



listening and responding to people affected by sight loss in the west of scotland

Eccentric Reading: What is Success?

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Available in Braille, Audio and Electronic Formats

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Summary and Key Findings

It is not easy to be hopeful in the face of negativity, but learning what you can do rather than what you can't do is what New View[®] offers almost all of those who have embarked on the training. This is a powerful message and one in which words per minute and font size have little relevance. Individual New View[®] learners tell their stories of renewed hope, confidence and restored skills, many times over in many different ways. They tell the story that learning eccentric reading makes a difference to life. That is success and we need to listen.

“Eccentric reading has given me hope. I know my sight is going to get worse but I also know that I have learned something that will help even when that happens.”

This report documents the progress of nearly 300 people who have been trained as part of the New View[®] Programme. The analysis of both quantitative and qualitative data demonstrates several key findings including:

- significant improvements in reading ability
- early success for people inspires further achievement
- restoring a previous skill leads to a greater sense of independence
- learning a new skill has a positive impact on confidence
- self perception of being disabled is being fundamentally challenged
- no association between age of subject and degree of improvement in reading
- no evidence that more than five lessons improves performance
- 65% of people reading N12 or below after training
- higher starting reading speeds are associated with higher finishing reading speed,
- a focus on measurable parameters alone may fail to identify the true value of New View[®] to people with a visual impairment.

1. Introduction

Reading is a crucial life skill and the loss of such a fundamental ability is the devastating reality for many who develop a visual impairment. The written word is a vital mechanism through which people engage with others and feel included. Conversely, losing the ability to read can have a major impact on confidence and independence, and contribute to feelings of exclusion and isolation. Not only does the ability to read for pleasure diminish with central vision loss, but people have difficulties in a whole range of what is termed survival reading such as reading bills, prices, and instructions to name but a few. For many people the loss of their literacy skill in later life due to macular disease is one of the most challenging aspects of sight loss. This inability to carry out everyday tasks increases reliance on others and can have a very negative impact on quality of life¹.

Imagine then the opportunity to learn how to read again. Being able to read, even survival reading can mean reclaiming independence. In 2003, Visibility and Glasgow City Council, jointly funded New View[®], a programme with the aim of training visually impaired people to read using a technique called eccentric reading. Logan² reported on the pilot phase of New View[®], finding an increase in reading speeds and high client satisfaction, with many learners commenting on the positive benefit to their life.

This report explores the New View[®] programme in depth. It builds on the initial pilot, describes the methodology used, and provides an overview of the programme to date. It examines the quantitative data which is routinely collected, but also and quite uniquely, reports on the range of qualitative evidence gathered and uses this evidence to explore the concept of success. The report examines success as defined by the New View[®] learners themselves and suggests that the focus on measurable parameters such as reading speed alone may fail to identify the true value of eccentric reading to people with a visual impairment.

2. Background to New View ©

The leading cause of visual impairment³ in the developed world is Macular Degeneration (MD). MD is a progressive, degenerative, eye condition resulting in the loss of central vision. Central vision plays a crucial role in many life skills and of particular importance is its impact on reading. Elliot⁴ comments,

“seeking assistance to alleviate reading problems is the major goal for the majority of MD patients attending low vision clinics”

Recently, there have been some pharmaceutical developments in the treatment of wet MD aimed at slowing the progression of the disease but sadly, there is still no cure. However, there is a considerable wealth of evidence demonstrating that timely, low vision rehabilitation can have a positive impact on the quality of life of people with a visual impairment⁵. Quality rehabilitation programmes use a range of training techniques to support people to retain their independence and encourage people to maximise the use of their remaining vision.

Holocomb and Goodrich⁶ described one such technique called eccentric viewing in which they trained people to maximise their remaining vision using an area of the peripheral vision. This is paralleled by the work of Nilsson and Frennsson^{7,8}, Backman and Inde⁹ in Sweden who have demonstrated considerable success in enhancing reading ability and reading speeds. Despite this evidence from Sweden and the US veterans programme, eccentric reading has yet to gain widespread acceptance in the UK. As against this, over 300 people have taken part in New View© since 2003, and the programme is considered to be at the forefront of teaching eccentric reading in the UK.

3. Eccentric Viewing and Eccentric Reading

Eccentric viewing training uses the skill of eccentric fixation. Evidence from scanning laser ophthalmoscopy, shows that people can be taught to maximise their remaining vision by fixating with a point on the peripheral retina, known as a preferred retinal locus

(PRL). Crossland and colleagues^{10,11} found that 64% of people developed a PRL unconsciously, and that many people have more than one PRL. Schuchard¹² also comments that although the PRL develops spontaneously, eccentric viewing training leads to more stable fixation and the development of a more optimal PRL.

Nilsson⁷ found that after eccentric viewing training, 92 % of people with macular degeneration could read newspaper text at a good speed. In 2003, Nilsson, Frennesson and Nilsson¹³ reported that reading speeds were significantly improved by training a patient to fixate above (or occasionally below) the damaged retinal area, known as the scotoma. This is further support by recent research¹⁴, which supports the use of the superior retina as the retinal area of choice.

3.1 Steady Eye Strategy and PRL

Mastering eccentric reading rests on being able to use the PRL and consistently employ a technique known as the steady eye strategy¹⁵. In the New View[®] programme, a single eye technique is used as high magnification and short reading distance leads to blurring if both eyes are used. In addition, it is difficult to fixate on one spot when using binocular vision, a critical element of eccentric reading. As the resolution ability of the eye is poorer at the periphery, magnification is required and in New View[®] spectacle mounted magnifiers are used. One lens is occluded allowing both eyes to be kept open (or the reader can close one eye), but only one is used for the task of reading.

The steady eye strategy (SES) is central to eccentric reading as it helps to identify, control and use the PRL efficiently. To do this, the head is kept steady and with the preferred eye, the person is asked to fixate on one spot, generally the first letter of the first word. This helps to identify the PRL in a consistent way before starting the reading task. The technique can be difficult at first but can also improve with practice and if the person does not have a PRL, they can be trained and this developed PRL is known as the 'trained retinal locus' (TRL). The technique requires the text to be moved through the PRL/ TRL, possibly the most challenging stage of the steady eye strategy. It involves the patient keeping their

head still while moving text in front of their eyes from right to left, a counter intuitive manoeuvre. In addition, the text needs to be held within a very short reading distance, consistent with the use of high magnification. In reality this means that the text is almost touching the nose.

3.2 Benefits and Limitations

Learning a new skill can be a very positive experience and people can gain in confidence, but success at eccentric reading can also mean regaining independence. However, learning a new skill requires time, effort and patience. It can be tiring and frustrating and requires motivation and support for people to learn the basics of the technique. Once the basics are grasped, people can become dispirited with slow reading speeds and poor comprehension amongst other difficulties. Although the technical ability to read is regained, there is a realisation that reading will never be the way it once was. For others, who have negotiated all of these difficulties, their eyesight may deteriorate to a point where even higher magnification may not help.

There are instances where the eye condition may not be the limiting factor. The presence of an additional disability, either cognitive or physical, can mean that the technique is too technically challenging. For example, hand tremors and / or an inability to keep the head steady may mean that people are unable to put the steady eye strategy into practice.

The client groups who seem most suitable and stand to gain most by learning the technique are those who have central vision loss. This group consists mainly of people with Macular Degeneration (AMD or MD), but also includes Leber's Optic Neuropathy, Juvenile Maculopathy, Diabetic Retinopathy, Optic Neuritis among others.

The benefits include reading personal mail, reading for pleasure, keeping up with hobbies and interests and looking at photographs. These personal benefits may be minimal in effect but crucial in people's quality of life and sense of engagement with others.

4. Psychophysics of Reading

In Psychophysics of Reading in Normal and Low Vision, Legge¹⁶ comments

“In modern society reading is one of the most important tasks we do with our eyes and one of the most impressive. Reading involves more than visual processing, more than cognition and more than motor control: it requires the integration of all of these processes. Reading is a wonderful example of the flexibility and sophistication of the human brain.”

The book goes on to discuss the role of vision in reading and provides an overview of 20 research papers in this field.

One of these examines the effects of low vision on reading¹⁷ and observes that there is wide variation in reading performance across different degrees of impairment. Despite diverse pathologies and degrees of vision loss, several generalisations occurred. They found that two major factors, an intact central field and clear media could account for 64 % of variance in reading rates.

Condition of Eye	Words Per Minute (wpm)
Intact central vision and clear media	132 wpm
Intact central vision and cloudy media	95 wpm
Central scotoma and clear media	39 wpm
Central scotoma and cloudy media	28 wpm

It is clear that those with central vision loss read more slowly. In a further study¹⁸, the reading speeds of a group of 141 low vision participants was recorded and the data shows that those with central scotomas read more slowly when compared with an age matched group.

Condition of Eye	Words Per Minute
Normal vision	169 -273 wpm
MD and central scotoma	50 wpm
Other central field loss	100 wpm

Crossland et al¹⁰ examined reading fluency in patients with macular disease. In this study, reading fluently is considered as the ability to read over 80 wpm and the study showed that reading speed is not fully correlated with visual acuity, scotoma size or age. The study concluded that the reasons patients with central vision loss read more slowly are multifactorial.

“Visual function in patients with macular disease is difficult to predict as two patients with apparently identical clinical features can exhibit different levels of impairment.”

5. New View[®] Programme Design

Visibility's New View[®] Programme is a person centred, community based programme. It is important to note that New View[®] was not set up as a research project, nor a randomised trial, but as a programme intent on developing a methodology to train people to use eccentric reading in a non-clinical environment. It has few pre set entry requirements, baselines or targets but works with people to define and achieve their own goals, thus success is unique to the individual. This is significantly different to other reported eccentric reading training programmes and for the learner it has much to commend it, as it is much less formal, and more holistic.

Early in the formulation of the New View[®] programme, the literature identified the work of Goodrich^{5,6} et al in the US and Nillson^{10,11,13} Backman and Inde⁹ in Sweden as leaders in the eccentric viewing field. Visibility has contact with both these centres of excellence and were fortunate to be able to visit Sweden. From the literature and the observed practice, several key stages were identified as essential components to eccentric reading training, these include:

- **Identification of the preferred eye for reading**
Usually the eye with the higher visual acuity and most often is the least affected by the central scotoma.
- **Determination of PRL**
Ideally area above the scotoma or sometimes below.

- **Optimal Magnification**
New View[®] learners require an appropriate low vision aid. Typically, they are issued with a spectacle mounted aspheric hyperocular, magnification range x4 – x12.
- **Lighting**
Task lighting is vital and is provided at the training sessions. Learners are recommended to buy an 18-watt “daylight” standard task light to use at home.
- **Training**
Fixate with PRL, then steady eye strategy.
- **Homework**
Individualised exercises to practise the technique at home.

This knowledge, training and understanding is incorporated with adult learning methodologies to produce the innovative, eccentric reading training programme that is New View[®].

6. New View[®] Initial Stages

New View[®] accepts referrals from a wide variety of sources, although funding currently restricts the geographical basis of referral to Glasgow and the West of Scotland. Referrals to the programme are open and from a variety of sources including:

- self referral often through “word of mouth”
- clinical referral from ophthalmologists, optometrists, orthoptists
- social referral from social workers, rehabilitation officers
- internal referrals from other Visibility staff.

It can be argued that the population entering the New View[®] programme are “self selecting” in the sense that they are people who have actively sought out options either through their own endeavours or through questioning professionals with whom they are in contact.

On receipt of a referral, contact is made with the prospective learner and if an eye examination has not been conducted within the last 6 months, they are recommended to visit their optometrist. Ideally a low vision assessment is conducted which provides optometric data on the size and location of the scotoma, the

optimum level of magnification and an indication of the preferred eye for reading.

For those who are referred with an assessment, the optometric data has been gathered by the referrer and forms part of the referral information, for example referrals made from the hospital eye service.

Learners have a pre-training discussion with the tutor at which the protocol is described in detail and any questions are answered. A further assessment of the level of magnification is made so that the appropriate low vision aid can be ordered. This is also the point at which suitability for New View[®] is explored with the learner. The tutor ensures that learners understand that pre visual impairment reading ability will not be restored using this technique. This is particularly important as Dickinson¹⁹ comments:

“Those patients who find most difficulty in coming to terms with the technique are those who were avid and fast readers prior to the onset of their visual impairment.”

Some potential learners opt not to undertake the training once the technique, its benefits and its limitations have been explained in full. For a minority of those referred, problems are identified such as cognitive or physical disabilities which make the programme technically too challenging.

The vast majority do decide to embark on the training and the tutor goes on to identify with them what they wish to get from the training, and negotiate a realistic set of goals. This is recorded in an individual learning plan, appendix 1. This begins the process of data collection which continues over the training period and includes both quantitative and qualitative measures.

7. Developing Reading Skills

At the first training session, learners are provided with a low vision aid, usually a spectacle-mounted magnifier, however a few people prefer to use a hand held magnifier as the principles of eccentric reading apply equally. Anecdotal evidence suggests that learners

Eccentric Reading: What is Success ?

prefer a spectacle-mounted device because it allows both hands free to hold the document being read.

There is some experimentation within the first lesson to find the best text in terms of font size, contrast and spacing. At each subsequent lesson, a range of prepared texts in a variety of font sizes and contrasts are attempted and people are encouraged to bring their own choice of reading material and where helpful, specialist software packages such as Zoomtext and Ace Reader Pro are used.

The following lesson plan is followed in all of the training sessions:

- Review of technique and homework
- Questions from learner
- Skills assessment – incrementally higher
- Identifying and resolving problem area
- Reading different sizes & fonts of text
- Practice in SES & finding PRL
- One longer period of reading
- Review of lesson
- Set homework tasks

Training consists of one to one sessions with the tutor, ideally on a weekly basis. Regular review and recording of progress towards goals takes place throughout training. The total number of sessions is negotiated with the tutor depending on progress. Following each training session, appropriate homework tasks are given with instruction to practise daily, ranging from a minimum of 2 minutes to a maximum of 20 minutes, until the next lesson. As well as the homework task, learners are encouraged to try reading tasks around the house and to keep a diary / record of their achievements.

7.1 Assessing Progress

At each session, the tutor observes reading technique, offering coaching for improvement as appropriate. The role of the tutor is to critique the learner's technique which is a delicate balance between correction of difficulties and encouragement to progress.

Eccentric Reading: What is Success ?

This is a key skill, especially in terms of reducing anxiety and fear of failure, promoting confidence and motivation to achieve.

During training and especially in the early stages, a range of difficulties may be encountered. Some relate to the execution of the technique, but some relate to the individual and for most, it is a combination. The common difficulties are listed in the table below.

Technique	Learner
Inappropriate magnifier	Learner nervous
Difficulty fixating or finding PRL	Learner becoming tired
Difficulty with Steady Eye Strategy	Disappointment
Inability to keep head still	Frustration at progress
Cannot find reading distance	Not practising at home
Inconsistency with technique	Lack of confidence
TRL different from PRL	Lack of motivation
Not enough light	False comparison
Too much light	Apologising
Poor contrast	Lack of support at home
Reading problems	
Losing the line	
Skipping words	
Missing small words	
Difficulty with large words	
Guessing words	
Words disappearing	

When the learner is able to eccentrically fixate, they are given a simple reading assessment, using prepared and graded texts..The texts used in the assessment are graded and the optimal score is obtained on the following variables:

Variable	Measurement
Text size	Smallest Arial font size read comfortably
Reading speed	Words read in 1 minute (wpm)
Corrected speed	Wpm - errors
Duration	Number of minutes reading comfortably
Comprehension	% understanding of material read

Reading speed is measured by asking the subject to read out loud from a prepared text for one minute, and counting the number of words read. Very simple texts are used at the beginning such as

“Billy went to the zoo. The zoo had lions, tigers and chimps.”

This level is accessible to anyone with even basic literacy skills. Thereafter the level of difficulty is increased at each session. The texts are not repeated for assessments but an alternative text at the same level is used. Some learners may take several sessions to achieve a degree of skill which allows the first set of measurements to be taken. The tutor assesses when to make the initial set of measurements and what text size / comprehension piece is employed. Therefore, while there is an established protocol, there is scope to tailor the programme and the assessments to each person to ensure a sense of achievement.

For each learner, each set of data is unique, giving an individual starting point and finishing point. This means that each person has his or her own baseline measurement against which improvement is recorded. This also means that there is no common baseline across the data set.

This approach to assessment is congruent with a person centred methodology and should be set within the context of New View[®] as an evolutionary project and one in which there is constant learning and adjustment to gain maximum benefit for the learner.

8. New View[®] Pilot Project 2003

The initial stages of New View[®] involved recruiting a group of 20 people, all with central vision loss and trained using the above protocol. The results² generated in this small sample were very encouraging and similar to previous studies^{7,8} (Figure 1). The pilot study showed a mean finishing reading speed of 70 words per minute (wpm) at 13.5 point Microsoft word Arial font and a comprehension of 89% was achieved by most learners.

Overall, learners were happy with their results and expressed an increased sense of independence and confidence along with the regained ability to perform many everyday reading tasks.

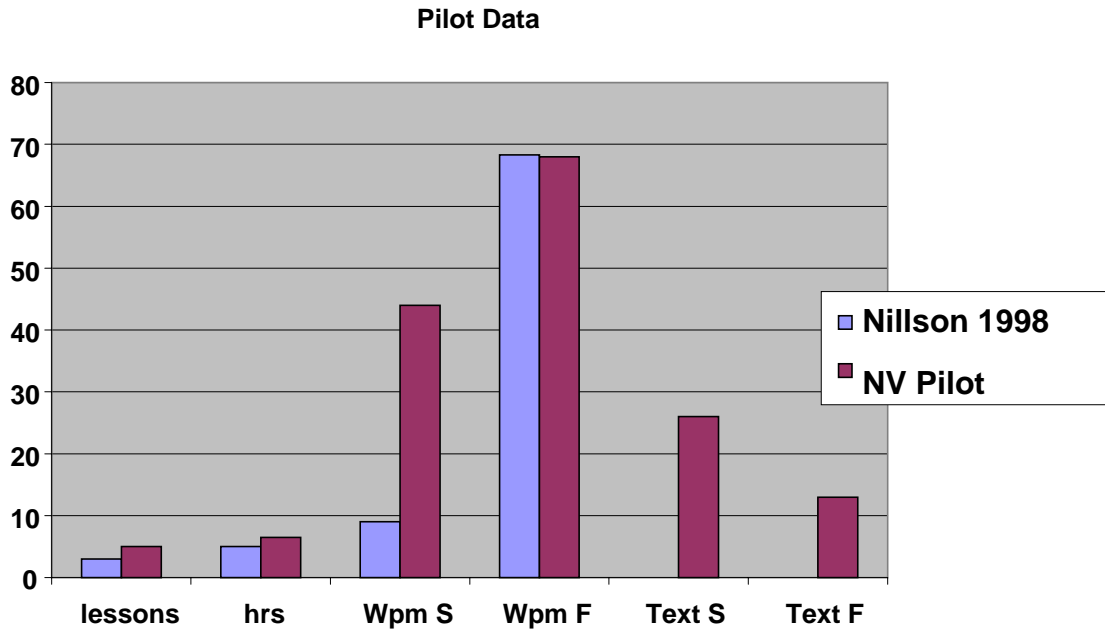


Figure 1.

Mrs A

“I volunteered to take part in the pilot stage of the New View® Project and was one of the first learners. Before training, I could read a little, slowly and hesitantly using a magnifier. But I’m an impatient sort and I became frustrated and angry as I tried to read and hated asking other people to read for me. I had four New View® training sessions at Visibility and had to practise my technique every day for a few minutes. It took a while to get used to the spectacle magnifier but I persevered and now use it all the time as it gives me both hands free. The hardest part was learning to keep my head and eye steady, I thought I would never manage it at first but I got there in the end. I have been an “eccentric” as I call it for nearly 3 years now and I am really pleased that it allows me to read personal correspondence and even to do crosswords. Most importantly, it has restored some of my confidence and helped me to adapt to my sight loss in other ways”

The demonstrable success of this pilot project attracted further joint funding allowing Visibility to develop the New View[©] Project into the innovative and nationally acclaimed programme that it has become.

9. New View[©] 2008 - Results

By January 2008, 300 people had completed the New View[©] training programme and of this group, 242 could be included in the analysis, with 58 people excluded because no final reading assessment data was available. SPSS v 17.0 was used for statistical analysis, paired student t-test to test significance, and linear regression was used to analyse associations.

In terms of age range, the youngest person trained was just 15 whilst the oldest was 97. As figure 2 shows the majority of people, were aged 70 – 90. It should also be noted that less than 4% of the group were aged under 50, and less than 3% over the age of 90. There were 77 males and 165 females in the group studied which reflects the gender balance within this age group.

The average number of lessons is shown in figure 3 and it can be seen that over 70% of people take between 2 and 4 lessons with the mean (SD) being 3.8 (1.6). The mean number of teaching hours was 5, although the range was 1.5 to 13.5 hours.

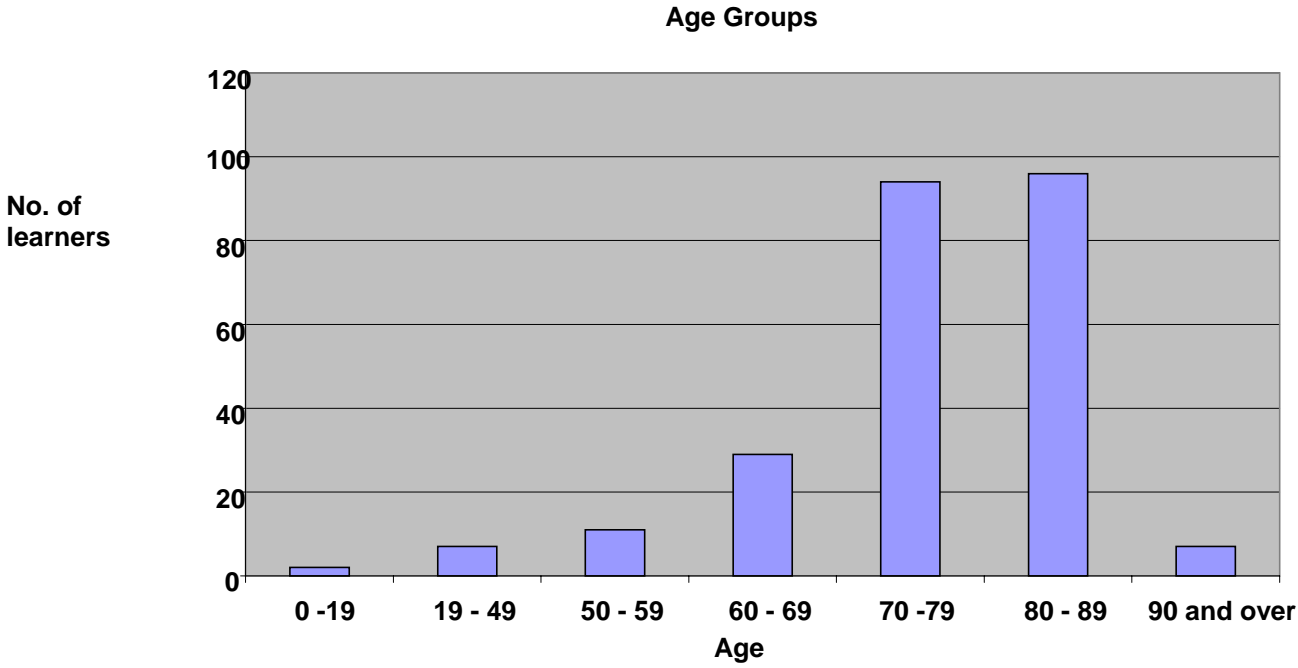


Figure 2

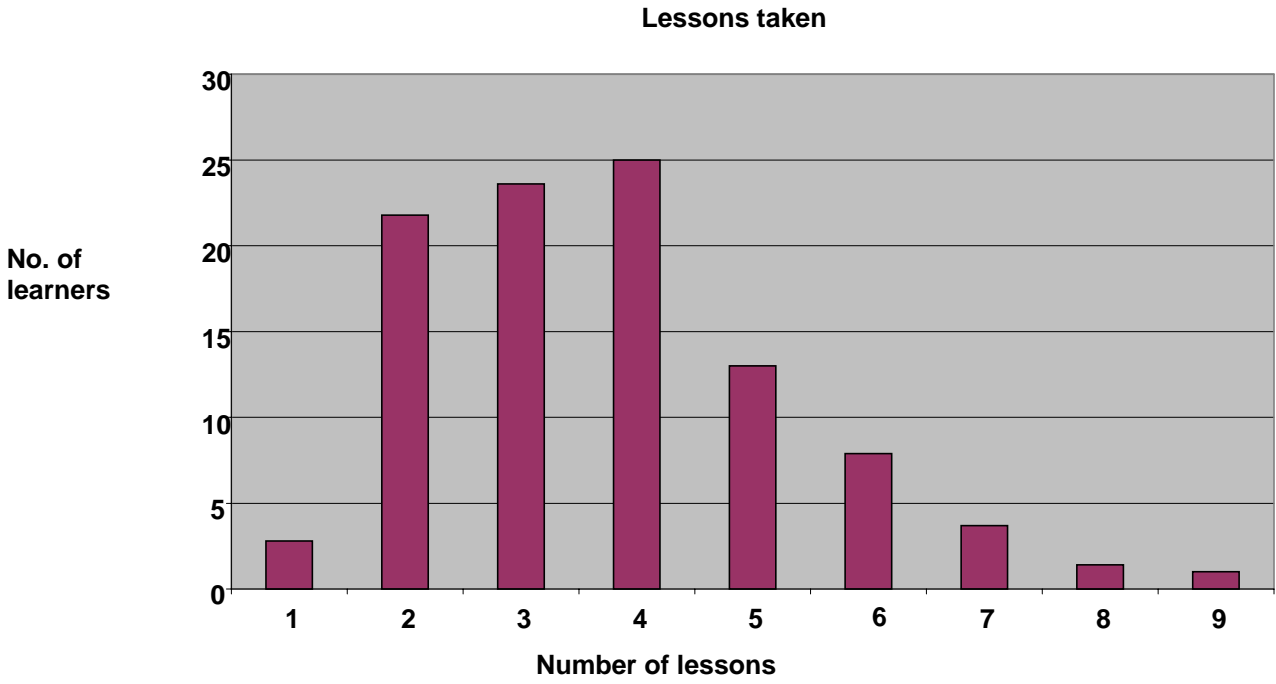


Figure 3

Eccentric Reading: What is Success ?

At each assessment, reading speed in words per minute (wpm), corrected for errors, font size, comprehension and duration is recorded. Table 1 shows mean, standard deviation and ranges for the starting and finishing assessments.

	2008
	Mean +/- SD
Age (n=246)	75.4 +/- 12
No Lessons	3.8 +/- 1.6
Teaching (hours)	5.0 +/- 2.3
Wpm Start	48.0 +/- 35.0
Wpm Finish	71.9 +/- 30.5
Text Size Start	14.3 +/- 7.6
Text Size Finish	11.5 +/- 2.4
Duration S(mins)	1.7 +/- 2
Duration F (mins)	15.8 +/- 14.6

Table 1

When the mean reading speed and font size at the first assessment is compared with the final assessment, it shows an increase in mean reading speed from 48 wpm to 71.9 wpm, with a drop in mean font size from 14.3 to 11.5. Both of these are statistically significant ($p = 0.000$). Figure 4 shows this data graphically and illustrates that on average, learners are experiencing a marked improvement in speed and duration with a drop in print size.

The average mean change in reading speed is an increase of 23.6 wpm, with a drop in font size of 2.7. Figure 5 shows the change in wpm for each individual. The scatter of data highlights the range of achievements across individuals and shows that for the majority the change in reading speed is a positive increase in wpm. In terms of individual data, the learner, whose wpm increased the most, recorded a change of 90wpm from 40 – 132wpm. At the other end of the spectrum, some learners recorded no change in wpm, and some even recorded a decrease in wpm with the greatest drop being from 102 wpm to 60wpm.

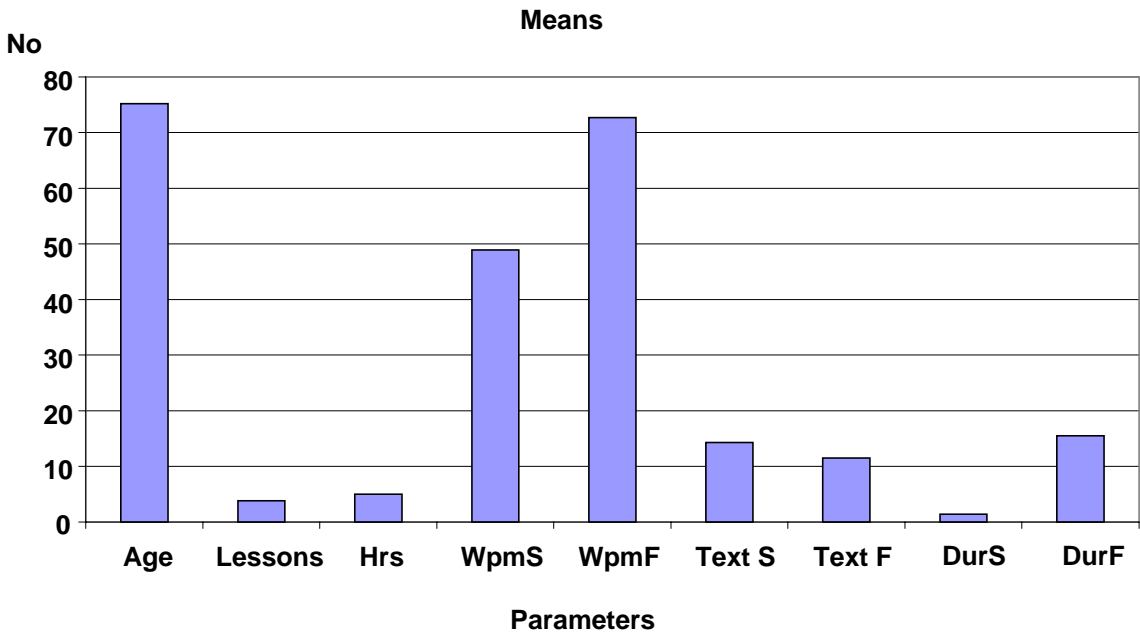


Figure 4

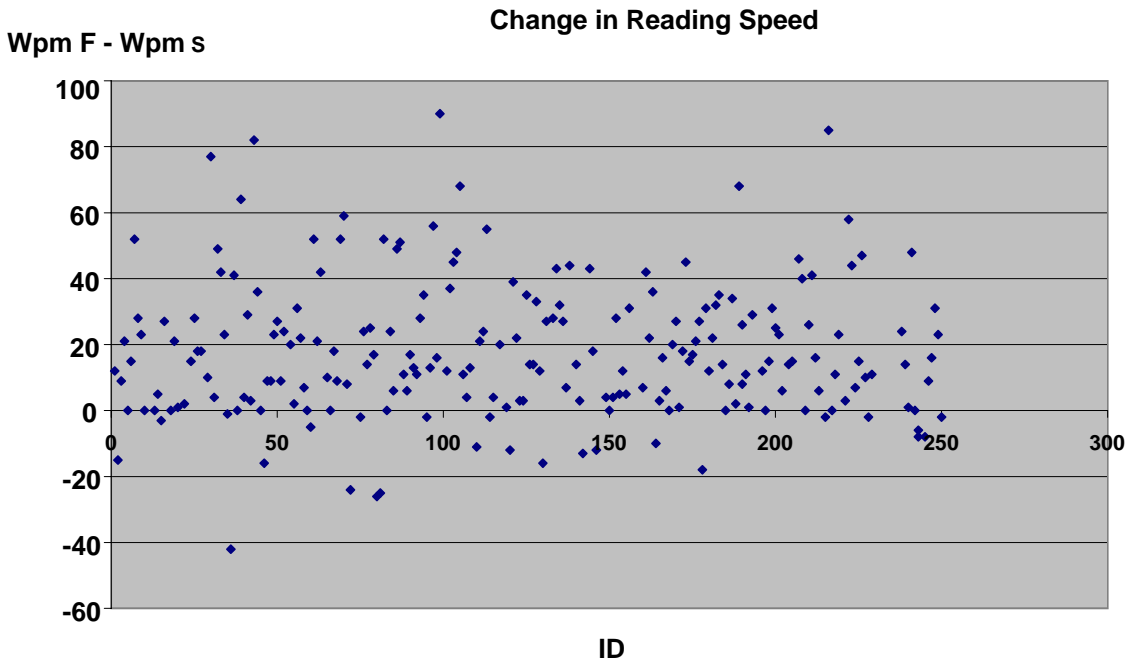


Figure 5

It is suggested that this variability in the individual data reflects the person centred ethos of New View® . This presents an analytical challenge, as there is no single baseline. However what is clear is the use of mean data masks the degree of change for an individual and gives no insight into what impact the change in reading statistics might mean for the individual and their quality of life.

“Do you know the best thing is I can use a credit card again. I can read the number down the middle of the card so I can order things over the phone. It means I can order a decent present for my husband and it is a surprise”

10. Eccentric Reading and Quality of Life

Mitchell and Bradley²⁰ designed an individualised measure of the impact of macular disease on the quality of life (MacDQol) and demonstrated that macular disease has a negative impact on all domains of quality of life that they investigated. Respondents who were registered as blind or partially sighted reported poorer quality of life than those who were not. Hazel²¹ concluded that the ability to read is highly correlated with a higher quality of life.

New View® does not set out to improve quality of life per se but to teach a technique which goes some way to restore a previously held skill.

“Thank you for teaching me eccentric reading, it has improved my life in trying to adjust to poor vision. I won't be stuck, unable to use my mobile, read a menu or a timetable when I'm on my own”

For the majority of learners, undertaking eccentric reading training does restore some reading ability but it also seems to have a major impact on the quality of life of the learner.

Mr B

Mr B is aged 61 and a former teacher who was diagnosed with a visual impairment over 20 years ago. Since then, his sight had deteriorated to the point where he can no longer see colour or detail. A prolific reader in the past, he could no longer read and this depressed him. Referred to Visibility by a friend, he commenced eccentric reading training. Initially he was slow, struggled to identify the shapes of words and found consistency a problem. However, after 5 training sessions, he was able to read newsprint font size 8, at 130 wpm for up to 10 minutes. At his exit interview, Mr B said:

“I thought I would never read again. I was becoming dependent on other people to do even the simplest reading for me. I can now cope with most everyday reading and can even manage a few pages of a book or a story to my grandchildren and I’ve taken up Spanish.”

Mrs C

Mrs C developed Age Related Macular Degeneration very gradually and is unable to pinpoint exactly when it started. She cares for her husband who is in a wheelchair and he requires a lot of assistance, although he is able to read for her. She has always enjoyed reading very much and has missed it terribly as her eyesight deteriorated. She attended an information session about the New View® Project and enjoyed meeting others who also struggled with impact of MD. She also found it helpful to have the technique demonstrated by a “New View® graduate” and it gave her confidence to try it for herself.

Mrs C is now reading again, at about 132 words per minute on 12 point print and has practised to the extent that she has now started reading novels again, covering a chapter at a time. Mrs C, as many New View® learners state, found the hardest part about learning eccentric reading was to keep her head steady. Since learning eccentric reading, she feels that she has now regained a substantial amount of her own independence back and would recommend the technique wholeheartedly.

11. Performance Score, Age and Lessons

Each individual has their own data set, and each data set has several changing variables, which makes comparison difficult especially since there is an inverse relationship between word per minute and font size. To compare individual changes in reading ability across the group, a performance score has been calculated using the two principle parameters, wpm and font size. To do this, the starting words per minute has been divided by the font size to give a starting score, whilst the finishing words per minute has been divided by the finishing font size to give final score.

This gives one figure against which other parameters, such as age, and lessons can be compared.

When performance is plotted against age as in figure 6, a wide range of scores are clustered with age and suggesting that age is not a good predictor of performance.

“ I’ve just finished reading the first book I’ve read for 20 years. It was standard print and 379 pages long. It took a while but at 84, I have plenty of time on my hands. “

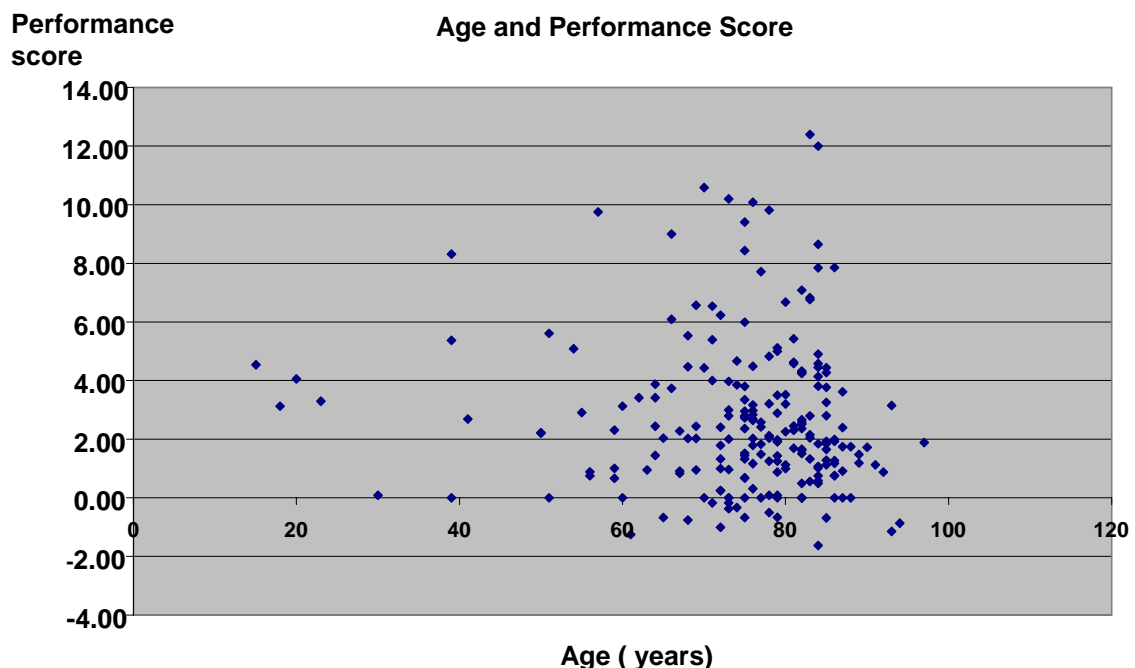


Figure 6

When the number of lessons is considered (Figure 7) the majority of people achieved their final performance score on five lessons or less, with those achieving high final scores on anything between 2 and 5 lessons. This shows there is no strong relationship between lessons and performance. The impact of this finding is that providing people with more than 5 lessons does not improve the performance.

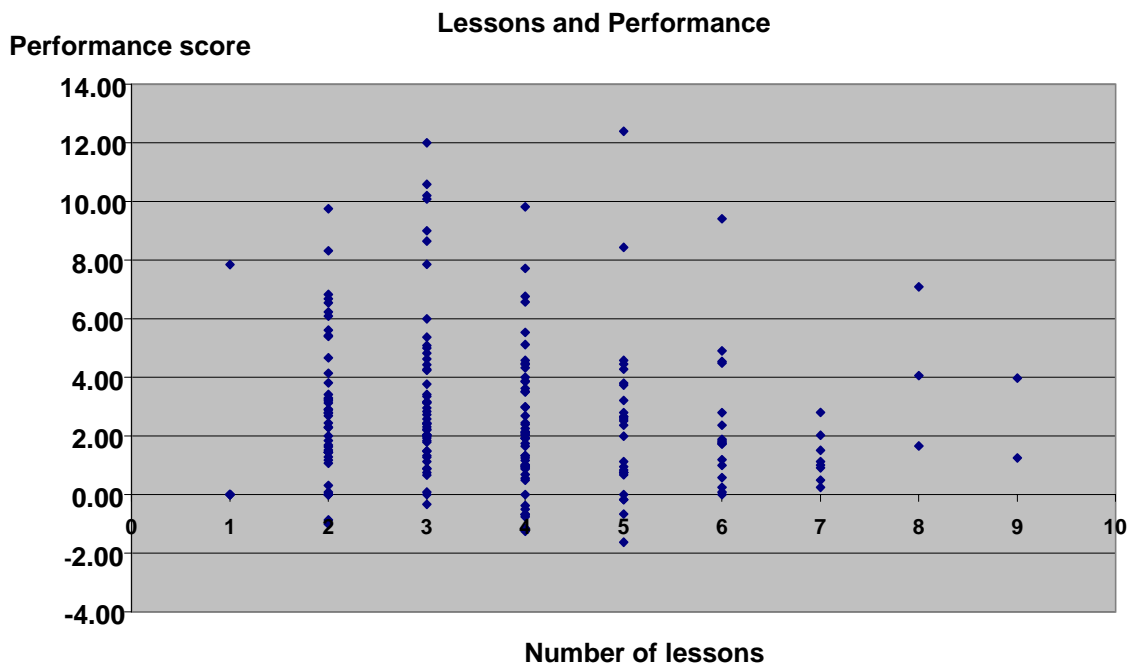


Figure 7

12. Focus Groups

As part of the qualitative data gathering, two focus groups were held. A random selection, every 10th person on the New View programme, was written to and asked if they would participate in a focus group. From the 30 invites, 11 people responded and two groups were held, one group of 5 and one group of 6. As a warm up exercise, a series of questions were asked, and the learners were asked to score their answers with 10 as the highest score. The results were then expressed as a percentage score for the group.

How motivated to learn to read again	97%
How confident they would succeed	76%
How useful is technique	100%
How successful do they feel they have been	100%
How easy have they found the technique	72%

The groups discussed what they could do now that they could not do before commencing the New View[®] training. In the main, it was about doing things for themselves again, and being independent but specific tasks such as reading mail, leaflets, prices and even being able to read a book again were mentioned.

The groups were asked what has success in New View[®] meant and what would they want people to know about New View[®]. Again many of the answers were about being able to do practical things such as reading the mail, bills, bank statements again but also about hobbies and tasks such as reading a hymnbook, and reading recipes. There were many positive comments such as:

“It changes your life”

“It just makes such a tremendous difference”

One learner had undertaken the New View[®] training but months after mastering the technique her sight deteriorated to a level that she could no longer use New View[®]. She commented:

“It made such a big difference in the short window I could use it. It gives you back a sense of pride and it is good to learn to do something for yourself again”

One woman described the deep frustration she used to feel when she and her husband went out for dinner:

“I would have to rely on him to read the menu and I would get so cross because he would read it all, even the fish section, and he knows I don’t eat fish. You would think after all this time he would know. Now we go out and I can read the menu myself, it is such a wonderful feeling”

The final question asked in the focus groups was what personal qualities they thought a person needs to be successful at New View© The following were listed:

- Open mindedness
- Outgoing
- Ready to give it a go
- Perseverance
- Prepared to fail
- Resourcefulness
- Strong desire to read
- Determination
- Positive outlook on life
- Sense of humour
- Must give things a try
- See what you can achieve
- Being on your own is a driver

Wessels²² found that those who use assistive devices can be characterised as emotionally mature, having inner motivation, patience and striving for independence. The comments from the focus groups would seem to support this view.

13. Cohort Analysis, Source, and Magnification

From the completed data set, a sub set of learners was drawn out for more in depth analysis. All lived within Glasgow City Council area, all have completed an entry and exit questionnaire and the entire cohort had a low vision assessment at Caledonian University, thereby standardising the optometric data. When these criteria were applied to the complete data set 80 participants were eligible.

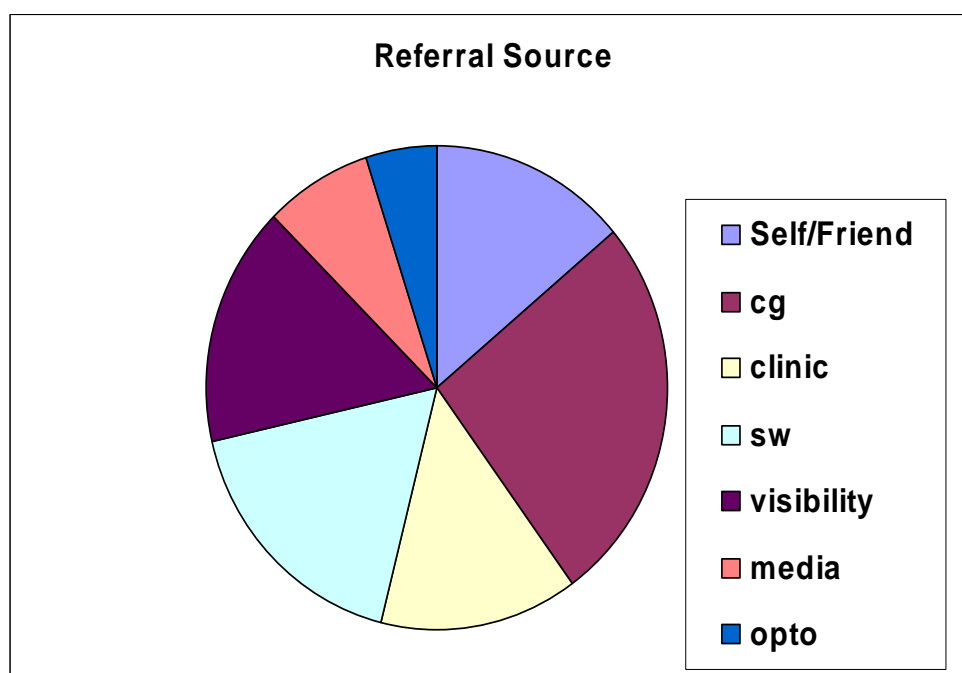


Figure 8

Of the 80 people in the cohort, 23 were referred from the Department of Vision Science at Caledonian University. The next highest referral source was social work departments.

When the cohort is examined against the full 2008 dataset (Table 2) very few differences are evident, with the mean and standard deviations being virtually identical.

	Cohort(n=80)	2008(n=246)
Age	75.0 +/- 11.9	75.4 +/- 12
Magnification	6.6 +/- 2.8	
No Lessons	3.7 +/- 1.5	3.8 +/- 1.7
Teaching (hrs)	4.5 +/- 1.8	5.0 +/- 2.3
Wpm Start	49.2 +/- 29.8	48.0 +/- 35.0
Wpm Finish	70.0 +/- 30.8	71.9 +/- 30.5
Text Start	15.7 +/- 8.8	14.3 +/- 7.6
Text Finish	11.5 +/- 7.1	11.5 +/- 2.7

Table 2

When the cohort data, the New View[®] pilot data, and the full data set (NV08) are plotted against the Nilson⁸ study, similarities are evident Figure 9. The major difference being the much lower starting words per minute recorded in the Nilson study as against the New View[®] programme.

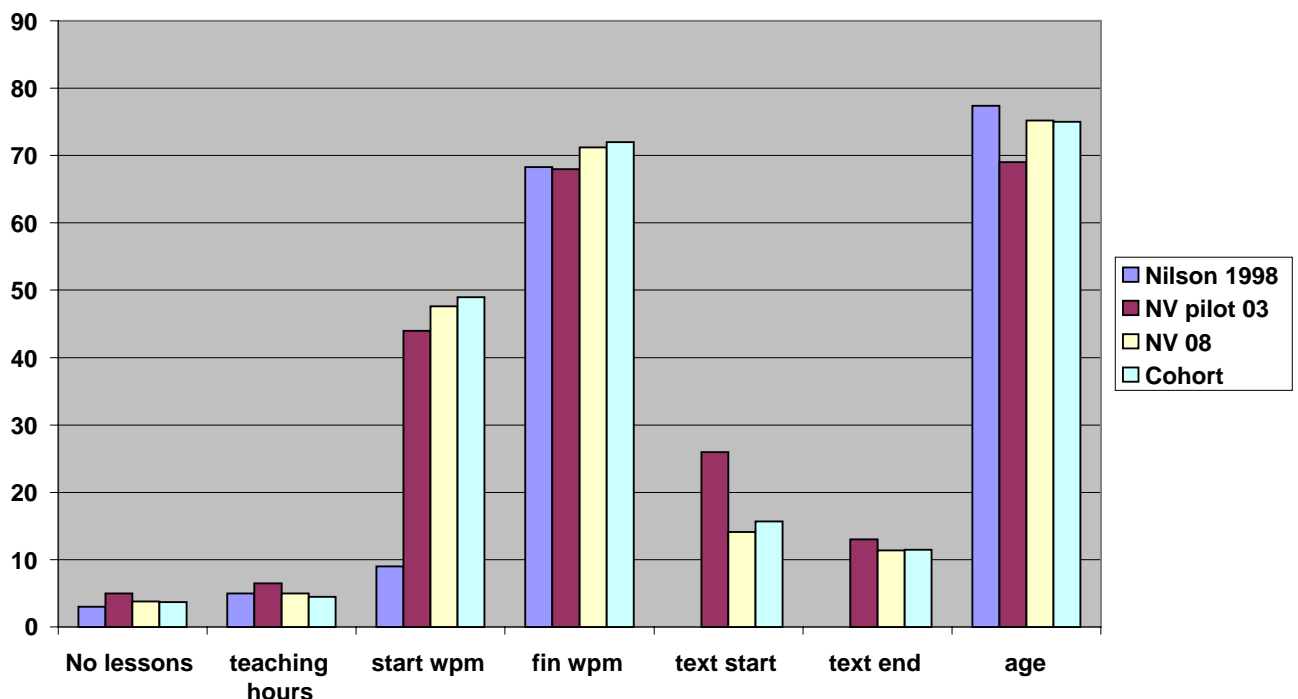


Figure 9

Eccentric Reading: What is Success ?

When starting words per minute are grouped and compared with the average number of lessons, there is a slight downward trend. (Figure 10) This would suggest that those who begin with high reading speeds require fewer lessons. Those who begin on 0-20 wpm needed between 3 - 7 lessons and for those on 80+ wpm needed 2- 4 lessons.

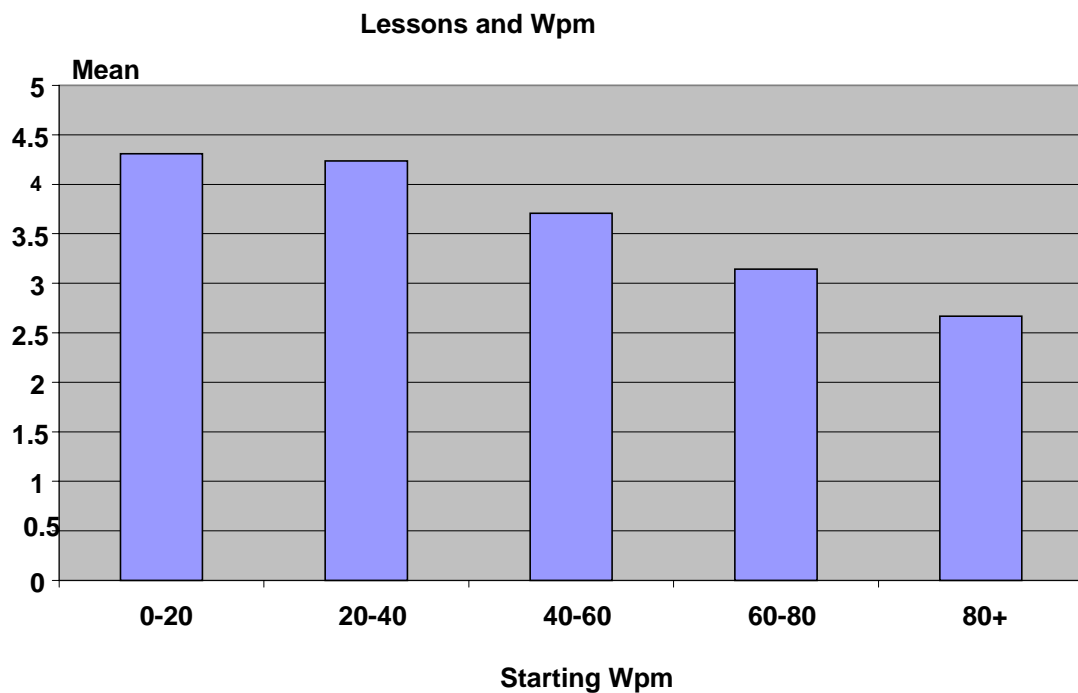


Figure 10

As part of the cohort analysis, the impact of magnification was examined. Figure 11 shows that 23% of the group used a magnifier of x8 strength, whilst 44% used magnifiers between x4 - x6. When the mean final performance score is plotted against magnification (Figure 12), there seems to be no relationship between the strength of the magnifier used and the final performance reached.

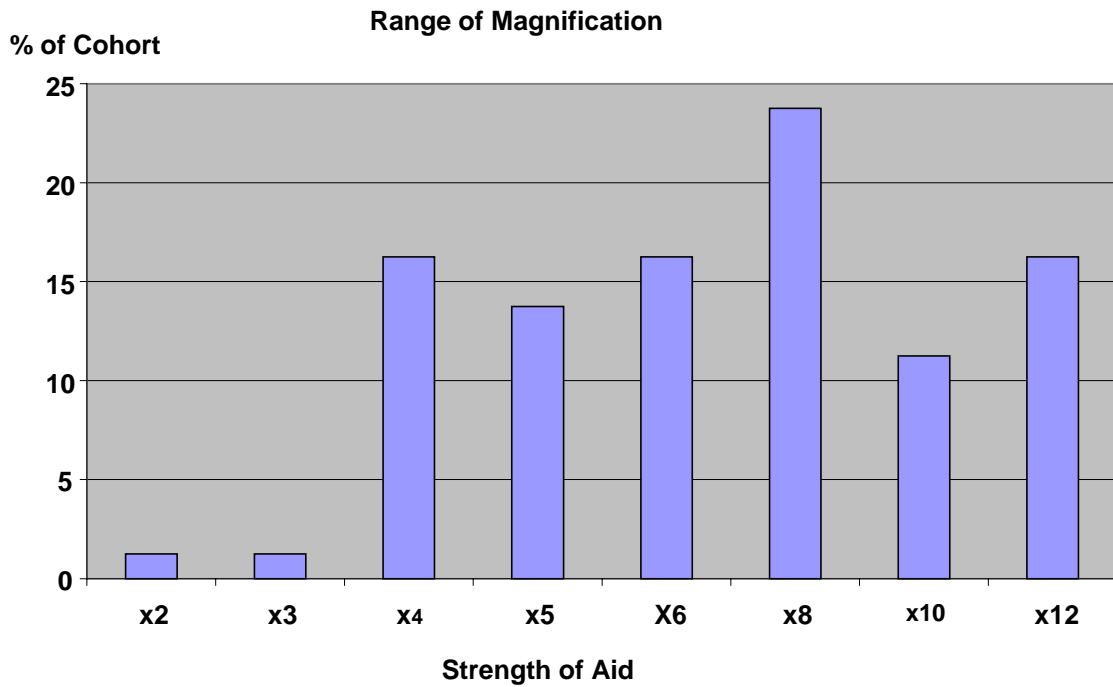


Figure 11

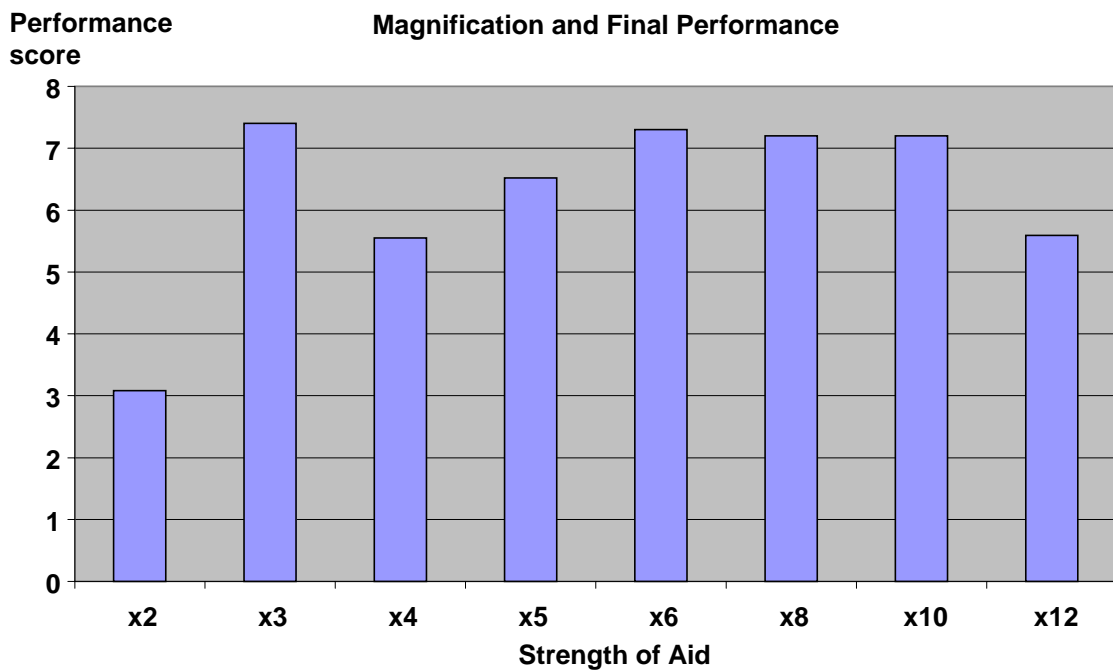


Figure 12

Mrs F

Mrs F aged 85 had been attending hospital for many years but saw a new doctor who registered her. Registration was a real blow and the off hand manner in which Mrs F was told did not help. Social work became involved and provided a range of aids and equipment. They also suggested New View[®] and although Mrs F was never a great reader she loved baking, trying new recipes and missed it a lot. Mrs F really struggles with having to ask for help. She says she finds it irritating and feels she is having to do it all the time. For her, she believed that learning this technique would give her back some independence. She loved going into town shopping but had stopped going because there was no pleasure in having to ask the price and the size.

Mrs F needed x12 magnification and at her first visit read 19wpm at font size 18 and within 4 lessons she was reading at 77 wpm and at text size 14. She is now reading recipes and with the help of talking scales is baking and cooking again. Mrs F says:

“This has enriched my life. It came easy and thought I could do it from the first day because I could keep my head steady. It is fantastic to do something and succeed. It has given me more confidence and made me believe I can do things again. Twice now, I’ve gone to town on my own.”

14. Levels of achievement

The tutor was asked to choose from a cohort of 80, two groups, one of whom he considered had been successful and another who he considered less successful. Each subgroup was composed of 20 people. The successful people were drawn from a list of those who had undergone a reassessment after a year and were still using the technique, though the data analysed was from their initial training period. Figure 13 shows the comparison between the means across a range of parameters for the successful and the less successful.

Eccentric Reading: What is Success ?

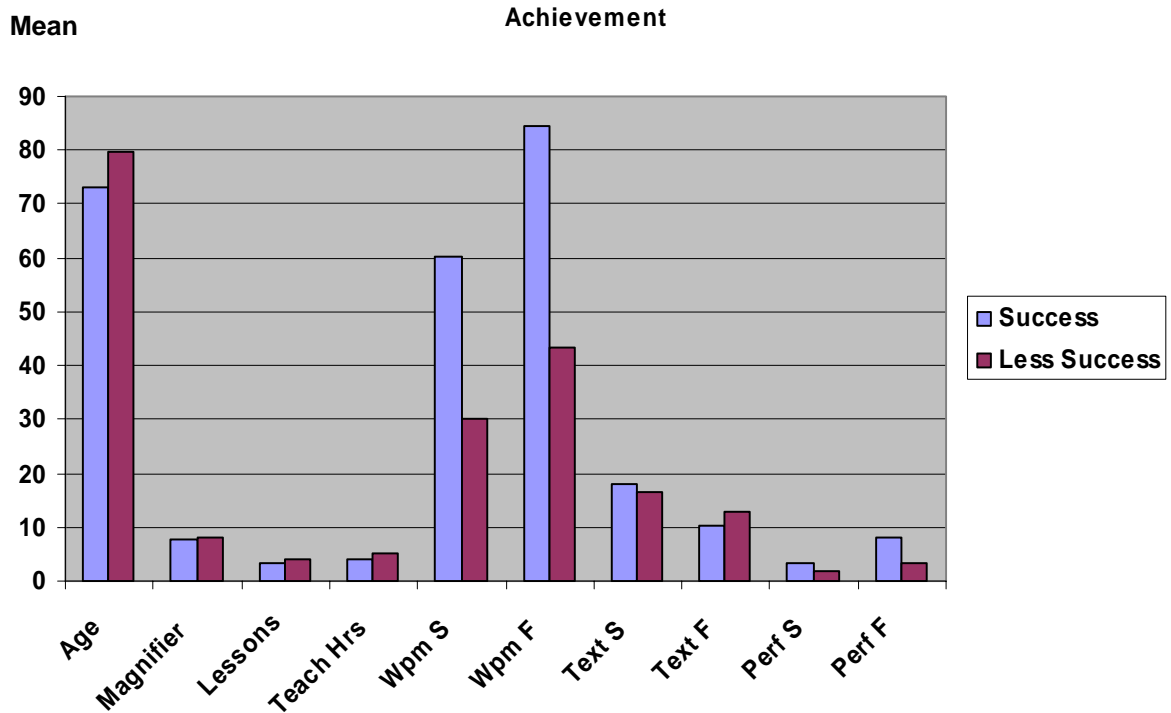


Figure 13

Similarities can be seen in age, level of magnification used, and number of lessons. However when the reading data is examined, there is a significant difference in starting wpm and finishing wpm. Table 3 shows the mean finishing font size for the successful group is 10.3 whilst for the less successful group it is 13. The differences are more marked when the performance score is used which shows that the average final performance of those who are successful is 8.2 whilst for those less successful it is only 3.3, and about the same as the starting figure for the successful group.

Eccentric Reading: What is Success ?

	Less successful	Successful
Age	79.8 +/- 9.5	73.2 +/- 11.9
Magnification	8.0 +/- 2.5	7.8 +/- 3.4
No Lessons	3.9 +/-1.6	3.4 +/- 1.4
Teaching (hrs)	5.2 +/- 2.1	4 +/- 1.9
Wpm Start	30.3 +/- 24	60.2 +/- 23
Wpm Finish	43.2 +/-18.9	84.6 +/- 17.4
Text Start	16.6 +/-3	17.9 +/- 9.3
Text Finish	13.0 +/- 2.3	10.3 +/- 1.6
Av Performance (S)	1.8	3.36
Av Performance (F)	3.3	8.2

Table 3

Whilst it is clear there are numerical differences between the two groups, it is important to relate these figures to the experiences across the group to help with the definition of success. Comments below are taken from the exit interviews of the less successful group and related to their reading statistics.

Comments – Less Successful	Before	After
I'm so pleased I can now see photographs again	17wpm Font 18	39wpm Font 14
I read my Christmas cards this year. I'm so delighted; if I hadn't done this I wouldn't be able to do half the things I do now	14wpm Font 26	41wpm Font 20
Very excited today as I read the instructions of a ready meal. I have really enjoyed the lessons and it has been such a help to me	21wpm Font 16	30wpm Font 12
I can read my own mail and keep my privacy; it makes a big difference when you can read for yourself. I feel more confident in company now	49 wpm Font 16	23wpm Font 8
I think I'm doing well and I'm practising everyday. It keeps me a bit more independent and I've really enjoyed learning something new	12 wpm Font 18	44wpm Font 12
I can write a wee note, sign love Mum and read it back now. Have a problem if I try to read books but I don't mind that	14 wpm Font 20	43wpm Font 14

These comments demonstrate that for those who are not even achieving the starting values of their counterparts in the successful group, skills and confidence have been gained. Many of the comments mirror those made by the “successful” learners, with many common themes about being able to read their mail, newspapers and magazines.

Comments - Successful	Final Wpm	Final Font
This has made an amazing difference to me. I now tackle things I didn't bother with before and I can now read stories to my grandson	82wpm	8
I had to give up choir but now I'm back and back to teaching at Sunday school	115wpm	12
Now I have the confidence to tackle any reading material	150wpm	12
I feel my reading is still improving and I managed to read the Sunday papers recently, and you know how much reading that can be	69wpm	12
Absolutely great, really 100%. I can read recipes again and the church newsletter.	96 wpm	12
This has opened a new world. I can now read the paper on the way home on the train and it has given me confidence to try things	73 wpm	10
Since I learner to use eccentric reading, I can read my love letters again and again	102wpm	12

15 .Summary of findings

From the quantitative data analysis across the full data set and the cohort analysis, several findings emerge.

Variable	Findings
Age	<ul style="list-style-type: none">• There is no evidence that age has any effect on performance
Starting Wpm	<ul style="list-style-type: none">• High Wpm S leads to high Wpm F• High Wpm S need fewer lessons
Lessons	<ul style="list-style-type: none">• High performance score on 5 or fewer lessons• No evidence that 5 or more lessons improves performance
Magnification	<ul style="list-style-type: none">• No relationship between performance and strength of magnifier

In terms of age, this must be set in context of sample who were drawn from an essentially narrow age range of 70-90, with some outlining data. However, it matches the results of Crossland¹⁰ who reported that reading speed is not fully correlated with acuity, age or scotoma size.

It is not surprising that high starting reading speeds lead to high finishing reading speeds and it is probably that these learners have a better acuity and smaller scotoma. Again perhaps not surprising that those with higher starting reading speeds need fewer lessons as begin closer to a fluent reading speed that the other learners.

It is important for future planning to note that there is no evidence that more than five lessons improves performance and this is in accordance with Nilsson's^{8,13} findings.

However, perhaps the most exciting and noteworthy finding is that the examination of reading statistics alone masks the true impact of eccentric reading on the quality of life. This is strikingly highlighted by the comments of those whose quantitative data does not demonstrate the achievement of fluent reading but their qualitative data demonstrates very graphically just how much they

have derived from learning eccentric reading. The feeling that something has been restored is very powerful and seems that this in itself is confidence boosting.

“I was waiting for a friend at the station and she phoned to say she was running late, so I went into the bookshop to kill some time. I must have picked up about twenty books and I could read the bit on the back. I would never have done that before, I couldn’t have done it before”

16. Enablement and Text size

Many people with MD want to read again without the need for large print. Of the cohort, none of the 80 learners was able to read text size 10 or below when they commenced the New View[®] programme. However on completion of the training, 31 people could read text size 10 or below. This is important because much of the printed materials of everyday life are in text size 10, which means over a third of the cohort (38%) was enabled to read “normal” size print. This percentage goes up to 65% able to read text size 12 or below. In fact, only 4 people finished their New View[®] training unable to read size 14 or below.

The analysis of the reading statistics indicates that there is no relationship with age. This needs to be set with the context that 80 % of the sample is aged 70 or over. Only 8 of the 246 are below the age of 49 and so there is very little data from younger people to influence the statistics. However, the fact that there is no relationship with increasing age adds weight to the argument that eccentric reading can be offered to all age groups.

Very recently, the New View[®] Tutor has supported a boy of 10 to learn eccentric reading.

T is 10 years old and has a rare form of visual impairment which means he has no central vision but retains useful peripheral vision. He does not see colour well and cannot discern detail. One of T’s teachers had heard of Visibility’s New View project and wondered if the technique, normally taught to adults, could be used to assist T in his reading.

T had been very slow at learning to read. His main limitation is the need to have all his written school materials printed in N30 print. This is particularly important for his homework tasks as he does not have access to a screen magnifier at home.

To date, T has had 2 eccentric reading training sessions and can now read text size 12 although text size 16 is more comfortable. This is a significant improvement and means that much more is available to him in the way of printed materials. T agrees that he reads better this way and he is looking forward to reading some “Doctor Who” stories.

17. Not for Everyone

Inevitably, not every learner considers their New View[®] training to have been successful.

For some, it becomes apparent at the first session, For example recorded in tutor notes of session one is the following comment:

“She is finding it almost impossible to focus using x12 magnification. Her additional mobility problems are also making it very difficult to navigate the text and sustain the required reading distance. She felt there was no point”

Others do choose to carry on with the training, perhaps two or three sessions, but then give up.

“I never used to give up things, but I haven’t got any interest in anything at the moment. My eyes hurt but the optician said it isn’t the reading. The tutor said I’m very tense when I try to read, I just didn’t want to carry on.”

There is also a group who in terms of reading speed are just as able as other learners yet give up.

Mr W

Mr W developed Macular Degeneration at the age of 73. He is very frustrated over his inability to read anything for himself and relies heavily on his daughter to deal with all his correspondence. He attended a trial informative session about the New View[®] Project which he found very useful, as he had never met anyone with the same eye condition as himself before. He has since gone on to befriend another gentleman who attended on the day.

Mr W did manage to read using eccentric reading and reached speeds of around 49 words per minute, text size 12. However, he thought that this was very slow and he became even more frustrated when he tried to practise the technique at home by himself. He needed a high degree of magnification, x12, which requires the page being very close to his face, something Mr W found very difficult. He persevered for a number of weeks but in the end decided that eccentric reading was not the way forward for him.

In a previous report from Visibility²³, factors influencing the use of low vision aids were studied. The analysis summarised factors which promote and factors which prevent, many of which have a resonance here. Whilst eccentric reading is not simply the provision of an aid, it seems from much of the qualitative data and comments that many of these factors may also be influential in whether a person achieves a measure of success with New View[®].

Factors which Promote	Factors which Prevent
Quick success and ease in using the aid	Difficulties / embarrassment
Realistic	Doesn't meet expectations
Strong desire and encouragement to be independent	Over protective family, little need or encouragement to be independent
Lives alone, little support, few choices	Others to do things for them
Positive attitude / acceptance	Negative attitude / sense of hopelessness / defeat

Wessels²² found that subjects with empathetic and compassionate family and friends continue to have a positive outlook on life despite their condition. It would seem that family and friends have big role to play in whether someone adopts a new skill, and this may also be true of eccentric reading.

Kraskowsky²⁴ comments that an important motivator in the use of assistive devices is the meaningfulness of the occupation being facilitated. In New View[®], a primary motivator for those coming forward for training is a strong desire to be able to read again and to enjoy the independence that restoring such a fundamental skill brings with it.

18.Conclusion

So what is success and can it be measured?

Throughout this report, evidence has been presented which describes learners' experience and progress. For many, the reading statistics showed major changes in words per minute, text size and duration whilst for others the reading statistics show very little improvement. However when learners are asked what difference taking part in New View[®] has made to their lives, very positive responses are given, with some going as far as to say that this has been a life changing experience, irrespective of reading statistics.

Success for people inspires further achievement. It appears that the feeling that a previous skill has been restored leads to a greater sense of independence and it is not the degree of change which matters. The involvement in the process has a positive impact on confidence and seems to fundamentally challenge their perception of being disabled.

For many people a diagnosis of serious untreatable sight loss is a devastating experience and the beginning of a journey towards learning to live with poor vision. Their experiences in this journey are marked out by a series of negative experiences of discovering what they can't do any more. For example they can't drive, can't read, can't see the number of the bus.

These negative experiences are seldom interspersed with any positive experiences and are often exacerbated by negative encounters with professionals and the general public. It is against this background that Visibility's New View[®] operates. Feeling integrated into society again is a positive message. New View[®] opens up opportunities and is an important tool which should sit amongst a range of approaches and sources of support provided to people struggling to cope with sight loss.

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Eccentric Reading: What is Success ?

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Appendix 1



NEW VIEW© INDIVIDUAL LEARNING PLAN



Name:	Date of meeting:
Tutor's Name:	
Outline Current Skills and Knowledge:	
In relation to reading what skills would you like to develop?	
How would you like to use your skills in the following areas:	
PERSONAL LIFE:	
FAMILY LIFE:	
COMMUNITY:	
WORKING LIFE:	
Are you hoping to go on to other learning or training opportunities in the future?	

NEW VIEW© INDIVIDUAL LEARNING PLAN

LONG TERM GOALS (OUTCOMES)

--	--	--	--	--

SHORT TERM GOALS	METHODS/ACTIVITIES	RESOURCES/MATERIALS	SUPPORT NEEDED *	Date Secure

*Support needed may be from the tutor during the sessions; from outside the sessions or home study

LEARNER'S SIGNATURE _____ **DATE** _____

TUTOR'S SIGNATURE _____ **DATE** _____



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