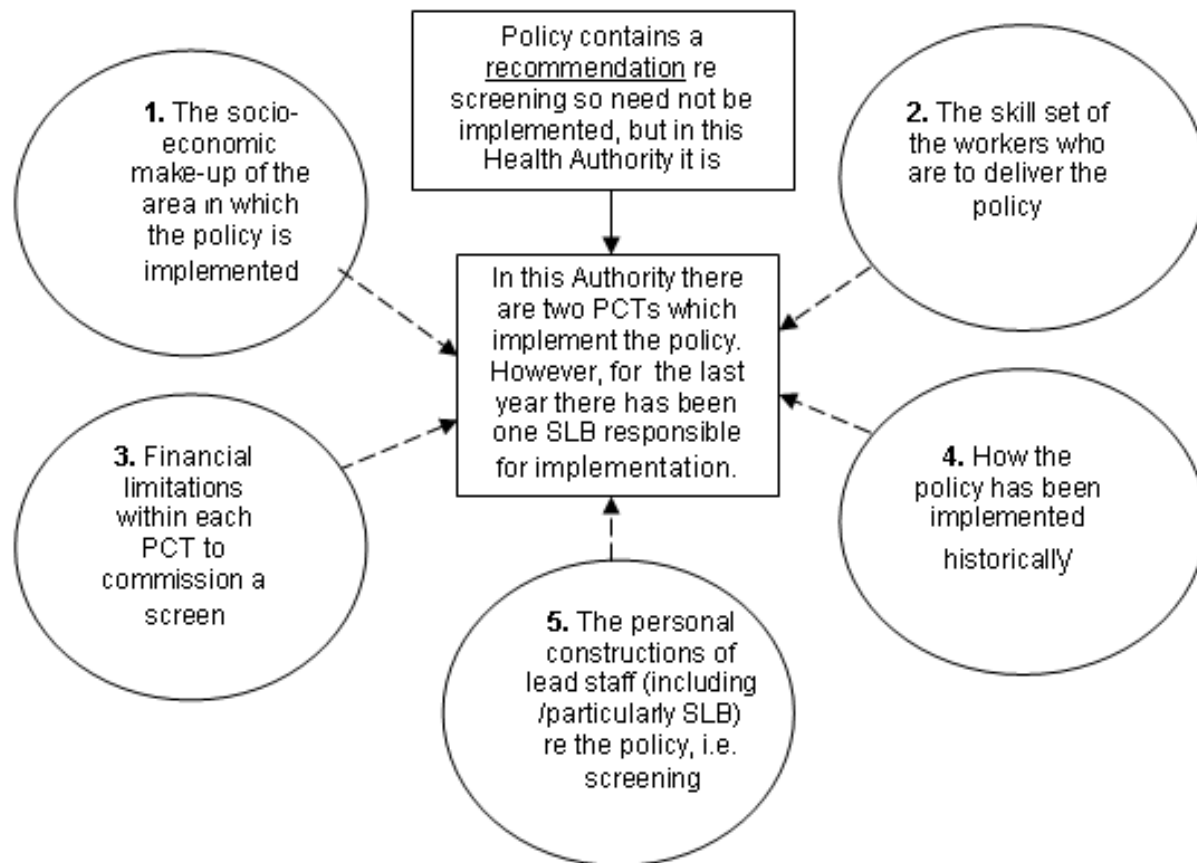
This raises two types of questions. First, how do street-level bureaucrats manage these pressures, while fulfilling their public tasks? To which sources of influences are they responsive and what factors explain variation? Second, how do public managers, particularly frontline supervisors, manage street-level bureaucratic behaviour? To what

extent do management practices influence and shape frontline behaviour? In other words: 'How does management matter' here (Riccucci, 2005).

If the first type of questions addresses the issue of what can be called *pressure management*, the latter category refers to the ways frontline supervisors practice public management. In this panel these two issues are central. The focus is on the micro-level of the behaviour of individual actors, street-level bureaucrats as well as their supervisors, and the social interaction between them. Papers investigating either both or one of these two issues are welcomed. The objective is to cover a variety of types of frontline agencies, policy sectors (like health care, education, police, social work, etc.) in varying contexts across national political-administrative systems. Contributions are aimed at from established but certainly also emerging scholars interested in describing, analyzing and explaining pressure management and frontline supervision in street-level bureaucracies from a comparative perspective.

The structure of the arguments presented at the conference are given in the diagram below (Figure1). Delegates were taken through the each of the (numbered) issues individually by way of disseminating the local study to them. This proved immensely useful in terms of developing my ideas for this (current) thesis. It is possible that I might be able to provide a further presentation of the work around my thesis at a subsequent International Research Society for Public Management conference in the future.

Figure1. What are the determinants: (To which sources of influences is the SLB responsive and what factors explain variation)?



Written dissemination of the findings via the British and Irish Orthoptic Journal (BIOJ) may be the most appropriate forum for this finished thesis.

### Summary of Chapter 3

In this chapter I have laid out the method involved in collecting the quantitative data, the qualitative data, and, as part of the latter, the work done with the repertory grid. In addition, I

have looked at some of the ethical issues around the research for the study, and dissemination of the findings.

#### Chapter 4. The local study and analysis of quantitative findings nationally

Referral on from the screen was the area of interest focused on in the local study, the full details of which are given below. In the rest of this chapter the quantitative data from the study will be presented making a number of important inter-related aspects of the quantitative findings of the study clear.

##### Local study – What are the patterns of pass rate and referral for children in their sight test on school entry? An exploration of possible variables in a large south coast Authority

The starting point for this study was a concern to explain differences in the approaches and outcomes of screening children on school entry for visual issues in various PCTs. The logical starting point of any explanation is socio-economic differences between the areas. The reason for this is given clearly by Scott and Ward (2005) who describe the link between health and poverty:

Health is one of the clearest dimensions of the experience of poverty for children. Poverty and social exclusion affect children's physical, mental and emotional state of health, from low birth weight to shorter height and accidents in the home and on the road (Howard *et al.*, 2001). One study revealed that some one in three lone parents and low to moderate income couples had at least one child with a disability or long-term illness (Marsh, 2001); the researchers were reportedly shocked at the extent of ill health amongst the lone parents and their children living on income support and the way in which this appeared to increase with length of time spent on benefit.

Scott and Ward (2005) p30



It is indeed well established that the health of children living in areas of high deprivation tends to be poorer than that of those living in less deprived areas e.g. Aber et al. (1997), Bramley and Watkins (2008), Howard et al. (2001), Scott and Ward (2005). Furthermore Bramley and Watkins suggest that, ‘poorer people or areas do not make use of services commensurate with the extent to which they suffer poor health’ (p4). Regarding poor health/development Aber et al.(1997)note a specific issue about visual recognition acuity:

‘These deficits are still measurable even after many of the characteristics associated with poverty have been accounted for – such as negative household environment and exposure to prenatal risks.’ Korenman et al. (1995) [Furthermore] ‘Visual recognition acuity has also been shown to be deficient in LBW [low birth weight] babies.’

(Ibid) pp468-473.[My additions in brackets]

As already noted, there is evidence that there is a link between socio-economic differences and amblyopia specifically, Williams et al. (2008).

One of the notable differences between the two PCTs studied in the local pilot was a difference between the levels of deprivation in each. Indices of Multiple Deprivation, or IMD(Noble *et al.*, 2008) are a useful way of capturing levels of deprivation in a particular area in that as well as providing an overall ‘score’ for deprivation, it is possible to see how this score has been made up from various indicators relating to different aspects of an area. The rationale behind this approach is that where several aspects of an area can be described as involving deprivation, these aspects combine and exacerbate each other producing an effect that is greater than the sum of its parts. This ‘exacerbation’ is taken into account in the formula for calculating the overall score. In

contrast, if just one or two aspects of life score highly in terms of deprivation, these will tend not to combine in such a pervasive fashion and will be reflected in a lower score for deprivation. IMD scores are available for all 152 Primary Care Trusts (PCTs) in England. From the first collection of data for the local study (a Freedom of Information request covering the academic year, 2009-2010, to establish: total number offered the screen, number of non-attenders, number of passes and number of referrals) it was clear that there were significantly more referrals for vision (two times as many) in PCT B as compared to PCT A. The exact percentages were as follows:

Percentage of total offered screen referred on regarding vision in PCT A 5.7%

Percentage of total offered screen referred on regarding vision in PCT B 12.4.7%

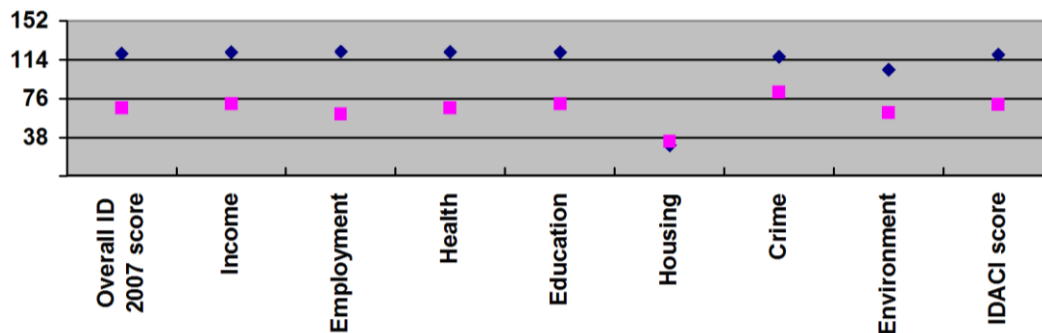
The first thing that was done was to look at possible reasons for the difference between the two PCTs. An assumption was made that the difference is either to do with the population, i.e. the makeup of the children being screened in each area, or a difference between practices and implementation of the screening policy between the two areas. On showing the data of the screen for academic year 2009/10 (detailed above) to colleagues there was a strong feeling that the difference between the two areas represented by the PCTs was a difference in terms of deprivation. So it was decided to look for the possibility of population differences first.

When the two PCTs were ranked alongside all other PCTs in England (YHPHO, 2011), with 1 being the most deprived PCT based on the Indices of Deprivation 2007, and 152 being the least deprived PCT, it was clear that there was a significant gap between the two PCTs that make up the

Authority/county and that formed the focus of this local study. Indeed, when all 152 were arranged in rank order and marked out in quartiles of rank order, one PCT (A) was fairly consistently in the top quartile whilst the other PCT (B) was in the second to bottom quartile in terms of deprivation, i.e. was significantly more deprived across all the indices, See Figure 2.

Figure 2. IMD ranks for the two study PCTs with 1 being the most deprived PCT, 152 the least deprived, based on the Indices of Deprivation 2007.

Blue diamond = PCT A, Pink square = PCT B



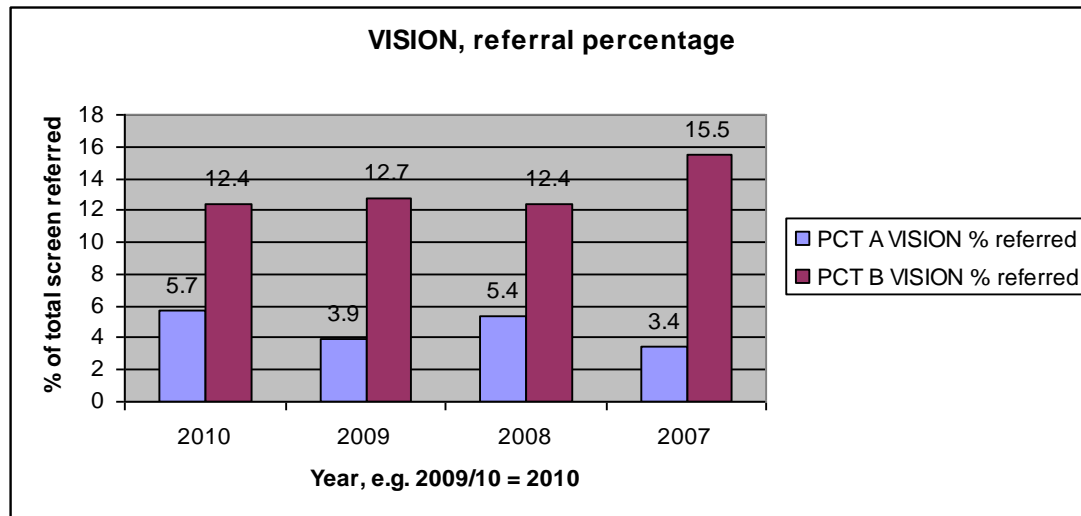
I decided to explore this further and obtain from the IMD 2007 website a map showing deprivation across the two PCTs on which this study was based. It was noticeable again that the one end of the county representing the smaller of the two PCTs (PCT B) is more deprived than the other end of the county in which the areas that make up the larger PCT (PCT A) are found.

It was also noticeable from this map that some of the areas marking coastal towns in *both* PCTs were coloured dark blue, representing high levels of deprivation.

The next stage was to investigate whether the pattern of referral from school entry screening (detailed above) held true for previous years. If so, it would lend evidence to the notion that there was perhaps something intrinsically different between the two populations of the PCTs. In particular it was felt that the differences in terms of deprivation scores may have played a role in the outcomes of the school entry screen. If however there was a sudden change in referral rates between the two PCTs between years, it would seem sensible to assume that there had not been a sudden change in the population, but rather, that there was perhaps some change in the implementation of the policy.

A second Freedom of Information request was made for the local study on the same basis as the first (total number offered the screen, number of non-attenders, number of passes and number of referrals), only this time regarding data for the last four years. The outcome of this second Freedom of Information request is best presented in graph form to show percentages of the total screen referred on in each of the two PCTs. This can be seen in Figure 3 (below). It should be remembered that PCT B is the more deprived of the two PCTs.

Figure 3. Percentage of total school entry screen referred on (for each year 2007-10)



Note that the figures for 2009/10 (i.e. 2010) are the same as those given above on page 70 – this is the same data included for comparative purposes.

The figures show that referral on from the visual screen continued, across all four years, to show a propensity for children in PCT B (the more deprived of the two PCTs) to be two to four times more likely to be referred on following the screen.

#### Summary regarding the issue of deprivation in the local study

In the local study I found that the two Primary Care Trusts (PCTs) that make up the local Health Authority had radically different outcomes in terms of pass rates and referral on, consistently over the last four years. It seemed that there were two particular factors at play; one was deprivation, with very different levels of deprivation between the two PCTs and lots of literature on the effect of deprivation on child health, including amblyopia (Williams *et al.*, 2008). The other was that

the practice was very different between the two PCTs. One used orthoptists to deliver the screen whilst the other used school nurses. Relevant literature and research regarding the theoretical concepts employed in understanding the data is presented in chapter 2.

Indices of Multiple Deprivation (IMD) were introduced in the local study as a useful way of measuring deprivation, in particular it was noted that deprivation can be broken down into different areas, for example, health and education. A clear advantage of using IMD scores is that there is a mechanism built in to IMD scores to account for the increased deprivation that is produced by scoring high in several of the areas that are delineated. Thus a higher overall IMD score is obtained when several areas within it score high. It was noted that one PCT (B) scored higher for nearly all measures, including the overall measure of deprivation, than the other PCT. It was also noted that in the academic year 2009-2010, the referrals for vision were significantly higher in the more deprived PCT (B) than in the less deprived PCT (A) from the school entry screen. Looking at a map of deprivation using IMD scores, there could be seen to be areas along the coast in both PCT's that have high areas of deprivation.

When the pattern of referral for previous years was explored it was noted that in the three previous years as well as in the last year, there was an over-representation of children with visual difficulties from the school entry screen in the more deprived PCT.

## Findings of the thesis

In the rest of this chapter the quantitative data from the national study will be presented making a number of important inter-related aspects of the findings of the study clear. Following a run through of the responses provided to each of the questions on the questionnaire in turn, it will be shown that the practice in terms of screening is directly related to the personnel used to deliver the screen. Secondly it will be shown that the use of orthoptists to deliver the screen is significantly correlated to the more deprived areas (PCTs). Thirdly it will be shown that use of orthoptists is not evenly distributed geographically. Specifically there was found to be a clear (significant) correlation between Strategic Health Authorities (SHAs) and use of orthoptists – this was less so (not significant) when the SHAs were grouped in terms of a North/South divide. Finally, a principal components analysis (PCA) of dichotomised data is carried out on just those PCTs that do actually screen, in order to pull together some of the relationships between the variables that may have affected the screen.

This study was designed to think about the use of screens for a particular health issue (amblyopia) and how practice may differ from location to location. This meant addressing issues such as whether there is a postcode lottery and, following on from the local study, whether the most deprived populations are identified as such and given particular emphasis in terms of the practice and resources aimed at them. (Postcode lottery is not necessarily a pejorative term, it is a colloquialism used here to refer to inequalities/variation in services offered according to location). From the local pilot it was clear that one of the two PCTs studied was specifically aware that they served a needy (more deprived) population which, if Williams et al. (2008) are correct, are

more likely to exhibit amblyopia. Practice was different in this more deprived PCT with the screen being delivered by trained orthoptists. In contrast, in the more affluent PCT (which made up the other half of the County), the screen was delivered by school nurses. Resources (given the expense of using hospital staff for the screen), were clearly allocated in the more deprived PCT in a way in which they were not in the more affluent PCT. Indeed using school nurses is very cost effective since they are already available to the schools. In this chapter then (having looked at a local study), there is an exploration of the data provided at a national level. There arises a question around whether there is an equitable spread of skilled (hospital level) practice and resources, and whether there is a clear link between deprivation and screening practice for amblyopia. Similarly there is a question around whether there is a link between geography and screening practice for amblyopia (a kind of postcode lottery).

There was in particular throughout the course of this study, a wish to discover whether practice differs in areas of deprivation, and whether these areas are, as they were in the local study, provided with orthoptist (hospital) staff to conduct the screen to identify amblyopia. The secondary question was whether this link is really a consequence of geography and pockets of ‘good’ practice. It may be beyond the scope of this study to discover a causal reason for the use of orthoptists in areas of deprivation. It may be because of the deprivation itself (that this has been acknowledged and accounted for perhaps with additional money provided) or it may be essentially a geographic reason with some regions being ‘ahead’ of others (for whatever reason) in terms of implementing the Hall report recommendation of an orthoptist screen.



### Analysis of the quantitative data

The questionnaire is provided in full as Appendix A. There were 86 returns from the 152 PCTs for England that existed during the local study. These 152 have reorganised, principally through clustering together, to form 146 PCTs which will become Clinical Commissioning Groups (CCGs) on April 1<sup>st</sup> 2013. Appendix B shows the relationship between the previous list and the current list of PCTs. The PCTs are grouped into Strategic Health Authorities as per the map in Figure 4(below).

Figure 4. Map of Strategic Health Authorities (SHAs), source NHS website



The returns came from the following SHAs (See Table 2):

Table 2. Returns by SHA

<b>Strategic Health Authority (SHA)</b>	<b>Frequency</b>	<b>Percent</b>
East of England	11	12.8
East Midlands*	8	9.3
London	12	14.0
North East England*	7	8.1
North West England*	14	16.3
South Central England	4	4.7
South East England	8	9.3
South West England	8	9.3
West Midlands*	3	3.5
Yorkshire & the Humber*	11	12.8
Total	86	100.0

If these are divided from the midlands upwards (inclusive) i.e. all those with an asterisk (\*) against them, it can be further divided as 43 returns from the Midlands/North and 43 returns from the South/East.

The 2007 IMD scores calculated by PCT;(YHPHO, 2011), were again used, as they were in the local study, to provide a (real as opposed to perceived) indication for deprivation for each of the returns. These were distributed by ranked quartile (using the ranking across the 152 PCTs)as follows (See Table 3)

Table 3. Actual quartiles for returns in terms of deprivation.

<b>Ranked quartile</b>	<b>Frequency</b>	<b>Percent</b>
most deprived	17	19.8
second most deprived	21	24.4
second most affluent	25	29.1
most affluent	23	26.7
<b>Total</b>	<b>86</b>	<b>100.0</b>

Whilst the distribution of returns is fairly evenly spread, there is a slight under representation of returns from the most deprived quartile.

Regarding question 1 (Does the PCT carry out visual screening either before or on school entry?) of the 86 returns, 77 carry out screening either at or before school entry, 9 do not. Of the 77 in the ‘carry out screening’ category, one London Borough was unique in providing a return that stated that it screens between the ages of 5 and 6 (thus not technically at school entry or before). This data was however, included.

Those screening before school entry broke down as follows as part of the total group of 77 returns that indicated that they screen: 73 indicated that they screen on school entry (or age 5-6) and 9

indicated that they screen before school entry. This makes 82 responses, however 5 returns stated that they screen both on and before school entry. These 5 returns account for the difference between 77 and 82. Ages screened at (other than school entry, i.e. 4-5) tended to centre on the 3 years 6 months mark.

With respect to question 2 (Do you try to cost the visual screen?) 18 returns made it clear that they attempt to cost the screen, however, only 13 gave a clear account of costings. Of these 13, one was so outside the range of the others that it was discounted. The average cost of the screen (not including this ‘outlier’) was £9.95 per child. The cost indicated by the outlier was £87.62 per child. The range of costs was £1.21-£25.37 per child, the full set (from smallest to largest) was as follows:

£1.21 £1.21 £3 £4.53 £5.70 £7.91 £11.12 £11.61 £15 £16.23 £16.49 £25.37

Question 3 related to the battery of tests used in the screen. Of most interest here was the type of acuity test used and whether it was based on the Snellen system (the traditional sight chart in which there is one large letter at the top and subsequent lines of increasingly smaller letters) or the more modern (and accurate) system of LogMAR. Of those (71) who specified the type of acuity test used the list of tests specified is shown in Table 4 (below).

LogMAR was used by 77.3% of respondents, with 22.7% indicating use of Snellen. This will be returned to as an indicator of ‘good practice’. Use of LogMAR is taken as a basic indicator of

good practice since (as already indicated) it is more accurate. It should be noted that at times respondents have used different names for tests that would appear to be the same thing. For example Keeler is the same as keeler crowded logMAR and the same as logMAR crowded, Crowded kays logMAR is the same as crowded kays linear. However, the names given by respondents have all been included as provided in the returns.

Table 4. Monocular visual acuity test used

<b>Monocular visual acuity test</b>	<b>Frequency</b>
LogMAR crowded	14
Snellen	14
LogMAR	11
Keeler Crowded LogMAR	9
Keeler	6
Crowded Kays LogMAR at 3m	4
Crowded Kays Linear Test LogMAR	3
Sonken LogMAR	3
LogMAR 3m Picture Test	2
Linear Sheridan Gardiner 3m test	2
Keeler LogMAR	1
Vision 2000	1
Massvat	<u>1</u>
Total	71

A good variety of tests were provided but Keeler (of some description) would seem to be the most popular. Three metres was the preferred test distance, however, it was not often specified. This is an example of where the questionnaire could have been worded better. Respondents were asked to name test and test distance, these should have been two separate questions. Where a Snellen figure, e.g. 6/9 was given it was inferred (not necessarily correctly) that the test distance was 6 metres. Similarly LogMAR tests were assumed to be at 3 metres, but again this isn't necessarily so. Other tests used tended to be to do with assessment of extra-ocular muscle function and binocular status, plus the occasional colour vision test.

The most frequent response to the four questions regarding glasses (whether testing is done with them on, off, on and off, or no child with glasses is screened), was 'glasses on'. The significance of testing with glasses on is that this provides the best measure of corrected vision (the best vision the child is able to achieve with their current prescription). The significance of testing with and without glasses is that it provides a measure of how useful the glasses are for the child. This can be helpful when explaining to a teacher (for example) that he/she should really have the glasses in school and wear them at all times. There were 44 positive responses to this question. This means that just over half of the full total of 86 returned questionnaires indicated that they screen (any child who has glasses) with glasses on. The next most popular response was 'no child with glasses' with 19 responses. Third was 'glasses on/off' with 15 and finally 'glasses off' with 8. This makes a total of 86 responses, however, only 77 respondents answered this question (since 9 returns indicated that they don't screen), meaning that there were 9 additional (multiple) responses. The most common of these was to tick 'glasses on' and 'glasses off'. Again this is an issue with the wording of the questionnaire since the proposed meaning of the 'on and off' box had

been that any child that presented with glasses might be screened with them ‘on and off’ (in order to demonstrate the benefit, if any, of the glasses). When respondents ticked the ‘glasses on’ and the ‘glasses off’ box, it was not clear whether they meant, the same child (as intended for the ‘on and off’ box described above), or whether they meant they would screen a child who presented with glasses with them on, and a separate child without glasses (obviously) with them off. There is also something about the order of the questions here in that having answered ‘on’ and then answered ‘off’ there would be the feeling that it is unnecessary to tick ‘on and off’. However, some respondents ticked all three boxes. A better wording may have been:

Do you screen any child who presents with glasses with them on and off?

Do you screen any child with glasses just with them on?

Do you screen any child with glasses just with them off?

Do you not screen any child who presents with glasses?

In some ways the most interesting response was from those who indicated that they screen ‘no child with glasses’. This suggests that a particular attitude to screening has been taken in that there is no wish to see anyone who has previously seen an eye care professional, e.g. a High Street Optician.

The responses to question 4 (Threshold for referral on from the screen re amblyopia) i.e. relating to the threshold for further investigation and for further treatment are shown in Table 5 below. Where a Snellen (fraction) score was given in the returns, a LogMAR score has been used that is

equivalent to any Snellen score given. The LogMAR decimal system ranges from 0.0 for ‘normal’ (6/6) to 1.0 for 6/60. 0.2 was the most frequent response for both. 21 respondents out of 86 (24.4%) indicated that they assess for true positives etc.

Table 5a. LogMAR investigation

	Frequency	Percent
.000	2	2.3
.050	1	1.2
.100	7	8.1
.150	5	5.8
.175	6	7.0
.176	11	12.8
.200	29	33.7
.225	4	4.7
.300	2	2.3
.301	2	2.3
.398	1	1.2
.400	2	2.3
<b>Total</b>	72	83.7
Missing	14	16.3
<b>Total</b>	86	100.0



Table 5b LogMAR treatment

	Frequency	Percent
.000	2	2.3
.050	2	2.3
.100	7	8.1
.150	2	2.3
.175	4	4.7
.176	5	5.8
.200	29	33.7
.225	3	3.5
.300	2	2.3
.301	1	1.2
.400	1	1.2
.525	1	1.2
<b>Total</b>	59	68.6
Missing	27	31.4
<b>Total</b>	86	100.0

Question 5 related to the type of personnel carrying out the screen. The responses to this question can be seen in Table 6 below. This will be returned to since it will be shown that practice in fact follows from the type of personnel used. Type of personnel is therefore the clearest indicator of practice. ‘Other’ tended to be school nurse assistant or a variation thereof. The combination of

school nurse and ‘other’ (generally school nurse assistant) was the most common duplicate accounting for 107 returns rather than 86.

Table 6. Personnel used to carry out the screen

<b>Personnel</b>	<b>Frequency</b>
Orthoptist	30
School Nurse	33
Other	32
Nurse	3
Missing	9
<b>Total</b>	107

Question 6 concerned the setting for the screen. The responses to this question are provided in Table 7 below.

Table 7. The setting for the screen.

<b>Personnel</b>	<b>Frequency</b>
Hospital eye clinic	2
School	72
Nursery	1
GP surgery	2
Other	8
Missing	9
<b>Total</b>	94

No respondents indicated that they screen at home although one respondent when indicating ‘other’ stated: Health clinics, children centres and rarely but occasionally children’s homes. There were 8 duplicate responses accounting for the total of 94 rather than 86. The most common

of these was 'school' and 'other'. Entries for 'other' were Health Centre, Community Clinic, SureStart Centre and Village Hall.

Question 7 related to perceived level of deprivation within the PCT. This will be returned to later since perceptions of deprivation are important in explaining the variation in usage of orthoptists. The responses to this question are outlined in Table 8 below. This should be compared with Table 3 (above) Actual quartiles for returns in terms of deprivation. Comparison shows that respondents perceptions of deprivation tended to overestimate the actual levels of deprivation (respondents imagined that their PCTs were more deprived than they actually were). The next section will draw together some analysis of the quantitative data starting with the connection between practice and the type of personnel used for the screen.

Table 8. Perceived quartiles for returns in terms of deprivation.

<b>Ranked quartile</b>	<b>Frequency</b>	<b>Percent</b>
most deprived	21	24.4
second most deprived	22	25.6
second most affluent	12	14.0
most affluent	8	9.3
missing	23	26.7
Total	86	100.0

### Practice follows from personnel

There are a number of key factors regarding the practice of screening and the data shows that these key factors vary greatly dependent on whether the screen is conducted by an orthoptist or a non-orthoptist (generally a school nurse or school nurse assistant). The first of these factors is the measurement system used. Snellen is a vision test traditionally used by eye care professionals but with many discrepancies between the size and number of letters. The standard eye chart used by school nurses is still Snellen. It contains 1 large letter at the top and increasingly more letters on each line down to the 'normal' (6/6) line. If you can see letters (or picture/shape equivalents for young children) down to and including the 'normal' line, it means that you have normal (6/6) vision. Usually a matching card is used with young children so that they can point to an identical picture/shape on a card on their lap rather than name them when pointed to on the chart. The 6 on the top of the fraction 6/6 refers to the standard test distance of 6 metres (again, a shorter distance of 3 metres is often used with young children and the sizes of pictures/shapes altered accordingly to be equivalent). The figure on the bottom refers to where somebody with 'normal vision' would need to stand in order to make out what the letters/images are. The ability to make out detail is referred to as acuity. Thus a child with 6/6 vision has the acuity (the ability to make out detail) equivalent to what someone with 'normal vision' can make out at 6 metres. This of course is as it should be. However, a child with 6/12 vision for example, has the acuity (the ability to make out detail) equivalent to what someone with 'normal vision' can make out at 12 metres. In America, feet rather than metres are used, hence 20/20 rather than 6/6 is used for normal/perfect visual acuity.

The mathematical issue that I referred to above regarding the Snellen system, comes from the fact that at the top of the chart (going up) the letters get progressively bigger, finishing with just 1 letter described as 6/60. Thus, mathematically, if letters are used, the child has a 1 in 26 chance of simply guessing the top letter even if they couldn't actually see it at all. Indeed, when testing children's vision myself with a Snellen chart in my role as a teacher of the visually impaired, I only ever had two charts, one with a large H at the top, and one with an S at the top. The smarter child may have remembered from a previous test, or sneaked a peek at the chart previously, and recalled the top letter. A close friend of mine recently recounted to me that this was indeed how she always got through her sight test, by remembering not only the top letter, but also subsequent letters from the shorter lines at the top of the test. Sticking with just the top letter, in the example of my own practice, any child who had experienced my two Snellen charts previously, now had a 50/50 chance of guessing the first letter (it was either a H or an S). The 6/60 relates again to the fact that the standard 6 metre testing distance (on the top) was used, and the fact that someone with 'normal' vision, could in this instance, see that letter from 60 metres away (or as I tend to describe it, from out in the playground). The standard lines on a Snellen chart represent, starting with the large letter at the top, 6/60, 6/36, 6/24, 6/18, 6/12, 6/9 and the 'normal' line of 6/6.

The more modern and more mathematically accurate system in use is LogMAR. In this system there are an identical number of letters (or as already noted, pictures/shapes) on each line. Often separate cards are used for each of the separate lines on the chart. A decimal system is used to describe the result, which can then be related back to the Snellen system of 6 over something for ease of understanding. The decimal system ranges from 0.0 for 'normal' (6/6) to 1.0 for 6/60.

Charts (both Snellen and LogMAR) can go into figures better than 'normal', for vision that is better than 'normal'. These are negative numbers in the LogMAR system and 6 over a number smaller than 6 in the Snellen system, for example, Snellen system (for example 6/3 approx. = -0.3. LogMAR is the 'gold standard' as documented in the HallReport (2006) and as such heralded the adoption of the system by most health professionals.

In the LogMAR system, there is no need for the child to complete a whole line (as is required in Snellen) since a fraction can be arrived at for each item seen on the line. Also, there is no need to correspond exactly to the fractions of the Snellen system. For example, LogMAR 0.2 (which came up frequently in the data as a threshold for referral/treatment) actually equates to 6/9.5 – an image slightly larger than the 6/9 of the Snellen chart, but certainly not as big as 6/12 (the next line up in Snellen).

The importance to be noted here, is that LogMAR is a more up to date, more accurate, more scientific approach to testing vision. It is therefore a key indicator into the kind of practice that has been delivered up and down the country regarding the school entry screen. A crosstab regarding use of Snellen/LogMAR by orthoptists/non-orthoptists yielded the results seen in Table 9 (below). It should be remembered however that some (not necessarily correct) assumptions were made when assembling the data. Where a Snellen figure, e.g. 6/9 was given it was inferred (not necessarily correctly) that the test distance was 6 metres, but also that this result (if not specified) was arrived at from a Snellen test.

Table 9: Orthoptists/non-orthoptists by LogMAR/Snellen

**Orthoptists \* Snellen or LogMAR Crosstabulation**

				Total
		Snellen	LogMAR	
Orthoptist	No	16	31	47
	Yes	0	30	30
<b>Total</b>		16	61	77

As can be seen from Table 9 (above), no orthoptists indicated that they use Snellen whereas approximately 34% of non-orthoptists do use Snellen when delivering the screen.

Another key difference that was noticeable in the data was the variation in the use of other tests (other than a simple acuity test) as part of the school entry screen. The important thing to note here is that the school entry screen is essentially about finding amblyopia, which as we have seen in an earlier chapter (Chapter 1), tends to be caused by a difference in acuity due to long and or short sightedness and or astigmatism between the eyes, but also due to a non-alignment of the eyes (squint) due to a muscle imbalance, or a mixture of both these causes. The use of a muscle balance test then will be crucial in detecting amblyopia due to a squint (strabismus), but only if amblyopia has not already been identified with a good acuity test. Such tests are in many ways the principal domain of the work of the orthoptist. Once again, a crosstab of orthoptist/non-orthoptist was carried out, but this time against muscle test/no muscle function test (See Table 10 below).

Table 10: Orthoptist/non-orthoptist against muscle test/no muscle test

**Orthoptists \* Muscle function Crosstabulation**

		Muscle function		Total
		No	Yes	
Orthoptist	No	46	1	47
	Yes	7	23	30
<b>Total</b>		53	24	77

Only one non-orthoptist indicated that they carry out such a test, however, 23 orthoptists, representing approximately 77% of orthoptists do carry out such a test.

Another clear way to tell whether a child is unable to use both eyes together (which can be both a cause and also a result of amblyopia), other than detecting any obvious mis-alignment from a muscle function test, is to carry out a binocular test. It is only possible to see a three dimensional image if you are able to use both eyes together. Thus a binocular test such as the 'Frisby' test will contain images which spring to (full) 3D life if both eyes are used, but which, remain flat and uninteresting if (for whatever reason) only one eye is being used. Thus on a glass slide divided into quarters, three of the quarters will contain a mass of grey 'squiggles', whereas in the fourth quarter, a ball will be clearly visible, seemingly emerging from the squiggles on the plane of the



glass. The child is asked to indicate where the ball is. The crosstab carried out this time (See Table 11 below) was orthoptist/non-orthoptist against Binocular test/no binocular test.

Table 11: Orthoptist/non-orthoptist against Binocular status test/no binocular status test

**Orthoptists \* Binocular status Crosstabulation**

		Binocular status		Total
		No	Yes	
Orthoptist	No	44	3	47
	Yes	5	25	30
<b>Total</b>		49	28	77

On this measure, 3 out of 47 non-orthoptist delivered screens indicated that they carried out a binocular status test (approximately 6%), whereas 25 out of 30 orthoptist delivered screens representing approximately 83%, indicated that they carry out such a test.

The astute reader will have noticed a trend here. Screening delivered by orthoptists will tend to use the more accurate LogMAR system for measuring acuity, will be more likely to contain a test for muscle function and binocular status (both issues related directly to Amblyopia – the focus of the screen), in short, screening carried out by an orthoptist will tend to be more rigorous.

However, there is one test that is more likely to be carried out by a non-orthoptist rather than an orthoptist according to the returns received from the questionnaire. The test in question is a colour test (a test of colour vision). Whilst it is useful to know if a child is colour blind, it should be noted that colour blindness is unrelated to the issue of amblyopia. The crosstab below (Table 12) shows the relationship between personnel used to deliver the screen and use of a colour test.

Table 12: Orthoptist/non-orthoptist against colour test/no colour test

**Orthoptists \* Colour Crosstabulation**

		Colour		Total
		No	Yes	
Orthoptist	No	43	4	47
	Yes	29	1	30
<b>Total</b>		72	5	77

In this instance 4 out of 47 non-orthoptists indicated that they use a colour test (representing approximately 9%). In contrast, just 1 out of 30 orthoptists indicated use of a colour test (approximately 3%).

Finally in terms of tests, a section was included on ‘other test’, i.e. anything not already addressed that the practitioners use. They were asked to name these as part of the questionnaire. Listed

under ‘other test’ were; Cover Test N&D, City vision screener +2.0 blur test and convergence. One PCT provided a particularly good example of the kind of tests (all related to the detection of amblyopia, and mainly related to the issues of muscle function and binocular status already dealt with above) that came up under this section. They stated that: ‘If a child fails to meet the vision threshold of 0.150 in each eye, or has reduced stereo vision then the full orthoptic screening tests of cover test ocular movements, convergence and binocular reflex are performed to determine the most appropriate agency to refer the child to e.g. community optometrist, orthoptist for secondary screening or Hospital Eye service for further investigations.’

Table 13: Orthoptist/non-orthoptist against other test/no other test

**Orthoptists \* Other test Crosstabulation**

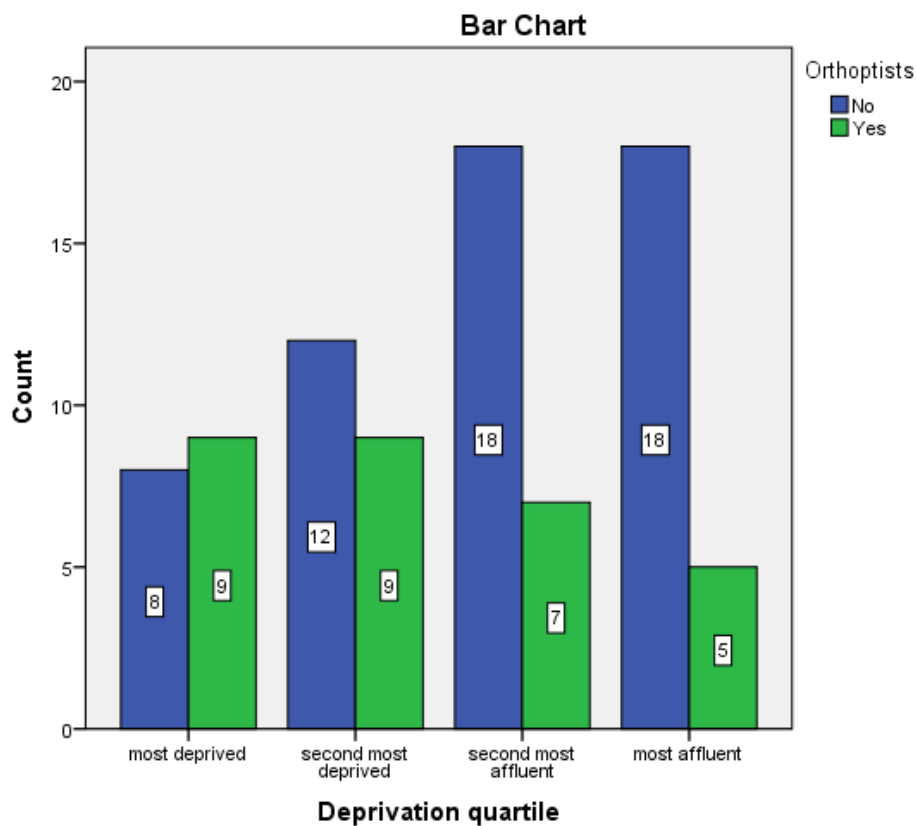
		Other test		Total
		No	Yes	
Orthoptist	No	35	0	35
	Yes	15	7	22
<b>Total</b>		50	7	57

In the table above (Table 13) it can be seen that no non-orthoptists indicated that they use any other tests, whilst 7 out of 22 orthoptist (approximately 32%) indicated that they do.

### The use of orthoptists and a link to deprivation

The very first ‘crosstab’ analysis undertaken (but not yet presented) was to look at any correlation between the actual (rather than perceived) quartiles of deprivation, and use of orthoptists. The results of this analysis can be seen in Figure 5 (below).

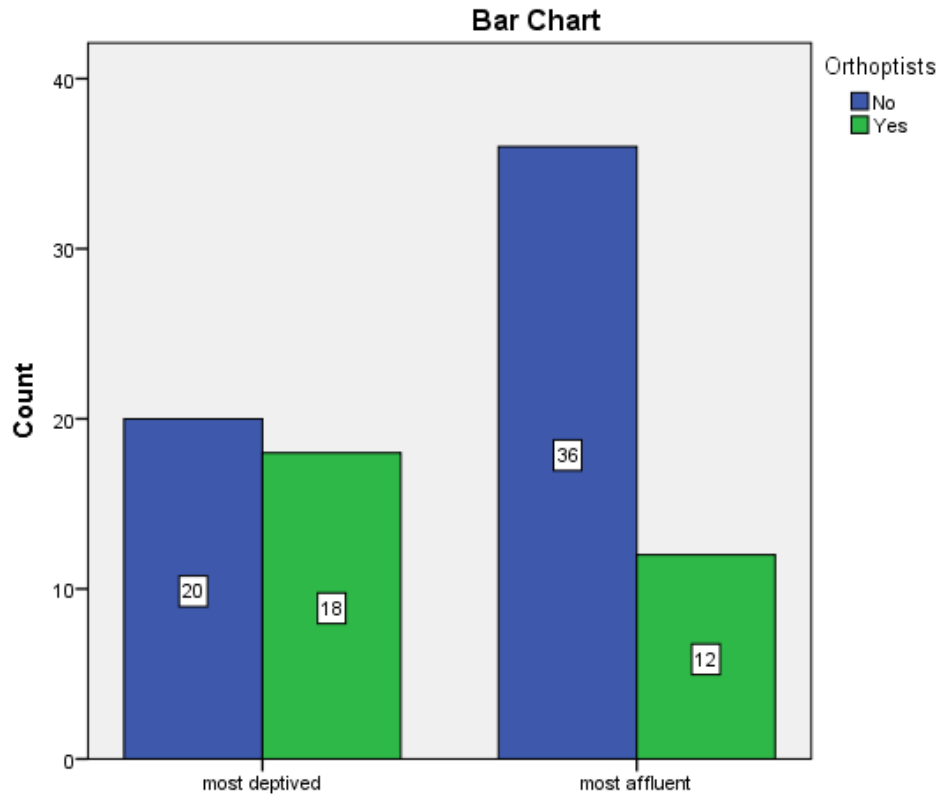
Figure 5 – Orthoptist, No/Yes, within ranked deprivation quartiles



It should be noted that this data includes those PCTs that don't screen since in this instance the children in these PCTs do not get to see an orthoptist on school entry. Furthermore, it is worth

noting, that of the nine responses that indicated that they do not screen, only two of those PCTs were in the two most deprived quartiles, the majority (seven) were in the more affluent quartiles. From this first look at the possible links between deprivation and use of orthoptists (Figure 5 above) it was clear that there is a downward trend in the use of orthoptists as deprivation decreases by quartile (i.e. as the quartiles become increasingly affluent). The next approach was to look at whether a dichotomised distinction between the more deprived PCTs and the more affluent ones (by dividing the ranked table in half), gave any clear link between these two variables (deprivation and use of orthoptists). The results can be seen below in Figure 6.

Figure 6 – Orthoptist, No/Yes, within ranked deprivation half table.



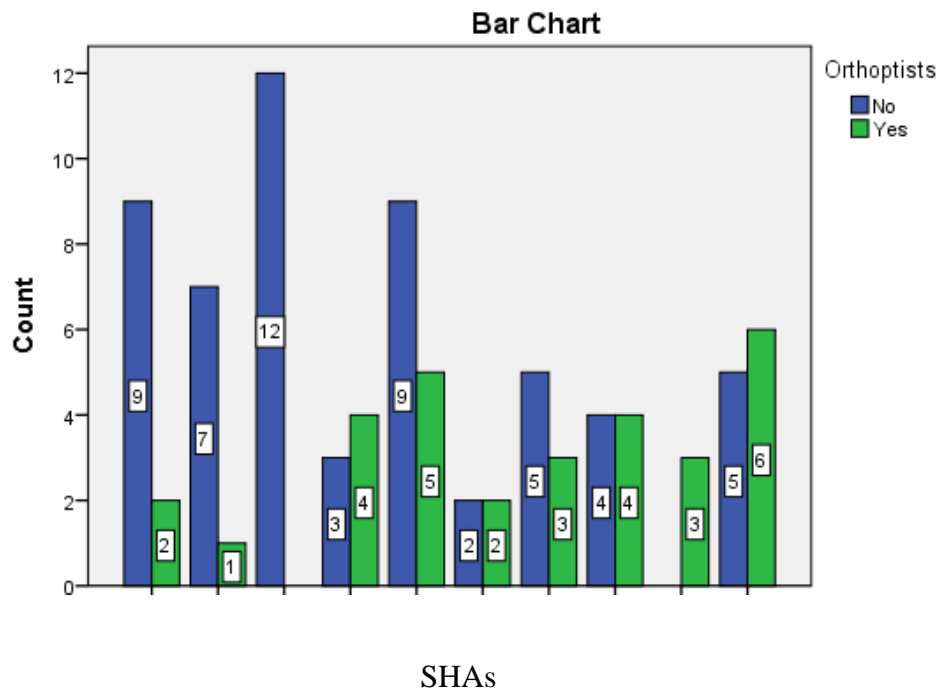
Again, Figure 6 makes use of all data and therefore includes PCTs that don't screen. This is a significant result ( $p < 0.05$ ) [Pearson Chi-Square Asymp. Sig. (2- sided) .031].

An argument can be made that this is not a randomised sample and therefore a statistical measure such as Chi-Square cannot be made. However, since it is virtually impossible within the field of the social sciences to find a truly random sample, this thesis, as already stated, takes the stance of critical realism. In short a scientific approach has been assumed in linking approaches taken to implementing the Hall report, and quantifiable variables in the visual screening of 4 and 5 year olds. It should be understood that I have not assumed without reservation, a positivist, and frankly unobtainable, 'high ground' of pure science.

### Use of orthoptists is not evenly distributed geographically

It will be shown that use of orthoptists is not evenly distributed geographically. Specifically there was found to be a clear (significant) correlation between Strategic Health Authorities (SHAs) and use of orthoptists – this was less so (not significant) when the SHAs were grouped in terms of a North/South divide. It is perhaps to be expected that there would be an SHA ‘view’ on what personnel to use in the screen. However, some SHAs divided equally with half the PCTs within them using orthoptists and half not. The next variable then after those of deprivation and personnel (use and non-use of orthoptists) to be considered, was the issue of geography. There was found to be an effect in terms of use of particular personnel (from which practice inevitably follows), based on the issue of geography, i.e. which Strategic Health Authority (SHA) the PCT happens to fall in. See Figure 7 below.

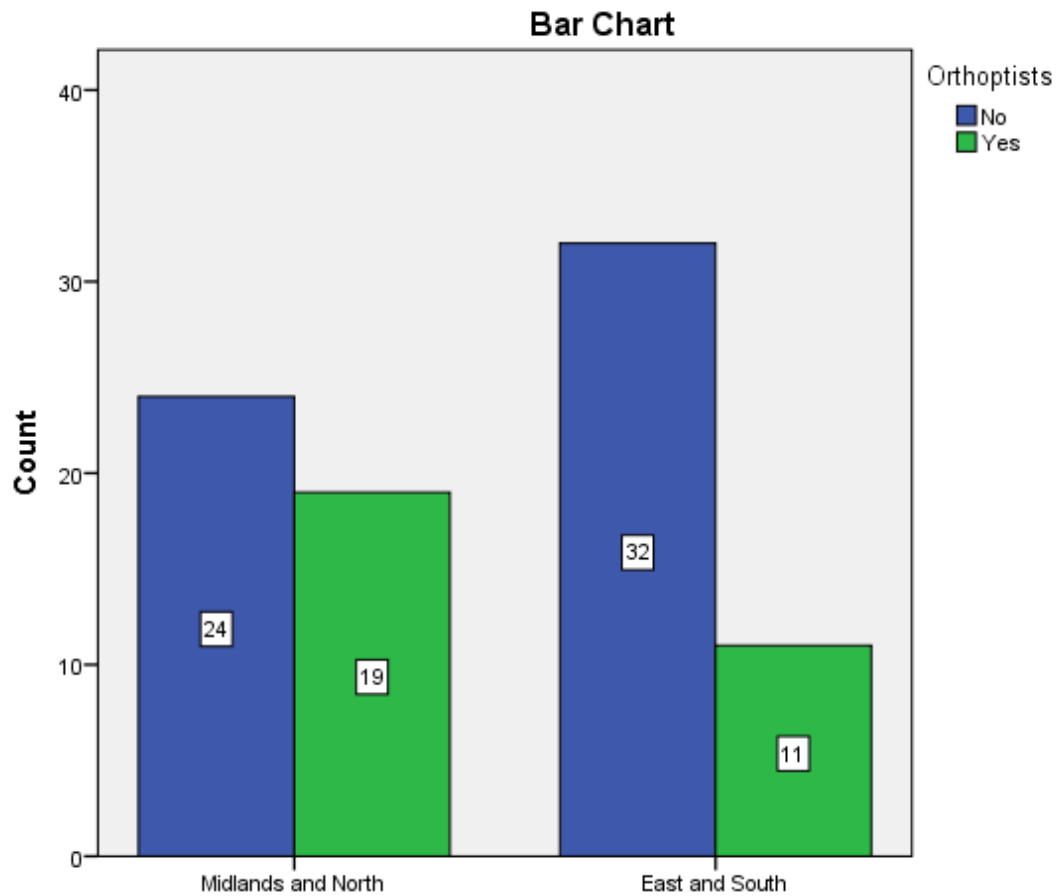
Figure 7 – Orthoptists, Yes/No, within SHAs (using data for all returns)



Again, this is a significant result ( $p < 0.05$ ) [Pearson Chi-Square Asymp. Sig. (2- sided) .019]. These SHAs divided easily into Midlands and North, as opposed to South and East of the country. When this was done there were 43 returns in total from each of the distinct areas. On this basis the data presented as follows in Figure 8 (below).



Figure 8—Orthoptists, Yes/No, within SHAs divided into South/East as against North/Midlands (using data for all returns)



This was not a significant result in terms of Chi-Squared but showed a clear preference for the use of orthoptists in the North/Midlands as opposed to the South/East. 19 out of the 43 returns from the North/Midlands showed that orthoptists delivered the screen. This means that 44% of the PCTs that responded from this half of the country indicated use of orthoptists. In the South/East only 11 of the 43 responses indicated use of orthoptists. This represents just 26% of the 43

responses. When only PCTs that screen were used it was a significant result ( $p < 0.05$ ) [Pearson Chi-Square Asymp. Sig. (2- sided) .032].

Figure 9 – Half table of ranked deprivation by SHA (using data for all returns)

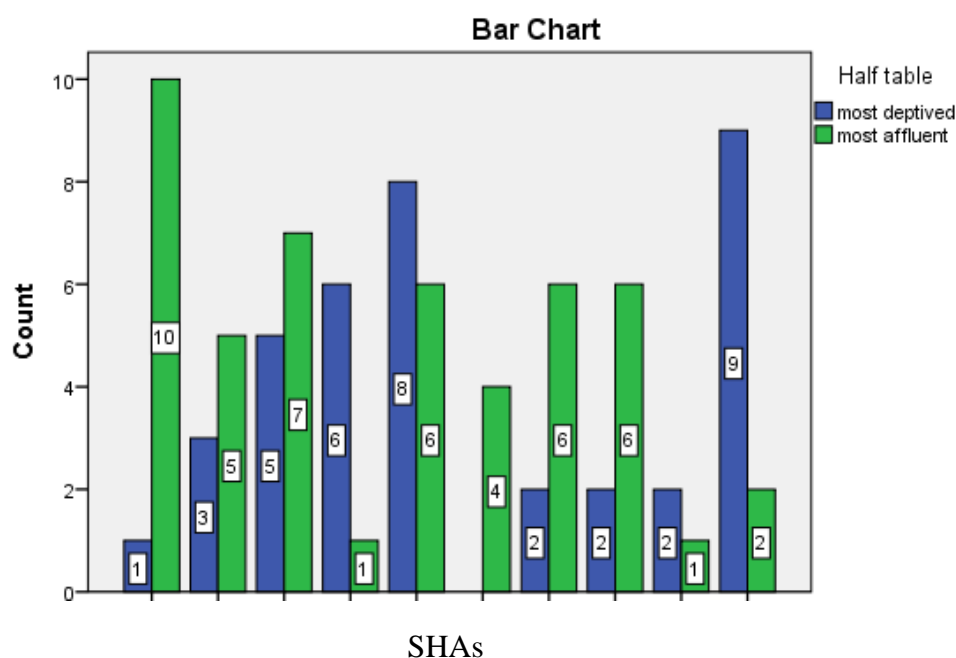
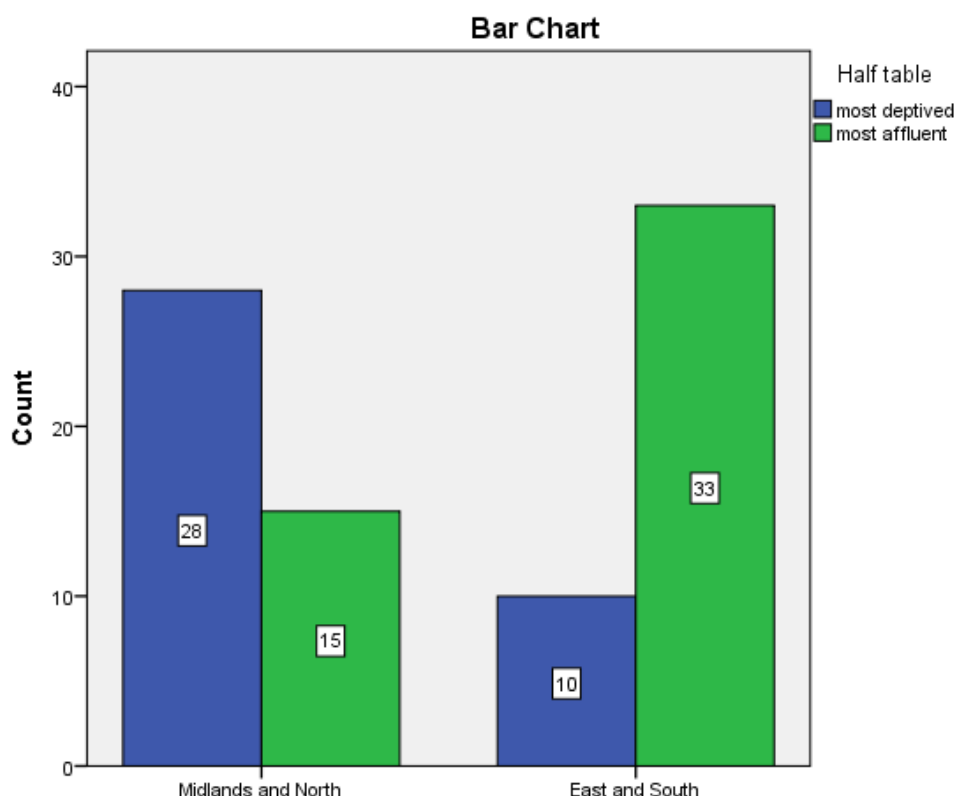


Figure 9 (above) shows half table of ranked deprivation by SHA. The blue bars represent how many of the PCTs that responded fell in the lower (deprived) half of the table of PCTs ranked by deprivation in each SHA. The green bars represent how many fell in the ‘affluent’ half of the table for each SHA. This was a significant result ( $p < 0.05$ ) [Pearson Chi-Square Asymp. Sig. (2- sided) .004]. Clearly there is a link between geography (where the PCTs are within the country) and deprivation. Compare for example the 11 returns from ‘East of England’ on the far left of the

chart, with the 11 returns from ‘Yorkshire and the Humber’ on the far right of the chart. Of the former (East of England), only 1, i.e. 9% was from the more deprived half of the ranked PCTs table. Yorkshire and the Humber however, produced 9 of the 11 returns (representing 82%) from PCTs in the deprived half of the ranked PCTs table. This ‘North South divide’ (See Figure 10 below) was even more pronounced in the North/Midlands – South/East groups.

Figure 10 – Half table of ranked deprivation within SHAs for North/Midlands versus South/East (using data for all returns)



There was of course no surprise in finding that the midlands and North of England are more deprived than the South and East. What was more surprising was that the areas of deprivation were more likely to make use of orthoptists (rather than the cheaper, school nurses) in the school

entry screen for visual difficulties. What was not clear was whether the choice of orthoptists for the task was linked to the deprivation of the area or whether deprivation is just one of many factors connected with a North/South divide in England, a divide that in and of itself is perhaps in some way responsible for the use of orthoptists in the screen. The Northern Health Authorities are maybe just further ahead in terms of delivering the Hall agenda of an orthoptist screen? This issue will be returned to later.

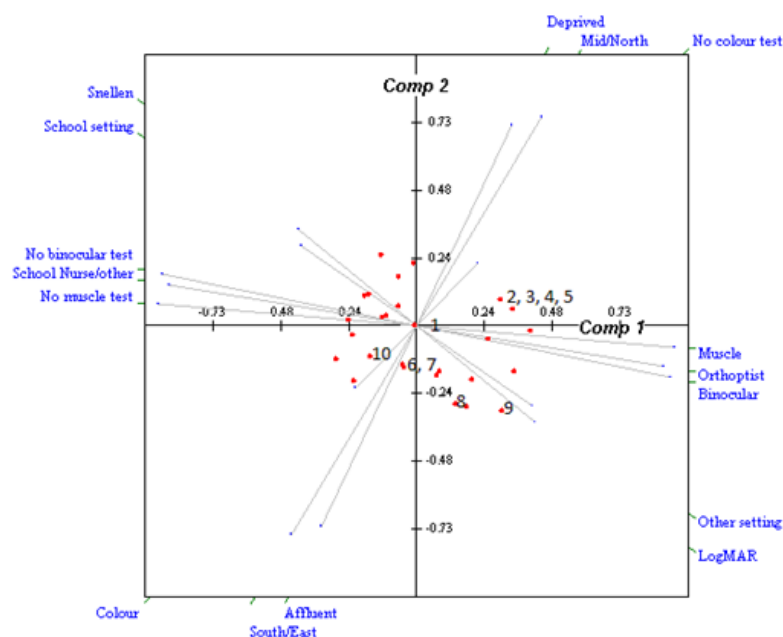
In order to explore the relationship between the various variables (including, a North South divide, use/non-use of orthoptists and relative deprivation/affluence) which may have an effect on the screen, it was decided to dichotomise as many variables as possible and perform a principal components analysis on the data (Figure 11 below). This data only relates to those PCTs which carry out screening. In a principal components analysis graph, N dimensional space (a multi-dimensional space) can be represented in 2 dimensions to show the principal directions of variance following a principal components analysis. In order to see this representation as clearly as possible, the representation can be rotated such that the information is spread out as much as possible, and therefore seen clearly. The two dimensional representation that results can be thought of as being produced by holding the multi-dimensional model up to the light. The resultant shadow is what is presented in the two dimensional version. Thus a short axis shows a variable that runs from near to the light/the paper on which the shadow is cast, and is therefore poorly correlated to the two main axes. In contrast a long axis shows good correlation with the principal factors of variance. These main axes represent the directions of maximum variation and second maximum variation. That is to say that the main axes represent the Principal Components plot (factor analysis) of 1st by 2<sup>nd</sup> (x by y) directions of maximum variance. Axes close together

correlate well with each other. Equally, points can be plotted on these axes of variables, in this instance, 10 of the 13 PCTs which gave costings have been used as the numbered points.

Before considering the implications of this graph, it is worth just saying a few introductory words. Firstly, each of the polar dichotomies presented in the graph has already been considered in the crosstabs above, with the exception of the setting. The vast majority of screens are carried out in schools, however, a school setting/non-school setting dichotomy is included here since, unsurprisingly there is a link to personnel, and (it could be argued), the quality of the screen. All 47 non-orthoptist delivered screens are carried out in school. However, 5 of the 30 orthoptist delivered screens are carried out elsewhere (including, but not exclusively, in a hospital setting).

Figure 11 – Principal components analysis of dichotomised data regarding the screen

*PCA (no rotation) for Dichotomised Data*  
Axis Range: -0.97 to 0.97



Given that the data in Figure 11 (above) relates only to those returns that indicated that they screen, in it is worth looking again at the relationship between deprivation and orthoptist delivered screens. Based just on those returns that actually screen (77 of the 86 returns) in an area of relative deprivation there is a 50% chance that an orthoptist will carry out the school entry screen since 18 returns indicated an orthoptist and 18 PCTs indicated a non-orthoptist delivered screen. In the more affluent half of the table there is just a 29% chance that the screen is delivered by an orthoptists since only 12 of the 41 returns indicated use of an orthoptist. This, unlike when all returns were considered and those PCTs that indicated they do not screen were included as PCTs in which children (obviously) do not see an orthoptist on school entry, is not a significant result [Pearson Chi-Square Asymp. Sig. (2- sided) .063].

Returning to Figure 11 then, this perhaps makes sense of there not being a clear correspondence between deprivation and use of orthoptists. The longer the lines on a PCA graph the more significant they are as a factor in explaining the variance in the data. The closer two (or more) lines are together, the closer the correlation between the two (or more) variables represented by them. It is clear that orthoptist/non-orthoptist is the longest line and therefore the greatest indicator of variance within the data. The orthoptist/non-orthoptist line is so close to the lines, muscle/no muscle test and binocular/no binocular test that it can be seen that essentially it ‘stands in for them’. The screening is unlikely to contain these tests unless it is carried out by an orthoptist. Similarly, there is a close alliance (as we have seen above) between the Mid/North – South/East variable and the Deprived – Affluent variable. However, as already noted, there is not a significant relationship between these lines which essentially represent one axis of variance, and

the aforementioned orthoptist/non-orthoptist line which stands in for the other (and most significant) axis of variance.

Finally, Figure 11 is a bi-plot, meaning individual data points (in this instance PCTs) can be plotted against the axes of variance described above. These red dots have been labelled with a number just to the right of the dot they represent, to indicate 10 of the 13 PCTs that provided data relating to the cost of the screen. This shall be returned to together with a number of other points raised in this chapter, in the next chapter (Chapter 5) as part of a discussion of the findings as they relate to the initial theory around costs, practice issues and population characteristics.

In this chapter then, the quantitative data from the study (as well as the local study) has been presented making a number of important inter-related aspects of the findings of the study clear. Following a run through of the responses provided to each of the questions on the questionnaire in turn, it was shown that the practice in terms of screening is directly related to the personnel used to deliver the screen. Secondly it was shown that the use of orthoptists to deliver the screen is significantly correlated to the more deprived areas (PCTs). Thirdly it was shown that use of orthoptists is not evenly distributed geographically. Specifically there was found to be a clear (significant) correlation between Strategic Health Authorities (SHAs) and use of orthoptists – this was less so (not significant) when the SHAs were grouped in terms of a North/South divide. Finally, a principal components analysis (PCA) of dichotomised data was carried out on just those PCTs that do actually screen, in order to pull together some of the relationships between the variables that may have affected the screen.

Some of the points that are returned to in the next chapter include; the idea that the use of a good (LogMAR based) test can be used as an indicator of ‘good practice’, the notion that good practice in fact follows from the type of personnel used will also be expanded upon, the issue of the perceived (as opposed to actual) level of deprivation will be explored, the issue of the cost of the screen, and finally why some PCTs have just been further ahead in terms of delivering the Hall agenda of an orthoptist screen. These questions will be considered alongside an analysis of the qualitative data from the research.



## Chapter 5. Qualitative findings and discussion

In this chapter I will present an analysis of data from the case studies of the various orthoptists contacted, in order to throw further light on the connections between; use of orthoptists, deprivation and costs (to include funding issues). In this way I will explore the patterns that emerged from the quantitative work further. These questions were posed (as per the description in chapter 3 on methodology), by telephone, email or a combination of both, and in one instance, a face to face interview. An agreed transcript by way of answers was arrived at in each case with the respondent. Anything that I had written as my understanding of a conversation was checked in order to be sure that I had understood correctly the viewpoint of the contributor.

At the end of the last chapter I left some particular questions to be looked at further. These were; the idea that a good(LogMAR based) test can be used as an indicator of 'good practice', the notion that good practice in fact follows from the type of personnel used will also be expanded upon, the issue of the perceived (as opposed to actual) level of deprivation will be explored, the issue of the cost of the screen and finally the issue of why some PCTs are further ahead in terms of delivering the Hall agenda of an orthoptist screen.

Presenting the data collected from the case study interviews, will provide answers to some of the above questions and allow some summative conclusions to be formulated. The issues of guidance on clinical commissioning and the theoretical perspective of local Justice (Elster 1992)

will be used to suggest a possible mechanism for the main findings of the research. In summary then, I will run through responses to the full list of questions before returning to the issues raised at the end of chapter 4. Finally a summary of all findings together with how they relate to theoretical aspects of the research, in particular the concept of ‘local justice’ will be made. Some initial conclusions will be offered.

In total 11 questions were posed to the 5 interviewees. All interviewees were orthoptists by training. All except one (a research orthoptist who had practiced previously) are currently involved in practice as an orthoptist. Not all questions were posed to all interviewees. The exception was Nicky, the 5<sup>th</sup> interviewee who is in a position to have a good overview of practice across the country – all questions were posed to Nicky. For the others there were particular questions that arose from their returns regarding the quantitative data, or questions that arose from previous interviewees, or that I wanted to explore further. In this way, even before the data received from Nicky (who answered the questions by email), I had covered each question at least twice, i.e. with two different interviewees. Each question was therefore answered (including Nicky) by at least 3 of the 5 interviewees. Thus the research technique was a combination of ‘snowballing’ questions as they arose and triangulating questions that had already arisen. The full list of questions is given in Table 1 in Chapter 3 (above).

### Analysis of the case studies

Responses to question one, *Does it matter if children aren't screened?*, included this from Orla; ‘It is important to pick up on and treat amblyopia since in later life age related macular degeneration,

complications from diabetes etc. may take your only good eye if your other eye is amblyopic.’ This point is indeed well made in the literature on amblyopia. She goes on to say that, ‘PEDIG’ studies (Wallace, 2007) in the United States have drawn attention to the fact that children as old as nine or ten can still benefit from patching/treatment. However, this relates to anisometropic amblyopia in particular, a distinction that the studies did not make.’ Ariana’s response included this unequivocal repost; ‘Having no screening at all is disgraceful. Children are either not being detected at all or being detected very/too late into their critical period of visual development and do not respond to treatment, leaving them with a long term visual impairment.’ In contrast Nicky responded as follows; ‘I personally think that with finite financial resources, that vision screening does not rank highly in relation to cancer, stroke, diabetes etc. and as such it is imperative that the end result i.e. quality of life and increase in life expectancy is more important.’

Question two, *Why are some PCTs further ahead in delivering the Hall agenda of an orthoptist screen*, elicited this response from Ariana; ‘Most of the orthoptic delivered screening is historical and was originally moved from the 3 year screen to into schools when the Hall report was published. It is very dependent on the ‘influence’ of the local orthoptic team and ophthalmologists but at the end of the day it has been down to the PCTs priorities.’ However she goes on to explain the specifics of a decision made by an acute trust without consultation with the PCT to whom they provided the service; ‘About 4 years ago, when recruiting orthoptists became challenging and services needed to be reduced, the acute trust cut the screening service, I believe without consultation with the PCT.’ Mari’s response to this question was; ‘Because it depends on what orthoptists are there.’ She continues, ‘They can influence PCT managers who in turn ask advice from practitioners (orthoptists).’ Nicky’s response was that, ‘I do not think that it is a case of

“further ahead”, simply a case of prioritising the use of funds to commission care in relation to enhanced quality of life and longevity.’

Question three, ‘Is your understanding that Hall recommends an orthoptist delivered (not led) screen?’ produced the following responses; Ariana felt that, ‘The most recent Hall recommendation is that the screening is orthoptic led. Nationally there are not enough orthoptists to offer primary screening in schools for every county and their expertise is better used in the acute setting.’ Mari, the research orthoptist, quoted Hall’s ‘gold standard’ in stating that, ‘The gold standard is that orthoptists do it.’ However, Nicky felt that, ‘Hall recommended orthoptic led screening with orthoptists to assist with the quality assurance and training of personnel to deliver the services.’

For question four, ‘*Why should the population characteristic (deprivation) affect use of personnel?*’, Orla was surprised by this, she revealed that; ‘A postcode study I conducted showed that there was no significant difference in where the children treated at the hospital came from (in terms of postcode).’ She had expected that there would be ‘hot spots’ around areas of deprivation – this was not the case. Similarly Nicky responded, ‘I am surprised by deprivation being a critical issue.’ She continued by indicating that ‘history’ is perhaps part of the story; ‘I think that screening programmes that have been in place for a long period of time largely remain orthoptic delivered until the point at which the commissioning groups look at cost. At that point they often decide to change to orthoptic led.’ Ariana felt that, ‘When an organisation bids for screening they are likely to ‘wave the equality flag’ – this makes organisations more likely to commission the

screen because then it gives the tender more weight (it adds to its power). The other factor is receipt of a formal complaint to a PCT.’ Mari, rather like Ariana, felt that recognition of the population served (in this instance by direct observation of needs), is perhaps a factor in explaining why the population characteristic deprivation affects use of personnel. She gave the example of a Northern town with a high degree of deprivation; ‘If an orthoptist feels that here is a high incidence of a particular issue they may be more inclined to set up a scheme. For example in [Northern town] one area a high incidence of astigmatism was noted. When the Hall report came through they set up an orthoptist screen, initially in the area with the high incidence of astigmatism and subsequently all across [Northern town].’

Question five was, *‘Is money fed into areas of deprivation (which could be used to fund an orthoptist screen)?’* This struck me as being an obvious thing to ask in providing a possible reason for a link between deprivation and (expensive – orthoptist) personnel. Orla responded that she feels ‘that there *is* more money made available to [E Southern area] for health issues, rather than the more affluent [W Southern area]. Nicky directed me to ‘Clinical Commissioning guidance’ (see separate heading) whilst Ariana, like Orla, stated that; ‘My impression is that child health has greater weight and therefore funding in areas of deprivation.’

Question six, *‘What do you think about the idea that all that is needed is a really good acuity test?’* elicited the following responses; Mari felt that, ‘In areas where it’s done by school nurses (overseen by orthoptist), a single, thorough, test, may suffice.’ Rosa agreed with this since, ‘There’s not enough orthoptists to go around.’ Nicky felt that, ‘If Hall is followed, then screening

targets possible strabismus, ocular motility defect, visual acuity defect. ‘All’ tests therefore need to be accurate and reliable.’

Question seven, ‘*Is screening good use of an orthoptist’s time*’ produced some varying responses. Mari felt that, ‘Orthoptists are allowed to do what they like to an extent – they are professionals. Yes, screening is seen as a fairly skilled job (e.g. band 6-7 practitioner needed in terms of orthoptist pay scales), and is seen as important.’ Rosa was not so sure, ‘Orthoptists are good at screening but it’s expensive. If money is no object then use orthoptists, but in the real world there is not enough orthoptists to go around.’ Nicky was categorical in her negation of this, ‘No, not in relation to the clinical work such as Trauma, Stroke, Neurology etc.’

Question eight, ‘*Good practice in terms of screening follows from the type of personnel used (orthoptist)?*’ again drew a variety of responses. Nicky’s response was that, ‘Suitably trained and competency assessed staff should be used. They do not need to be orthoptists, although the training should ideally come from orthoptists.’ Rosa explained that she [now], ‘Passionately believes it should be orthoptic led. ‘Delivered by orthoptists’ can be interpreted as ‘led’. An orthoptist should have the budget and employ an orthoptic technician. Orthoptic led means trained and supported by orthoptists.’ In contrast, Mari indicated that, ‘Lots of people lost their funding around the time of the Brown report (Snowdon and Stewart-Brown, 1997). The Hall report re-balanced this in terms of emphasising good practice through the use of orthoptists.’ (See comments above re a ‘gold standard’).

Question nine was, *‘Why don’t they seem to use orthoptists to screen in London?’* The issue of ‘history’ arose again here with Rosa noting that, ‘It’s historical, probably done by school nurses previously, never any funding.’ For Mari it was a question of numbers, ‘Density of population – ‘is there the man-power’ in London?’ For Nicky it was simply about the commissioning process, ‘Obviously the commissioners will not fund this.’

The last two questions (ten and eleven) were, *‘Why would respondents over-estimate deprivation?’* and *‘Is there a skew towards more deprived children in the group of children that present at the clinic?’*. Whilst there was no clear answer to the first, Rosa linked the first question to the second in responding that, ‘Possibly clinicians over estimate deprivation because they see a ‘skewed’ population walking through the clinic door, with a higher level of vision problems in an area of higher deprivation.’ Furthermore, she felt that, ‘Children that are referred tend to be from more deprived backgrounds. In terms of screening these areas should be targeted since in these areas children tend to present (for example with strabismus), later.’ Orla felt that, ‘Whilst the ‘clientele’ of the eye clinic does not in my opinion have a particular skew in terms of being from more deprived areas [see for example the unpublished post code study mentioned above], there is some evidence in the literature that amblyopia may be more prevalent in families living in deprivation.’

In reviewing the responses given above I will begin with the last question left at the end of Chapter 4 first. This was the question, ‘Why are some PCTs further ahead in terms of delivering the Hall agenda of an orthoptist screen?’ This brought in the issue of ‘history’ and the idea that if it has been

done by orthoptists previously (Ariana suggests at the younger age of 3), it was simply moved following the Hall report to a school entry screen, and conducted by the same personnel, i.e. orthoptists. Thus it is not simply funding available *now* that needs thinking about, but also funding that has been available previously for such screening. The issue of ‘influence’ and in particular the influence of orthoptists over fund holders within the PCT arose in the responses. The relative powerfulness of orthoptists (as against school nurses for example against whom orthoptists may be bidding) is seen to be significant. Finally, the wider picture of screens in general is raised and the relative place of the screen for amblyopia within competing claims on limited resources. There is a danger here of a ‘race to the bottom’. If the screen for amblyopia is seen as not necessary when competing with the screen for diabetes, will the screen for diabetes soon be seen as not necessary compared to the screen for cancer?

Continuing to work backwards through the questions left at the end of Chapter 4, the issue of cost arose during the interviews. Here again the issue of ‘history’ arises. Nicky responded regarding a link to deprivation with; ‘I am surprised by deprivation being a critical issue.’ She continued by indicating that ‘history’ is perhaps part of the story; ‘I think that screening programmes that have been in place for a long period of time largely remain orthoptic delivered until the point at which the commissioning groups look at cost. At that point they often decide to change to orthoptic led.’ The extent of leadership/oversight by orthoptists was not apparent on returns that indicated that the screening is delivered, for example, by school nurses. However it is clear that a driving force behind the use of specific personnel is not only historically driven but also cost driven.



The issue of perceived levels of deprivation is important and must now be considered.

63 respondents answered question 7 regarding ‘which quartile you believe your PCT falls into in terms of levels of deprivation, where 1 is the most deprived and 4 is the least deprived quartile.’ This question was meant in terms of quartiles of *ordered* PCTs (i.e. 1<sup>st</sup> most deprived PCT 2<sup>nd</sup> most deprived PCT up to 152<sup>nd</sup> most deprived PCT). However, it may have been understood in terms of quartiles of ordered IMD *scores* (i.e. continuous data). With hindsight it should have been made clear that the former meaning was intended. Based on this meaning of ordinal (ranked) PCTs, of the 63 respondents to this question, 31 placed their PCT in the correct quartile, four overestimated the ‘affluence’ of their PCT by 1 quartile, 25 overestimated the deprivation of their PCT by 1 quartile and 3 overestimated the deprivation of their PCT by 2 quartiles. This would seem to show a ‘heightened’ awareness of/concern regarding deprivation amongst respondents. When checking back as to what would happen if quartiles of ordered IMD *scores* were used instead, in fact of the 63 respondents, none underestimated deprivation and indeed IMD scores were overestimated to the tune of 58 points (each point representing a quartile), i.e. almost by one point/quartile per respondent on average. The notion of *ranked* quartiles therefore provides the better match between perceived levels of deprivation and actual level. This is the data used and it is hoped that this is how the question was understood.

This finding that 25 out of the 63 respondents overestimated the deprivation of their PCT by 1 quartile and 3 overestimated the deprivation of their PCT by 2 quartiles is central to the discussion. It indicates that the issue of deprivation is very ‘present’ in the minds of respondents. It also

suggests a ‘heightened’ awareness of deprivation amongst respondents (FOI officers and orthoptists/heads of screening services).

The idea that good practice in fact follows from the type of personnel was disputed during the interviews, however, it is clear from the empirical data that use of an orthoptist ensures a far wider range of tests are used, and to this extent if no other, practice is at least ‘richer’ dependent on use of orthoptists as personnel. The issue of LogMAR arose as part of the suggestion by one of the interviewees, and subsequently put to other interviewees, that all that is needed is a good acuity test. These two issues then, that practice follows from personnel and that all that is needed is a good acuity test, will be considered together.

Nicky’s response to the idea that all that is needed is a really good acuity test is interesting. She felt that, ‘If Hall is followed, then screening targets possible strabismus, ocular motility defect, visual acuity defect. ‘All’ tests therefore need to be accurate and reliable.’ The empirical data as already noted shows that almost without exception, the *only* people who conduct other tests (i.e. tests other than acuity tests) are orthoptists. It is interesting also that her response is clearly guided by the Hall report. Sometimes this particular piece of policy is seen as for guidance only and at other times it is something that should be adhered to. Moving to the issue of good practice, whilst there were some strongly held views suggesting that the screen needn’t be delivered by orthoptists as long as it was led by them, again, the notion that Hall, if followed requires that the screening ‘targets possible strabismus, ocular motility defect, visual acuity defect’, suggests once again that this is something that is not currently happening unless an orthoptist delivers the screen.

Mari's view that, the Hall report re-balanced a loss of funding following the Brown report 'in terms of emphasising good practice through the use of orthoptists' would seem to reflect both, good practice as defined by Hall, and also what actually happens currently in terms of the relationship between use of personnel and practice. (See also comments above re a 'gold standard' recommended by Hall).

## Discussion

The subsequent part of the methodology in this mixed methods inquiry involved identifying particular areas of practice that stood out as being of interest. These were then followed up with phone calls which were scripted. The script was then run past the interviewee to ensure that it was an accurate representation of the phone conversation. There was a loose series of questions for the telephone interview, constituting an unstructured questionnaire of sort. This data (as seen above) was able to provide some clarity around the quantitative data regarding the school entry screen. This was particularly so in terms of the understanding of both perceived and real measures of deprivation, and most importantly it was able to unpack some of the feelings of professionals around the issue of screening and deprivation. It was clear from both the quantitative and qualitative data (but more importantly because of the tie up between the two), that there is an agenda of 'local justice' that plays a part in the delivery of the school entry screen for visual difficulties.

The differences in terms of the visual screen may well stem from how the Hall report is interpreted. It was felt by one orthoptist (Orla) interviewed on the telephone that firstly, the

screening conducted by an orthoptist is a more thorough screen and would therefore save money in the long term:

“There is a difference of opinion amongst orthoptists as to whether a screen should be delivered by an orthoptist or led by an orthoptist (whose job it is to train school nurses). [Orla is firmly of the former opinion]. Whilst it is more expensive to use orthoptists, there is a saving to be made in *not* making false positives (and therefore wasting hospital time) and also in catching issues that can be treated easily that may otherwise have been missed.”

Secondly, Orla felt that the recommendation of the Hall report is that there is an orthoptist led (rather than necessarily orthoptist delivered) screen. This is not my understanding of the report. Thirdly, in answer to the question, ‘why should the population characteristic (deprivation) affect use of personnel?’ Orla felt that there is more money made available to [E Southern PCT] for health issues, rather than the more affluent [W Southern PCT].

Of some concern following the interview with Orla was the fact that she revealed that the screen was stopped in part because of the Hall report recommending screening by an orthoptist. It had been done previously by school nurses but was stopped following the Hall recommendation:

‘A visual assessment by an orthoptist should be carried out on all children between the ages of 4 and 5 years. Some districts already have the staff to do this and need only to restructure their community programme, but in others it may take a few years to introduce.’

(Hall 2006 p236)

Orla questioned the notion that deprivation affects the population directly in terms of amblyopia. A postcode study conducted by her showed that there was no significant difference in where the

children treated at the hospital came from (in terms of postcode). It had been expected that there would be 'hot spots' around areas of deprivation – this was not the case. It is difficult to comment on this unpublished study, and also often difficult to see quite small effects in a small scale study. This said, my own small scale study conducted as a local pilot showed a very clear effect (see above).

The historical reasons for the difference in practice between the two PCTs described by Orla in terms of vision screening (or lack of it) would form the basis of some interesting further research. The neighbouring PCT to that represented by Orla could be described as having an orthoptist led screen. The head orthoptist operates a two tier system where-by children are screened at 3 ½ by orthoptists at Health centres and fails are referred to the hospital. School nurses then screen all children on school entry.

There are two interesting questions that arise, one is that a particular view of a particular orthoptist has influenced the implementation of this two tier orthoptist delivered screen in the more deprived of the two neighbouring PCTs, and this would seem to have been driven to some extent by the provision of additional funds, the provision of which may have been influenced by a notion of local justice. Secondly, in Orla's neighbouring PCT the screen (which had been carried out by school nurses) was stopped in part because of the Hall report recommending screening by an orthoptist.

The purpose of this study then was to explore the link between amblyopia which is screened for in

most Health Authorities on school entry, and practice as well as costs around screening technique. The idea was to see whether at a national level there is the kind of discrepancy that was found at a local level between the skills and resources applied to the screen and the socio-economic makeup of the area as measured by the IMD scores (Indices of Multiple Deprivation). There is a tension here between what Elster calls local justice, which takes account of local need (in this instance deprivation and a link to poor health, including eye health) and equality that would look to provide the same level of screening across the country. This notion of local justice arose during the local study and has proved useful in this current study.

One clear determinant regarding the outcome (or at least the practise) of the screen is deprivation. Eye-care services it would seem *are* taking account of the socio-economic make-up of an area when deciding how to deliver the screening to the 4 and 5 year olds within it. This is in keeping with the principles of the guidance on clinical commissioning. Other determinants certainly include, financial limitations within the Primary Care Trust (PCT) to commission a screen, how the policy of screening has been implemented historically and the personal constructions of lead staff regarding the policy of screening which in turn are influenced by notions of local justice.

### Highlighting Differences of Practice

A distinction was made (above) between population and practice. There is a danger here that practice can be seen as something that happens to a population and is, in itself, a faceless thing. However, practice is carried out by people. It is led by people who develop and interpret and deliver policy. They are not robotic in delivering this policy. They are fundamental as people

(not machines) in its realization. There are opportunities for front-line workers to have a substantial influence on the delivery of policy and the resultant practice that ensues. It seemed apparent that one particular person (Rosa – head orthoptist on the PCT B side, and now across the Authority) had been integral to the development and delivery of the work regarding the school entry screen for vision. As an orthoptist herself she had been running an orthoptist delivered service in terms of the school entry screen for vision in the more deprived PCT (B) within the Authority. The other side of the Authority (PCT A) was a school nurse service. These two systems were being run separately but audited in terms of their relative effectiveness as systems. A meeting with the head orthoptist was arranged to discuss these issues. Rather than conducting a formal interview, notes from our meeting were made which she agreed as an accurate record and the key points are provided in Box 1 (below). It had been suggested (and was confirmed by the head orthoptist) that the instigation of the orthoptist service for school entry screening was directly influenced by the identification of one PCT (B) as having greater deprivation (as indicated by the higher IMD scores) than the other PCT (A). It was this PCT (B) with the higher IMD scores that, because of the intervention of a previous medical practitioner, continued to have an orthoptist service for the school entry screen.

Box 1 – Extracted and agreed upon notes from meeting with head orthoptist Rosa

The head orthoptist (Rosa) felt strongly that children on the more deprived side of the County had one level of screening delivered by orthoptists, whilst the other side had a service from school nurses (SNs) whose skills did not necessarily lie in vision testing. The head orthoptist felt that the quality of an orthoptist *trained* service (i.e. delivered by SNs after training from an orthoptist)

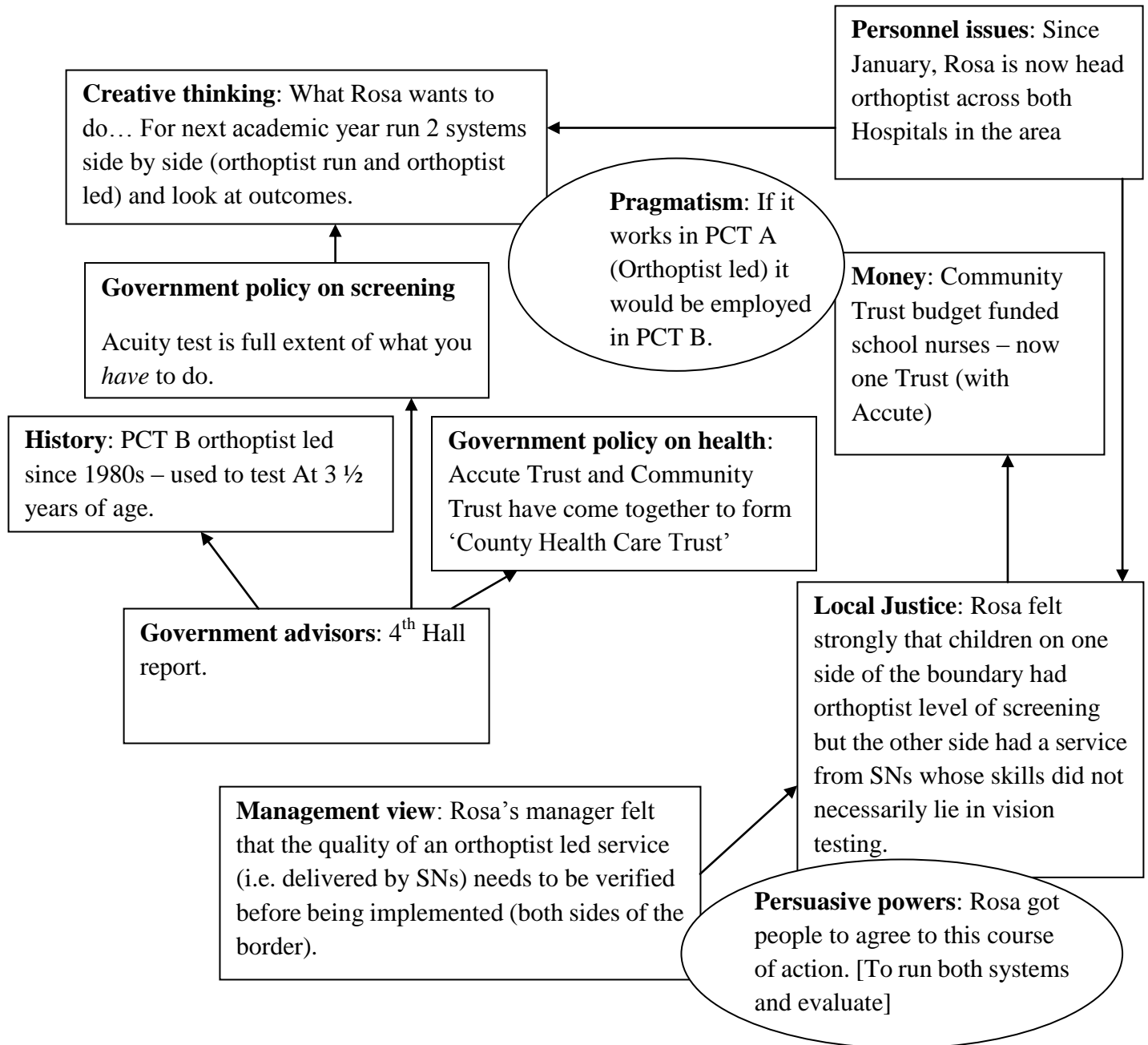
needs to be verified before being implemented on both sides of the county and has got people to agree to this course of action. What she wants to do is, for the next academic year run the two systems side by side, orthoptist run and orthoptist trained (delivered by SNs after training by an orthoptist) and look at the outcomes. This evidence will be used when considering which system to use across the county in future. Accuracy of referrals will be the key determinate of success. The orthoptists will retest a random sample to identify whether the school nurses are missing vision defects (false negatives). How many *did* have a confirmed defect is the opposite of this.

Thus notions of local justice are one possible motivating force behind the activities of the head orthoptist (Rosa). Some of the complex web of issues within which Rosa is held is shown in Figure 12 below.

It should be noted that the discussion that is being outlined here regarding local justice versus equality of provision, might also be seen as a discussion between social constructivists and personal constructivists: to what extent are we held within social constructs that determine our behaviour and equal 'roll out' of a pre-determined policy on screening, and to what extent are we able as individuals to experiment with our world in order to fulfil our own personal constructs that work for us in our daily working lives? In a sense, theory around local justice is looking in a sociological or more specifically political science way (societal level), at a discussion that can equally be looked at in a psychological way (personal level), specifically in terms of ideas from social psychology. Social psychology can equally well deal with this kind of structure/agency issue.



Figure 12. Issues for Rosa (head orthoptist)



This sociology/psychology cross-over is perhaps not surprising since the overlap between the two disciplines is very great indeed. However, the subtle differences in approach can perhaps provide some slightly different insights into the same phenomenon. The question that is left hanging in the air within the political science literature is ‘why is this particular cog in the machine of policy delivery acting ‘out of turn’ at times’, and secondly, leading on from this, ‘what are the system pressures/effects that might make this happen?’ From the psychological point of view the question would be, how much of this person’s behaviour can be explained by the social constructs that her/his work provides and how much can be attributed to individual differences. Essentially, whilst the arguments have undoubtedly been paraphrased here, the difference can be seen as political science asking, ‘how does this system accommodate this individual?’, whilst social psychology would ask, ‘how does this individual fit into this system?’ The important secondary question from the psychological point of view is... ‘and how does the individual maintain some individuality within the system?’

What I wish to introduce here is the idea that it is possibly something much deeper than conscience that is at play. The term ‘core construct’, Kelly (1955/1991) describes something that is so important to you that it is in a sense integral to who you are.

The situation for the head orthoptist is outlined in Box 2 (below).

## Box 2 – The head orthoptist’s dilemma and resultant device

The head orthoptist’s conscience says to her that, ‘The best person to carry out a school entry screen for vision is an orthoptist’

But:

Budgetary pressure says, ‘We couldn’t afford to roll out a school entry screen carried out by Orthoptists across the Authority’

Device:

If the screening carried out by school nurses after training by orthoptists is as effective as the screening carried out by orthoptists, this would satisfy both my conscience and the budget.

It is possible that the head orthoptist doesn’t simply think that orthoptists (who regularly assess children’s vision in hospitals) are the best people to carry out a test of a child’s vision at a school entry screen; it may be that her belief in this is, in a sense integral to her identity (a core personal construct). Being an orthoptist then possibly isn’t just what she does, it really is to some extent *who she is*.

The viewpoint being introduced at this stage of the research then is that of personal construct theory, Kelly (1955/1991). Kelly suggests that each of us create our own understandings (personal constructions) of the world. However, he stops short of relativism. Stevens (1998) introduces the term ‘minimal realism’ to describe Kelly’s position in the realism/relativism debate. Whilst everyone within a minimal real world construes it differently, everyone’s personal constructions must also be influenced by everyone else’s, i.e. social, cultural influences (a degree of external ‘reality’), if only so that we can make some kind of sense of each other. This is referred to by Kelly as the sociality corollary.

Some of the key aspects of Kelly’s theory are summed in Chapter 3 along with perhaps the central piece of theory for the thesis; street-level bureaucracy (Lipsky, 1980). The practical usage of the repertory grid did not add much to the findings of the research. However, a brief summary of the findings/analysis of the work is given below together with a more lengthy discussion in Appendix E.

#### Findings/analysis of the repertory grid

- There was considerable over-lap between the scoring I put on her grid compared to Rosa’s own scoring (See Grids in Appendix E)
- A particular area emerged in which I clearly hadn’t understood her thinking with respect to the element, ‘History of practice (what’s happened previously)’
- ‘Finance of the screen’ and ‘Skill set of practitioners’, are areas where I had understood well her understanding regarding these issues

- Rosa had a personal construction that ties ‘Important’ effect on screen, almost precisely to the variable, ‘Moveable’ influences on the screen.

The most significant finding here is the last (that Rosa has a personal construction that ties ‘Important’ effect on screen, almost precisely to the variable, ‘Moveable’ influences on the screen). This construct is both positive and fortuitous, the things that she considers to be the most important factors to do with the screen, are also things that she feels she has some influence over (as opposed to being ‘stable’/unmovable things). This ties in well with my understanding/experience of Rosa as a very positive person/practitioner.

It is also worth noting that there was an almost exact correlation between what Rosa scored for ‘Finance of the screen’ and for ‘Skill set of practitioners’, and what I scored, attempting to construe as she had. These would seem to be areas where I had understood well her understanding regarding these issues.

A clear grouping of mismatches emerged in the analysis of Rosa's scoring as compared to mine with respect to the element, ‘History of practice (what’s happened previously)’. My own scoring of this element on the grid was influenced by my own construing, rather than my understanding of Rosa’s construing. For example, knowing as I did that she had spoken of the historical decision making around setting up an orthoptist screen in one PCT but not in the other, I had assumed (wrongly) that this would be an important influence for her on the screen. With hindsight, given that she is a practicing medic, I feel that I should have been able to think along such lines when

construing as Rosa does, and then I may not have seen ‘History’ as such an important factor. It is notable that for her, the important factors are very practical; finance, skill set, role of local hospital, and personal stance of herself as head orthoptist.

### Combining Theoretical Insights/Further work

Theoretical insights, in particular Elster’s (1992) notion of local justice have been useful in understanding the motivations of those who implemented a particular, and thorough, method of school entry screening for vision, by orthoptists, in the more deprived of the two PCTs (B) which made up the Authority in the local study. But actions require actors, and Kelly’s Personal Construct Theory (1955/1991) provided a psychological theory within which to consider the actions of the front-line workers, in particular the head orthoptist.

So, in answer to the question, ‘What are the patterns of pass rate and referral for children in their sight test on school entry in a large south coast Authority?’ there are clear patterns of difference between the outcome of the screen in the two PCTs that made up the Authority. The reasons for these differences are less clear. However, it is reasonable to assume that deprivation is one variable, with Indices of Multiple Deprivation (IMD) scores being far higher in one PCT than in the other, and a large body of literature suggesting a link between deprivation/poverty and increased health issues including sensory impairment. But it is unlikely that this is the only variable. The differences in terms of the visual screen may well be due to practice differences between the two PCTs. It was noted by the head orthoptist that nothing in the data collected says anything about the *accuracy* of the work undertaken on the school entry screen. Furthermore, she

felt that the screen conducted by orthoptists in the more deprived PCT (B) was a more thorough screen and would therefore produce more referrals/a lower pass rate (as indeed it did). Secondly, she was concerned that referrals for vision in one of the most deprived areas of the more affluent PCT (A), were so high that she temporarily suspended the screen in that area (in the academic year 2010-11, i.e. not included in the collected data). The reason for this flood of referrals could have been due to deprivation, or a lack of accuracy on the part of the school nurses carrying out the screen (too many false positives) or, perhaps most likely, a mixture of both. However, this is only one area of a large PCT and despite this the referral rate for the *whole* of the more affluent PCT (A) was, as noted above, consistently lower than the more deprived PCT (B), for the previous four years for which data was collected, in terms of the visual screen.

The historical reasons for the difference in practice between the two PCTs in terms of the school entry visual screen and the attempt to develop a consistent approach to the screen would form the basis of some interesting further research. Of particular interest during the local study was the discovery that the reason for developing a different approach to the screen in the more deprived PCT (B) was in fact the recognition of poverty/deprivation within the PCT and the resultant health needs of the population in terms of vision. Thus the PCT developed a 'Rolls Royce' orthoptist delivered screen. It should be noted that the PCT still continues with the same level of deprivation, but the current concern is with creating an equitable (and financially sustainable?) screen across the entire Authority.

There are two interesting questions that arise, one is that a person, or perhaps a group of people, at some point in the past implemented the orthoptist delivered screen in the more deprived PCT, and this would seem to have been driven by the above notion of ‘local justice’ (Elster, 1992). Secondly, a similar person, or group of people now wishes to ‘undo’ this policy and distribute the screen, Authority wide, on the basis of equality rather than local justice, using a screen delivered by school nurses, but only after training by an orthoptist. Finally, it would be interesting to investigate what if any personal constructs are drawn on by head orthoptists in using their discretion to implement public policy around vision services.

The current study then has explored some of these factors and their effect on delivering the ultimate aim of preventing amblyopia.

### Findings

A ‘heightened’ awareness of deprivation amongst respondents was an important finding. 63 respondents answered question 7 regarding ‘which quartile you believe your PCT falls into in terms of levels of deprivation, where 1 is the most deprived and 4 is the least deprived quartile.’ This question was meant in terms of quartiles of *ordered* PCTs (i.e. 1<sup>st</sup> most deprived PCT 2<sup>nd</sup> most deprived PCT up to 152<sup>nd</sup> most deprived PCT). However, it may have been understood in terms of quartiles of ordered IMD *scores* (i.e. continuous data). With hindsight it should have been made clear that the former meaning was intended. Based on this meaning of ordinal (ranked) PCTs, of the 63 respondents to this question, 31 placed their PCT in the correct quartile, four overestimated the ‘affluence’ of their PCT by 1 quartile, 25 overestimated the deprivation of their



PCT by 1 quartile and 3 overestimated the deprivation of their PCT by 2 quartiles. This would seem to show a ‘heightened’ awareness of/concern regarding deprivation amongst respondents. The pattern showed even greater overestimation if scores rather than ranks were used for quartiles.

A relationship between deprivation and practice was another critical finding of the study. There is a large body of literature suggesting a link between deprivation/poverty and increased health issues; (Aber *et al.*, 1997; Bramley and Watkins, 2008; Howard *et al.*, 2001; Scott and Ward, 2005). There is also evidence that there is a link to amblyopia specifically, (Williams *et al.*, 2008). One possible determinant then regarding the approach to practice (and cost given that the ‘common sense’ view does indeed seem to hold) is that eye-care services may be taking account of the socio-economic make-up of an area, or perception of the socio-economic make-up of an area, when deciding how/whether to deliver the screen to the 4 and 5 year olds within it. It was already known from the local study that deprivation exists as a determinant of practice in one south coast Health Authority’s vision screen (the more deprived part of the Authority receiving the more rigorous and more expensive orthoptist delivered screen). It was the clearly stated hypothesis that this would also be true at a national level. This did indeed turn out to be the case. The null hypothesis that there would be no relation between practice and deprivation was discounted.

Some deeply held views regarding practice were also encountered in the qualitative data. There is a difference of opinion amongst orthoptists as to whether the screen should be delivered by an orthoptist or led by an orthoptist (whose job it is to train school nurses). Orla (head orthoptist in a Southern Health Authority) is firmly of the former opinion, whilst Rosa (head orthoptist in a

different Southern Health Authority) used to feel this, but now for pragmatic reasons feels that the screen should be led by an orthoptist. Whilst it is more expensive to use orthoptists, Orla feels that there is a saving to be made in *not* making false positives (and therefore wasting hospital time) and also in catching issues that can be treated easily that may otherwise have been missed. In contrast, Rosa feels that an orthoptist led screen is cost efficient but that an orthoptist should have the budget and employ an orthoptic technician, i.e. it should be *directly* led by an orthoptist rather than one simply over-seeing the training of school nurses in preparation for delivery.

In this chapter I have presented an analysis of data from the case studies of the various orthoptists contacted, in order to throw further light on the connections between; use of orthoptists, deprivation and costs. This, together with a brief look at the repertory grid work, has enabled an exploration of the patterns that emerged from the quantitative work.

## Chapter 6. Conclusions

### Introduction

The primary focus of the visual screen is to identify the issue of amblyopia. There is an underlying aim here of eradicating amblyopia by first identifying it and then treating it. In Chapter 1 then, I looked at amblyopia itself, what it means, its prevalence and began to think about best practice in terms of screening for it. This study of the 152 PCTs and their delivery of the visual screen was designed to think about the use of screens for a particular health issue (in this

instance amblyopia) and how practice may differ from location to location. This has meant addressing issues such as whether there is a postcode lottery and, following on from the local study, whether the most deprived populations are identified as such and given particular emphasis in terms of the practice and resources aimed at them. In Chapter 2 I dealt with two connected issues, firstly the epistemological issues that influenced my choice of method and secondly the theoretical approaches used to help interpret my findings.

In this study then (the methodology of which was looked at in Chapter 3), there was a desire to explore on a national level, a question around whether there is an equitable spread of skilled (hospital level) practice and resources, and whether there was a clear link between deprivation and screening practice for amblyopia, as there had been locally.

We saw in Chapter 4 that there is indeed a link between deprivation and screening practice. It was made clear that one of the two PCTs studied locally was specifically aware that they served a needy (more deprived) population. Practice was different in terms of the screens, the more deprived PCT being delivered as it was by trained orthoptists. (The more affluent PCT in contrast received the screening delivered by school nurses). At a national level there was similarly the discovery that orthoptists (as in the local study) are more likely to be used to screen in areas of deprivation, and it is because of this difference in personnel that practice differs statistically speaking in areas of deprivation. But the exact reasons for this link between deprivation and use of orthoptists have remained unclear. However, there has been a suggestion throughout that, firstly, deprivation has been noticed (indeed there is heightened awareness of it) and that people are at

times, as in the local study, able to use their discretion to make changes in their working environment to take account of this.

In Chapter 5 I presented an analysis of data from the case studies of the various orthoptists contacted, in order to throw further light on the connections between; use of orthoptists, deprivation and costs (to include funding issues). In this way I explored the patterns that emerged from the quantitative work further.

In this final chapter I will present a brief summary of the work and draw some conclusions, followed by some personal reflections on the work.

What are the links between service costs (funding), practice issues and population characteristics?;  
The case of vision screening for amblyopia in four and five year olds.

The study was of a flexible design taking a critical realist approach (a scientific approach that draws on both positivist and more relativist perspectives). Secondly it employed a case studies method in terms of the qualitative data. In order to make sense of the practice in a particular area/PCT it was necessary to conduct telephone/email (and in one case face to face) interviews with some of the practitioners involved in delivering/researching the screen. Thirdly, it was a mixed methods design in that prior to the interviews, it was necessary to have collected quantitative data regarding the screening of children on entry to school (in the term in which they are five).

There were felt to be two major factors that may have contributed to the patterns that emerged from data about the screen. There were factors to do with differences between the population of 4 and 5 year olds in the PCTs from which the data was drawn (specifically levels of deprivation). Equally, there were differences in the implementation of the screening policy between the PCTs. The tie up with costs was the third aspect of the screen to be explored.

This research then has sought to find links between three variables relating to vision screening for amblyopia in four and five year olds; service costs (funding), practice issues and population characteristics. With regard to the last it has looked specifically at levels of deprivation as measured by IMD scores(Noble *et al.*, 2008). It is hoped that the findings will be of use in understanding the delivery of other preventative screens, and will highlight good practice in this area.

Following the findings of a local study, a provisional hypothesis was posited that levels of deprivation in an area would have an effect on the choice of approach to screening. The interesting twist derived from the local pilot was that a more rigorous approach to screening is *more likely* in deprived areas. This indeed was found to be the case. Furthermore, it was clear that this more rigorous approach to practice involving the screening being delivered by orthoptists, tended to come at a greater financial cost.

In order to obtain information about cost and practice issues, a questionnaire was issued as a Freedom of Information (FOI) request to each of the 152 Primary Care Trusts (PCTs) which had

made up the map of service delivery in England (these have now been rearranged into Clinical Commissioning Groups). There was a common sense view that a more thorough screen would cost more. One of the questions on the questionnaire asked explicitly: Do you try to cost the visual screen?

(See Appendix A for the full questionnaire). The questionnaire consisted of three sections which amounted to 7 questions in total:

1. After an initial indication of whether the PCT screens or not, respondents (FOI Officers in the first instance) were asked to specify the cost of screening 4 and 5 year olds in their particular PCT. (Questions 1 and 2).
2. They were then asked to identify various aspects of the practice of screening used in their PCT, including test used, threshold for referral/treatment, personnel used and setting. (Questions 3 – 6).
3. They were then asked to specify which quartile they felt their particular PCT fell into in terms of levels of deprivation, where 1 was the most deprived and 4 was the least deprived quartile. This information was already known to me and the question was included to explore perceptions of deprivation rather than actualities. (Question 7).

Following this collection of data, a small number of follow-up telephone/email/face to face interviews were conducted to further explore the relationship between the variables of cost, practice and population characteristics (in terms of deprivation). Prior to this, a repertory grid

was completed by Rosa, head orthoptist in the local study. This enabled me to explore her thinking regarding the screen and also enabled me to direct my questioning more carefully during the subsequent interviews. The interviews were conducted with a sub-sample of PCTs/orthoptists selected on the basis of peculiarities suggested by their returns or a shared interest in the work. These were referred to as ‘case studies’. The issue of funding/costs arose during the case studies and so it was important to look at guidance on the commissioning process.

### Clinical commissioning guidance

This would seem to be driven by two major reports, the Kings Fund report (Imison *et al.*, 2011) and the Marmot report (Marmot, 2010):

‘The Kings Fund report *Transforming our health care system, Ten priorities for commissioners*’ recommends “a population-based approach to commissioning and argues that the key challenge for commissioners is to direct resources to the patients with the greatest need and redress the ‘inverse care law’ by which those who need the most care often receive the least. This means shifting their focus from the patients that present most frequently in their practice to the wider population that they serve” Michael Marmot’s report on health inequalities makes the following general points specifically relevant to the work of clinical commissioning groups (CCGs):

- Reducing health inequalities is a matter of social justice – where inequality is avoidable by policy means it is unfair and unjust.

- Focussing solely on the most disadvantaged will not reduce the steepness of the gradient sufficiently. To reduce the steepness of the social gradient in health, action must be universal but with a scale and intensity that is proportionate to the level of disadvantage.'

Furthermore Marmot recommends:

- Early detection of those conditions most strongly related to health inequalities
- Increase availability of long-term and sustainable funding in ill health prevention across the social gradient

To achieve these objectives, the following relevant recommendations are made:

1. Prioritise investment in ill health prevention and health promotion across government departments to reduce the social gradient.

2. Implement an evidence-based programme of ill health preventive interventions that are effective across the social gradient by:

- Increasing and improving the scale and quality of medical drug treatment programmes

Key Principles of action;

- CCGs must commission to reduce inequalities through strategically and systematically applying the progressive universalism approach advocated by Marmot's



report on health inequalities. This approach advocates that the greater the index of multiple deprivation (IMD), the greater the investment required to impact on health

- There should be clarity and excellent communication around the mechanism and measures to be put in place to drive achievements in the chosen areas.

I am grateful to a Milton Keynes document for the above summary of these two reports

[http://www.miltonkeynesccg.nhs.uk/modules/downloads/download.php?file\\_name=12](http://www.miltonkeynesccg.nhs.uk/modules/downloads/download.php?file_name=12)

### Local Justice verses Equality

Elster's (1992) notion of local justice is useful in understanding the motivations of those who sought to implement a particular, a thorough method of school entry screening for vision, by orthoptists, in the more deprived of the two PCTs which made up the authority in the local study. Such an approach clearly fits well with Marmot's recommendation that; 'the greater the index of multiple deprivation (IMD), the greater the investment required to impact on health.' It is this particular view of 'justice', that is employed locally in distributing scarce resources (in this instance a health screen), that is relevant to this study. I wish to suggest that similar 'mechanisms' that were at work locally (where the demographic was specifically taken account of), are also at work on a national level.

Elster describes the major theories of justice as 'justifying deviations from equality'. (Ibid) p200. There may be many reasons for wishing to do this, but the reason that approaches most closely the circumstances of the current study is given thus; 'equality of outcome may require preferential – that is, unequal – treatment of these individuals, so as to offset the original inequality'.

(Ibid)p202. For the purposes of the current study ‘these individuals’ can be read as children in the more deprived PCTs, and ‘the original inequality’ can be read as the poorer health and consequent implications (including sensory implications) of deprivation.

So, in answering the question, ‘What are the links between service costs (funding), practice issues and population characteristics?’ there are clear patterns of difference between PCTs in terms of practice issues. The reasons for these differences are less clear. However, it is reasonable to assume that deprivation has played a part in some way given the positive correlation between deprivation (a population characteristic) and the use of orthoptists. As has been shown, practice issues were found to follow from the use of orthoptists as opposed to school nurses/school nurse assistants to deliver the screen. Furthermore, there was an increased cost in using orthoptists to deliver the screen.

I again wish to suggest that similar ‘mechanisms’ are at work on a national level to those identified in the local study. The twin forces of ‘local justice’ as exhibited at a textural level in the guidelines on clinical commissioning (as well as in the Hall report itself) and what has been described as the ‘flag waving’ of orthoptists as street-level bureaucrats, would seem to play a role in the choice of personnel and therefore in the quality of the practice. Finally it would seem that history rather than geography is the other significant factor in this equation.

The ultimate finding of this piece of work then has been that there is (as perhaps there should be) better health care provision, at least in terms of school entry screening for visual difficulties, in areas of deprivation. The reason for this would seem to be that money is specifically targeted through the commissioning process for such health care interventions. Tied into this it was found that there is a 'heightened awareness' of the issue of deprivation, an awareness that has perhaps ensured appropriate use of any funds available. The evidence from this particular study would suggest that money has indeed been used for the kind of health care intervention policy for which it was intended given Marmot's proviso; 'the greater the index of multiple deprivation (IMD), the greater the investment.' A possible mechanism for the movement of funds towards the more deprived PCTs, has been referred to (following usage by one of the orthoptists, Ariana) as 'flag waving'. This involves making a case for an orthoptist led screen when commissioning, based on the social needs of the population served. As well as drawing attention to the level of deprivation within a population, policy, including the Hall report (2006) and Guidance on Clinical Commissioning are used as 'levers'.

#### The contribution of this work, further study and things I would have done differently

The contribution of this piece of work has been in considering a possible mechanism for the finding that there is better health care provision, at least in terms of school entry screening for visual difficulties, in areas of deprivation. A prerequisite for this 'mechanism' was the finding that there is a 'heightened awareness' of the issue of deprivation, an awareness that is then drawn upon to secure the use of any funding available. The evidence from this study would suggest that funds, in terms of the school entry screen for visual difficulties, tend to move towards the kind of

health care intervention for which they were intended, and that this is particularly so in areas of deprivation. The mechanism is dependent upon the discretion of professionals (in this instance orthoptists) when delivering a policy (in this instance the policy on visual screening).

There was found to be conflicting evidence on whether the demographic of an area (in terms of deprivation) has a *direct* effect on the screen. There is some evidence in the literature of a tie up between deprivation and amblyopia (Williams *et al.*, 2008). However, in a repertory grid given to one head orthoptist as a follow up to the local study, a clear association was seen between the demographic of the area in terms of deprivation (an element in the repertory grid) and the ‘*unimportant* effect’ pole of an unimportant/important effect dimension (a construct in the grid). Furthermore, during a telephone interview, another head orthoptist (Orla) stated that, ‘A postcode study conducted locally showed that there was no significant difference in where the children who fail screening live. The postcodes showed no difference in fail rate.’ It had been expected that there would be ‘hot spots’ for example around areas of deprivation – this (as already stated) was not the case in this particular unpublished study.

Further work could usefully follow up these conflicting strands of thought, and perhaps conduct further post code studies in terms of referral to the eye clinic – do referrals tend to come from the postcodes with higher levels of deprivation, or not? Such studies may add weight to the view that there is a direct connection (as well as perceived one) between deprivation and the need for hospital level eye care.

Time precluded a face to face repertory grid with Rosa, but with hindsight, a grid that was arrived at with constructions elicited in the usual manner by consideration of triads of elements, would have been far superior to Rosa being presented with one with elements and constructs already on it based on previous conversations. Better still, each of the orthoptists involved in the case studies could have taken part in a face to face repertory grid interview. This would certainly have enhanced the depth of the qualitative case studies work.

### Final thoughts

The extent of 'discretion' as already noted can be seen as a function of the model of professionalism. But 'discretion for whom?' One view of professionalism is that it belongs to an elite group of individuals who through dint of their qualifications are entitled to some discretion in their work. Discretion in terms of the choices they (at times unilaterally) make to achieve outcomes, in terms of their working conditions (for example hours of work) and in terms of their role in implementing and perhaps even forming, the policies of their seniors (essentially the specification of desired outcomes). This notion of professionalism as we have already seen tends to hold in the Health Service much as it does in Education despite the emergence of newer ideas such as democratic professionalism (Apple and Beane, 1995). Indeed it has been suggested that these older ideas regarding professionalism are more prevalent in the Health Service, with the doctor being an almost archetypal example of such a professional. The very clear hierarchical nature of the Health Service may be integral to this notion of professionalism. The ophthalmologist (the eye doctor) tends to have the ultimate say over the approach taken to the treatment of a patient. The orthoptist is usually the first to see the patient and 'prepare the ground' for the

ophthalmologist by checking the patient's acuity (measuring their distance vision- their ability to make out detail at a distance of six metres), but it is the ophthalmologist who will decide on treatment. The pertinent exception here is issues to do with eye muscle control/movement and amblyopia which may be caused by either non-alignment of the eyes or differing prescriptions between the eyes. Herein lies both the opportunity and the power to 'flag wave'. The wish to seek local justice it can be argued is within each of us, but perhaps it is particularly in the street-level bureaucrats who are the first to see the child on arrival at the eye clinic.

Whilst in terms of austerity it is important to think carefully about best use of public funds, there is a danger at such times of a 'race to the bottom'. Whilst the view that an orthoptist screen for amblyopia is an unaffordable luxury is understandable, there should be careful thought given as to whether reversing the clearly stated policy that advocates such a screen is wise, and whether it may be a precursor to the downgrading of other (possibly more important) screens.

#### What does the research add to our understanding of policy on screening?

The first thing to say is that policy, regarding screening or indeed anything else, is not a 'made to measure carpet' that is assembled away from the scene, sent out from a central location and then unrolled to provide the function for which it was made in an exact fit. This is not news to any student of social policy who is familiar with the issues around street-level bureaucracy (Lipsky, 1980). However what *is* new and adds to our understanding in this area, is the fact that, perhaps contrary to expectation, deprivation can play a *positive* role as a lever for street-level bureaucrats in ensuring that best practice is delivered by the best practitioners (orthoptists in this instance).

orthoptists, following what one orthoptist (Ariana) described as ‘flag waving’, are favoured for this screening role in areas of deprivation. The Hall report, far from guaranteeing this (to revert to the earlier metaphor, by simply rolling out the carpet of policy), is also used as described by another orthoptist (Mari) in [Northern Town] as a lever to set up an orthoptist screen. Further leavers include the Marmot review (Marmot, 2010) and the Kings Fund report (Imison *et al.*, 2011) with their prescriptions to respectively, ‘prioritise investment in ill health prevention and health promotion across government departments to reduce the social gradient’ and ‘direct resources to the patients with the greatest need and redress the inverse care law’. It is easier to ‘lever in’ the one size fits all policy of the Hall report in areas of deprivation. In contrast, in an affluent Southern PCT described by (head orthoptist) Orla it was revealed that ‘the screen was stopped in part because of the Hall report recommending screening by an orthoptist’. To finish the ‘policy as carpet’ metaphor, the assumed ‘non fit’ of the Hall recommendation with the school nurse service provided at that time, meant that far from leveraging in the Hall report with (for example) an orthoptist led service delivered by school nurses, they decided to scrap screening altogether and go with the ‘bare floorboards’ of affluent parents self-referring their children. However, as Orla pointed out, no PCT is all affluence or all deprivation; there are always pockets of each. This option of parents self-referring their children may still represent a sensible saving on the public purse (as pointed out by Nicky), with more funds subsequently being available ‘in relation to the clinical work such as trauma, stroke, neurology etc.’ However, my view is that it may be the precursor of a race to the bottom in terms of healthcare spending.

### Personal reflections

So what have I learnt from this process? I’ve learned that the world is a messy place, which makes

real-world research a messy business. I've learnt that the process of thorough research is very time consuming. If time was unlimited I would have conducted repertory grid interviews with each of the five orthoptists in the case studies, rather than just the one with Rosa, which rather than being elicited face-to-face as it should have been, was presented to her in order for her to complete, a process which added little to the findings of the study. I've learnt that the world is a more positive place and I had perhaps thought. It has been pleasing to find that the most valuable resources in terms of the school entry screen (i.e. orthoptists) tend to be concentrated in the more deprived PCTs around the country when it comes to conducting the screen. I have experienced much surprise from colleagues regarding this finding, however, it was a very clear relationship throughout the data. Screens and areas of deprivation; in terms of further work it would be interesting to see whether other screens are perhaps also being conducted more thoroughly in areas of deprivation. As far as social research is concerned, I feel that it is important that this relationship was found, and it may be useful to look for such associations elsewhere. I feel it is to be applauded that local justice is something that is being strived for (not merely an abstract concept).

I've also found that the mixed methods approach has been useful. The initial part of the research was the quantitative data, but the value of adding a qualitative element in order to explore possible explanations for the findings in the quantitative data cannot be underestimated. I've enjoyed the process, although at times it has felt impossible to tie together the many strands of findings from what at the outset seemed a fairly simple question. But I do hope that it will be of use in considering the relationship between the demographic of the population served, and the screening undertaken, not only in terms of the visual screen, but also in terms of other screens.



I have learnt something about the discipline of writing. I have never written such a large piece before. Discipline is the appropriate word. Towards the end I tried to make myself write every morning. I found that I tended to concentrate on one chapter at a time and then found towards the end that I had the difficulty of seeing the whole thing and how it fitted together. In order to see the whole thing I needed to sit down and both read and write across the whole thesis during a period of 24 hours plus, with just a short break to sleep. In this way I was able to address the whole thesis and get a bigger perspective on how it fitted together. (Several more drafts were still needed following this process). I also found that there are different methods of recording my thoughts and I turned to these different processes (as they seemed appropriate) at different times. So for example, this particular section I am reading into a Dictaphone and then using a program to recognize my speech and put it into a word document. At other times I wrote at the computer keyboard, and at other times still I have used a slate. This is an electronic device with an electronic pen. The slate recognises the handwriting produced by the pen and again places it into a word document. It's been interesting to find out that different routes from my thought processes to the word document have been appropriate at different times. There is something about the thoughts flowing through an electronic pen which is different to the thoughts flowing through a keyboard. The latter has at times (since I am not a touch typist) felt like an obstacle to my thoughts. Similarly I find this current mode of speaking my thoughts more direct.

In terms of disseminating my findings, having written this 40,000 word thesis, I no longer feel concerned about producing a smaller piece, for example an article for a journal in the future should

such opportunities arise. Also, because the subject matter is so familiar to me now (and the arguments around the subject matter) I do not feel that this would be a problem for me.

The other thing I've learned in this process is not to trust in dichotomies since they invariably turn out to be false. I have used the example when talking about epistemology, of Irigaray's work which seeks to describe a dichotomy between what she has called feminine discourse and the notion of a dominant, male discourse. Male discourse with its singular (phallic) truths, was an excellent construct in terms of explaining why so many academics try to tidy up the loose threads of the arguments in their research. However, it is for me the messiness of social research that invariably makes it so interesting. Irigaray describes a feminine discourse in which two or more truths may be held at the same time. However I found that I myself introduced the idea of intersex discourse, in order to avoid the false dichotomy of gender which is so apparent in the 'real' world. Far from gender being a clear bipolar construct, one in 4,500 babies are born intersex (Warne, 1998), that is to say the gender of the baby is not immediately apparent at birth. The issue of gender seemed useful to me in explaining the messiness of social research and the dangers of trying to tidy up messy aspects into false dichotomies. I found that there are tensions in any mixed method's design particularly between agency and structural issues. However, I felt it was important to avoid the singular truths that Garfinkel's (1981) work appeared to be seeking.

Finally, it is important to say that I have enjoyed this process very much, but also that I am glad that it has now come to an end. However, I hope that the ultimate finding that it is essentially the conscience of orthoptists (facilitated by their professional discretion) that ensures that children in

areas of deprivation are more likely to receive their input in the visual screen, will be of use to other scholars in the area of social policy. Ultimately for a policy to be delivered where it is most needed, the hearts and minds of dedicated professionals need to be focused on delivering it according to the principals of local justice.

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Appendix A – Questionnaire in full.

Questionnaire of visual screening either before, or on school entry.

Please answer all the questions that you can. Please still return the questionnaire, even if you can only answer question 1.

Where necessary please pass on to head orthoptist (or whoever is in charge of decisions regarding the screen)

What is the name of the PCT that you work for (if you represent more than one PCT please make copies and fill in a separate questionnaire for each PCT that you represent).

NAME OF PCT.....

**Please place an X next to the box(es) that apply**



1. Does the PCT carry out visual screening either before or on school entry?

Yes ☐ No ☐ \*

If yes:

On school entry (Age 4-5) ☐

Before school entry ☐

Write age at which screened .....

\* IF YOU HAVE ANSWERED 'NO' TO QUESTION 1 (ABOVE) PLEASE CLARIFY WHAT HAPPENS IN YOUR PCT, IS THERE ANY MECHANISM FOR PICKING UP CHILDREN WITH VISUAL PROBLEMS...

.....  
.....  
.....

IF YOU HAVE ANSWERED 'NO' TO QUESTION 1 (ABOVE) STOP THIS QUESTIONNAIRE AND RETURN IT TO THE RESEARCHER AT THE FOLLOWING EMAIL ADDRESS:

[d.lavelle\\_hill@btopenworld.com](mailto:d.lavelle_hill@btopenworld.com)

OR POST TO:

D. LAVELLE-HILL,  
6 CHAPEL ROAD,  
PLUMPTON GREEN,  
LEWES,  
E. SESSEX,  
BN7 3DD

2. Do you try to cost the visual screen?

Yes ☐ No ☐

If yes:

Please specify the cost of the visual screening either before or on school entry

£.....

What is included in the costs (please state below with costs if known)

.....

.....

.....

.....

3. The battery of tests in the screen:

Please indicate the type(s) of tests carried out during the screen:

- a. Monocular visual acuity testing with an age-appropriate test (please name the test and distance used)

.....

- b. Indicate whether test is based on

Snellen ☐ or LogMAR ☐

- c. Assessment of extra-ocular muscle function ☐

- d. Binocular status ☐

(Please name test) .....

- e. Autorefraction ☐

- f. Refraction by retinoscopy ☐

- g. Colour vision assessment ☐

(Please name test) .....

- h. Other ☐

(Please state)

.....  
.....  
.....  
.....

i. Do you screen:

With glasses on ☐

With glasses off ☐

Both (glasses on and off) ☐

No child who has glasses ☐

#### 4. Threshold for referral on from the screen re amblyopia

a) Please state the threshold for referral for further investigation for amblyopia at the eye clinic, (or wherever the investigation is carried out)

State as Snellen, LogMAR or both

.....  
.....

b) Please state the threshold for referral for TREATMENT for amblyopia at the eye clinic, (or wherever the treatment is carried out)

State as Snellen, LogMAR or both

.....

.....

c) Please state if there is any assessments of true positive etc. that are carried out

.....

.....

## 5. The type of personnel

Please state the personnel carrying out the testing for the screen:

a. Doctors (GPs) ☐

b. Nurses ☐

c. Orthoptists ☐

d. Ophthalmologists ☐

e. School Nurses ☐

f. Health Visitors ☐

g. Other ☐

(please state)

.....

.....

6. Setting for the screen:

- a. Hospital eye clinic ☐
- b. School ☐
- c. Nursery ☐
- d. Home ☐
- e. GP surgery ☐
- f. Other setting ☐

(please state other setting)

.....

.....

7. Please indicate which quartile you believe your PCT falls into in terms of levels of deprivation, where 1 is the most deprived and 4 is the least deprived quartile.

- 1. (most deprived 25% of PCTs) ☐
- 2. (second most deprived quartile of PCTs) ☐
- 3. (second most affluent quartile of PCTs) ☐

4. (most affluent 25% of PCTs)

□

Many thanks for your time in completing this questionnaire. Please check that you have answered all questions to the best of your ability and return it to:

[d.lavelle\\_hill@btopenworld.com](mailto:d.lavelle_hill@btopenworld.com)

OR POST TO:

D. LAVELLE-HILL,  
6 CHAPEL ROAD,  
PLUMPTON GREEN,  
LEWES,  
E. SESSEX,  
BN7 3DD

## Appendix B

### Relationship between the previous list and the current list of PCTs

#### Current PCTs (146 in total) as at 29/10/12

ASHTON, LEIGH AND WIGAN  
PCT

BARKING AND DAGENHAM  
PCT

BARNET PCT

BARNSLEY PCT

BASSETLAW PCT

BATH & N EAST SOMERSET  
PCT

BEDFORDSHIRE PCT

BERKSHIRE EAST PCT

BERKSHIRE WEST PCT

BIRMINGHAM EAST &  
NORTH PCT

BLACKPOOL PCT

BOLTON PCT

BOURNEMOUTH & POOLE  
PCT

#### Previous list

Ashton, Leigh and Wigan  
PCT

Barking and Dagenham PCT

Barnet PCT

Barnsley PCT

Bassetlaw PCT

Bath and North East  
Somerset PCT

Bedfordshire PCT

Berkshire East PCT

Berkshire West PCT

Bexley Care Trust

Birmingham East and North  
PCT

Blackburn With Darwen  
PCT

Blackpool PCT

Bolton PCT

Bournemouth and Poole  
PCT



BRADFORD AND AIREDALE  
PCT

Bradford and Airedale PCT

BRENT TEACHING PCT

Brent Teaching PCT

BRIGHTON AND HOVE CITY  
PCT

Brighton & Hove City PCT

BRISTOL PCT

Bristol PCT

BROMLEY PCT

Bromley PCT

BUCKINGHAMSHIRE PCT

Buckinghamshire PCT

BURY PCT

Bury PCT

CALDERDALE PCT

Calderdale PCT

CAMBRIDGESHIRE PCT

Cambridgeshire PCT

CAMDEN PCT

Camden PCT

CENTRAL & EASTN  
CHESHIRE PCT

Central and Eastern  
Cheshire PCT

CENTRAL LANCASHIRE PCT

Central Lancashire PCT

CITY & HACKNEY  
TEACHING PCT

City and Hackney Teaching  
PCT

CORNWALL & ISLES O  
SCILLY PCT

Cornwall and Isles Of Scilly  
PCT

COUNTY DURHAM PCT

County Durham PCT.

COVENTRY TEACHING PCT

Coventry Teaching PCT

CROYDON PCT

Croydon PCT

CUMBRIA TEACHING PCT

Cumbria PCT

DARLINGTON PCT

Darlington PCT

DERBY CITY PCT

Derby City PCT

DERBYSHIRE COUNTY PCT

Derbyshire County PCT

DEVON PCT	Devon PCT
DONCASTER PCT	Doncaster PCT
DORSET PCT	Dorset PCT
DUDLEY PCT	Dudley PCT
EALING PCT	Ealing PCT
HERTFORDSHIRE PCT	East and North Hertfordshire PCT
EAST LANCASHIRE TEACHING PCT	East Lancashire PCT
EAST RIDING OF YORKSHIRE PCT	East Riding Of Yorkshire PCT
E SUSSEX DOWNS & WEALD PCT	East Sussex Downs and Weald PCT
EASTERN & COASTAL KENT PCT	Eastern and Coastal Kent PCT
ENFIELD PCT	Enfield PCT
GATESHEAD PCT	Gateshead PCT
GLOUCESTERSHIRE PCT	Gloucestershire PCT
GT YARMOUTH & WAVENEY PCT	Great Yarmouth and Waveney PCT
GREENWICH TEACHING PCT	Greenwich Teaching PCT
HALTON AND ST HELENS PCT	Halton and St Helens PCT
HAMMERSMITH AND FULHAM PCT	Hammersmith and Fulham PCT
HAMPSHIRE PCT	Hampshire PCT
HARINGEY TEACHING PCT	Haringey Teaching PCT
HARROW PCT	Harrow PCT

HARTLEPOOL PCT	Hartlepool PCT
HASTINGS AND ROTHER PCT	Hastings and Rother PCT
HAVERING PCT	Havering PCT
HEART OF BIRMINGHAM T PCT	Heart Of Birmingham Teach. PCT
HEREFORDSHIRE PCT	Herefordshire PCT
HEYWOOD, M'TON & ROCHDALE	Heywood Middleton/Rochdale PCT
HILLINGDON PCT	Hillingdon PCT
HOUNSLOW PCT	Hounslow PCT
HULL TEACHING PCT	Hull PCT
ISLE OF WIGHT NHS PCT	Isle Of Wight NHS PCT
ISLINGTON PCT	Islington PCT
KENSINGTON AND CHELSEA PCT	Kensington and Chelsea PCT
KINGSTON PCT	Kingston PCT
KIRKLEES PCT	Kirklees PCT
KNOWSLEY PCT	Knowsley PCT
LAMBETH PCT	Lambeth PCT
LEEDS PCT	Leeds PCT
LEICESTER CITY PCT	Leicester City PCT
LEICESTERSHIRE C & RUTLAND	Leicestershire County/Rutland PCT
LEWISHAM PCT	Lewisham PCT
LINCOLNSHIRE TEACHING PCT	Lincolnshire PCT

LIVERPOOL PCT	Liverpool PCT
LUTON PCT	Luton PCT
MANCHESTER PCT	Manchester PCT
MEDWAY PCT	Medway PCT
MID ESSEX PCT	Mid Essex PCT
MIDDLESBROUGH PCT	Middlesbrough PCT
MILTON KEYNES PCT	Milton Keynes PCT
NEWCASTLE PCT	Newcastle PCT
NEWHAM PCT	Newham PCT
NORFOLK PCT	Norfolk PCT
NORTH EAST ESSEX PCT	North East Essex PCT
	North East Lincolnshire PCT
NORTH LANCASHIRE PCT	North Lancashire PCT
NORTH LINCOLNSHIRE PCT	North Lincolnshire PCT
NORTH SOMERSET PCT	North Somerset PCT
NORTH STAFFORDSHIRE PCT	North Staffordshire PCT
STOCKTON-ON-TEES PCT	North Tees PCT
NORTH TYNESIDE PCT	North Tyneside PCT
NORTH YORKSHIRE & YORK PCT	North Yorkshire and York PCT
NORTHAMPTONSHIRE PCT	Northamptonshire Teaching PCT
	Northumberland Care Trust
NOTTINGHAM CITY PCT	Nottingham City PCT

NOTTINGHAMSHIRE COUNTY PCT	Nottinghamshire County PCT
OLDHAM PCT	Oldham PCT
OXFORDSHIRE PCT	Oxfordshire PCT
PETERBOROUGH PCT	Peterborough PCT
PLYMOUTH TEACHING PCT	Plymouth Teaching PCT
PORTSMOUTH CITY PCT	Portsmouth City Teaching PCT
REDBRIDGE PCT	Redbridge PCT
REDCAR AND CLEVELAND PCT	Redcar and Cleveland PCT
RICHMOND & TWICKENHAM PCT	Richmond and Twickenham PCT
ROTHERHAM PCT	Rotherham PCT
SALFORD PCT	Salford PCT
SANDWELL PCT	Sandwell PCT
SEFTON PCT	Sefton PCT
SHEFFIELD PCT	Sheffield PCT
SHROPSHIRE COUNTY PCT	Shropshire County PCT
SOLIHULL PCT	Solihull Care Trust
SOMERSET PCT	Somerset PCT
SOUTH BIRMINGHAM PCT	South Birmingham PCT
SOUTH EAST ESSEX PCT	South East Essex PCT
SOUTH GLOUCESTERSHIRE PCT	South Gloucestershire PCT
SOUTH STAFFORDSHIRE PCT	South Staffordshire PCT

SOUTH TYNESIDE PCT	South Tyneside PCT
SOUTH WEST ESSEX PCT	South West Essex PCT
SOUTHAMPTON CITY PCT	Southampton City PCT
SOUTHWARK PCT	Southwark PCT
STOCKPORT PCT	Stockport PCT
STOKE ON TRENT PCT	Stoke On Trent PCT
SUFFOLK PCT	Suffolk PCT
SUNDERLAND TEACHING PCT	Sunderland Teaching PCT
SURREY PCT	Surrey PCT
SUTTON AND MERTON PCT	Sutton and Merton PCT
SWINDON PCT	Swindon PCT
TAMESIDE AND GLOSSOP PCT	Tameside and Glossop PCT
TELFORD AND WREKIN PCT	Telford and Wrekin PCT
	Torbay Care Trust
TOWER HAMLETS PCT	Tower Hamlets PCT
TRAFFORD PCT	Trafford PCT
WAKEFIELD DISTRICT PCT	Wakefield District PCT
WALSALL TEACHING PCT	Walsall Teaching PCT
WALTHAM FOREST PCT	Waltham Forest PCT
WANDSWORTH PCT	Wandsworth Teaching PCT
WARRINGTON PCT	Warrington PCT
WARWICKSHIRE PCT	Warwickshire PCT
WEST ESSEX PCT	West Essex PCT

	West Hertfordshire PCT
WEST KENT PCT	West Kent PCT
WEST SUSSEX PCT	West Sussex PCT
WESTERN CHESHIRE PCT	Western Cheshire PCT
WESTMINSTER PCT	Westminster PCT
WILTSHIRE PCT	Wiltshire PCT
WIRRAL PCT	Wirral PCT
WOLVERHAMPTON CITY PCT	Wolverhampton City PCT
WORCESTERSHIRE PCT	Worcestershire PCT

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### Appendix C. Specific ethical issues (from Ethics form)

- \* The first thing to state regarding the quantitative collection of data following the tests is that this is done entirely anonymously. It will not be possible at any stage to identify who, for example failed their hearing test in one particular area of the Authority, simple the numbers (quantity) of those who were referred on following the test.
- \* Regarding the (qualitative) interviewing of those involved in carrying out the tests, the only conceivable risk for participants is that the interview may be thought provoking and may possibly touch on subjects of an emotional nature regarding the lives of the children tested. The (attached) informed consent form makes it clear that participants can withdraw at any time, and the researcher will be sensitive to this. However, it is difficult to foresee this being an issue.
- \* Informed consent (attached) assures the participant of anonymity in the write up and this will be strictly adhered to.
- \* Equally, in the attached informed consent form, it is clear that the researcher is happy to share with participants any findings that are later written up in the research paper.
- \* It is possible that my area of work will provide me with easier access to those who undertake the tests than afforded to a researcher who is not an 'insider researcher'. However, this area of work is sufficiently distant from my own to state that there is no risk of a misuse of my professional position. For example I am in no way involved in the management of the individuals I seek to interview. There should not be a feeling of undue pressure to take part in an interview. It is possible that the answers provided will be influenced by the fact that they are being provided to a researcher in a related line of work.



Appendix D

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6 CHAPEL ROAD,  
PLUMPTON GREEN,  
LEWES,  
E. SUSSEX,  
BN7 3DD

8<sup>th</sup> October 2012

Dear Sir/Madam,

I am a student on the Doctorate in Education course at the Institute of Education (part of the University of London). As part of my final thesis I am conducting a questionnaire regarding the screening of school entry (4 and 5 year olds) or pre-school children in terms of their vision. The principal reason for this screen (where it occurs) is to find, and then subsequently treat, the condition known as amblyopia.

I would be very grateful if you would answer and return this questionnaire, even if it is only to give a definitive answer to the first question (whether the PCT you represent conducts such a screen).

It may be necessary, for the more technical questions, to pass this Freedom of Information request on to the head orthoptist (or whoever is in charge of decisions regarding the screen).

Please state at the top of the questionnaire the name of the PCT you represent. If you represent more than one PCT please fill in a questionnaire for each PCT you represent separately, again, naming clearly, each one.

Many thanks in advance for your cooperation.

*David Lavelle-Hill*

The return address is:

[d.lavelle\\_hill@btopenworld.com](mailto:d.lavelle_hill@btopenworld.com)

OR POST TO:

D. LAVELLE-HILL,  
6 CHAPEL ROAD,  
PLUMPTON GREEN,  
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Appendix E:The completed grids for both Rosa and myself are given below together with a discussion of their implications

Rosa's construing, "To think about factors affecting the school entry screen"

	Demographic of area (IMD scores)	History of practise (what's happened previously)	Finance of screen	Skill set of practitioners	Personal stance of head orthoptist	Role of local Hospital	
No or little discretion for head orthoptist	1	4	2	4	3	4	Lots of discretion for Head orthoptist
'Stable' influences (on screen)	2	2	4	4	4	3	'Moveable influences (on screen)
Important effect (on screen)	4	4	2	2	2	2	Unimportant effect (on screen)
Money based issue	1	1	1	5	3	3	Skills based issue
Local issue	1	2	4	4	1	2	National issue
'Political'	3	1	1	3	2	2	Non-'political'

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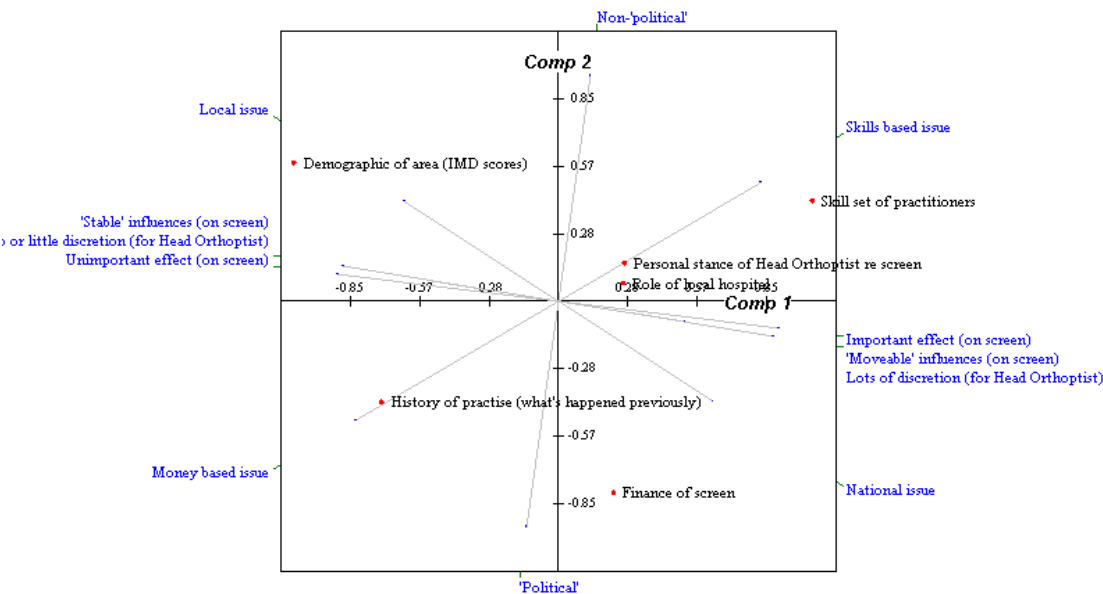
My grid (as if Rosa) "To think about factors affecting the school entry screen"

	Demographic of area (IMD scores)	History of practice (what's happened previously)	Finance of screen	Skill set of practitioners	Personal stance of head orthoptist	Role of local Hospital	
No or little discretion for head orthoptist	1	2	1	4	5	4	Lots of discretion for head orthoptist
'Stable' influences (on screen)	1	4	3	5	4	1	'Moveable' influences (on screen)
Important effect (on screen)	2	2	1	1	5	2	Unimportant effect (on screen)
Money based issue	1	4	1	5	4	4	Skills based issue
Local issue	1	1	5	5	2	4	National issue
'Political'	1	2	1	4	5	2	Non-'political'

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Following her completion of the grid it was possible to carry out a Principal Components Analysis (PCA) of the data in order to explore some of the most pertinent themes in the data (see PCA below).

### Principal Components Analysis (PCA) for Rosa’s grid



The most significant finding here is that Rosa has a personal construction that ties Important effect on screen, almost precisely to the variable, ‘Moveable’ influences on the screen. This construct is both positive and fortuitous, the things that she considers to be the most important factors to do

with the screen, are also things that she feels she has some influence over (as opposed to being 'stable'/unmovable things). This ties well with my understanding/experience of Rosa as a very 'go ahead'/positive person.

I will deal with each of the (above bullet pointed) issues in turn. Before completing the grid, Rosa had asked a number of questions. This clearly showed that although I had attempted to explain Kelly's theory regarding the grid, I had not been able to make it clear that it represents a 'snapshot' of a situation rather than an on-going fundamental truth. There is a mismatch here between the understanding of the researcher and the understanding of the participant. Such a mismatch can also be seen as an inequitable distribution of power in the researcher/participant relationship with knowledge (and therefore power) on the researcher's side. On completion of the grid she included the following message, 'I admit to finding it confusing, so I'm still not sure that my responses indicate my feelings (especially over stable and moveable factors), but here it is.' Although there was uncertainty about the process there was in fact considerable over-lap between the scores that she gave and those I gave as if I was her (See Grid 3).

Mismatches between scores (3s were given the 'benefit of the doubt')

	Demographic (IMD scores)	History (practice)	Finance (screen)	Skill set (practitioners)	Personal stance	Local hospital
No/Lots discret'n		X				

Stable/Moveable		X				
Important/Un...	X	X			X	
Money/Skills		X				
Local/National						X
'Political'					X	

I was able to score the grid in a very similar way to how she scored it herself. Grid 3 (above) shows where our scores are on either side of a 'dividing line' of 3. In these instances an X is given. Where she has given a 3 and I had 'come down' on either one side or the other, these boxes have been left blank. It is just the clear mismatches in scores then that are marked by an X. Out of a possible total of 36 matches in the 6x6 grid, only 8 are complete mismatches.

A clear grouping of mismatches emerged in the analysis of Rosa's scoring with respect to the element, 'History of practice (what's happened previously)'. My own scoring of this element on the grid was influenced by my own construing, rather than my understanding of Rosa's construing. For example, knowing as I did that she had spoken of the historical decision making around setting up an orthoptist screen in one PCT but not in the other, I had assumed (wrongly) that this would be an important influence for her on the screen. With hindsight, given that she is a practicing medic, I feel that I should have been able to think along such lines when construing as Rosa does, and then I may not have seen 'History' as such an important factor. It is notable that for her, the important factors are very practical; finance, skill set, role of local hospital, and personal stance of herself as head orthoptist. With regard to the last I had imagined that she was too modest to state her own (undoubted) importance here.

It is worth noting at this point that there was an almost exact correlation between what Rosa scored for 'Finance of the screen' and for 'Skill set of practitioners', and what I scored, attempting to construe as she had. These would seem to be areas where I had understood well her understanding regarding these issues.

A clear association was seen between the demographic of the area in terms of deprivation (The IMD element in the repertory grid) and the 'unimportant effect' pole of the unimportant/important effect dimension (a construct in the grid). I had not anticipated this and had scored this element as being important (with a 2 compared to her 4).

Finally, Rosa had a personal construction that ties 'Important' effect on screen, almost precisely to the variable, 'Moveable' influences on the screen. It is fortuitous, particularly in such changing times, to have a personal construct that sees you as having influence over (being able to 'move') important aspects of your working life. This link up for Rosa is very clear from the PCA (above). It is not a connection I picked up on in my scoring of the grid.

### Discussion

This was an extremely interesting exercise. The most salient points that emerged from it for me are as follows:



- Kelly's repertory grid, as part of a Personal Construct Theory approach, can be a useful tool in qualitative work
- Whilst a Personal Construct Theory approach can help minimise the differences between researcher and participant, they cannot be removed
- My understanding of Rosa's work regarding the screen has improved because my understanding of Rosa's thinking has improved

It was particularly refreshing in undertaking this research project, to be freed from the need to 'discover' something. The thing to be discovered was already there – Rosa's understanding of her work regarding the screen. It was harder to remind myself not to try and change what is there by drawing my own conclusions about it and presenting them as Rosa's viewpoint. However, I do feel that Kelly's Personal Construct Theory (and particularly the repertory grid) has been useful in exploring with Rosa some of the issues she experiences around the screening work. In particular I felt that her scores showed a clear interest in the practicalities of the screen, finance, skill set and role of local hospital. It is easy as a researcher to forget these practicalities in favour of 'grander' issues such as history or demographics.

I was very aware of the role I was playing in eliciting information as gently as possible from Rosa, even by email I felt that I was 'hassling' her. Despite my best efforts to minimise power relations I was aware of them. I hope I have made these as clear as possible in this write up.

I feel that I have a better understanding of Rosa's work because I have a better understanding of how she thinks about it. In particular, given that Rosa has a personal construction that ties Important effect on screen, almost precisely to the variable, 'Moveable' influences on the screen, I feel that Rosa thinks positively, even in difficult times, about her role in delivering the screen. This construct is both positive and fortuitous, the things that she considers to be the most important factors to do with the screen, are also things that she feels she has some influence over (as opposed to being 'stable'/unmovable things).

