The Sooner the Better: An Analysis of the Potential Benefits that Offering School Swimming Opportunities in KS1 could have on a School’s Overall Swimming Attainment

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“A keen interest in sport, competing and teaching and coaching swimming led to a primary school teaching career after graduating from the University of Northampton.”
Abstract

This research project identifies the importance of learning to swim and the expectations that the government have, in terms of the swimming ability of children leaving primary school in England. With recent documentation and reports, it is public knowledge that these expectations are not being met by many children. This project therefore identifies the barriers faced by schools and pupils when learning to swim at school and opportunities for improvements to be made. Through a comparison study of two schools in Northampton, supported by an interview with the school swimming co-ordinator for Northamptonshire and Questionnaires and assessments completed by the children’s swimming instructor and class teachers, the benefits and drawbacks of providing school swimming opportunities in KS1 as opposed to KS2 are highlighted.

This project found that younger children with no prior swimming experience demonstrated lower levels of anxiety during their initial school swimming lessons, when compared to older children also with no prior swimming experience. This resulted in the younger children, those in KS1, acquiring basic swimming skills that are fundamental to safe self-rescue and to the ability to swim at a quicker rate than those children in KS2.

Although this research project, due to the sampling method and size, is not generalisable to the wider population, it does highlight the potential benefits that offering school swimming in KS1 as opposed to, or in addition to, KS2 could have on a school’s overall swimming attainment.
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<tr>
<td>ASA</td>
<td>Amateur Swimming Association</td>
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<td>BERA</td>
<td>British Education Research Association</td>
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<td>CDC</td>
<td>Centre for Disease Control</td>
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<tr>
<td>DCMS</td>
<td>Department for Culture, Media and Sport</td>
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<tr>
<td>DfE</td>
<td>Department for Education</td>
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<tr>
<td>DfEE</td>
<td>Department for Education and Employability</td>
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<tr>
<td>DfES</td>
<td>Department for Education and Skills</td>
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<tr>
<td>EAL</td>
<td>English as an Additional Language</td>
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<td>IoS</td>
<td>Institute of Swimming</td>
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<td>ISR</td>
<td>Infant Swimming Resource</td>
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<td>KS1</td>
<td>Key Stage 1</td>
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<td>KS2</td>
<td>Key Stage 2</td>
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<td>PE</td>
<td>Physical Education</td>
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<td>RLSS</td>
<td>Royal Life Saving Society</td>
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<td>SEN</td>
<td>Special Educational Needs</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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<td>STA</td>
<td>Swimming Teachers’ Association</td>
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<td>SSP</td>
<td>School Sport Partnership</td>
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Chapter 1: Introduction

Swimming is currently the most popular participation sport in England (Sport England, 2013). This is true for both adults and children (DCMS, 2011). Furthermore, water confidence and swimming skills - such as being able to control the body in the water to stay afloat and create propulsion - can be transferred to any water-based physical activity, allowing participants to not only enjoy conventional swimming in a swimming pool but a varied array of water-based physical activities (British Swimming, 2014).

The non-weight bearing nature of swimming might be a reason for its popularity, as people of all ages and abilities can take part; including those suffering with obesity (Wallis and Binney, 2011). With childhood obesity becoming an ever increasing concern, the importance of school swimming is profound, especially as other school sports, by their nature, are less accessible to children who are overweight or obese (Pollack, 2009). This could be considered the government’s view also, with their recent changes to the national curriculum: highlighting swimming as the only statutory sport to be taught in KS1 or KS2 (DfE, 2013).

The ability to swim is viewed as an invaluable life skill, not only for the varied activities that one is able to participate in, but also for the survival skills that are acquired (ISR, 2013). Worldwide, drowning is the 3rd leading cause of unintentional death due to injury, irrespective of the country’s wealth and status (World Health Organisation, 2012). It is one of the leading causes of childhood deaths both in the United States (CDC, 2010) and England (RLSS, 2012). Although additional factors could be involved in some cases of drowning - for example: strong currents or being unconscious prior to falling into the water – many cases of death due to drowning could be prevented with the enrolment of children in swimming lessons that include the teaching of water safety and survival skills.
(Oliveira et al., 2013). For example, in 2011 many child deaths by drowning in the UK occurred whilst the child was participating in water activities (51%) or due to accidentally falling into a body of water (40%) (National Water Safety Forum, 2012). In these instances, as opposed to drowning in a bath, swimming skills could have played a part, in many cases, to prevent drowning (Suominen et al., 2002). The government’s focus on teaching children ‘safe self-rescue’ (DfE, 2013, p.200) alongside a range of swimming strokes during primary school swimming further demonstrates awareness of the need to discretely teach children about water safety and drowning prevention, and is a reassuring step forward in preventing future avoidable deaths.

The statutory status of swimming in the new curriculum means that every child in England, regardless of their background, is able to learn to swim (ASA, 2012a). Although this is not the case worldwide, some countries have also demonstrated an awareness of its important role in the prevention of drowning (Harbin, 2005; Brenner et al., 2009). Australia, for example are in the process of addressing the fact that only certain districts offer swimming lessons at school (RLSS Australia, 2012a; RLSS Australia, 2012b). This growing international awareness is therefore of current interest, with England being ahead of the game. However, despite this, the ASA (2013a) recently found that almost half of the children in England failed to swim a minimum of 25 metres by the time they left primary school. Although the recent changes to the national curriculum demonstrates that the government has increased the awareness of the need to teach swimming at school, more is needed to facilitate the requisite improvement in children’s swimming attainment.

This dissertation will explore the extent of swimming underachievement in UK primary schools. It will identify the potential barriers faced by schools in delivering lessons, the barriers faced by
children when learning, and the research and advice that has subsequently resulted. It will also look at the possible ways in which practice could be improved in order to establish better swimming attainment nationally for primary school children.
Chapter 2: Literature Review

2.1 Swimming Achievement

In their report on PE in schools, Ofsted (2009, p.8) found that many pupils were making ‘good progress towards age-related expectations’ in swimming. However, this implies that the children were still working towards their age-related expectations and, more worryingly, there were some that did not make adequate progress. This was still the case in 2013 (Ofsted, 2013), which was also supported by the ASA’s (2013a) findings that, for almost half of children leaving primary school, the minimum swimming requirement of 25 metres was not achieved. Of greater concern is that the STA disagree that this is an adequate minimum distance if the requirement is for children to be safe in and around water (Millward, 2002). Factors such as shock, being immersed in cold water, and the added resistance of currents and wearing clothes reduce one’s ability to swim and so therefore, the STA argues that swimming 100 metres is a more realistic achievement for children to save themselves from drowning (Millward, 2002).

Although school swimming programmes in the UK are more substantial than in other countries and are intend to be accessible to every child (DfES, 2003), this research highlights that there are serious causes for concern in relation to the success of the programmes because, for many, school swimming is proving ineffective.
2.2 Barriers to the Provision of School Swimming

Suitable swimming opportunities were not provided by some schools (Ofsted, 2009), and the vast majority were found failing to deliver the recommended amount of time for swimming teaching, which caused poor overall attainment (ASA, 2013a). There are numerous barriers faced by schools in relation to delivering school swimming lessons which could be the reason for this.

Firstly, pool access is the most common barrier (ASA, 2008a). The ASA’s guidance when using local leisure facilities, as many schools do, is to book early and negotiate for the most convenient times (ASA, 2008a). However, this is of little benefit as the effects are only ever felt by a few schools. This view is supported by Ofsted’s (2013, p.50) findings that only a few schools - those that performed best - had been able to ‘establish good links with other schools and leisure services to secure enough pool time to teach swimming effectively’. An additional hindrance to those schools unable to negotiate adequate swimming times, is the increasingly limited options available to them due to the closure of many public pools in recent years (Daybreak, 2013). In response to this, however, some School Sports Partnerships successfully worked to improve the provisions of swimming in schools where there were weaknesses and, in some places, enlisted the additional support from the ‘Pools-4-Schools programme’ providing a temporary pool for numerous schools in the local area (Ofsted, 2011, p.11). This programme worked well for those schools involved, demonstrating that accessibility issues can be overcome with facilitated interventions. Similar additional interventions have recently been established to benefit further schools (The One Show, 2014), but only benefit certain areas.
An additional barrier to school swimming is restricted curriculum time (ASA, 2013a). Assessments of children in English and mathematics form the basis of a school’s attainment, which causes school swimming to potentially be overlooked (Juba, 2007). However, swimming provides ample opportunity for cross-curricular learning experiences relating to mathematics, science, English and personal, social and health education (ASA, 2012b) so should not be overlooked, especially as similar kinaesthetic learning experiences have positively impacted pupils’ confidence and attainment in other curricular areas (Ofsted, 2011). Furthermore, for those schools avoiding school swimming due perhaps to incurring additional time implications and expenses (ASA, 2013a), Lawton (2013) suggests organising a longer lesson on a fortnightly basis halving the overall travel time and cost whilst providing the same overall length of time teaching swimming. To support schools further with swimming teaching, the ASA suggest that the additional funding provided from September 2013 for school sport should be used to improve the provision and quality of swimming lessons, depending on the individual schools’ needs (ASA, 2013b). However, this funding should be spent in a sustainable way, ensuring that the benefits will continue (Youth Sport Trust, 2013).

2.3 Barriers to Pupil Attainment

School swimming is usually provided in KS2; for many children it is their first experience in water, which causes their progress to be limited (ASA, 2013b). This can be especially so for some minority ethnic groups, who, according to Ofsted (2007) made less progress than their peers. This includes Muslim girls, whose participation in recreational swimming can be influenced by religious and cultural views on decency and dress (Miles et al., 2008). These views can have a further impact upon school swimming. Miles et al. (2008) found, some Muslim parents had strong views regarding their daughters’ participation in school swimming, requesting gender
separated lessons. To mitigate these potential barriers, teachers need to be mindful of this and make appropriate adaptation to the delivery of lessons and dress requirements for these pupils (DFES, 2003; Williams and Cliffe, 2011).

A fear of water or of drowning is a common cause for increased anxiety when performing or learning basic swimming skills. This can be a detrimental barrier to learning to swim and later participation in swimming as a life-long activity (Dash, 2008). There are two forms of anxiety; ‘trait anxiety’: the natural tendency to perceive tasks as threatening, and ‘state anxiety’: the changing feelings of anxiety relating to a particular task; the latter can be controlled and reduced (Weinberg and Gould, 2011. pp.78-79). Swimming lessons should teach the swimmer not to panic but to be comfortable in the water, allowing them to progress at their own pace and develop confidence in the skills they perform (Dash, 2008). However, children in the KS2 age range are generally in the developmental stage where they compare their ability to that of their peers: if their perceived ability is low then it is common for them to experience a further increase in anxiety, which is not the case in younger children (Weinberg and Gould, 2011). It can therefore be argued that it is more advantageous for children to start learning to swim at a younger age as this can reduce elevated state anxiety, ultimately reducing this barrier to learning and attainment.

The teaching of school swimming must be undertaken by a qualified level two swimming instructor and, although this might mean that swimming lessons are led by a swimming instructor employed by the hired centre, the responsibility for the class remains with the class teacher (ASA, 2008b). Ofsted (2013) notes the high swimming attainment in some schools is as a result of children being taught by qualified instructors. However it is advocated that the class teacher takes an active role in the delivery of swimming lessons as they have extensive knowledge of
the children and how they prefer to learn (Teachers Media, 2010), which could further impact on children’s attainment (Ofsted, 2013), not least acquiring more accurate assessments of pupil’s progress through teaching collaboratively (Ofsted, 2009). This view is supported by the DfES (2006), which advocate personalised learning. However, a lack of teachers’ subject knowledge can result in the inability to identify steps for improvement and therefore pupil progress (Ofsted, 2009 and Ofsted, 2013). With limited time spent on swimming during Initial Teacher Training programmes, lack of teacher knowledge of swimming is common (Hopper et al., 2000). This has resulted in poor pupil progress and an inaccurate assessment of children’s swimming ability (Ofsted, 2013). Training and qualifications in teaching swimming are available for teachers and trainee teachers, which can enhance confidence and subject knowledge enabling teachers to support children’s learning more effectively (Barlow and Foster, 2011; British Swimming, 2013). The new government funding for school sport, if spent on such qualifications for school staff, would provide a sustainable legacy for improvements in swimming outcomes for children and also potentially reduce the expense of hiring external instructors.

2.4 Opportunities for Better Practice

Swimming teaching is usually very structured to enable the skill acquisition process to be broken down and demonstrated to the children (Jacobs, 2008a). Furthermore, the safety risks involved with teaching swimming, particularly in relation to non-swimmers, mean that teachers are likely to adopt a command style approach to teaching as defined by Mosston (Mosston and Ashworth, 2002). However, the sole adoption of this teaching style, it is argued, can impede children’s progress as they are unable to fully explore and develop their own capabilities (Wallis and Binney, 2011). Instead, it is advised to adopt a pupil-centred approach, which provides some choice in how to respond (Wallis and Binney, *ibid*). This idea is
supported by Light and Wallian (2008) who argue that the open-ended, discovery style of teaching, that underpins teaching games for understanding, can be applied to swimming teaching to allow children of any age and ability to reflect upon their performance, but in particular developing a feel for the water during the initial stages of learning to swim. In the teaching of swimming, this approach is likely to involve a guided discovery style of teaching, as defined by Mosston (Mosston and Ashworth, 2002), allowing the children to explore for themselves and learn through concrete experiences and discussions, whist also ensuring that the teacher has some control and that safety is not compromised (Wallis and Binney, 2011).

Creative play is a teaching approach adopted in the Early Years foundation stage; it allows children to learn valuable skills within a meaningful context (DFES, 2007). This type of learning is advocated when teaching young non-swimmers (IoS, 2007). For older children, this could be achieved through activities that centre on a guided discovery approach too. Such a style of teaching, which focusses on the children’s current abilities and levels of confidence, can enable the children to set their own targets (Light and Wallian, 2008) and develop to the higher levels of swimming (Jacobs, 2008b).

The previous national curriculum included swimming as an optional element in KS1 to build children’s confidence in water and teach fundamental water skills such as floating and basic propulsion (DFEE, 1999). As with all sports, the fundamental skills need to be established before the child is able to transition to the ‘specialised movement phase’ (Williams and Cliffe, 2011, p.14), meaning that children will need experiences in water where they can learn to float and move before they are able to refine their skills to swim proficiently for a minimum of 25 metres, as specified in the new curriculum (DfE, 2013). Providing opportunities to acquire fundamental swimming skills from a young age has been noted as
beneficial; one primary school in England observed better swimming attainment when teaching their children to swim in KS1 (ASA, 2013b). In addition, Jorgensen (2012) reported that, regardless of socio-economic backgrounds, children who learn to swim before the age of five not only benefit physically, but also gain skills unspecific to swimming that can benefit them in their learning at school.

Moreover, learning fundamental swimming skills also reduces risk of drowning, as demonstrated in an American scheme that teaches the fundamental ‘self-rescue skills’ of floating, rotating and basic propulsion to children as young as 6 months (ISR, 2013), and a similar scheme in South Florida aimed at young school children which proved effective in reducing the drowning toll by a half (Harbin, 2005).

2.5 Summary and Key Questions:

In order to raise levels of attainment in swimming, it is essential that the barriers to the provision of swimming and to pupil attainment are reduced. There is much guidance for schools on reducing the impact of factors such as: access to pools; limited curriculum time; and lack of teacher’s knowledge. There is also guidance on appropriate teaching strategies to promote child-centred learning opportunities that extend and motivate children’s learning. Despite this guidance, however, concerns remain in relation to the success of school swimming programmes, as so many children are leaving primary school unable to competently swim 25 metres.

Additionally, although there is much reported success on the teaching of swimming to children under five years of age, there is little research or advice given to the recommended age that
school swimming should be delivered.

This research project will therefore address the potential that teaching swimming during KS1 has on children’s development of fundamental water skills and the possibility that this has on improving schools’ swimming attainment. It will therefore explore the following for schools in Northamptonshire:-

1. To identify any additional benefits and drawbacks of teaching swimming in KS1 compared to KS2

2. To investigate, in relation to school swimming, the effect that age has on the acquisition of basic swimming skills
Chapter 3: Methodology

3.1 Aims and Objectives

The aim of this study was to establish any potential benefits of providing children with school swimming opportunities in KS1. In order to research this, the following objectives were identified:

1. To identify any additional benefits and drawbacks of teaching swimming in KS1 compared to KS2
2. To investigate, in relation to school swimming, the effect that age has on the acquisition of basic swimming skills

Firstly, through an interview with the school swimming co-ordinator for Northamptonshire, the benefits and potential disadvantages of providing school swimming opportunities to children in KS1 were explored. These were then analysed further by comparing the observations of children from two different age groups, KS1 and KS2, during their weekly school swimming lessons, and the responses to the class teachers’ questionnaires. The observations looked at the rate of skill acquisition for the children across a 12 week block of swimming lessons and then looked in more detail at four children from each group in order to analyse the development of their increasing levels of confidence and skill. This evidence was supported by the swimming instructor’s assessments.

Although interviews and observations, as used in this research project, are generally related to qualitative research and generate valuable information about the theme being studied (Smith, 2010), the data collected can be quantified, enabling comparisons to be easily made (Cohen et al., 2011). This study collected numeric and narrative data that was ‘mutually informing’ (Bryman, 2007, p.8), so
made use of a mixed methods approach to research. Denscombe (2008) argues that this can provide a more complete analysis of the subject being studied.
3.2 Research Methods

3.2.1 Sampling

For this case study, which examined the effect that age has on swimming skill acquisition for primary school children in context (Cohen et al., 2011), purposive sampling was used, selecting the schools based on particular characteristics (Cohen et al., 2011). This limited additional factors that could cause increased or decreased progression, and as outlined by Teddle and Yu (2007) enabled comparisons to be made between these children of different ages, focusing on their progress in swimming. Although comparisons can be made for the particular children in the schools studied, this sampling method is “deliberately and unashamedly biased” because the wider population is not represented (Cohen et al., 2011, p.157). This therefore means that although conclusions will be made for this study, they will not necessarily be generalisable to the wider public.

3.2.2 Pilot study

Both questionnaires used for this study (appendices 3a and 3b) were piloted on individuals from the same professions as those that they were designed for. This ensured that the questions were not leading, which could influence the respondent’s answer and therefore the validity of their responses (Morrison, 1993). It also ensured the use of appropriate wording and language that was not misinterpreted.

The questionnaire for the swimming instructor posed two problems. The respondents were unaware of the definitions for the teaching styles – command style, practice style, reciprocal style and guided recovery style - on question 7, so this question was
subsequently altered, giving examples as a guide and allowing the respondent to describe their method(s) of teaching. Secondly, question 5 proved ambiguous because the teachers defined the ability levels differently to one another. This question was therefore altered to include the researcher’s detailed example of the development in skills required for each category of ability level: non-swimmer, beginner, improver and advanced.

Alterations were also made to the questionnaire for the class teacher. Firstly, questions 5 was amended to clarify that it referred to the amount of time spent in the swimming pool and not the overall time for the lesson which might include changing and travel time. Also question 6 was lengthened to gauge whether the amount of time that the children spent changing impacted upon the time therefore spent learning to swim.

The researcher conducted a pilot study on a school that was not involved in the study to test the class assessment sheet for its practicality and accuracy in recording the required data. Initially, all the children were going to be the subject of observation at regular intervals over their block of lessons, which would have involved recording the number of children from the entire class that demonstrated each skill specified. However, during the pilot study it became apparent that there were too many children to observe, so skills went unrecorded. Cohen et al. (2011) identified this as a human error that consequently affects the validity of the research data. In response to this initial observation, an alternative class assessment sheet was created that recorded fewer skills, and was completed less often, at 3 week intervals. In addition to this, the researcher included a further observation sheet for four specifically selected pupils that collected more detailed data on the progression of those children in relation to their water confidence and swimming skills across the block of lessons. These were piloted in the following
lesson for the same school and proved more efficient to use and effective in the data that they collected.

3.2.3 Interviews

An interview was undertaken with the school swimming co-ordinator for Northamptonshire in order to explore the opportunities for the provision of school swimming in KS1. Cohen et al. (2011) identified interviews as an opportunity for people to express their views and opinions on a given situation; in this case, the potential benefits and disadvantages faced by schools when providing swimming in KS1.

To gain insight into the swimming co-ordinators personal and professional views, an ‘interview guide approach’ was used (Patton, 1980, cited in Cohen et al., 2011), with the topics outlined prior to the interview but the sequence decided during its course. This enabled certain areas to be covered in more depth as the conversational style means that additional aspects might arise through discussion and these gaps can be filled. However, important relevant issues might have unintentionally be omitted during the planning of the interview (Patton, 1980, cited in Cohen et al., 2011). Many of the questions in this interview were open ended, yielding qualitative data, which gave an in-depth and detailed explanation of the specific topic (Oppenheim, 1992). However care was taken to ensure that the questions were not as Morrison (1993, p.66-67) outlines ‘leading’, making an assumption about the interviewee’s thoughts and opinions, which can resultantly influence their answers. An additional factor that was considered to reduce bias was how the interview transcript was recorded, ensuring that it was not selective and that the responses were not interpreted in an alternative way to that in which the interviewee intended (Oppenheim, 1992). This was ensured
by asking for clarification throughout the interview.

3.2.4 Questionnaires

Questionnaires were given to the class teachers and the swimming instructor to gain information about the class, the provision of swimming within the school and how they were taught swimming by the instructor. The purpose was to ascertain any additional factors that might be at play when assessing the effect of age on skill acquisition. The additional factors included: teaching style, number of lessons provided, the involvement of the class teacher in the lessons and additional experiences of swimming that the children had prior to school swimming lessons. The questionnaires contained predominantly dichotomous and multiple choice questions, which yielded nominal data (Cohen et al., 2011) so that comparisons could be made across the two schools (Oppenheim, 1992). When constructing these questions, thought was given to the range of possible answers, ensuring that the choices were exhaustive and eliminated bias (Cohen et al., 2011). This was further rectified following the pilot studies.

3.2.5 Observations

As Robson (2002) notes, observations are a useful method of research because they collate data about what people do as opposed to what they say they do. In this instance, the observations undertaken gathered current and relevant data (Cohen et al., 2011) on children’s swimming skill acquisition: what they were observed to be able to do at certain points throughout their learning of swimming rather than on their perception of their own ability. The observations were ‘structured observations’ (Cohen, et al., 2011,
p.459), where children’s skills were recorded on a pro-forma sheet, which could be used for comparison.

When recording, however, Cohen et al. (2011) notes that bias can result for a number of reason, for example due to the observer becoming distracted and missing a skill being performed, interpreting the situation and recording their interpretation, being unsure of what counts as valid evidence, and recording selective evidence due to their knowledge of the hypotheses. In response to this and the pilot study that was carried out, the researcher observed four children from each school more closely and clearly outlined the parameters of each skill to be observed so that resulting bias was minimised. These children, according to the class teacher had no prior learning experiences in swimming, so were at a similar learning stage to one another. Sharing these characteristics enabled comparisons to be made in relation to the effect that their age had on the development of their swimming skills.

The risk of bias was reduced further through triangulation: ‘the use of two or more methods of data collection in the study of human behaviour’ (Cohen et al., 2011, p.195). Consequently, the swimming instructor’s assessments of the whole class were obtained and cross referenced with the observations. This equally reduced the potential bias arising from children demonstrating what Shaughnessy et al. (2003, p.113) define as ‘demand characteristics’, those that they think the researcher wants them to show. It also highlighted any performance that was possibly the result of the Hawthorne effect, where the situation affects the behaviours of the participants due to knowing that they are being observed (Cohen et al., 2011).

3.3 Validity and Reliability
Feilzer (2010) argues that the important fact is that, irrelevant of the method chosen, research should enable the researcher to find out about what they intended. However, an attempt to obtain validity and reliability is important when conclusions are to be drawn. According to Cohen et al. (2011) no research is entirely valid as quantitative data involves an inbuilt measure of standard error and qualitative data is subject to the researcher’s interpretations, both of which constitute an amount of bias. However, the use of a mixed methods research and triangulation provided the advantages of both scientific and humanistic conclusions and so maximised the study’s validity and increased the researcher’s confidence in the results produced (Cohen et al., 2011).

3.4 Ethical Considerations

Throughout this study, ethical considerations were taken into account. As with any research project, the participants consented to their involvement in the study and were made aware that they had the right to withdraw and not be included (BERA, 2011). Additionally, for the children in the study, consent for their participation as vulnerable people was obtained from the head teacher of the school as the person in the position of their care (BERA, 2011).

Every effort was made to protect the identity of the participants involved, ensuring that their right to anonymity was respected (BERA, 2011). In the interest of protecting the identity of the children involved, many considerations were taken into account. This included refraining from recording individual children’s names and subsequently only ever referring to the profile children selected as Child A, Child B, Child C and Child D. Equally, the schools remained un-named, referred to only as School 1 and School 2. This in turn also protects the identity of the schools and school staff involved. Furthermore, the venue where the schools’ swimming lessons took
place was not identified so as to further ensure that the schools and children could not be traced, despite the small amount of information shared for the purposes of comparisons and identifying reliability of the study. This additionally ensured that, as requested, the identity of the swimming instructor remained unknown.

Finally, no sensitive data was collected from any of the individuals who participated in the study and, in line with the Data Protection Act (1998), all data that was collected was handled solely by the researcher and safely stored on a password protected computer.

3.5 Summary

Throughout this research project, every effort was made in order to adhere to ethical guidelines and respect the individual participants. The researcher also made efforts to ensure the validity and reliability of the data collection methods, which was demonstrated through the amendments and adaptations made in response to the pilot studies conducted. Furthermore, considerations were made as to the opportune research methods for this study, being mindful of acquiring accurate and detailed data to address the questions raised.
Chapter 4: Results Analysis and Discussion

4.1 The Effect that Age has on the Acquisition of Basic Swimming Skills

For this study, school swimming lessons offered to year 2 children from school 1 and year 5 children from school 2 were observed and the children’s attainment and progression were compared. Both schools were taught at the same centre, by the same instructor, who used a similar teaching style for both classes. This meant that additional factors that could have affected the children’s learning were controlled, ensuring that the results and conclusions related to the effect caused by the difference in age. Although not intentionally controlled, both schools also had the same number of children in each class, received that same number of lessons and the class teacher had similar levels of engagement with the lesson. These were further factors that could have contributed to the children’s overall learning and attainment.

4.1.1 Differences in Attainment and the Rate of Skill Acquisition

When comparing the children’s prior swimming experiences between the two schools (see table I), it was clear that many more year 5 children in school 2 had some swimming experience before their school lessons than the year 2 children in school 1. However, there was still a large proportion of children in school 2 that had no prior swimming experiences, which can cause limited progress (ASA, 2013b). With no additional opportunities provided to learn to swim at school, this resulted in the children not meeting the minimum requirements expected of them (DfE, 2013) (see table II).
Table I: Children’s prior swimming experiences

<table>
<thead>
<tr>
<th>Prior experience</th>
<th>Number of children in Year 2 (school 1)</th>
<th>Number of children in Year 5 (school 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No experience</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Only leisure</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Lessons</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

Although the differences between the schools were unsubstantial, Table II demonstrates that, by the final lesson, school 1 had more pupils who achieved all but one distance. Furthermore, school 2 offered no further lessons and so therefore over 70% of these children (see table II) will leave primary school without reaching the DfE’s (2013) minimum requirement. This is more than the average found by the ASA (2013a) and highlights that it remains a current concern. Moreover, 2 of these children were unable to swim 5 metres, so will therefore be highly unlikely to save themselves from drowning (see table II); with drowning being a national concern (RLSS, 2012), this is most worrying. For school 1, however, this is less concerning as they offered further swimming for children in year 5.

Table II: Distances achieved by the final swimming

<table>
<thead>
<tr>
<th>Distance Swam (metres)</th>
<th>School 1 (year 2)</th>
<th>School 2 (year 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>10</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>20</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>25</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>&lt;25</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

The children’s progress was explored through observing their attainment at three week intervals across the 12 week block. The children’s ability to perform basic swimming and water survival skills were observed and compared (see figures 1-5), these skills included putting their face into the water and floating on the front and back;
Dissertation: Results Analysis and Discussion

Ailsa Daley

Essential skills required to further develop propulsion and swimming skills (Maglischo, 2003). Also, travelling unaided and treading water was observed. All of these skills would be required if the child were to fall into a body of water and be able to save themselves from drowning (ISR, 2013), so contribute to the ‘safe self-rescue’ element of the national curriculum (DfE, 2013).

**Figure 1:** Percentage of children that put their face in the water for more than 5 seconds

**Figure 2:** Percentage of children that could float on their front independently

**Figure 3:** Percentage of children that could float on their back independently

**Figure 4:** Percentage of children that could travel 5 metres without aids
Figures 1-4 clearly show that, overall, the year 2 students from school 1 outperformed the year 5 children from school 2 on these skills almost every week that they were observed. This was most noticeably the case for putting their face into the water and floating independently on their fronts (see figures 1 and 2). Although during the second half of the block of swimming lessons, the differences between the schools reduced, these graphs show that the younger children acquired these basic skills at an earlier stage in their lessons. The only exception was demonstrating the ability to tread water for a sustained period of time; more children in school 2 demonstrated this skill from an earlier stage than children in school 1 (see figure 5). This might be as a result of the older children being bigger and stronger, so more able to apply appropriate force to be successful. This skill did not require the confidence to wholly relax in the water and demonstrate confidence in the same way that the other skills do.

![Graph showing percentage of children that could tread water for more than 10 seconds](image)

**Figure 5:** Percentage of children that could tread water for more than 10 seconds
According to Weinberg and Gould (2011), older children are more likely to experience state anxiety than younger children if their perceived ability level is low. This might be a cause for the clear differences in the percentage of children form both schools achieving these basic skills as they require the swimmer to be confident and relax in the water. Figure 1 shows that the younger students were much quicker to confidently put their faces in the water and also to float on their fronts, with half of them being able to do this from the third lesson. This in turn enabled them to feel confident enough to travel unaided, as demonstrated by the high percentage of year 2 students that achieved this by the half-way point in their lessons (see figure 4), because they had learnt that they could float and had developed a good body position. In comparison, after the same number of lessons, the percentage of year 5 students able to travel unaided was almost half that of school 1 (see figure 4). Williams’ and Cliffe’s (2011) argue that fundamental skills should be learnt from a young age. Alongside this research, this suggests a possibility that children would benefit from earlier school swimming lessons. It could therefore be suggested that a reason for the limited progress found for many children by the ASA (2013a) could be due to the fact that they were taught in KS2.

### 4.1.2 Differences in Levels of Anxiety

To explore the levels of anxiety that the children had in relation to the water, four children with no prior swimming experience were chosen from each school to be studied each week. The same fundamental skills were observed but treading water and travelling were excluded as these require further skills of propulsion (Maglisch, 2003). For this study, however, three levels of progression within each skill were identified, which required the children to be more confident and less anxious in the water in order to perform the skills with less support. A point system was created, whereby each level of skill was allocated 1-3 points
respectively for the increasing level of confidence required. Each lesson, the child was allocated the appropriate point for the level of confidence that they performed the skills, which were added together to create their overall confidence level for that lesson. Figures 6 and 7 show the increasing levels of confidence that the children demonstrated across the 12 lessons.

When analysing the data, it was apparent that, for the children involved in this study, the findings from the observations show consistencies with Weinberg’s and Gould’s (2011) theory of differences in age resulting in varying levels of anxiety and therefore progress. All of the year 2 children studied started with increased levels of confidence in comparison to the year 5 children (see figures 6 and 7), and they all performed the three skills to the level that demonstrated the most confidence by the 8th lesson (see figure 6). In comparison, only two of the year 5 children studied demonstrated this same level of confidence (see figure 7). On average, the year 2 pupils’ confidence levels increased at a faster rate than the year 5 pupils’. Furthermore, the older children, who lacked these basic skills, resultanty experienced limited progress in terms of the development of swimming strokes (see table III).
Figure 6: Progression of water confidence levels for year 2 profile children from school 1.

Figure 7: Progression of water confidence levels for year 5 profile children from school 2.
The ASA (2013b) noted that a lack of prior experience caused the children to make limited progress, however all four of the year 2 children, who had no prior swimming experience, demonstrated good progress in water confidence, water skills and stroke skills, as did two of the year 5 students (see figures 6 and 7, table III and table IV). When comparing these two schools, it appears that school 1 was less affected by the detriments that limited previous experience can have on progress and overall experienced quicker rates of learning and better final attainments in comparison to school 2. From these results, it could be regarded as beneficial to offer earlier meaningful experiences of learning to swim in order to establish better progress.

<table>
<thead>
<tr>
<th></th>
<th>Lesson by which skills were achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School 1</td>
</tr>
<tr>
<td></td>
<td>Child A</td>
</tr>
<tr>
<td><strong>Front crawl</strong></td>
<td></td>
</tr>
<tr>
<td>Basic arm and leg action</td>
<td>5</td>
</tr>
<tr>
<td>Basic arm and leg action with face in and good body position</td>
<td>7</td>
</tr>
<tr>
<td>Efficient arm and leg action with correct breathing</td>
<td>11</td>
</tr>
<tr>
<td><strong>Backstroke</strong></td>
<td></td>
</tr>
<tr>
<td>Basic arm and leg action</td>
<td>8</td>
</tr>
<tr>
<td>Basic arm and leg action with good body position</td>
<td>9</td>
</tr>
<tr>
<td>Efficient arm and leg action with good body position</td>
<td>12</td>
</tr>
<tr>
<td><strong>Breaststroke</strong></td>
<td></td>
</tr>
<tr>
<td>Basic arm and leg action</td>
<td>5</td>
</tr>
<tr>
<td>Technically accurate arm and leg action</td>
<td>10</td>
</tr>
<tr>
<td>Technically accurate arm and leg action with good timing</td>
<td>Not achieved</td>
</tr>
<tr>
<td><strong>Butterfly</strong></td>
<td></td>
</tr>
<tr>
<td>Basic arm and leg action</td>
<td>8</td>
</tr>
<tr>
<td>Technically accurate arm and leg action</td>
<td>11</td>
</tr>
<tr>
<td>Technically accurate arm and leg action with good timing</td>
<td>Not achieved</td>
</tr>
</tbody>
</table>
Table IV: The profile children’s progression in relation to the achievement of fundamental water skills

<table>
<thead>
<tr>
<th></th>
<th>School 1</th>
<th>School 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Child A</td>
<td>Child B</td>
</tr>
<tr>
<td>Gets face wet</td>
<td>from 1st</td>
<td>from 1st</td>
</tr>
<tr>
<td></td>
<td>lesson</td>
<td>lesson</td>
</tr>
<tr>
<td>Puts face in the water</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>from 1st</td>
<td>from 1st</td>
</tr>
<tr>
<td>Floats on tummy with aids</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>from 1st</td>
<td>from 1st</td>
</tr>
<tr>
<td>Floats on tummy with teacher assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>from 1st</td>
<td>from 1st</td>
</tr>
<tr>
<td>Floats on tummy independently</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Floats on back with aids</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>from 1st</td>
<td>from 1st</td>
</tr>
<tr>
<td>Floats on back with teacher assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Floats on back independently</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not achieved</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2 Benefits and Drawbacks of Teaching KS1

Two benefits of offering school swimming in KS1 have been identified: the younger children studied experienced less anxiety and so were therefore better enabled to progress and develop their swimming skills; also, their progress was not as limited in comparison to the year 5 children, despite also not having prior swimming experience.

However, table II demonstrated that the overall attainment in terms of distances covered by the pupils were similar for both schools. So despite their reduced anxiety, the year 2’s achieved similar levels of progression towards all pupils achieving the minimum 25 metre requirement as the year 5 pupils. That said, however, two concerning factors remain: two year 5 children did not achieve a swimming distance of 5 metres and only seven year 5 pupils achieved the minimum requirement as stated by the
DfE (2013) (see table II). Therefore, from this school, 23 students will potentially leave primary school in 2015 unable to swim a minimum of 25 metres. This demonstrates that the ASA’s (2013a) findings and concerns are still relevant for this school and potentially many others. School 1, on the other hand, have further opportunities to develop the children’s swimming skills and so therefore have the potential to further increase the percentage of children to meet this minimum requirement by the time these children leave primary school.

Offering school swimming in KS1 therefore allows more time for the children to progress by having further opportunities to provide swimming lessons before they leave primary school. However, as highlighted by the school swimming co-ordinator, not all schools have the financial means to provide children with the additional swimming lessons that school 1 are able to. Further to this financial barrier, the issue of access, for many, is still a considerable barrier that is unavoidable (ASA, 2008a; Ofsted, 2013). Although there are initiatives in place to rectify this (The One Show, 2014), it is highly unlikely that all schools will be able to provide multiple opportunities for swimming to all of their children.

In addition to this the swimming co-ordinator also highlighted the views that are adopted by head teachers in terms of value for money: younger children take longer to change and so therefore will have less time in the water learning to swim. In his opinion, therefore, many will chose to avoid teaching swimming in KS1 and offer swimming to older children who can make the most of the time available. Although this time difference was evident for these two schools, the attainment levels in terms of distances achieved were very similar (see table II). Also, the year 2 children made good use of their time in the pool, with many having increased confidence levels in comparison to pupils from school 2, and therefore attaining basic water skills from an earlier point in their
learning (see figures 1-7). Therefore, although the younger children had reduced time in the water, this had little impact on their overall attainment.

4.3 Limitations

This study made use of purposive sampling (Cohen et al., 2011) to make comparisons between two schools. These drew conclusions that related to the effect that learning to swim from an early age has on skill acquisition. Although this sampling method, by controlling additional factors, improved the reliability of results (Teddle and Yu, 2007), the conclusions are not generalisable to the wider community of Northamptonshire, not least to the rest of England (Cohen et al., 2011). Firstly, this is because the demographics of the wider population were not considered and so are not represented proportionately. Secondly, there are further aspects that could have helped or hindered the children’s acquisition of swimming skills. These include, for example, the possibility that children have EAL or SEN, which might act as a barrier to their understanding, progression and attainment (ASA, 2013b). It also includes the location of the school and the financial position that they are in, as well as attainment in other curricular areas (Juba, 2007; ASA 2013a). Furthermore, these findings cannot be generalised as the sample size is too small (Cohen et al., 2011), further comparisons and studies would need to be made in order to draw valid and reliable conclusions that could be used to support and enhance school swimming programmes to enable more schools and pupils to meet the minimum swimming requirements.

A further limitation, with regards to this study was that only four students from each year group were observed in relation to their levels of confidence and reducing anxiety. Although this was
done to reduce potential bias (Cohen et al., 2011), it means that this sample size was not large enough to draw conclusive results that could be applied to the rest of the class. Again, further studies on a larger scale would need to be conducted.

Finally, although the skills observed focused on increasing levels of confidence, the observations did not specifically look at the levels of anxiety and the causes of anxiety that the children had. This was only inferred by the fact that the children demonstrated increased levels of confidence and decreased needs for support and reassurance. Therefore, further studies or research would have to be undertaken to focus on fears and anxieties held by participants in order to further assess the extent to which these hinder progression and also the possible effects that differences in age has on these anxieties and resulting swimming progression.

4.4 Summary

The data from this research demonstrates that there was a difference in confidence levels, in relation to swimming, between the four year 2 children and the four year 5 children studied. It suggests that this had a possible impact upon the rate at which the fundamental swimming skills, necessary for water safety and swimming development (Maglischo, 2003), were acquired. This is supported by the view that older children are more likely than younger children to experience increased anxiety as a result of a low perceived ability, which results in restrictions to their learning (Weinberg and Gould, 2011). However, further research would need to be conducted to make this finding explicit.

School 1 benefitted from offering school swimming lessons in KS1 and experienced few additional barriers that impacted on the
delivery of the lessons. However, the overall attainment in terms of swimming distances for the two schools were not noticeably dissimilar, suggesting that, despite the differences in basic skill acquisition and water confidence, the year 5 children were not held back in terms of the distances that they could achieve. This could be as a result of being stronger in comparison to the year 2 students and so more able to exert larger forces in the water to create propulsion.

This study, however, was biased in its sampling method and so the results cannot be generalised to the rest of Northamptonshire or England; it only represents the two schools studied. Furthermore, the theory relating to anxiety would need further and more specific analysis to verify the effects that it had on the children’s progression. The sample size for this study was too small and the observations not focused enough to draw accurate conclusions in relation to the affect that fear and anxiety had on these different age groups in relation to their swimming improvements.
Chapter 5: Conclusion

5.1 The Aims of this project

This research project resulted from the growing national concern voiced by the ASA (2013a) that a high proportion of children were leaving KS2 unable to perform the required swimming skills outlined by the government as imperative to ensuring a child’s safety in water (DfE, 2013). Furthermore, the high numbers of deaths due to drowning in England (RLSS, 2012) and the increasing public awareness due to reported incidents, such as those seen in the British Broadcasting Corporation (BBC) news this year (BBC, 2014a; BBC, 2014b; BBC, 2014c), highlights the importance of learning to swim in the prevention of water-related deaths (Oliveira et al., 2013). This dissertation specifically explored the effect that age had on children’s confidence and acquisition of basic swimming skills during school swimming lessons, and therefore the benefits and additional barriers that schools are faced with when offering school swimming lessons in KS1 as opposed to KS2.

5.2 The Findings and their Relevance

This research found that school swimming lessons for KS1 were shorter than for KS2 because the longer changing time impacted upon time spent in the water. However, although this was true for the schools studied, it would vary dependent upon individual schools and their arrangements, and this barrier would not necessarily be limited to KS1. Despite it being the case for school 1 in this study, the year 2 children from that school demonstrated better overall attainment in most of the swimming skills and swimming distances observed when compared to the year 5 children.
in school 2. This demonstrated the minimal impact that the marginally reduced pool time had on their progression.

Furthermore, the confidence levels of the year 2 profile pupils appeared elevated from the start in comparison to the year 5 profile children, with all four then demonstrating a faster rate of increase in, and higher level of confidence overall across the block of lessons. The year 5 pupils did not demonstrate such noticeable improvements to their confidence across the 12 weeks, with the average level for the four pupils being considerably lower than that of the year 2 pupils. Moreover, the year 5 children were observed to demonstrate limited progress in the development of fundamental swimming skills and stroke skills as a result of this lack in confidence, which is supported by Weinberg’s and Gould’s (2011) theory on developmental ages effecting state anxiety.

These findings therefore highlighted potential benefits that school swimming in KS1, compared to KS2, could have on the children’s progression and the schools’ swimming attainment. These benefits were also demonstrated by other projects (Harbin, 2005; Beard, 2012; Jorgensen, 2012; ASA, 2013b), which together advocate the teaching of swimming from a young age. However, although these benefits were clearly present for school 1 when compared to school 2, this study does not ensure that the results, and therefore conclusions would be the same for different schools.

The findings cannot be generalised to the wider population. Firstly, further factors could have been at play in hindering the children’s learning, for example the number of children who had EAL or SEN, which might have affected their understanding and ability to perform certain skills. Additionally, these factors and the demographics of the wider population were not considered and so,
therefore, these two schools do not represent the local community or the population of England. Finally, the sample size and study size for this research project was too small to accurately and reliably produce conclusions that would be valid for others that were not involved in the study.

5.3 The Impact of this Study on Future Research and Work

The results for the two schools that participated in this study drew intriguing conclusions in relation to the differences in the progression of skill acquisition and confidence levels for the two age groups. As a result of this and the limitations highlighted, further research and studies would need to be conducted in order to confirm whether or not offering school swimming lessons in KS1 would be more beneficial than in KS2. It was clear to the researcher that from the study of the children involved, coupled with previous swimming teaching experience, there is this potential.

It was also clear that, despite having swimming lessons from an earlier age, the 12 lessons that were offered were an insufficient number to enable children with no prior swimming experience to achieve the requirements of the DfE (2013), and the earlier swimming lessons made little difference to this. Therefore further consideration should be given to how the minimum attainment level can be more achievable for school children. Although it is the responsibility of the schools to offer swimming lessons, perhaps more attention needs to be made to the encouragement of parents and carers to get involved also.
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and water temperature on outcome in near-drowning’. 

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