Pro-Vision: Read, Record, Review;

A model framework using video technology to enhance reading fluency

through prosodic skill development.

Patrick Minogue

Bachelor of Education. (DCU)

A dissertation submitted to the University of Dublin,

in partial fulfilment of the requirements for the degree of

Master of Science in Technology and Learning.

2016

Declaration

I declare that the work described in this document is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other university.

Signed: _____

Patrick Minogue, B.Ed. (DCU)

April 26th, 2016

Permission to lend and/or copy.

I agree that Trinity College Library may lend or copy this Dissertation upon request.

Signed: _____

Patrick Minogue, B.Ed. (DCU)

April 26th, 2016

Acknowledgements

I would like to take the time to thank the lecturers and students from the 2014-2016 MSc Technology and Learning class for their support and guidance throughout the two years of this course. A special thank you to Dr. Inmaculada Arnedillo-Sánchez for her guidance and supervision throughout this project. I would also like to thank the boys from the national school in North Dublin for their participation in the research process. Lastly I would like to acknowledge my family for the continuous and unwavering support with which they have guided and nourished me since childhood.

Ní bhíonn an rath, ach mara mbíonn an smacht.

Abstract:

Social interactions are constructed of a litany of information which is both verbal and nonverbal. In order to interact and react to this constant onslaught of information one needs to be able anticipate, analyse and comprehend instantaneously (Keitel, Prinz, Friederici, von Hofsten & Daum, 2013). Prosody, an aspect of reading fluency, is an extremely important skill required in order to comprehend, analyse and also anticipate any given text. The purpose of this study is to examine the benefits of the use of video technology to enhance reading fluency particularly intonation and prosodic skills within the classroom environment.

Education is constantly in a state of reform and review; it is the responsibility of all current educators to progress and develop as well as construct, both existing and original practices and strategies that can enhance education in the interim. Technology has long been touted as a solution to various teaching strategies and principles however it is imperative that when using technology in education it is used as a learning tool and aid rather than a novelty and interruption. Therefore it is important that before technology is adopted carelessly into a learning environment vigilant planning and adaptation should occur for a seamless and beneficial transition of use. The following study assesses the benefits of adapting and adopting the use of video technology to *"Read, Record, Review".*

To explore the research question, a case study was deemed the most suitable form of data collection and analysis as a research project. A cohort of 12 boys from sixth class in a boys national school, Dublin, were chosen to undertake the research. Each group of participants were given both a pre and post research oral reading fluency and retell fluency test. Throughout the

study they were also marked on performance by means of a rubric whilst observation including questioning was continually occurring.

Although requiring further more in-depth research and being far from conclusive, the results indicate that there is an opportunity in adopting and adapting video technology within a classroom environment to aid and improve the teaching and learning of prosodic skills in the development of reading fluency. The quantitative results indicate a slight improvement in prosodic skill development and overall reading fluency. The confidence of the participants also seemed to grow as the sessions progressed. Coupled with this throughout the learning experience, the participants displayed an enthusiastic and motivated attitude toward the assignment outlined. Constructive self and peer assessment, attention to detail and desire for success were some of the benefits and attributes displayed by the participants throughout the process.

Table of Contents:

Section 4 *Research Methodology*

Section 5 *Findings and Discussion*

Section 6

Tables of Illustrations

Section 1 *Introduction*

1.1 Background and Context

Reading fluency and comprehension correlate continuously between many factors such as automaticity, reading rate and prosody. Rasinski, Rikli & Johnston (2009) recognise an issue with reading fluency among older grade 9 readers and how more than half those studied displayed reading rate and comprehension levels below that of an eighth grader. Many factors affect such issues including automaticity. However prosody and intonation is an element which is very important to the reading comprehension at any level however is sometimes masked and neglected by other elements such as automaticity and word recognition in creating a false sense of reading fluency.

"Books do not proselytize themselves" (Skouge, Rao & Bosviert, 2007 p. 5). The previous statement is indicative that text is inconclusive without the imagination and active involvement of the reader. If a reader is unable to apply prosodic skills such as pitch, duration, stress and emotion to a piece of text it is much more difficult for a reader to comprehend exactly what is meant in text. Often readers have little trouble in recognising words and sentences but are short of the intonation skills required to comprehend what is written such as sarcasm or anger.

Many scholars have identified prosody as an essential component of reading fluency (e.g. Rasinski et al, 2009; Keitel et al, 2013). The use of prosodic skills serves as indicators of a readers comprehension and understanding of what they have read. Kuhn (2004, p. 339) deems *"without such an understanding it would be impossible to apply those elements appropriately . . . it seems likely that instruction designed to develop learners'*

fluency (automaticity and prosody) will lead to improvements in their comprehension as well"

Rasinski et al (2009) further indicates that despite the potential for reading comprehension to develop and progress with prosodic skill development there is relatively little research focusing on reading fluency development influenced by prosody enhancement especially for learners beyond the early years. Rasinski's studies indicate that difficulties in reading fluency manifest themselves between the ages of 6 and 14. Generally learners are identified as having difficulty in reading comprehension however this is often accompanied by a lack of fluency. There are a number of theories to why these are linked as it is believed that the lack of automaticity requires learners to work much more cognitively thus interfering with comprehension and fluency (LaBerge & Samuels, 1974). However the value of prosodic skills cannot be overlooked.

The use of video technology in the enhancement of reading fluency through prosodic skill development was deemed a suitable course of action as video technology has long been an important tool in education. Although there is an ever evolving world of technology; easier accessible than ever, there is also need for understanding that there isn't an overarching responsibility to start afresh (Hoven, 1999). Hoven indicates that traditional areas such as classroom interaction, self-directed learning and the use of audio and video are examples of good practice in language development. Considering the aforementioned principles, a framework and research project was developed to explore the following research question:

Read, Record, Review; How does the creation and review of video media influence the development of Reading Fluency, particularly the advancement of prosody skills?

1.2 A Roadmap to the Document

The concept of reading fluency and prosody development is something that is considered and explored within the literature review. The chapter progresses to outline how previous studies have concentrated on other elements of reading fluency such as automaticity as indicators of comprehension whilst neglecting the importance of prosody. The importance of prosody and the elements which influence comprehension such as stress, duration, emotion etc are then analysed.

The use of video technology in education and how it can be utilised in language development is further analysed within the literature review. Further emphasis is placed on how strategies such as Keller's (2000) ARCS model of motivation and constructivist learning can improve the model framework for which the study is created.

The design stage is formulated informed by all the elements explored in the literature review. The learning experience is created considering how video technology can be effectively utilised as a tool to improve prosodic skill development in reading fluency by recording and self modelling reading and playback to assess improvement. A structured framework developed to improve the reading fluency and prosodic ability of a sixth class pupil is formulated within the design chapter. The design framework had to consider many factors such as time frame and participant profiles.

When considering research and methodology, a case study was determined as the most appropriate method for data collection and analysis as both quantitative and qualitative data can be utilised effectively with such a study. The research and methodology chapter outlines how the data will be collected and constructed into a research project. Implementation of the project is also described within the chapter.

The dissertation culminates with a chapter indicating the findings of the research project and a discussion ensues analysing and reflecting upon the findings of the data collected. The effectiveness of video technology in improving reading fluency is assessed and also the practicalities, advantages and disadvantages that the research project had on an educational and academic environment are considered.

Section 2 *Literature Review*

2.1   Introduction

"*Books do not proselytize themselves. Books are silent on the shelf until readers give them voice. Once that voice is found, however, worlds of value, imagination and reason are opened, like no other media can deliver*" (Skouge et al, 2007, p. 5). This is true for all levels of reading and without the correct voice given to text little imagination or comprehension is achieved.

Reading fluency can be divided into a number of factors, one of which is prosody. Without accurate use of prosodic skills in reading, understanding of a piece of text can become disjointed and skewed.

In understanding prosody and its importance as an imperative component of reading fluency the research explores how prosody is a readers attempt of understanding the text and its meaning. It is often referred to as expressive reading as it influences the mood, pitch and emotion of the reader.

As 21st century technology, information and communication evolves in a continued exponential growth a conscientious effort must be made by education to follow and compete with these changes (Niess, 2005). The following chapter explores how video technology is continually evolving. It is vital that frameworks and models in which educators use technology must be adapted and reinvented in order for the technology to be utilised to its utmost, in this case the improvement of reading fluency through developing prosodic skills.

Skouge et al (2007) indicates that learners benefit from self modeling and watching themselves engage in adaptive behavior. The use of tablets to construct videos for modeling prosodic skills is adaptive of this concept and is explored throughout the chapter.

This research explores how video technology can be effectively utilised as a tool to improve prosodic development in reading fluency by recording and self modelling reading and playback to assess improvement.

2.2   Reading Fluency

Jeanne Chall's (1983, as cited in Rasinski et al 2009) model of reading identified reading fluency as one of the earliest stages of reading achievement. As reading fluency deals with the mastery of the basic level of text it is quite appropriate that reading fluency is an objective which should be achieved quite early in the development stage of reading (Rasinski et al, 2009). However as reading fluency consists of many different variables such as automaticity, word attack and prosody, it can quite often be masked as achieved by the overreliance on particular factors. To be able to read by breaking down syllables and words thus creating a flow does not automatically indicate reading fluency as without prosody little or none of the information may be understood or absorbed.

Rasinski's (2009) studies indicate that difficulties in reading fluency manifest themselves between the ages of 6 and 14. Generally learners are identified as having difficulty in reading comprehension however this is often accompanied by a lack of fluency. There are a number of theories to why these are linked as it is believed that the lack of automaticity requires learners to work much more cognitively thus interfering with comprehension and fluency (LaBerge & Samuels, 1974). However the value of prosodic skills cannot be overlooked.

Schwanenflugel, Meisinger, Wisenbaker, Kuhn, Strauss & Morris (2006, p. 497) suggest a "*simple reading fluency*" framework for primary school

students in which *"fluent word and text reading operate together with autonomous reading to produce good comprehension".* Prosody is an essential element of reading fluency often neglected in research of fluency and also instruction (Rasinski et al, 2009).

Prosody has been identified as an imperative component of reading fluency. Research from Schreiber (1991) also outlines how prosody acts as a reflection of a readers attempt to understand what they are reading because *"without such an understanding it would be impossible to apply those elements appropriately . . . it seems likely that instruction designed to develop learners' fluency (automaticity and prosody) will lead to improvements in their comprehension as well" (Kuhn, 2004, p. 339).*

Morrow & Asbury (2003) also indicated that prosody is likely to have an influence on the motivation and engagement of a reader. Prosody is often referred to as expressive reading as it influences the mood, pitch and emotion of the reader.

Educators and teachers have traditionally concentrated on the speed of word recognition and automaticity as indicators of good reading fluency however many are becoming increasingly aware that many learners struggle with reading even after they have come accustomed to the alphabetic principles (Oakley, 2005). Oakley continues to explain how it is imperative that children need to be taught how to engage and control graphophonic, syntactic, grammatical, semantic and strategic information and how to integrate and self monitor these factors to achieve reading fluency.

2.2.2 Understanding Prosody; a concept

In conversations, people forecast and assume the end of a speaker's turn. However, little is known about the development of this ability (Keitel et al, 2013). Through the tone and flow of a conversation subjects with good intonation and prosodic skills can decipher emotion and connect much more cognitively with real life experiences and knowledge. In relation to written texts a similar comparison can be made when comprehending a text or piece of comprehension.

According to most linguists, the hierarchal organisation of sentence structure along with the prosody of a sentence are the key elements in how someone comprehends and responds to both conversational and written text (Schrieber, 1991). Prosody is the focus of features which are as Schrieber (1991, p. 159) describes as "*superimposed*" within the sentence structure. These prosodic skills are evident in stress, intonation and duration.

Stress relates to the syllabic prominence within words. Different languages and geographical accents dictate the stress found in words and sentence structure. Within the English language the stress or phonetic prominence within a given word is dictated by various factors such as relevance to the sentence or prosodic skill inferred and also by geographical accents. For example the word present can have both a first syllable stress when used in a sentence such as "the boy was given a PRESent". Whereas the same spelling word has a totally different meaning and stress syllable in the sentence "all the boys were preSENT at school". Although different geographical accents would dictate how the word was heard and read the syllabic prominence would not change.

The online dictionary defines intonation as the perceived rise and fall of pitch during conversation or the playing of instruments. An example of this is when we ask a yes or no question we tend to rise the pitch of the question at the end which infers an understanding that a question has been asked and a response expected. *e.g. Is it hot outside?* Whereas in a question usually starting with a Wh word i.e. what or who the pitch of the sentence drops at the end of the question as to mark that the question is finished *e.g. What is the weather like outside?* (Dalton & Seidlhofer, 1994).

Duration is simply the length of time spent on an individual word. However Coleman defines prosodic duration as the doubling of letters for the simple long or short version of a word. This doubling of the letter is done in pronunciation or inferred in reading rather than in the grammatical sense. e.g the use of the word warm in a sentence such as this one is of different duration to a sentence such as *e.g. It is very warm in the Summer.*

Whilst learning to read many children go through a phase called 'word calling', this is oral reading where halting and expressionless emotion occurs despite the reader achieving a high level of word identification (Schreiber, 1991). Research in reading dysfluency has sought to identify the causes of such problems and potential solution for its remedy. The proposed model in using video technology to read and review pieces of work is one such remedy to improve expressionless reading. Prosodic skills developed are clearly evident using video technology and reviewing ones work allows for greater cognitive development and knowledge integration.

2.2.3 Focus on intonation within the English curriculum

As children develop speech, conversational skills become intrinsically important (Keitel et al, 2013). Principles such as turn taking become evident from a young age. Throughout natural conversation a turn end is marked and accompanied by prosodic boundary cues such as intonation, stress and duration (Gerken & McGregor via Keitel et al, 2013).

One aspect of children's linguistic capabilities where skills can be influenced, improved and developed upon throughout the school years is intonation (Wells, Peppé & Goulandris, 2004). Whilst gender and social factors influence the prosodic development of children's language skills, generally from the age of six and throughout the school years children's intonation systems becomes more complex and continue to progress through to adulthood.

The British Council addresses the different functions of intonation in English and how this can improve the learning of language and comprehension. Attitudinal aspects along with grammatical patterns influence how people perceive intonation. The attitudinal aspect deals with mood or resignation in a statement which is made or written while the grammatical factors deal with the previously mentioned rise and lowering of tone which are patterns associated within the English language i.e. lowering of tone at the end of a Wh question. Continuing in their summation of intonation, the British Council states that to improve one's prosodic skills of intonation the most effective way is simply to immerse oneself in it. This is an area where technology can play a very influential and beneficial role as using video technology to record and review one's reading allows the learner a more student based approach to the development of reading fluency. Instead of the

teacher indicating and highlighting the pros and cons to a learners proficiency in reading, the learner has the opportunity through instant feedback and self review to take a more independent and innovative role in their own learning.

Although there is evidently mass amounts of material detailing the importance of prosody development, particularly intonation, during the school years of a child, there is little or patchy information regarding the specific development of such, at what age and the distinct variability of development across children of the one age (Wells et al, 2004).

Teaching students the importance of stress and how to use pitch within sentence structure is extremely important and is evident within the primary school curriculum as teachers have specific objectives to achieve each year in the progression of their class' speaking and listening skills. The Irish curriculum states that language acquisition is intrinsically linked with skills such as reading and writing. The curriculum continues to state that receptiveness to language is very complex and that *"the hearing or reading of words may not amount to understanding"* (NCCA curriculum, p. 10) In conjunction with grammar and context the prosodic skills of intonation, stress and duration are imperative to instil understanding in relation to linguistic progression.

Intonation is a prosodic skill that is difficult to gauge a learners understanding in relation to reading fluency without constant review. As it is linked with musical rhythm and emotion, readers correctly interpreting text have the ability to emphasise words and verse where appropriate thus comprehending and expressing the language through intonation correctly. However many obstacles can hinder the learners ability to convert text into the piece of comprehension and prose that it was meant

rather than the utterance of words that is in plain text without prosodic skills being utilised (Ruskin, 1880).

2.3   Video Technology in Education

For many years educators and academics have explored the possibility of using video technology throughout education. As video technology is continually evolving, frameworks and models in which educators use technology must be adapted and reinvented in order for the technology to be utilised to its utmost. As 21st century technology, information and communication evolves in a continued exponential growth a conscientious effort must be made by education to follow and compete with these changes (Niess, 2005). As educators it is our mission and diligence to foresee and accommodate for the needs of new learners and enforce change within our own education systems of curriculum and teaching methods rather than use counteractive measures when education has already suffered.

Some educators have been slow in the uptake of video technology as an effective tool to assist teaching and learning. This is due to many factors such as video technology being traditionally cumbersome, breakable and highly expensive (Skouge et al, 2007). However as Web 2.0 tools, video capture and editing software have become more mainstream it is important as educators to assess how video technology can be incorporated in the functionality of an effective classroom.

The use of technology in education is not being fully utilised to impact on the pedagogical practices of educators and to positively affect students' learning (Weir & O'Connor, 2009). A long standing tradition among educators is the idea that a technology has to be new and cutting edge in order to be

innovatively used within education (Groff & Mouza, 2008). This misconception has to be radicalised in order for truly groundbreaking steps to be made in technologies use in education. Often it is technology that has long been accessible which can be revolutionised to assist in teaching and learning. For example the early adopters of video technology or even still frame imagery were faced with difficulties that are not an issue to modern educators such as processing times and economic factors.

Educators are continually challenged with factors that influence their decision in relation to using technology within an integrated knowledge structure. Niess (2005, p. 510) outlines the need to equip educators with an *"over-arching conception of their subject matter"* to truly benefit from the use of technology. In order to allow educators use technology as a tool for learning and not just as an artifice it is imperative that they are guided to self assessing their own work and adequately challenged in how to best use technology concise to the subject matter they wish to teach.

Video technology has long been an important tool for education, not only in an instructional sense but also to illustrate particular classroom processes such as problem solving (Sherrin & VanEs, 2005). The pedagogical impact of video technology in education can be summarised under three key concepts (Greenburg & Zanetis, 2012)

-Engagement: This relates to the content quality of the visual stimuli, for a video to draw in its target audience it has to be of relevance to its audience. The production quality of a video needs to be of a high quality relative to the learners interest in the content.

-Interactivity with content: The cognitive development of the learner is stimulated by the interaction of the learner with the visual content whether through the medium of speaking, writing, thinking or applying the concepts.

-Knowledge transfer and memory: Once engagement and interactivity occurs the learner processes the information affecting memory and cognitive development (Greenburg & Zanetis, 2012).

2.3.2 Video Technology in Reading Fluency

As we become more consumed by media, especially video, games and the internet time spent reading by both adults and children is dropping (Skouge et al, 2007). There is a fear within the education system that formal reading is diminishing however this is not being combated against with new and innovative ideas in how to improve literacy and reading fluency among learners.

As digital video has become more robust and economically viable it has developed into becoming a more frequent tool used to compose material. Traditionally video was a teaching tool used to inform and instruct however education has recently adopted video technology as a literacy tool used to construct and assist in learning (Bruce & Ming Ming, 2015). The use of video technology in classroom texts changes the learners experience with the text thus altering their understanding and comprehension (Bruce & Ming Ming, 2015).

Using video technology to assess what is generally an audible exercise is not without consideration. Chen, Wang & Xu (2014) indicates that not only does video keep the attention of the learner longer it allows for other stimuli such as imagination to enhance. Zan education (2015) suggests that used

correctly the use of video technology in English education and proficiency of reading is very beneficial as it allows the learners to create an experience for themselves where they can evaluate and critique their own work.

Lawless & Pellegrino (2007) indicate that teachers do not successfully integrate technology into their teaching methods however research has established that using video technology is very beneficial to knowledge integration of a learner, as human beings learn through modelling. Thus learners benefit from watching themselves engage in adaptive behaviour that they are trying to master (Skouge et al, 2007). Hitchcock, Prater & Dowrick (2004) outline how self modelling has improved children's reading fluency, comprehension and motivation for reading. This outlines the importance video technology can play in the development of prosodic skills through self modelling enriching the literacy context.

Prosody is often referred to as expressive reading as it influences the mood, pitch and emotion of the reader. Using video technology as an assistive technology for teaching prosodic skills is beneficial as it allows emotion to not just be heard but also visibly reflected in the video playback.

2.4   Technologies and Applications currently used to improve fluency

Lawless & Pellegrino (2007) indicate that teachers do not successfully integrate technology into their teaching methods. For every generation of learner there are appropriate teaching frameworks and models which are new and more effective. Listed below are a number of apps recognised by Teachthought.com as being educationally beneficial to the learning of reading fluency and comprehension.

Apps Available	Purpose	Age
Reading Comprehension	Focusing on non-fiction texts and assessment.	7-9 year olds
Rainbow Sentences	This app focuses on sentence fluency. The who/what/ where/ why/when of each sentence are colour-coded to emphasize word function	8-11year olds
Kids reading Comprehension Level 1	This provides short passages and brief assessments at their conclusion. Comprehension here is addressed through brief bursts of non-fiction text with the expectation of assessment at the end.	7-9 year olds
Sentence Builder	Students compose grammatically correct sentences, which helps both reading and writing fluency.	8-11 year olds
Reading Remedies	Comprehension is addressed here by breaking the process of reading down into blends, word fluency, sight words, and then general recall, with suggested activities to improve general fluency	8-11 year olds

Figure 1. Reading Fluency Technologies and Applications

2.5   Structured Organisation and Motivation

The education community has a responsibility to prepare learners for the technological world which they will inevitably delve however without concise planning and organised structure technology can quickly become an inept tool hindering the quality of learning rather than enhancing. As video technology such as YouTube and Vimeo have developed into becoming global successes there are many structures in place which allow for its use to be easily accessible and intuitive. This is vastly important in education as time constraints and motivation are factors that influence effective teaching and learning.

2.5.2 Arcs Model of Motivation

The proposed strategy incorporates Keller's (2000) Arcs model of instructional design. The Arcs model outlines four conditions which must be

achieved in order for a learner to be truly motivated in the relevant content. These four categories attention (A), relevance (R), confidence (C) and satisfaction (S) are accounted for within the proposed strategy.

Attention is in relation to how a learner requires variety in teaching strategies and an understanding that in order to stimulate the attention of a learner their motivation must first be stirred by an unexpected occurrence or a break from the norm(Keller, 2000). The use of video technology and self directed, reviewed material is a break from the conventional methods of improving reading fluency.

To sustain motivation, it is important to use text and material that is of interest to the learner. The use of technology that is not adjudged to be solely educational such as a tablet also maintains a relevance to the learner as it connects learning with real life experiences.

In order for a learner to maintain motivation a confidence must be developed that instils an understanding that they will be able to attain targets and learning objectives. As the proposed strategy is undertaken with technologies that the learners have previous experience with, there is a pre-existing confidence that the objectives can be achieved. Structured lessons connect the confidence the learners have with the technology to the learning objectives and targets hoped to be achieved.

Positive feelings and a sense of satisfaction elicit once a learner feels like that they have achieved targets and objectives outlined and sought. Measurable targets are important to ensure that a sense of satisfaction is within reach. As there are constant progressions to the proposed strategy the learners are given an opportunity to constantly evaluate their learning and conjure a sense of satisfaction from their work.

2.5.3 Video Review & Instant feedback

The use of video technology to replay and analyse work has found that it allows a microanalysis of human interaction to be carried out much more cognitively than through memory or citation (Bolger, 2014). Allowing students the ability to identify and understand their behavior in reading fluency through video playback is extremely important as they are given the opportunity to analyse nuances and traits not distinguishable when participating in the operation of reading. Roter et al (2004 as cited in Bolger 2014) indicate that video review is an effective and powerful tool that provides guidance and opportunity for experimentation in learning and the ability to effectively self evaluate one's own learning.

The effects feedback and review has on the skill development of a learner cannot be overlooked as Decker (1983, as cited in Bolger 2014), indicate that video feedback illicit a higher level of skill development in comparison to feedback given solely by the teacher. Furthermore Mills & Pace (1989, as cited in Bolger 2014) illustrate how both practice and feedback influence different elements of learning. They suggest that through the combination of both practices there is a greater influence on long term performance.

2.6   Influence on Reading Flow

Matthews (1997) discusses the importance of activities that take place after reading develops learners' comprehension and retention of the text. By using video technology to review and analyse reading fluency, learners are afforded the opportunity to cognitively understand and comprehend the

context of the text they have read thus influencing the intonation and prosodic skills for future reading.

2.7   Constructivist Learning

Constructionist theory is built on the premise that participants are both motivated and directed toward learning objectives. In creating an environment in which Constructionist theory is encouraged to develop, educators are empowering the learners to take ownership, pride and satisfaction from their work.

Constructionist learning portrays a strong bond between implementing and learning, implying that through the processes of constructionist learning i.e. planning, designing, constructing, building etc. one flourishes much more cognitively and learns in a more fluid and tactile way than through traditional text and lecture (Kafai & Resnick 2011, 2015). The use of tablets to create tangible and easily accessible videos in order to enhance the reading fluency skills of the learners can complement the design process discussed by Kafai & Resnick (2011).

As indicated by Windschitl (2002) teachers are encountering problems with implementing a constructivist approach to instruction. The educational community must collectively acknowledge these failings and adopt Papert's (1991) idealistic approach of learning through design.

2.8   Conclusion

In order to foster and continue to purposefully influence the advancement of educational practices, it is important that there is constant research and development of how skills are developed. Often it has been

noted that educational systems are not to the forefront in relation to the adaptation of technology in education. However it is imperative to understand that although technology can be implemented in groundbreaking advancements in educational and pedagogical practices it's sheer involvement does not guarantee development. Careful planning and seamless integration into the education system is vital for the embracement of technology in learning. It is vitally important that educators and institutions continuously develop practices to develop reading fluency in learning, ironically many have inferred that technology has had a negative effect on reading fluency and motivation in young learners. By embracing technology and integrating its use in the development of prosodic skills and reading fluency development allowing education practitioners to control the influence that technology has on the development of reading fluency.

The proposed model would see currently existing technologies being used innovatively to create a new model framework which could be adopted across class levels by all educators regardless of their technological fluency. Using tablets as the recording technology limits the skill integration needed to begin teaching the lessons from the outset. As the learners have previous knowledge and awareness of recording video, less technological instruction time would be needed opposed to the introduction of specific hardware and applications. This facilitates for a stronger emphasis and concentration on learning objectives and educational relevant content.

The model proposed would benefit the teaching of reading fluency as it is a child centred framework devised with many considerations in mind such as instant feedback, structured organisation, review processes and learning objectives. The research assesses such problems faced in the development of

prosodic skills in reading fluency and how video technology can be used a

vehicle for solution to improving reading fluency within a self-centred

learning environment.

Section 3 *Design*

3.1   Introduction

The literature review has indicated that the need for improvement of prosodic skills in reading fluency is evident and that video media may be a suitable tool aiding prosodic skill development. Whilst designing a framework that could comprehensively address the objective to improve reading fluency overarching principles addressed in the literature review needed to be examined. Principles associated with prosodic skill development, constructivist learning theory and Keller's (1987) ARCS of motivational design were all important factors which needed to be assessed, evaluated and incorporated whilst designing and organising a framework capable of implementation, prosodic skill development and research assessment.

This design builds on how video technology can be effectively utilised as a tool to improve prosodic development in reading fluency by recording and self modelling reading and playback to assess improvement. A structured framework developed to improve the reading fluency and prosodic ability of a sixth class pupil is formulated within the following chapter. For the purpose of the study the framework and research project became known as Pro-Vision.

As many factors influenced the formation of Pro-Vision it was important to consider that many teachers and educators are having a tumultuous time incorporating a learner centric model of constructivist teaching to their array of strategies (Windshitl, 2002). In order for this quintessentially ideal concept to become common practice it is imperative that examination of current structures and development of continual structures must constantly co-exist.

3.2   Description of the Learning Experience.

It was envisaged that Pro-Vision would consist of daily lessons where the participants would be given the opportunity to constructively design and assess their own videos incorporating the skills and strategies they have been instructed regarding prosody and intonation development. Over the course of the study various pieces of texts and different levels of emotion and inferences would be explored. The content of the Pro-Vision course would be developed by the learning support teacher who follows various reading programmes.

The participants upload their content to a laptop where they have the ability to access this throughout the study. Through self and peer review the participants can assess their own achievements and progression throughout the learning stage.

In developing Pro-Vision it was envisaged to separate the learning activity into three distinct phases. Each phase represented different stages of the framework implementation and concentrated on different aspects and theories needing to be addressed and evaluated from the Literature Review.

3.3   Phase 1   *Figure 2. Phase One of the Design*

Phase 1. Actions	Influence on reading fluency & learning experience	Underpinning influences
Ice breaking activities	Vocabulary introduction, syntactic awareness, grammatical development.	Schreiber et al (1991) Morrow & Asbury (2003) Oakley (2005)
Objectives outlined	Motivation	Keller (1987) ARCS. Small (1997)
Discussion of skills required	Stress, pitch, intonation, duration awareness	(Schreiber, 1991)
Read aloud & Video analysis	Prosodic skill awareness, understanding of objectives, modelling	(Rasinski, 2009)
Introduction of technology	Skill Development and integration of Technology	Small (1997) Manning (2015)

3.3.2 Ice-breaking Activities.

The design features for Pro-Vision were carefully constructed considering many elements and theories explored throughout the literature review. Phase one deals with the initial introduction of the technology being used and the learning experience objectives outlined to the participants. It was envisaged that through Ice breaking activities vocabulary and word recognition skills could be built upon. This vocabulary awareness and progression is beneficial for both the researcher and participant as the researcher has instant familiarity with the learners word recognition, comprehension and automaticity skills. Through discussion and inference the researcher can become aware if the reading of certain vocabulary is comprehended or not thus exploring Schreiber's (1991) research how prosody is needed within a readers attempt to understand.

Oakley (2005) discusses the importance of word recognition in a more cognitive way than just rapid automaticity, the need for learners to be allowed more time to explore and engage with words concentrating on syntactic and strategic information with a degree of self monitoring. Activities that stress on vocabulary awareness and comprehension strategies develop prosodic awareness and skill development.

3.3.3 Outline of Objectives

In order for a successful integration of video technology and the success of Pro-Vision as a framework for improving reading fluency and prosodic skill development it was essential that an adequate level of learner motivation was achieved. As Keller (2000, p. 2) states *"Every educator knows the challenge of stimulating and sustaining"* learner motivation. Many variables influence

34

motivation; some influenced by the educator, others by the environment. However it is important that educators should continuously consider motivational principles throughout. It was these principles in mind that Keller's (1987) ARCS Model of motivational design was utilised. The proposed model allows for a learning framework to be developed incorporating motivation at all times. The four elements of Attention, Relevance, Confidence and Satisfaction are visible and intertwined throughout this learning experience.

In relation to attention it was imperative that within the Pro-Vision framework clear attainable targets and objectives had to be foreseeable throughout. From the outset Keller (1987) underlines the value that challenging inquiry has in the success of a process, thus leading to the introduction and discussion of objectives. This was done through discussion, modelling and questioning.

3.3.4 Discussion of Principles

As Pro-Vision progresses through the stages and the participants become more accustomed to the process and what is expected and attainable by them less emphasis is placed on the discussion of the principles at play however at the beginning of the process a descriptive discussion is necessary in order to differentiate the prosodic skills at play evident throughout the process. Key elements to sentence structure such as tone and flow are discussed with samples and practice encouraged throughout. The importance of emotion within conversation and written text is explored and how this can be achieved by 'superimposing' prosody within the sentence structure (Schreiber, 1991). Prosodic skills such as stress, intonation and duration are

discussed and continually complimented throughout using methods such as read aloud modelling exercises by the teacher and video modelling playback.

3.3.5 Modelling

In order for the participants to clearly understand the objectives outlined and to further build upon the principles of reading fluency and prosodic skill awareness it is beneficial for a degree of modelling and reflective discussion to occur. Within this stage of the process it was decided that the teacher would model the reading of various texts for the learners using some seen and unseen texts and dialogues. As the process evolves the participants are afforded the opportunity to assess some examples of other group's works and videos from YouTube that have clear prosodic skills on display e.g. RTE News Now.

Figure 3. Modelling in Action

3.3.6 Introduction of Technology

As Phase One develops it is a natural progression to introduce the technologies and methods which will be used to facilitate the learning experience; Pro-Vision. Familiarisation with the new technology and media elicits perceptual arousal amongst the cohort of learners as new and novel teaching and learning tools are introduced. The introduction of technology that the participants were accustomed to and had prior user familiarity with were chosen as having previous experience with technology can limit the perceptual arousal and novel tendencies of the participants leading to more accurate findings in the research results.

3.4   Phase 2

Phase 2. Actions	Influence on reading fluency & learning experience	Underpinning influences
Development of Texts	Relevance of text explored to relate to real life	Small (1997)
Practice and playback	Confidence, exploration of prosodic skills such as pitch, stress and duration	Greenburg & Zanetis (2012)
Creation of Videos	Attention, Engagement with the material	Greenburg & Zanetis (2012)

Figure 4. Phase Two of the Design

3.4.2 Development of texts

Small (1997) stresses the importance of variability in retaining the attention of the learners throughout and how an array of different methods, media and practices can maintain motivation. In order to develop the prosodic skills of twelve year old participants effectively it was important to use a variety of texts and situations. As stated in the literature review attitudinal aspects along with grammatical patterns influence how people perceive

intonation. It was therefore decided that a varying amount of texts should be used throughout Pro-Vision. Texts both familiar and unfamiliar to the participant were chosen along with the opportunity afforded for the learners themselves to formulate their own scripts and texts. With a constant variety in the texts being used many theories supporting the successful administration of Pro-Vision were achieved. It allowed the participants explore a wide range of emotion, intonation, stress, pitch and duration throughout the experience.

Affording the participants the ability to construct their own texts at intervals throughout the process builds upon the constructivist learning theory which was considered throughout.

3.4.3   Practice and Playback

In order for the participants to actively engage in the activity and to maintain their levels of motivation and curiosity it is important that the quality of video which is created is satisfactory to the creator (Greenburg & Zanetis, 2012). The design process considered these implications and a level of care is allowed for the participants to practice and carefully plan their delivery of the content before the video is constructed.

This design time that the participants are afforded allows for many skills and strategies to be explored such as pitch, stress and duration. Also the possibility of the learners being apprehensive of recording themselves undertaking the work in front of others and an unwillingness to participate was also considered relevant and the participants being allowed to practice privately accompanied with reinforcement and encouragement from the teacher is used as a measure to counteract this possibility and to further instil confidence in the learner.

The constructivist theory of allowing the participants scope to independently plan and decide on how objectives will be achieved is also fostered here. The personal responsibility of each students work cannot be underestimated. The abilities and capabilities of learners are all uniquely different. It is important that throughout the implementation of the research that each student is individually catered for and analysed to his own ability. Constant acknowledgement of progression and appraisal of behaviour allow the learner to feel a sense of achievement which influences both confidence and motivation (Small, 1997).
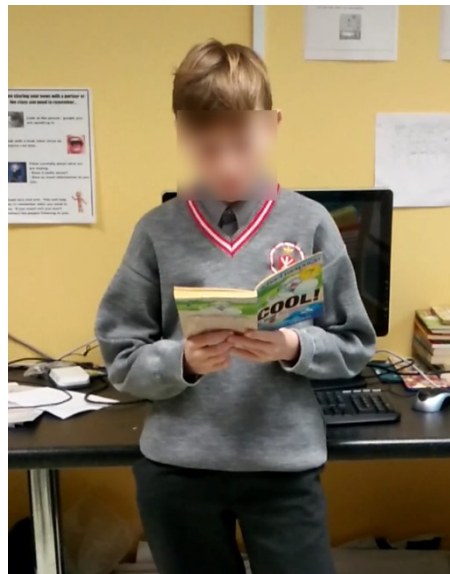

Figure 5. Still frame from Pro-Vision Day 2.

3.4.4 Construction of video

Building upon the constructivist learning theory which has had an influence throughout the design process for Pro-Vision it was important that careful planning and consideration was afforded as to how best provide the most effective scaffolding for the participants. As the literature review indicates many occasions when technology is introduced to a learning

environment it is not utilised to its utmost. Many factors affect this and whilst designing Pro-Vision both the instructor and the researcher did not want to influence the participants too sternly however a balance was required to facilitate the needs of the individual learners. Pro-Vision benefitted here as both the researcher and the teacher have extensive knowledge and experience with the cohort of participants.

Whilst engaging in the construction of video the participants are building upon their reading fluency and prosodic skill development by putting the aforementioned preparation into practice.

3.5 Phase 3

Phase 3. Actions	Influence on reading fluency & learning experience	Underpinning influences
Upload of Content	Development of technology skills, self motivation, satisfaction	
Review and assessment of content	Satisfaction, Skill development, Knowledge Transfer and Memory, Interactivity with Content	Greenburg & Zanetis (2012), Reed & Koliba (2003)
Continuous Feedback	Confidence, Satisfaction	Kellers' ARCS of Motivation (1987)

Figure 6. Phase Three of the Design

3.5.2 Upload of Content

Throughout the Pro-Vision experience videos are uploaded to a laptop by the participants displaying the reading fluency and prosodic skill development. Each group of participants are instructed in how to use the technology and the benefit of uploading to a web hosting site such as YouTube is discussed for future studies.

3.5.3 Review and Assessment of Content

Figure 7. Review & Assessment of Content

Imperative to the research, and also the success of Pro-Vision as an effective framework for the development of reading fluency, is the cognitive development of the learner through interactivity with the content (Greenburg & Zanetis, 2012). The participants are continually afforded opportunities throughout the study to review and reflect on the work that they have done. The participants along with the researcher discuss the various skills and strategies being developed and assess the development of each participants continuous work by means of a rubric and through informal questioning and discussion. The ability to assess one's own work cannot be overlooked and this stage is imperative for the justification and success of the study.

3.5.4 Continuous Feedback

Small (1997) indicates how extrinsic rewards provide positive reinforcement and motivational feedback. The continual performance in participation and the successful engagement with the lessons were promoted and rewarded through the class reward system. Although extrinsic motivation is important and essential to overall satisfaction it is imperative that a balance

is found which fosters intrinsic motivation evenly. With this in mind both long and short term objectives and achievements were appraised and rewarded concisely.

Small (1997) also builds upon the importance of equity within satisfaction. The maintenance of consistent standards and consequential rewards for success is a fundamental factor in maintaining motivation throughout any lesson and for the success of future lessons. Throughout the process the learners were afforded opportunities to practice and develop their reading fluency skills followed by immediate informative feedback from the instructor, Keller (1987) outlines this as an important confidence building tool which benefits both the learner and the instructor. The lessons were designed and structured to allow incidence for appraisal. Review and reinforcement of course content was built into lessons so that the participants could constantly assess improvements in prosody and intonation.

3.6 Participation

The participants were twelve sixth class primary school students. The twelve pupils were divided into two groups of six. They ranged from 11 to 13 years old and were all male. The average age of the group was 11.8 years. The participants were taken from the class of the researcher and were chosen due to the readily availability of the sample . Data was collected on regular school days.

3.7 Ethics

Due to the research involving school children under the age of eighteen a number of Ethics permission papers were required. This was applied for and

granted by the ethics committee of the School for Computer Science at Trinity College, Dublin. As participants were under eighteen, this required parental and participant written consent. Parents and participants were given an information sheet informing them of the research. (Appendix 6.3.1, 6.3.2). Permission was requested and obtained from the Board of Management to carry out the research. (Appendix 6.3.3).

3.8 Summary

The ever advancement in technology has allowed for instant construction and consumption of video media in a very cost effective manner. However in order to facilitate for effective exploitation of such benefits it is important that an adequate framework is designed. The literature review has indicated that the use of video as an effective tool to support the development of reading fluency with an emphasis on prosodic skill development is possible and through the creation of the Pro-Vision framework a suitable design has been created to explore this possibility.

Section 4 *Implementation & Research Methodology*

4.1   Introduction

This chapter addresses the research question and sub questions which this study depends.

Research Question: *Read, Record, Review; How does the creation and review of video media influence the development of Reading Fluency, particularly the advancement of prosody skills?*

Sub-Questions to be considered:

Is it possible for the proposed framework to be suitably adopted in a regular school environment?

4.2   Case Study

The decision to develop this research project as a case study was not taken lightly and many elements were considered before it was deemed the most suitable avenue for examining the development of prosodic skill and its enhancement through video media.

The distinct advantages of using a case study in comparison to other forms of data collection includes identifying existing and previously omitted variables while also analysing intervening variables individually and making inferences on which mechanisms may have affected the work undertaken (Sprinz & Wolinsky, 2007). The ability to create new hypothesis through deduction and induction was an important factor in deciding upon a case study as the medium which the research would take place (Sprinz & Wolinsky,

2007). This is most important in a primary school setting where many variables can be influential and intrusive to work being undertaken.
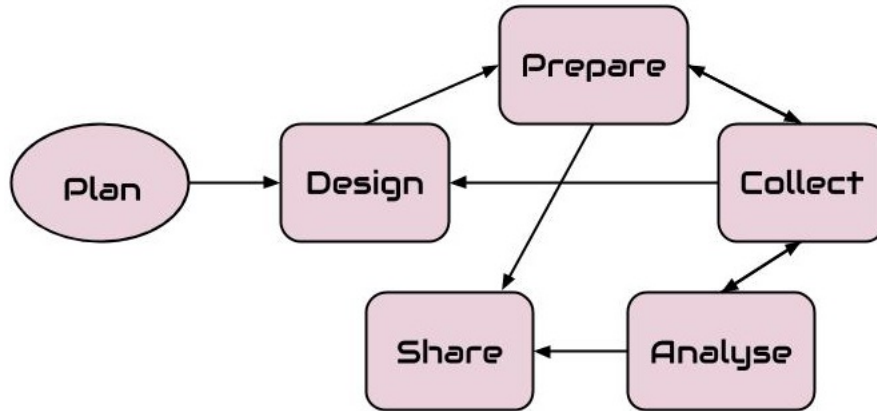

Figure 8. Case Study Diagram (Yin, 2014)

This study however did not solely concentrate on the case study as a form of collating data; conducting the research with another teacher and administering the DIBELS test deters researcher bias interfering with the results.

4.3 Implementation of the Learning Experience

Pro-Vision was conducted at a boys national school in Dublin 5. All the participants undertook regular English lessons of 30-40 minute duration. As the lessons were structured school work, the participants did not feel any greater sense of responsibility or pressure to succeed during the process of the research. This eliminates some possibilities to distorted results.

Pro-Vision enhances the prosody skills and reading fluency of a group of sixth class learners over the course of a 4 week period. It was decided upon to use tablets and laptop computers to create, edit and upload the video media created. The thought process to this was that the learners would have little problems in instantly adapting the technology to their needs as they are quite

proficient with these technologies already. This also minimises the novelty factor of the research which allows for a more accurate understanding of the benefits of using video technology in improving prosodic skills.

Using an application that is both intuitive and native to the end user allows for a quick and meaningful immersion to the desired work being undertaken. Imperative to the success of using video technology in a sixth class reading fluency development class is using technology that is both innovative and advanced whilst also having a low level of difficulty in acquiring the relevant skills. This is something that the use of Tablets achieves magnificently. Android tablets adequately support a learner centric model allowing the learner to create and construct their own content.

The purpose of designing this learning structure was not entirely for the use of research, in order for it to be worthwhile it was decided that unless it was attainable within the confines of a regular classroom and school environment, drawing upon the tools and technology available it would not be as beneficial to examine as a possible framework for teaching the improvement of reading fluency. This influenced the structure of the learning experience itself and also the tools which were used.

The learners within the constructivist learning structure were exposed to a new learning environment where they were broken up into groups according to ability. This was done by the class teacher by means of prior knowledge and examination of standardised tests such as the Drumcondra reading test which the students have been exposed to on a yearly basis. It was also considered where to place students that would work best together and thrive.

The learning support teacher took the learners in small groups of six to work together in the learning support room. Each group were initially taught a number of lessons using text and literature they have seen before from a library of text. They observed each other reading and discussed various topics such as emotion, intonation, prosody, prediction, question asking, prior knowledge etc.

The learners also analysed each others' readings and were encouraged to comment on a positive element of each others' reading ability and a point they think which could be improved or worked upon. This allowed both the participants, the learning support teacher and the researcher have a baseline understanding of where the learners abilities and capabilities are and how they will be worked upon throughout the process of the learning framework to which they will improve.

Each lesson in which Pro-Vision was administered concentrated on new development of prosodic skill development and also analysed and reflected on work previously undertaken. The researcher and the teacher implementing Provision used a rubric which to score the participants on various skills such as duration, pitch and stress. This was done on a lesson by lesson basis. The participants were also given a template for which to assess their own work and monitor their own progression.

As Pro-Vision developed a lot of informal questioning and discussion was continuously occurring which was of great benefit to the researcher.

4.4 Researcher Bias

As the researcher currently teaches the participants of this research project and due to the nature of this relationship there is a conflict of interest.

This previous knowledge of the strengths and weaknesses of the participants can unknowingly lead to research bias where information is prejudged due to preconceived ideas. Researcher bias is a distinct possible disadvantage to a case study as it can lead to more complications in assessing research than that of more statistical studies (Sprinz, 2004). In an attempt to counteract this conducting the research with another teacher and administering the DIBELS test deters researcher bias interfering with the results. It was also stressed continually that fair and unbiased work is encouraged by all participants throughout and that their work was neither deemed correct nor incorrect.

4.5 Data Collection

Data was collected using a mixed approach where both qualitative and quantitative research approaches were undertaken. Sources of data were the Dynamic Indicators of Basic Early Literacy skills (DIBELS) oral reading fluency test, an inference rubric, informal questioning and general observation. These methods were chosen for their potential to indicate changes in various skill sets associated with reading fluency and also due to their suitability to the age of the participants. General observation and informal interviewing were chosen as a suitable method for obtaining more qualitative data.

Tools used for the collection of data include:
4.5.2 Dibels - Dynamic Indicators of Basic Early Literacy skills

Dibels oral reading fluency test is a standardised reading fluency test designed by the University of Oregan for early Kindergarten right through to Sixth Grade learners. These are quick one minute fluency measurement tests

designed to be regularly administered to analyse the development of early literacy and reading skills.

The oral reading fluency (ORF) test is used to analyse a student's fluency skills along with alphabetic principles, phonics and comprehension. Using the Retell fluency (RTF) aspect of the test allows the researcher identify where a readers comprehension of a text is not comparable to their level of fluency. This element allows the researcher identify the lack of prosodic skills on display by a learner as comprehension of the text is noticeably lacking.

A pre and post test of all the learners was administered to assess potential gains in both fluency and retell ability of the students. This form of quantitative data collection was instrumental in assessing the merits of Pro-Vision.

Figure 9. Pre-Test Oral Language Fluency Test

4.5.3 Rubric & Observation

Due to the researcher's familiarity with the participants and with a deep understanding of their general behaviour, motivation and ability to participate, the researcher can use observation much more accurately to those

who have not formed such impressions. However as the researcher has an in-depth knowledge in relation to the participants it is important that no bias affects results. Therefore the tutor delivering the course together with the researcher used a rubric formulated together to score the participants work as they progress through Pro-Vision. This quantitative unit of measurement is imperative to assess the development of prosody skills throughout and in conjunction with the Dibel's test allows the researcher assess the data more statistically than through simple observation.

The rubric was designed considering many important variables associated with both reading fluency and prosodic skills. The duration, pitch, stress, accuracy and phrasing of students reading were scored on a three point system ranging from 1 to 3. We categorised these points as: *'Needs to read more often', 'Good'* and *'Excellent'.* The rubric was designed using an Oral reading fluency rubric from rcampus.com as a guide.

Category	Needs to read more often +1pt	Good +2pts	Excellent +3pts
Duration	Reads slower than normal speech. Too many pauses.	Reads text either too quickly or with uncomfortable pauses. Many words are sounded out.	Reads text with smooth, conversational, comfortable rate.
Pitch	Reads at an extremely loud or very soft level. The audience is unable to hear most of the text.	Volume is appropriate throughout text and one can hear the text being read.	Adjusts volume throughout text for effect. Includes both soft and loud depending on the text.
Stress	Reads with a monotone voice. Little evidence of attention to punctuation. Doesn't read with much expression.	Pays attention to punctuation. Tone of voice is consistent throughout text.	Pays close attention to punctuation, including commas. Varies voice or pitch to match text.
Accuracy	Numerous errors evident or asks for help. Errors are not self-corrected.	Makes some errors that do not affect meaning . Other errors are few. Some miscues are self-corrected.	Makes zero errors. All miscues are self-corrected.
Phrasing	No evidence of phrasing. Reads word-by-word or	Reads in 2-3 word phrases.	Reads longer phrases smoothly. Varies the

	sounds out the majority of words.		length of phrases appropriately for impact.

Figure 10. Rubric Template

4.5.4 Informal questioning; Analysis of video

Throughout the Pro-Vision experience the researcher, administrator and participants undertook continuous informal discussion and questioning which led to the collation of qualitative data which was very important in analysing the success of Pro-Vision as both a research project and learning experience. As the discussions were administered in an environment with which the participants felt at ease and in a manner which they did not feel pressurised into answering in a particular way, a clear indication of whether the research project was successful in improving prosodic skill can be developed.

Before undertaking the research project open ended questions, statements which could encourage conversational discussion and questions which could entice exploration of further possibilities were constructed so the investigation could have a structure which allowed discussion to flourish however these were very broad as to not interfere with the informal aspect of the procedure.

4.6 Data Analysis Report

Quantitative Measurement

Both the pre and post DIBELS ORF and RTF Test results were analysed, recorded and compared. The scores for the Rubric were also assessed and recorded. Both individual and average scores across all of the tests along with a breakdown of scores in each particular subsection were acquired. This

allowed for an analysis of both fluency and prosodic skill development along with careful analysis of individual skill advancement.

Figure 11. Retell Fluency Test

Qualitative Analysis

Through observation, informal questioning and note taking a huge array of qualitative data analysis was undertaken. The note taking of the observation took place both at the time and retrospectively. This was done through the taking of photographs, short video analysis and quick note taking. Assessment and reviewing of the video clips by the participants allowed for further observation to occur retrospectively of the initial undertaking.

4.7 Summary

Pro-Vision is concerned with assessing whether the use of Video technology is beneficial in developing the prosodic skills of a primary school student. Through the administration of a case study it is the objective of this research to answer the aforementioned research questions and sub questions and also justify the findings through both quantitative and qualitative

measurements. The DIBELS ORF and RTF test in conjunction with the Rubric and general observation undertaken the reading fluency development of sixth class pupils can be accurately analysed. The following chapter details the findings of the research methodology presented.

Section 5 *Findings and Discussion*

5.1 Introduction

The following chapter accurately and comprehensively analyses and comprehends the data which has been collected. Its' aim is to assess and review the research question; *Reading, Recording, Reviewing; Does the creation and review of video media influence the development of Reading Fluency, particularly the advancement of prosody skills?*

Through the collation of both quantitative data: the administration of pre and post DIBELS ORF and RTF test, along with the use of Rubric, and also in conjunction with qualitative data: observation and informal discussion, a clear and concise formulated answer to both the research question and sub questions is presented within the following chapter.

Thoroughly discussed and explored throughout this chapter is the data collected, both quantitative and qualitative. The quantitative data is presented through charts and tables with these findings and results discussed and analysed in the proceeding paragraphs. The qualitative data is presented in sub-heading paragraphs which are directly linked to the research question.

5.2   Quantitative Data Analysis

5.2.2 DIBELS Oral Reading Fluency (Pre & Post) Test

The DIBELS Oral fluency test was administered individually to both groups of participants a couple of days before the commencement of Pro-Vision. These tests were administered with equal measure to all participants. The test used was the *'Dynamic Indicators of Basic Early Literacy Skills 6th Edition'*. The number of words successfully read without error within one minute ranged from 137 to 157 with a median score of 145 .

In contrast when the test was administered post Pro-Vision the range of words read per minute was less at a range of 142 to 156 with a median score of 149. There doesn't seem to be a huge shift in reading fluency rates per minute however there is a noticeable trend in that the participants who scored lower seemed to raise their fluency ability per minute whilst the participants who scored at higher marks in the pre test there was a general plateau or slight decrease.
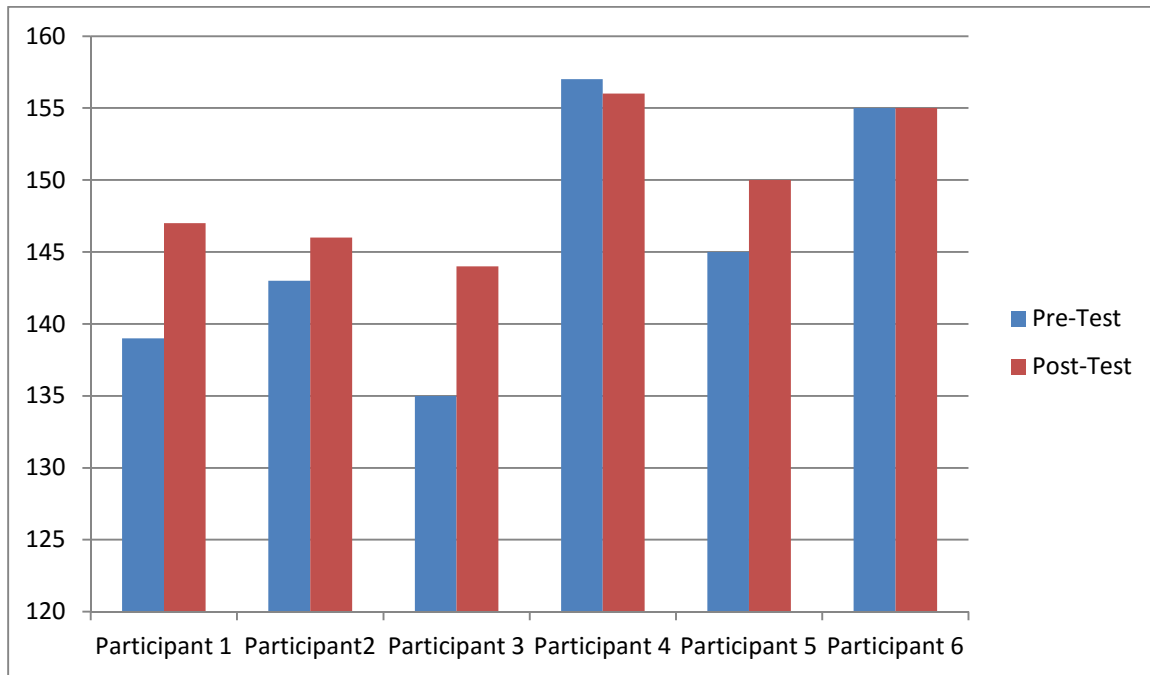

Figure 12. Group One DIBELS Oral Reading Fluency Pre & Post Test Results
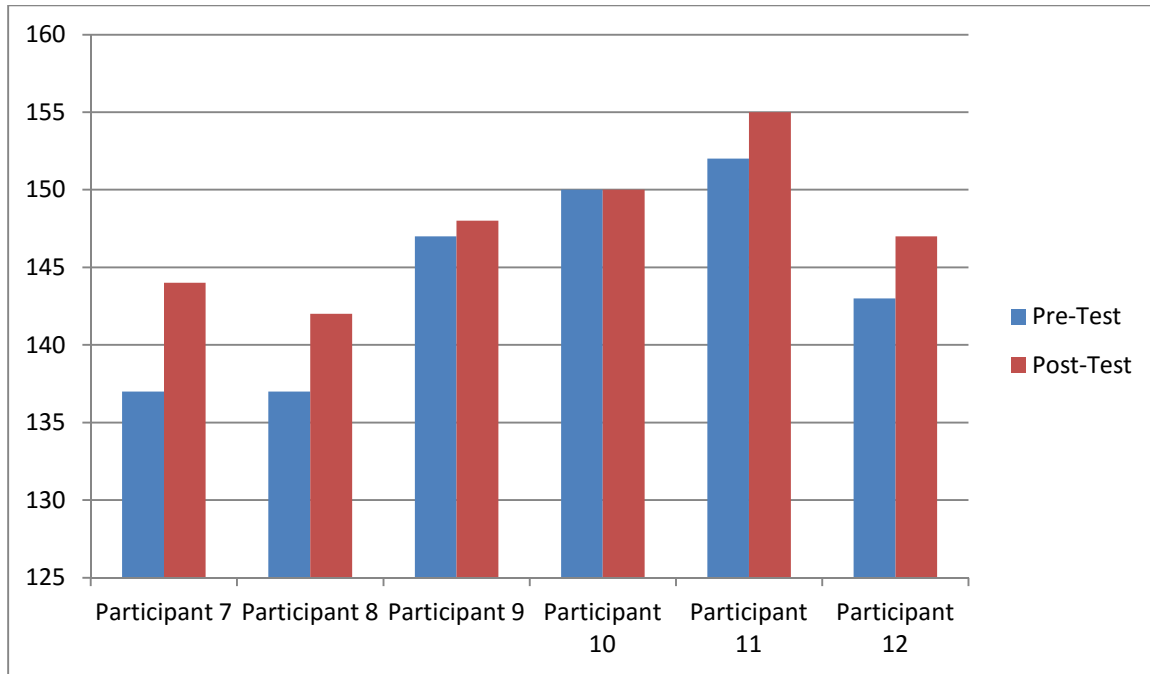
Figure 13. Group Two DIBELS Oral Reading Fluency Pre & Post Test Results

5.2.3 DIBELS Retell Fluency (Pre & Post) Test

In conjunction with the oral reading fluency test the participants undertook a retell fluency (RTF) assessment within the DIBELS test. This test explores the comprehension capabilities of a simple reading exercise. Although the oral reading test indicated how capable the participants were at basic reading fluency skill it did not illustrate their comprehension or understanding of the text. As the literature review states reading fluency can quite often be masked as achieved by the overreliance on particular factors. Through the implementation of Pro-Vision there has been a small increase in retell fluency of seven of the twelve participants, four participants indicated no change whilst one participant decreased in score.
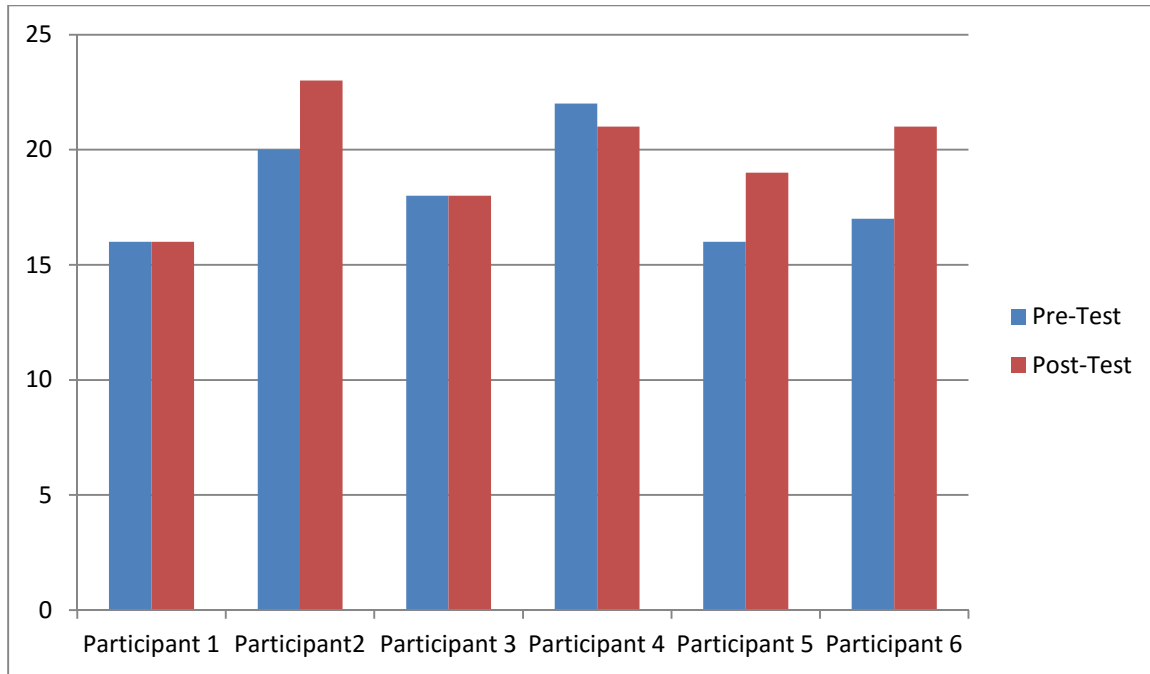
Figure 14. Group One DIBELS Retell Fluency Pre & Post Test Results
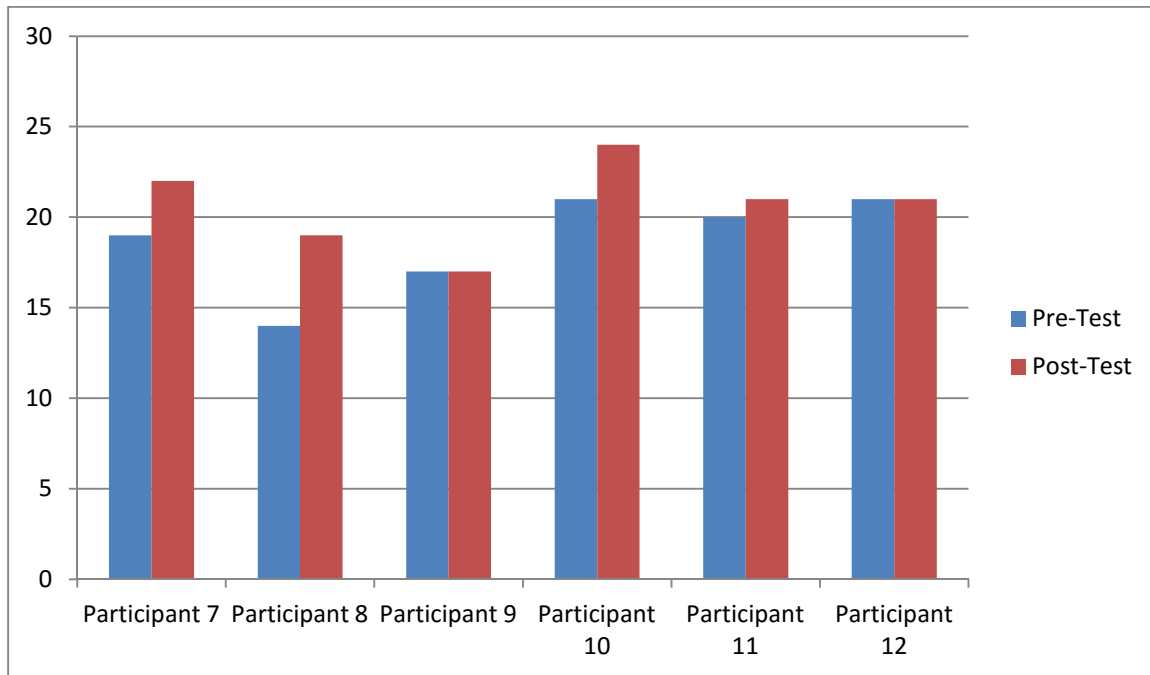
Figure 15. Group Two DIBELS Retell Fluency Pre & Post Test Results

5.2.4 Analysis of Rubric Results

The results of the rubric allowed us to evaluate the participants as Pro-Vision progressed. The participants were scored on a daily basis collectively by the teacher and the researcher. Each participants' score was weighted by the video created and reading witnessed throughout the lesson. The following table illustrates the development of each participant throughout Pro-Vision.

Patricipant No:	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Median Score
1	10	11	12	12	12	12	12	13	12	12	11.8
2	10	10	13	12	13	12	12	10	11	11	11.4
3	11	9	10	11	11	11	12	11	12	11	10.9
4	11	12	10	10	11	10	11	12	12	13	11.2
5	10	10	11	10	12	12	11	11	11	12	11
6	10	8	10	11	10	11	11	13	12	12	10.8
7	11	14	12	12	13	12	11	10	11	13	10.8
8	10	11	12	11	12	11	11	11	12	12	11.9
9	12	10	11	11	11	11	12	13	12	12	11.5
10	12	12	12	11	12	13	12	11	13	12	12
11	11	10	11	10	11	11	11	12	12	13	11.2
12	10	9	10	11	10	11	10	11	11	11	10.4
Median Score:	10.67	10.5	11.17	11	11.5	11.42	11.33	11.5	11.75	12	

Figure 16. Participant's Rubric Results

5.3   Qualitative Data Analysis

Observation - Throughout the Pro-Vision experience informal questioning and observation was paramount in analysing the overall conjecture of the research project.

5.3.2 Attention and Engagement

The initial novelty factor of working with tablet computers in a new educational venture quickly subsided however the levels of attentiveness and

engagement in the Pro-Vision project rarely waned. With the aid of informal questioning it quickly became apparent that the quality of the work produced became more important to the participant with the knowledge that it could be later reviewed through video analysis.

The research group of participants were continually striving to help each other and used the opportunity of reflection and review to indicate to each other and themselves how they may improve their reading fluency concentrating particularly on the skills identified such as stress, intonation and duration.

It was clearly evident throughout the research that the participants were enjoying their involvement with the Pro-Vision framework. Regularly throughout the day or on days that Pro-Vision was not been administered there were constant questions arising such as *"Can we look at our recordings?"* or *"Is it time to do Pro-Vision again?"*

There were occasions of discontent also. At the beginning of the experience it was difficult to maintain attention to task as the new academic programme being undertaken caused some disruption to routine. Any new task invariably leads to some disruption and had been expected.

Some of the participants seemed to perform better in their practice with the material rather than the actual video performance. This had no effect on overall development of the prosodic skills or reading fluency of the participants and it is the belief of both the facilitating teacher and the researcher that with more immersion in the usage of video technology this occurrence would diminish. It was also noted that incorporating Kellers' ARCS model of motivation generated and maintained a high level of motivation between all participants throughout.

5.4   Indication of Findings

Although limited, the findings suggest an opportunity exists indicating that introducing video technology as a tool in the enhancement of reading fluency through prosodic skill development. The quantitative data collected and analysed showed a slight progression as the median score of each participant rose from a score of 10.6 to 12 in the assessment rubric. The overall reading fluency of the participants also rose as the median score improved from 145 words per minute to 149 words per minute. This is closer to the desired score of 150 words per minute which the Dibels (2005) literature indicate is the expected target for a learner in sixth class.

The steady rise in scores attained in the rubric indicates a distinct learning curve. This is due to many factors including the familiarity with the objectives desired, coupled with a more comfortable approach to using the technology. In order for a more accurate understanding of the effect video technology has on the enhancement on reading fluency a more detailed and concise research is required however Pro-Vision clearly indicates that using video technology is a beneficial approach.

The following table indicates how each participant's scoring trend compared in the different forms of quantitative data collected. Interestingly four of the participants indicated an improvement in all categories whilst only four participants indicated a decrease in any of their scores. In fact only five instances of a negative trend are evident throughout the whole process whilst there are twenty four instances of a positive upward trend in scoring. This indicates that the learning experience was of benefit to the development of reading fluency of the participants.

	Oral Reading Fluency Test	Retell Fluency Test	Rubric Results*
Participant 1.	Improvement	No Change	Improvement
Participant 2.	Improvement	Improvement	Improvement
Participant 3.	Improvement	No Change	Decrease
Participant 4.	Decrease	Decrease	Improvement
Participant 5.	Improvement	Improvement	Improvement
Participant 6.	No Change	Improvement	Improvement
Participant 7.	Improvement	Improvement	Decrease
Participant 8.	Improvement	Improvement	Improvement
Participant 9.	Improvement	No Change	Decrease
Participant 10.	No Change	Improvement	No Change
Participant 11.	Improvement	Improvement	Improvement
Participant 12.	Improvement	No Change	Improvement

*denotes a comparison of median score to Day 1 score

Figure 17. Trend Table indicating the progression of each participant.

As Pro-Vision progressed through the stages, the opportunity for the participants to assess and reflect on the work which they had done proved invaluable. This obviously would not have been possible without the video recordings. Much constructive self and peer assessment took place leading to excellent academic discussion. Reflection is a process so critical that there is no more advanced development for learners without it. (Reed & Koliba, 2003). Joy Amulya (2011, p. 1) states that reflection is "*an active process of witnessing one's own experience in order to take a closer look at it".* Video technology allows for this instantaneous analysis and critique of one's own work both as a reward and process of learning.

Through the extensive observation that took place by both the researcher and the instructor there was a clear indication that the Pro-Vision framework was thoroughly enjoyable and was undertaken with great motivation and diligence. The initial use of video technology enticed and peaked the interests of the participants and in adopting Kellers (1987) ARCS

framework of motivation, a solid classroom based learning experience was created.

5.5   Limitations of the Study

Pro-Vision took place over a period of 4 weeks with less than ten contact hours with the participants. In relation to assessing reading fluency a longer timeframe may have been more effective in analysing specific results in the progression of reading fluency skills, in particular prosody. Another limitation was the somewhat small sample size however with the nature of the study undertaken a satisfactory sample and timeframe was utilised. The gender of the participants may have an effect on results as it was solely undertaken by a male cohort.

Although not intentional or since reflected upon, there is a possibility that the scores of the rubric improved due to the expectations of the two teachers involved in the research. As they became more comfortable with recording scores and as the participants became more aware of the routine of the lessons there is scope to possibly critically analyse the scoring of each participant.

The conflict of interest, with the researcher being the class teacher, is another element which should be considered in relation to the limitations of the study. The review element to the Pro-Vision experience had originally been envisaged to make use of web 2.0 tools such as YouTube to allow a more fluent and independent capability for the participants to review and assess their own work privately however ethical approval and time constraints led the research to using a laptop to store and review the video content.

Section 6 *Conclusion, References & Appendix*

6.1 Conclusion

The easiest procedure to include technology in education may not be beneficial or worthwhile. It is imperative that great care is taken to both teaching and learning principles when incorporating technology in an educational environment. To embrace and adopt new technologies without careful planning is a Pavlovian response which needs to be eradicated from teaching strategies.

Whilst the use of video technology within primary education is not in itself unusual, it is often only used as a supplementary tool to learning with lack of distinct paramount relevance. Often educators over rely on wanting to include technology into a lesson rather than integrating it into the learning objectives of the lesson. The literature review has illustrated how video technology can be integrated into primary education. Furthering on from that the research project, Pro-Vision, has proven that adopting video technology as a learning aid in improving reading fluency can be very beneficial.

Disjointed and uneven reading flow can cause major comprehension problems relating to pitch, tone and meaning of a piece of text (Rasinski, 2009). Prosody is an element of reading fluency which requires further exploration and concentration. Educators are often faced with tackling basic reading fluency skills with older learners and often concentrate solely on automaticity and pronunciation of words rather than clear comprehension of the text. Prosodic skill development can improve the overall reading fluency and comprehension awareness of any reader.

With the advent of any new teaching practices, incorporating technology or not, there may be an initial adaptation period which creates a period where extrinsic factors such as novelty affect learning outcome however this study allows for such circumstances. By using a technology that the participants were previously accustomed to limits the effect on the findings of this the study.

Pro-Vision highlighted an area of both the teaching and learning of reading fluency that can be enriched and developed to create a framework beneficial to both the learner, teacher and academic environment. The use of technology to create and construct videos compliment Skouge et al's (2007) theory that learners benefit from self modeling and watching themselves engage in adaptive behavior. This ownership of the learning experience is beneficial in maintaining motivation and by incorporating Keller's ARCS of motivation a firm structured learning experience was created.

The design and implementation of Pro-Vision complimented the principles and influences underpinned within the literature review. This was reflective in the overall success of Pro-Vision as a seamless learning exercise in an academic setting thus illustrating Schwanenflugel et al's (2006) idea of a simple primary school framework.

The results indicate a level of success for Pro-Vision in a quantitative measure however it must be noted that, although gains were made, most improvements were minor and further research would be required to their merit. However what cannot be over looked is the creative and passionate approach undertaken by the participants in the application and improvement of reading fluency skills thus indicating the rightful place of video technology assisted learning frameworks utilised for the improvement of prosodic skill.

6.2   References

Amulya, J. (2011). *What is Reflective Practise?* Gaithersburg, MD.

Bolger, J. (2014). *Video Self-modelling and its impact on the development of communication skills within social work education.* Journal of Social Work, Vol. 14 No.2., Aberdeen

Bruce, D.L., & Ming Ming, C. (2015). *Composing With New Technology: Teacher Reflections on Learning Digital Video.* Journal of Teacher Education, Vol. 66 No. 3.,

Chen, C., Wang, L. & Xu, L. (2014). *A Study of Video Effects on English Listening Comprehension.* Studies in Literature and Language, CSCanada, Vol.8 No.2, p53-58

Curriculum Online. (1999) Retrieved on 13th of October 2015 from: www.curriculumonline.ie

Dalton, C., & Seidlhofer, B. (1994). *Pronunciation; Language Teaching: A Scheme for Teacher Education.* Oxford University Press.

DIBELS. (2005). *Dynamic Indicators of Basic Early Literacy skills. 6th edition.* Retrieved February 20th, 2016 from the website: http://www.dibels.uoregon.edu

Good, R. H., & Kaminski, R. A. (Eds.) (2007). *Dynamic Indicators of Basic Early Literacy Skills* (6th ed.). Eugene

Greenburg, A. & Zanetis, J. (2012). *The Impact of Broadcast and Streaming Video in Education.* Published by Cisco Systems

Groff, J. & Mouza, C. (2008). *A Framework for Addressing Challenges to Classroom Technology Use.* Association for the advancement of Computing in Education Journal, Vol. 16 No.1, p.21-46

Hoven, D. (1999). *A Model for Listening and Viewing Comprehension in Multimedia Environments.* University of Queensland Language Learning & Technology, Vol.3, No.1, 88-103

Hitchcock, C. H., Prater, M. A., & Dowrick, P. W. (2004). Reading comprehension and fluency: Examining the effects of tutoring and video self-modeling on first-grade students with reading difficulties. Learning Disability Quarterly, 27(2), 89–103

Kafai, Y. & Resnick, M. (2011). *Constructionism in Practice*. New York: Routledge, Taylor & Francis Group.

Keller, J. M. (1987). *Development and use of the ARCS model of motivational design*. Journal of Instructional Development, 10(3), 2 – 10.

Keller, J. M. (2000). *How to Integrate Learner Motivation planning into Lesson Planning: The ARCS model Approach.* Florida State University.

Keller, J.M., & Suzuki, K. (2004). *Learner motivation and E-learning design: A multi-nationally validated process,* Journal of Educational Media, 29:3, 229-239, DOI: 10.1080/1358165042000283084

Keitel, A., Prinz, W., Friederici, A.D., von Hofsten, C. & Daum, M.M. (2013). *Perceptions of Conversations: The Importance of Semantics and Intonation in children's development.* The Journal of Experimental Child Psychology, Vol.116.

Kuhn, M. (2004). *Helping students become accurate expressive readers: Fluency instruction for small groups.* The Reading Teacher, 58, 338–344.

LaBerge, D., & Samuels, S. A. (1974). *Toward a theory of automatic information processing in reading.* Cognitive Psychology

Lawless, K.A. & Pellegrino, J.W. (2007). *Professional development in Integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers.* Review of Educational Research

Matthews, K. (1997). *A Comparison of the Influence of Interactive CD-ROM storybooks and Traditional Print Storybooks on Reading Comprehension.* Journal of Research on Computing in Education. Vol.29 No.3

Morrow, L. M., & Asbury, E. (2003). *Current practices in early literacy development.* Best practices in literacy instruction (2nd ed., pp. 43–63). Guilford, New York

Mullen, R. & Wedwick, L. (2010). *Avoiding the Digital Abyss: Getting Started in the Classroom with YouTube, Digital Stories, and Blogs.* The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 82:2, 66-69.

Niess, M.L. (2005).*Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge.* Teaching and Teacher Education, Volume 21, Issue 5, July 2005, Pages 509–523

Oakley, G. (2005). *Reading Fluency as an Outcome of a Repertoire of Interactive Reading Competencies: How to Teach it to Different Types of Dysfunctional Readers (And how ICT can help).* Edith Cowen University, Perth

Papert, S., & Harel, I. (1991). *Situating Constructionism.* Ablex Publishing Corporation.

Rasinski, T., Rikli, A. & Johnston, S. (2009). *Reading Fluency: More than Automaticity? More Than a Concern for the Primary Grades?, Literas.cy Research and Instruction.* Association of Literacy Educators and Researchers

Reed, J. & Koliba, C. (2003). *Facilitating Reflection: A Manual for Leaders and Educators.* The University of Vermont.

Ruskin, J. (1880). *Elements of English Prosody.* Hazel, Watson & Viney printers, London.

Schreiber, P. (1991). *Understanding Prosody's Role in Reading Acquisition.* Theory into Practice, Vol 30., No. 3, Taylor & Francis Ltd

Schwanenflugel, P. J., Meisinger, E. B., Wisenbaker, J. M., Kuhn, M. R., Strauss, G. P., & Morris, R. D. (2006). *Becoming a fluent and automatic reader in the early elementary school years.* Reading Research Quarterly. p497

Sherrin, M. & van Es, E.A. (2002). *Using Video to Support Teachers' Ability to Interpret Classroom Interactions.* retrieved on the 22/10/15 from http://www.aace.org/conf/site/pt3/paper_3008_1031.pdf

Skouge, J., Rao, K. & Bosviert, C. (2007). *Promoting Early Literacy for Diverse Learners Using Audio and Video Technology.* Early Childhood Education Journal, Vol.35, No. 1, August 2007

Small, R. V. (1997). *Motivation in Instructional Design.* Eric Digest, Syracuse University, New York. EDO-IR-97-06

Sprinz, D. F. & Wolinsky-Nahmias, Y. (2007). *Models, Numbers, and Cases Methods for Studying International Relations.*

Wells, B., Peppé, S. & Goulandris, N. (2004). *Intonation development from five to thirteen.* Journal of Child Language Vol. 31. No.4.

Weir, T. & O'Connor, S. (2009). *The use of digital video in physical education, Technology, Pedagogy and Education,* 18:2, 155-171

Windschitl, M. (2002). *Framing Constructivism in Practice as the Negotiation of Dilemmas: An Analysis of the Conceptual, Pedagogical, Cultural, and Political Challenges Facing Teachers* Review of Educational Research Summer 2002, Vol. 72, No. 2, pp. 131–175. University of Washington.

Yin, R. K. (2014). *Case Study Research Design and Methods (5th Edition).* Sage Publications London

Zan Education (2015). *The Benefits of Using Educational Video in The Classroom.* retrieved on 06/11/15 from http://www.zaneeducation.com/educational-video/education-and-video.php

6.3 Appendix

6.3.1 Participants information sheet and consent form

Pro-Vision: Read, Record, Review; a Model to Enhance Reading Fluency

Child Information Sheet

What is happening?

Teachers are always researching improving methods of teaching to ensure that students are getting the best education.

In this study I want to find out how I can make learning reading fluency easier and more enjoyable for 6th class students. You will be asked about your experience of English reading, to complete worksheets and participate in activities based on improving your reading fluency.

The study will give me a chance to see how the use of video media can improve and enhance your understanding of certain reading skills using immediate visual feedback. It will allow you to actively experiment, document and share in ways that would not be possible without using technology such as tablet computers.

What will happen?

If you want to be part of this study, you will be required to take part in regular English reading lessons. You will also make use of video media to construct videos, documenting your experience with reading a piece of text concentrating on reading skills. There are no right or wrong answers, only what you feel is best. If you would like to say something about the activity, your voice might be recorded but others will not know who you are. This will all be done in school during your English lessons. You may also be asked questions and tested on the work you have done.

During the research experience, observation and questioning will take place and some sessions will be video recorded for further study. All data and video recordings will be

anonymised when transcribed. This particularly refers to personal details and surnames of the participants being withheld.

The study will take place over a four week period. It will occur during a timetabled English class between forty minutes and one hour. It is expected that ten English classes will be required to collect the data.

If you agree to participate, this information will be used in the research, stored at Trinity College and will be anonymous (all names will be removed so no one will know who said what). If the researchers find out about any illegal activities during the study they will have to tell the authorities.

Do my parents/guardians know about this project?

This study will also be explained to your parents/guardians. You should talk this over with them before you decide to take part.

Do I have to do the project?

If you don't want to take part in the study you do not have to. You can still take part in the activities but your information will not be recorded and will not be used in the research. There is no problem if you choose to take part now but change your mind later, just tell Mr. Minogue or the Principal Mr Moore.

During the research experience, observation and informal questioning will take place and some sessions will be video recorded for further observation, particularly of peer involvement. All data and video recordings will be anonymised when transcribed.

No video or audio recording will be made available to anyone other than the researcher and Trinity college staff nor will any such recordings be replayed in any public forum or presentation of the research.

All information and data recorded by this study will be submitted to Trinity College Dublin. This information may be published for future research and study. All personal information will be anonymised.

<u>Statement of Conflict of Interest:</u>

The researcher currently teaches the participants of this research project, due to the nature of this relationship there is a conflict of interest. The researcher is an ICT facilitator of the school in which this research is undertaken; this represents a conflict of interest.

Project

Pro-Vision: Read, Record, Review; a Model to Enhance Reading Fluency

Child Consent Form

I _____ agree to take part in this research project.

I have read, or had read to me, information about the project and know how information will be collected and stored. I understand that I can choose not to take part in the research at any time. Also, I know that my parents will be also given a consent form in order for me to take part in this study.

Data Protection: I agree to Trinity College, University of Dublin storing and using my information from this project.

DECLARATION:
- I am competent to provide consent.
- I have read, or had read to me, a document providing information about this research and this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
- I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.

- I understand that if I make illicit activities known, these will be reported to appropriate authorities.
- I understand that I may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).
- I understand that, subject to the constraints above, no recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.
- I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights.
- I understand that I may refuse to answer any question and that I may withdraw at any time without penalty.
- I understand that my participation is fully anonymous and that no personal details about me will be recorded.
- I have received a copy of this agreement

Signature of Participant:_____

Date: _____

Statement of investigator's responsibility: I have explained the nature and purpose of this research study, the procedures to be undertaken and any risks that may be involved. I have offered to answer any questions and fully answered such questions. I believe that the participant understands my explanation and has freely given informed consent.

Signature of Investigator (TCD): _____

Date: _____

If you have any questions before, during or after the project, please do not hesitate to contact Patrick Minogue at Trinity College**:
Email: minoguep@tcd.ie** or **Ph. 018487979.**

6.3.2 Parent/Guardian Information and Consent Form

Read, Record, Review

How the use of video playback enhances intonation and prosody skills thus improving reading fluency of a sixth class pupil

Parent/Guardian Information Sheet

Dear Parent/Guardian

Your son has the opportunity to take part in research conducted by Mr. Minogue, a student from MSc Technology and Learning in Trinity College Dublin. This research is a requirement for the fulfillment of a dissertation in completing an MSc in Technology and Learning.

This research aims to facilitate the improvement of reading fluency in a classroom setting. The study aims to see how video media enhances the prosody and intonation skills within a sixth class.

The learning experience consists of video research that has curriculum appropriate objectives (Reading Fluency improvement). The reading of text will be recorded using a video tool. The videos may contain your son's voice and facial expressions, however this will be anonymous and no reference to name will be used.

The participants will be divided evenly by the judgement of the teacher who has taught this class over the last school year.

The groups will be required to record each other during the teaching of reading fluency skills in the classroom via video media using tablet pc's. These exercises will be administered during regular English class. This research study has curriculum appropriate objectives.

During the research experience, observation and informal questioning will take place and some sessions will be video recorded for further observation, particularly of peer involvement. All data and video recordings will be anonymised when transcribed.

The study will take place over a four week period. It will occur during a timetabled English class between forty minutes and one hour. It is expected that ten English classes will be required to collect the data.

The video capture facility of the tablet helps you capture moments and edit them on-the-go. The videos created by the participants will be solely in relation to reading fluency practices for use in the English curriculum. The videos created will be stored on the devices used to create them and will only be accessible to the researcher, staff of Trinity college and the learners. They will also be uploaded to a private laptop which only the researcher and learners will have access to. After the study has been completed these videos will be deleted.

All information that is collected by the researcher will be anonymised and stored in accordance with the Data Protection Act at Trinity College, Dublin. In the unlikely event that information about illegal activities should emerge during the study, the researchers will follow the school's child protection policy and inform the relevant authorities.

No video or audio recording will be made available to anyone other than the researcher, nor will any such recordings be replayed in any public forum or presentation of the research.

In order to analyse and review the work that your son will do, he may be chosen to fill out a questionnaire or undertake an interview.

The Board of Management and principal will also be given a form in order to give permission for the project described here to take place in its context. However, for the research part of the project, information about your child can only be recorded and used with your permission. This will include tracking their development via observations, video and standardised tests.

Participation in the research part of the project is voluntary and you may remove your child from the project at any time, for any reason, without penalty and any information already recorded about your child will not be used, or your child may elect to withdraw from this study. As this research involves the use of computers, children with epilepsy cannot take part in either the learning activity or research study, please inform the researcher if this is the case.

Participation is also at the discretion of the child. A child may decide to opt out at any stage and is free to do so however without parental consent a child does not have the option to opt in.

Statement of Conflict of Interest:
The researcher currently teaches the participants of this research project, due to the nature of this relationship there is a conflict of interest. The researcher is an ICT facilitator of the school in which this research is undertaken; this represents a conflict of interest.

If you have any questions before, during or after the project, please do not hesitate to contact Patrick Minogue at Trinity College**:**
Email: minoguep@tcd.ie or **Ph. 018487979.**

Project: Pro-Vision: Read, Record, Review; a Model to Enhance Reading Fluency

Parent/Guardian Consent Form

I .... (name of parent/guardian)

consent to .... (name of child) taking part

in this research project.

I have been provided with an information letter which outlines the activities my child will

take part in, how research data will be collected and stored and how I can contact the

research team. I understand that I may withdraw my child from the research project at any

time should I wish to do so for any reason and without penalty. Additionally, I am aware

that my child's consent will also be required in order for them to take part in the study.

All information and data recorded by this study will be submitted to Trinity College Dublin.

This information may be published for future research and study. All personal information

will be anonymised.

Data Protection: I agree to Trinity College, University of Dublin storing of any personal data

relating to my child which results from this project. I agree to the processing of such data

for any purposes connected with the research project as outlined to me.

DECLARATION:
- I am 18 years or older and am competent to provide consent.
- I have read, or had read to me, a document providing information about this research and this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
- I agree that my sons is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.
- I understand that if my son make illicit activities known, these will be reported to appropriate authorities.
- I understand that my son may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).

- I understand that, subject to the constraints above, no recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.
- I freely and voluntarily agree that my son to be part of this research study, though without prejudice to my legal and ethical rights.
- I understand that my son may refuse to answer any question and that he may withdraw at any time without penalty.
- I understand that my sons participation is fully anonymous and that no personal details about my son will be recorded.
- I have received a copy of this agreement

Signature of parent/guardian .... Date:..

Statement of investigator's responsibility: I have explained the nature and purpose of this research study, the procedures to be undertaken and any risks that may be involved. I have offered to answer any questions and fully answered such questions. I believe that the participant understands my explanation and has freely given informed consent.

Signature of Investigator:................................ Date:..............................

If you have any questions before, during or after the project, please do not hesitate to contact Patrick Minogue at Trinity College**: Email: minoguep@tcd.ie** or **Ph. 018487979.**

6.3.3 Board of Management Information Sheet and Consent Form

Board of Management Information Sheet

The room 18 Sixth class have the opportunity to take part in research conducted by Mr. Pa Minogue, student from MSc Technology and Learning in Trinity College Dublin.

This research aims to facilitate the improvement of reading fluency in a classroom setting. The study aims to see how video media enhances the prosodic and intonation skills within a sixth class.

The participants will be tested and interviewed on the process of the study.

The participants will be divided evenly into reading groups by the teacher who has taught this class over the last school year and in fifth class. This judgment will be based on various tests such as NNRIT (new non-reading intelligent test) and also teamwork exercises.

The study requires the learner to carry out self assessment and peer assessment exercises.

The groups will be required to record each other during the teaching of prosodic skills and reading fluency in the classroom via video media using tablet pc's. These exercises will be administered during regular English class. This research study has curriculum appropriate objectives.

During the research experience, observation and informal questioning will take place and some sessions will be video recorded for further observation, particularly of peer involvement. All data and video recordings will be anonymised when transcribed.

The study will take place over a four week period. It will occur during a timetabled English classes between forty minutes and one hour. It is expected that ten English classes will be required to collect the data.

The video capture facility of the tablet helps you capture moments and edit them on-the-go. The videos created by the participants will be solely in relation to reading fluency practices for use in the English curriculum. The videos created will be stored on the devices used to create them and will only be accessible to the researcher and the learners. After the study has been completed these videos will be deleted.

All information and data recorded by this study will be submitted to Trinity College Dublin. This information may be published for future research and study. All personal information will be anonymised.

All information that is collected by the researcher will be anonymised and stored in accordance with the Data Protection Act at Trinity College, Dublin. In the unlikely event that information about illegal activities should emerge during the study, the researchers will follow the school's child protection policy and inform the relevant authorities.

No video or audio recording will be made available to anyone other than the researcher, nor will any such recordings be replayed in any public forum or presentation of the research.

Your permission for the learning activities and research to take place in your school is requested. All participants will also require their own parental/guardian consent to take part in the research. Participation is voluntary and you may withdraw the institution from the project at any time for any reason without penalty and any information already recorded from the school will be removed. As this research involves the use of computers, children with epilepsy cannot take part in either the learning activity or research study. If there is a child with a family history of epilepsy the child may take part but only with parental permission.

Statement of Conflict of Interest:
The researcher currently teaches the participants of this research project, due to the nature of this relationship there is a conflict of interest. The researcher is an ICT facilitator of the school in which this research is undertaken; this represents a conflict of interest.

If you have any questions before, during or after the project, please do not hesitate to contact Patrick Minogue at Trinity College**:**
Email: minoguep@tcd.ie or
Ph. 0879146455.

Board of Management Consent Sheet

The board understands that information and data recorded by this study will be submitted to Trinity College Dublin. This information may be published for future research and study. All personal information will be anonymised.

The board has been provided with an information sheet which outlines the activities that different generations will take part in, how data will be collected and stored and how it can contact the research team.

The board understands that it may withdraw the institution from the project at any time should it wish to do so for any reason and without penalty.

The board provides the researcher with investigator responsibilities including protecting the rights, safety, and welfare of the study subjects.

DECLARATION:
- I am 18 years or older and am competent to provide consent.
- We as a board have read a document providing information about this research and this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
- We understand that the data of the pupils is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.
- We understand that if I make illicit activities known, these will be reported to appropriate authorities.
- We understand that the pupils may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).
- We understand that, subject to the constraints above, no recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.
- We as a board understand that the pupils are freely and voluntarily agreeing to be part of this research study, though without prejudice to their legal and ethical rights.
- We understand that a pupil may refuse to answer any question and that they may withdraw at any time without penalty.
- We understand that my participation is fully anonymous and that no personal details about me will be recorded.
- We understand that if anyone participates with epilepsy or has a family history of epilepsy they are doing so at their own risk.
- We have received a copy of this agreement

Signature of chair of Board of Management .... Date:........................

Print name of chair of Board of Management..

Name of institution..
  Statement of investigator's responsibility: I have explained the nature and purpose of
  this research study, the procedures to be undertaken and any risks that may be involved.
  I have offered to answer any questions and fully answered such questions. I believe that
  the participant understands my explanation and has freely given informed consent.

Signature of Investigator .... Date:......................

If you have any questions before, during or after the project, please do not
hesitate to contact Patrick Minogue at Trinity College**:**
Email: minoguep@tcd.ie or
Ph. 0879146455.

Figure 18. DIBELS 6th Edition Oral Fluency Instructions

Figure 19. Sample DIBELS 6th Edition Oral Fluency Test