



Capstone Project

**The Development of an App to
help Teachers incorporate
Physical Activity Breaks in the
Classroom**

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Abstract

Physical Activity Breaks in the classroom refers to students undertaking physical exercises for a period of approximately 5-15 minutes during the school day. It is a structured approach that is carried out in many countries around the world. It can offer many benefits for students such as: increasing academic performance, improving on-task behaviour and improving the health of students. As someone who has always had a passion for physical activity, I set out to design an app that would help teachers incorporate Physical Activity Breaks into their lessons.

For my research, I designed a questionnaire to gather teacher's views on Physical Activity Breaks and the use of technology in the classroom. After I designed the app, I got five teachers to review it and share their opinions with me via an interview. All the teachers spoke very well about my app and felt that it would be a very useful resource to deliver Physical Activity Breaks in the classroom.

Overall, I am very happy with how this project went and the excessive time I invested into designing the app proved worthwhile as all the teachers approved of it very well. In saying that, to take this research project further, I would want to test the app in the classroom. This would help to see if it had an effect on the academic performance or the behaviour of students. However, due to a restriction on the time-scale for the project I was unable to do this but I do hope to do this in the near future.

Acknowledgements

I would like to take this opportunity to express my sincere appreciation and thanks to my Capstone supervisor Mr. Gerry Trainor for his dedicated time, constant guidance and enthusiasm throughout the completion of this project.

Secondly, I would like to thank all of the teachers who took the time and effort to complete my questionnaire to help me gather results for my research. In particular, I would like to thank the five teachers who gave up their time to carry out interviews for me, to review the app and give their honest opinions and constructive feedback. This was all very much appreciated and couldn't have been done without you all.

Finally, I would like to thank my parents, Eugene and Martina Gilmore for their encouragement and support throughout the completion of this project, as well as instilling within me, an ethos of dedication and hard work.

1 Chapter One – Introduction

As someone who has always had a keen interest in physical activity, I was curious about how this passion of mine could be incorporated in the classroom. After carrying out some research, I came across the concept of Physical Activity Breaks in the classroom and found that it was popular in other parts of world. This is a structured approach where students undertake physical exercises in the classroom during the school day. It can offer many benefits for students such as: increasing academic performance, improving on-task behaviour and improving the health of students. It was unfamiliar to my own educational experience, so I began to investigate how this approach could be introduced into schools in Northern Ireland. Currently, an increasing number of schools have access to educational iPads/Tablets. Therefore, I thought about the idea of designing an app for teachers, which would help them incorporate Physical Activity Breaks into their classroom.

In my research I aimed to find out exactly what Physical Activity Breaks in the classroom entailed and in which parts of the world they are currently in use. Classroom space is limited, so I wanted to explore the exercises that are suitable for students to undertake in the classroom. With any new approach, there were always going to be two sides of the argument, so I investigated both the benefits and the drawbacks of carrying out Physical Activity Breaks in the classroom. Furthermore, in order to see if my app would prove to be successful, I had to research the use of technology in the classroom and uncover teachers' views on iPads/Tablets, as this helped me to know exactly what type of app design I wanted to achieve.

For my research, I asked a number of teachers to complete an online questionnaire to gather information on Physical Activity Breaks and their use of iPads/Tablets in the classroom. I then carried out an analysis on the responses from the questionnaire to determine if my app could prove successful in the classroom.

With regards to the app, I interviewed a selection of teachers to gather their opinions, and whether or not they felt it could be useful in the classroom. I analysed their responses from the interviews, which helped inform me about what was good with the app and how I could look at developing the app further.

In Chapter Two, I present my literature review looking at Physical Activity Breaks and use of iPads/Tablets in the classroom. In Chapter Three, I outline my research methodology. I also outline the specification and design of my app. In Chapter Four, I present an analysis of my results, of both my questionnaires and interviews. In Chapter Five, I conclude the project and evaluate what I have found out and how the Capstone Project went overall.

2 Chapter Two – Literature Review

2.1 Physical Activity Breaks in the Classroom

2.1.1 What are Physical Activity Breaks in the classroom?

Centers for Disease Control and Prevention (2017, p. 1) outline what Physical Activity Breaks in the classroom involve:

Classroom physical activity includes any physical activity performed in the classroom during the school day. Classroom physical activities can last from five to fifteen minutes and can be done all at one time or several times during the school day. Teachers can include physical activity into their planned academic lessons or provide short breaks in class.

After carrying out some research into Physical Activity Breaks in the classroom, I soon found out that this approach was unfamiliar to my own educational experience. In the fourteen years that I attended school as a pupil, along with the past three years of teaching in various schools, I have never seen this approach of physical activity being rigorously implemented in the classroom. This interested me greatly and I wanted to investigate how to inform teachers about Physical Activity Breaks. I decided that an app would be a good means of doing this and would allow teachers to be able to carry out Physical Activity Breaks in their own classrooms.

2.1.2 Physical Activity Breaks in the classroom around the world

Physical Activity Breaks in the classroom are very popular in America, mainly due to the high levels of obesity within the country. Currently in America, there are three main programs that are used to get students moving in the classroom, called 'Instant Recess', 'The Energizers' and 'TAKE 10'. These use similar approaches in that they provide classroom based physical activities, which teachers can integrate into their lessons for students to undertake (Action for Healthy Kids, 2015).

In particular, TAKE 10 has proven to be a major success within America. It was developed by teachers for teachers, to provide ten minutes of physical activity to get children up and moving in the classroom. Currently fifty thousand classrooms in the USA are using TAKE 10 reaching a total of one million children. Due to this success, TAKE 10 has now been implemented internationally into China, Brazil, Chile and Japan. There are also plans to implement it into Mexico and Colombia (TAKE 10, 2015). With all these countries following this approach, maybe it is time our own education system in Northern Ireland followed suit.

2.1.3 Suitable physical activity exercises for in the classroom

Any successful physical activity usually consists of three phases: warm-up, training (activity) and cool-down. The warm-up usually consists of some light aerobic exercise to prepare the body for the physical activity that will take place. The training phase refers to the actual activities that take place during the session and the cool-down helps the body to recover after the session, usually through some form of stretching (Tower, 2017).

Although Physical Activity Breaks in the classroom are very short, I will still implement these three phases into my app. However, since classroom space is limited only specific exercises will be suitable. In the table below I have outlined some suitable exercises that can be performed in the classroom.

<u>Warm-up</u>	<u>Activity</u>	<u>Cool-down</u>
Hula Hoop	Press Ups	Toe Touches
Jumping Jacks	Lunges	Cobra
Arm Circles	Butt Kicks	Triceps Stretch
Dance in Place	Squats	Arm Across Chest
March in a Band	Crunches	Upper Back Stretch
Shoot Hoops	High Knees	Quadriceps Stretch
Rollerblade in Place	Run in Place	Overhead Stretch
Jump Rope	Frog Jumps	Child's Pose
Jump High	Mountain Climbers	Butterfly Stretch
Overhead Reaches	Surfer	Side Stretches

2.1.4 Benefits of Physical Activity Breaks in the classroom

2.1.4.1 *Improves health of students*

Physical Activity Breaks in the classroom offer both physical and mental benefits for students. Scharaldi (2017) believes that it is important for teachers to implement Physical Activity Breaks into their lessons. He argues that it reduces the risk of many diseases, but also helps impact the brain by improving mood, attention and academic performance of students. Moreover, research carried out for the UK Parliament found that in 2016, 25% of children aged between 2-15 in Northern Ireland were either obese or overweight (Baker, 2017, p. 16). These are frightening statistics and I personally believe that this statistic would soon decrease over time, if Physical Activity Breaks were implemented into the Northern Ireland education system.

2.1.4.2 *Improves academic performance of students*

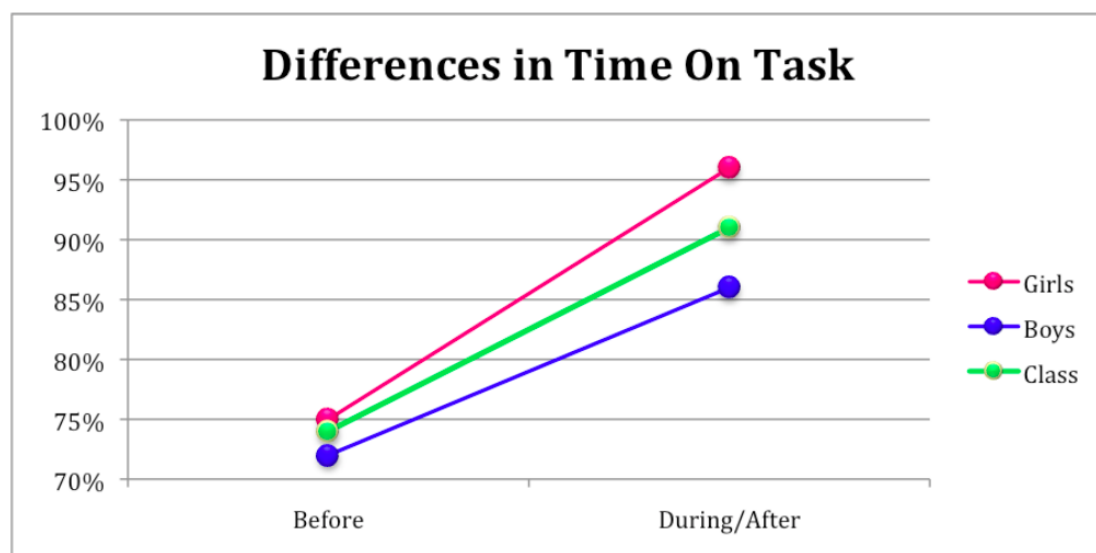
It is interesting to note that Finland, who are considered to have one of the most effective education systems in the world, offer their students a mandatory fifteen minutes of Physical Activity Break every hour of every day (Doyle, 2016). Castelli et al. (2015) believe that Physical Activity Breaks can help to improve academic performance, attention and memory while in the classroom. Pate and Buchner (2014, p. 28) further support this idea as they convey that Physical Activity Breaks in the classroom can offer enhanced educational outcomes for students.

Additionally, a study was carried out in nine different schools (four in the United States and five in other countries) to test whether the introduction of short Physical Activity Breaks affected: cognitive skills (e.g. memory, attention); attitudes (e.g., mood); academic behaviours (e.g. on task-behaviour, concentration); and academic performance (e.g. test scores). From this study, one of the main findings was that eight out of the nine schools showed a positive correlation between Physical Activity Breaks in the classroom and academic performance (Centers for Disease Control and Prevention, 2014, p. 21-22).

2.1.4.3 Improves on task behaviour

Riddle (2012, p. 13) carried out a research project in America, testing the effect on students of incorporating Physical Activity Breaks throughout the school day. One of her main findings was the increase in time that students spent on task after completing Physical Activity Breaks, compared to the prior implementation of this into her lessons. Castelli et al. (2015) supports Riddle's view on this, as they believe it improves students' ability to stay focused and remain on task, thus enhancing students learning capacity in the classroom.

The graph below shows the increase in percentage of time spent on task for boys, girls, and the class as a whole, after Riddle had implemented the Physical Activity Breaks into her lessons.



(Riddle, 2012, p. 13).

2.1.4.4 Can help overcome the potential loss of Ulster GAA and IFA coaches

Recently, due to cuts within the Department of Education, there has been uncertainty surrounding the jobs of Ulster GAA and Irish Football Association coaches, who go into schools and take physical activity lessons. This Sports Development Programme within schools was due to cease on the 31st October 2017. However, the Department of Education has confirmed that extra funding has been made available to keep this programme running until March 2018 (BBC News Northern Ireland, 2017). In saying this, no guarantee has been given that this programme will continue beyond March 2018, and if it was to be stopped,

then regular Physical Activity Breaks in the classroom could be the way forward. This would help to compensate in some way for the loss of this physical activity time that the students would no longer have.

2.1.5 Drawbacks of Physical Activity Breaks in the classroom

2.1.5.1 *May compete against other school priorities*

On the other hand, it must be noted that Physical Activity Breaks can entail several drawbacks. Firstly, teachers are under immense pressure to achieve the best grades possible for all their students. By providing short Physical Activity Breaks during lessons, it could be perceived negatively by teachers, due to the time consumed in carrying out the activities. This could particularly be the case in some schools if there is a major drive within the school around exams and succeeding academically. As well as this, some teachers have outlined their concerns surrounding the barriers of implementing Physical Activity Breaks in the classroom, such as indoor space constraints, inadequate training and safety (Whitt-Glover, Porter, and Yancey, 2013, p. 5).

2.1.5.2 *May not improve all measures of health*

As already mentioned, Physical Activity Breaks in the classroom can help improve health and reduce the risk of many diseases. However, research carried out found that there is limited evidence to be certain that Physical Activity Breaks are sufficient enough to impact chronic disease risk factors among children (Whitt-Glover, Porter, and Yancey, 2013, p. 5-6).

2.1.5.3 *Classroom teaching time is limited*

The Department of Education Northern Ireland (2017) states:

It is up to schools to determine how much time is devoted to Physical Education (PE) in the curriculum but departmental guidance recommends that they should provide pupils with a minimum of two hours curricular PE per week.

From my own experience at school, I was never given the minimum of two hours of PE each week, but rather it was just one hour per week.

Also, a survey carried out by Sport Northern Ireland (2010, p. 1) found that:

The overall average time spent on curricular PE in post primary schools in Northern Ireland during the academic year 2009 - 2010 was 85 minutes.

Therefore, it could then be argued that if schools are unable to meet the recommended target of two hours of PE each week, which would suggest there isn't enough time to introduce Physical Activity Breaks into schools.

2.1.5.4 Lack of knowledge from teachers to implement the exercises

Additionally, another drawback of Physical Activity Breaks in the classroom is that some teachers might not have the knowledge to implement the physical activity exercises. Research shows that teachers who understood Physical Activity Breaks were more likely to implement breaks into their lessons, compared to those who were not comfortable with the content. Therefore, effective teacher training is important for such an initiative to run correctly (Alexander et al., 2012, cited in Pate and Buchner, 2014, p. 27). In spite of this, I hope to be able to develop an app for teachers, which will make the delivery of Physical Activity Breaks straightforward for all. This app will require no training and will ensure that teachers feel comfortable at implementing these Physical Activity Breaks into their lessons.

2.1.5.5 Some students do not enjoy physical activity

Another drawback that must be remembered is that all students do not enjoy physical activity, so it could be difficult to get them actively involved. Research carried out in schools in America found that Physical Activity Breaks during the first and last ten minutes of the school day had lower participation rates. This was mainly because at the start of the school day students did not want to ruin their hair or clothing and at the end of the school day students were ready for school to finish (Alexander et al., 2012, cited in Pate and Buchner, 2014, p. 27). Therefore, the timing of Physical Activity Breaks during a school day would have to be

thought about carefully before being successfully implemented into schools in Northern Ireland.

2.2 The use of technology in the classroom

2.2.1 iPads/Tablets

Technology in the classroom is evolving rapidly and is becoming more and more predominant. This widespread adoption of technology is changing how both teachers teach and how students learn. By integrating technology into the classroom, we are making learning more interactive and engaging, which helps to ignite a student's imagination (Centre Technologies, 2015). A report carried out by Dr. Liz Fawcett (2011, p. 13) within schools in Northern Ireland on the 'The benefits and disadvantages of educational tablet use from the perspective of teachers and parents' found that out of 201 schools surveyed, 81% of them had used iPads/Tablets to varying degrees in the classroom.

As the statistic show, a large majority of schools within Northern Ireland are now making use of iPads/Tablets in the classroom, whether that is the teachers having their own individual iPad/Tablet or each pupil having access to one. Research carried out by Ashley Wainwright (2013) found that "86% of students believe that iPads/Tablets can help them to study more efficiently" and "75% of students agreed that the iPad/Tablet enhanced their learning experience." Therefore, it is clear to see that students enjoy the use of iPads/Tablets and they can have a positive impact in the classroom.

2.2.2 Teachers' views on iPads

Dr. Liz Fawcett (2011, p. 35) further found out that some teachers were sceptical about the use of tablets in the classroom. Since iPads or tablets have recently been introduced into many schools, a large number of the teachers surveyed felt pressurised into using them, due to the fact that they had a specific slot to use them during the week; they had been funded by the parents; or you were seen to look good if you were using them.

However, from reading this report it became clear to me, that a lack of teacher training regarding the use of iPads/Tablets was a major problem. Of the 171 teachers who were surveyed, 57% of them said that they had either received no training at all or inadequate training. Ultimately, this lack of teacher training could be one of the main reasons why there is a negative image being portrayed regarding the use of iPads/Tablets in the classroom (Fawcett, 2011, p. 33).

2.2.2.1 *Overcoming teachers' problems with my own app*

Taking this problem into consideration, when designing my own app to promote short Physical Activity Breaks in the classroom, I will aim to ensure that it is user friendly so that teachers do not face any hassle while navigating around the app. I plan to design an app that will have such a simplistic design, that no training will be required for teachers to use it.

2.2.3 What makes a good app?

2.2.3.1 *Purposeful*

When designing my app, I aim to ensure that it does what I have set out to do at the design stage. I do not plan to overcomplicate the app, but rather ensure that it does one thing well. I will execute my initial design meticulously, and then look at adding additional features once my core focus has been achieved (Rhodes, 2015).

2.2.3.2 *User Friendly*

One thing that will always be at the forefront of my mind is the audience who I am developing it for. Johnson (2016) supports this view, as she believes that by knowing who is most likely to use the app, allows you to plan the functionality and design around the users' preferences. This view is supported by MobiDev (2016) as they believe that for any kind of app that is developed, the simpler it is delivered, the better, and users will not be going looking for alternative apps.

2.2.3.3 *Added features*

To give my app those added features, I plan to add some transitions and also music for when the students are undertaking the physical activities. This will hopefully help to bring the app to life and make it more impressive (Rhodes, 2015).

2.2.3.4 *The Bottom Line*

Overall, people like to use apps that are easy to use and can satisfy their needs. When building and designing my app, I have got to ensure that it is user-friendly, simple, innovative, and solves problems. A great app will be one that satisfies the teachers who will be using it (Johnson, 2016).

2.3 Research Questions

Prior to carrying out my research, I came up with appropriate questions for both my questionnaire and interviews that helped provide a clear focus to my study. I have set out my main research questions below that I wanted to find out.

2.3.1 Questionnaires

Before designing my questionnaire, I had to plan exactly what information I wanted to obtain from it. Therefore, when planning I split my questions up into three main areas as shown below.

Teacher Background	Physical Activity Breaks	iPads/Tablets in the Classroom
What is your gender?	Have you ever implemented a Physical Activity Break into a lesson before?	Does your school provide you with your own iPad/Tablet?
How long have you been teaching?	What exercises did you carry out?	How often do you use your iPad/Tablet in the Classroom?
What is your main subject?	What benefits did you see from implementing a Physical Activity Break into one of your lessons?	Has your school provided you with training on the use of iPads/Tablets in the classroom?
	If you have never implemented a Physical Activity Break before, what is your reason for not doing so?	Rate in your opinion the usefulness of iPads/Tablets within the classroom?

	Would the development of an app containing suitable exercises, help to deliver Physical Activity Breaks?	
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2.3.2 Interviews

Similarly to my questionnaires, I was able to plan interview questions into three main areas as shown below.

App Strengths/Areas for Development	Usefulness/Enjoyment of the App	Usage of the App
What parts of the app did you like?	If you were to implement Physical Activity Breaks into your classroom, do you think you would find this app useful?	Is there any particular times of the school day that you feel this app would be best to be used?
Are there any parts of the app that you think could be changed?	Do you think the students would enjoy you using this app in the classroom?	Is there any particular times of the day when you think it wouldn't be a good idea to implement this app?
Overall, did you find the app user-friendly?		

3 Chapter Three - Methodology

3.1 Research Methodology

3.1.1 Qualitative Research

Steiner Kvale (1996, cited in Brennan, 2017, p. 4) states:

Qualitative research is not objective data to be quantified, but meaningful relations to be interpreted.

Qualitative research is used to gain an understanding of underlying reasons and opinions. It helps to provide insights, to uncover thoughts and opinions, in order to dive deeper into the problem. Some common methods include focus groups, individual interviews and observations (Wyse, 2011).

For the purpose of my project, I carried out five semi-structured interviews with teachers regarding my app. Each interview was recorded and typed up (See Appendix 2). This enabled me to gather teachers' thoughts and opinions on the app. I compared the results of these interviews using tables, to identify trends that were obtained from the interviews (See Chapter Four).

3.1.2 Quantitative Research

Aliaga and Gunderson (2000, cited in Muijs, 2010, p. 1) states:

Quantitative research is explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics).

Quantitative research helps to generate numerical data, which can then be transformed into usable statistics. This numerical data helps to formulate facts and patterns from the research gathered. It usually involves some form of survey (Wyse, 2011).

For my project, I designed a questionnaire on Microsoft Forms to obtain information on teacher's usage and perceptions of Physical Activity Breaks in the classroom. The questionnaire also contained some questions on iPads/Tablets to obtain teachers views on the use of them in the classroom. I emailed this questionnaire out to various teachers asking them, along with some of their colleagues to complete it. This enabled me to receive a large pool of results. I carried out a detailed analysis of the responses to obtain the most information possible from the questionnaire results. I also drew up graphs for some of the questions to view the results easily (See Chapter Four).

3.1.3 Ethical Considerations

Miles and Hubberman (1994, cited in Paoletti, Tomás and Menéndez, 2013, p. 22) outline a range of different ethical considerations that must be considered prior to undertaking any research project:

Worthiness of the project; competence of boundaries, informed consent, benefits, costs and reciprocity; harm and risk; honesty and trust; privacy, confidentiality, and anonymity; intervention and advocacy; research integrity and quality; ownership of data and conclusions; and use and misuse of results.

For my own research I had to consider a number of these ethical considerations. For example, I made sure all my questionnaires were anonymous. This was made clear to everyone prior to undertaking my questionnaire. I believe this helped to provide me with better results, as participants were likely to be more honest if their answers were anonymous. Furthermore, for all the interviews I carried out, I outlined to the interviewee that their responses were only to be used for the purpose of my research project. I also kept all the interviews anonymous and deleted the recording of the interview after I had typed it up. My Ethics Review Form can be read at the back of this project.

3.2 Specification

3.2.1 Aim

My aim was to design an app that would help teachers incorporate short Physical Activity Breaks into their lessons (See Appendix 3). With Physical Activity Breaks being very unfamiliar to most within Northern Ireland, I fully understood that a large majority of teachers would have no idea of what physical exercises could be carried out in the classroom. With this in mind, I believed that if Physical Activity Breaks were to ever become a statutory requirement for teachers to deliver in Northern Ireland classrooms, that my app would be very beneficial to all. Furthermore, due to the benefits that Physical Activity Breaks in classrooms can bring students, some teachers may decide to adopt this approach into their teaching and once again, I believed my app could prove to be very beneficial for them.

3.2.2 What did I want to do?

After researching some similar programs in America, I came up with the idea that I wanted my app to promote five minutes of physical activity in the classroom, to include a warm-up, an activity and a cool-down. Also, I did not want the students completing the same exercises every day so I tried to offer a range of different exercises that the teachers could then select to give the students some range of variety. Furthermore, from my own experience of attending fitness classes, many fitness instructors play music while the exercises are being completed. I decided to adopt a similar approach into my app, as I believed this would help the students enjoy the exercises and create a fun classroom environment.

3.3 Design

3.3.1 How did I design the app?

First of all, I planned the design of what I wanted my app to look like on paper. Once I was happy with my paper design, I then implemented this design into an actual app. In order to find the right program to use to design my app, I trialled different online app development websites and spoke to some app developers to

try and find out what software would be best for me. After a short period, I came to the decision that I was going to design it on PubCoder.

PubCoder is a great software for designing apps as it is very user-friendly and allows the user to add many features such as: audio, buttons, images, animation, interactivity, videos etc. The app can then be downloaded on to any iOS and Android device, which would be very convenient for any teacher that has either a tablet or iPad.

With regards to the overall appearance of my app, I selected my colours wisely from a colour wheel. By doing this it ensured that I was using corresponding colours and helped to give it a professional look.

3.3.2 User Menu

Within my app, I also provided a menu option for the user. In this menu there is information on what the app is for and why it has been created. I also provided an option for teachers to view what Physical Activity Breaks in the classroom are and the benefits of carrying this approach out. By providing this background information to the idea behind the app, it allows teachers to see if it would be of any benefit to them prior to actually implementing the app into their teaching. On this menu page there is also a home button to direct the user back to the home screen to begin using the app.

3.3.3 Navigation

Once any teacher started using the app, I wanted to ensure that navigation around the app would be very simplistic, so that the teacher would only have to click one button to be taken to the next stage. This would help to prevent any confusion for the teacher and ensure that the Physical Activity Break follows the process of a warm-up, an activity and a cool-down each time a teacher implements it into one of their lessons.

3.3.4 Physical Activity Exercises

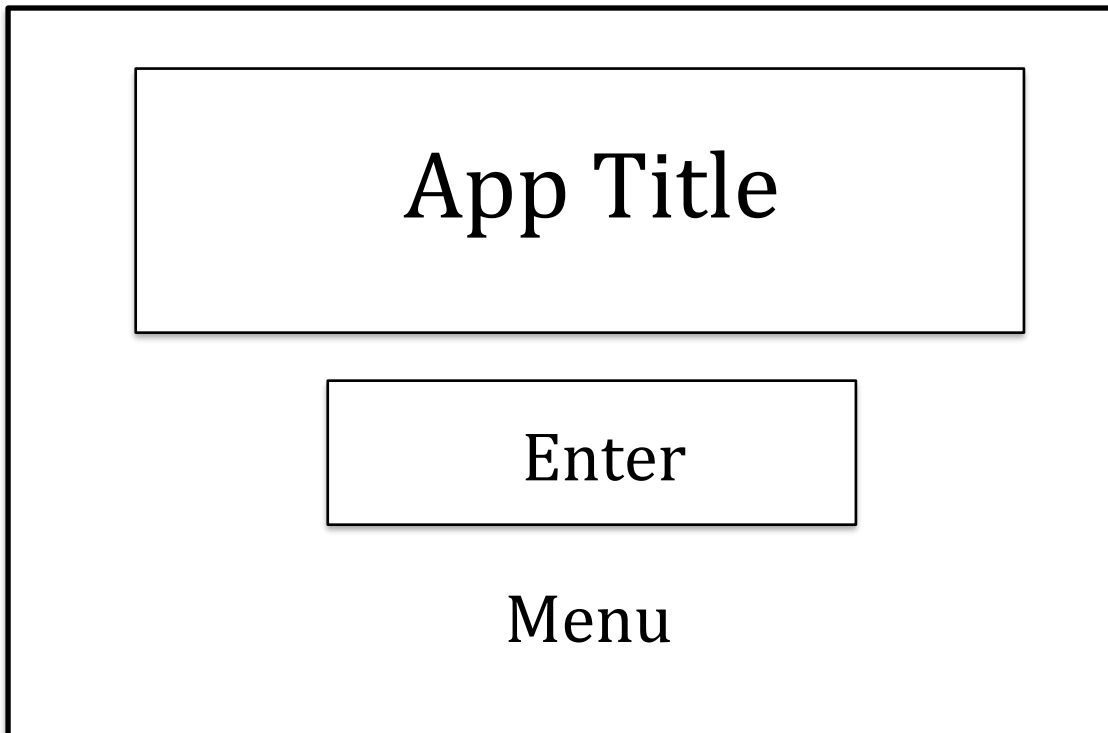
For each section of the app (warm-up, activity and cool-down) teachers have a range of physical activities to select from. Once they select a specific activity they

are automatically taken to the appropriate page for this activity. For all of my physical activities in the app, I have chosen to go with the design of having a picture of the activity being performed and a description of the activity. I felt this would work best as the students would then have a visual of how to perform the activity, along with a description of how to perform the activity correctly and for how long the activity should be performed for. Since my activities are carried out for different lengths of time, I decided that I would have a timer on each physical activity page. I believe this would help to inform the teacher and the students of when it is time to move on to the next stage of the Physical Activity Break, ensuring that the whole Physical Activity Break only lasts for five minutes. Timing for Physical Activity Breaks is vital as teachers do not want to be spending too much time on them, so by adding the feature of a timer for each stage I believed would only enhance teachers' willingness to make use of the app.

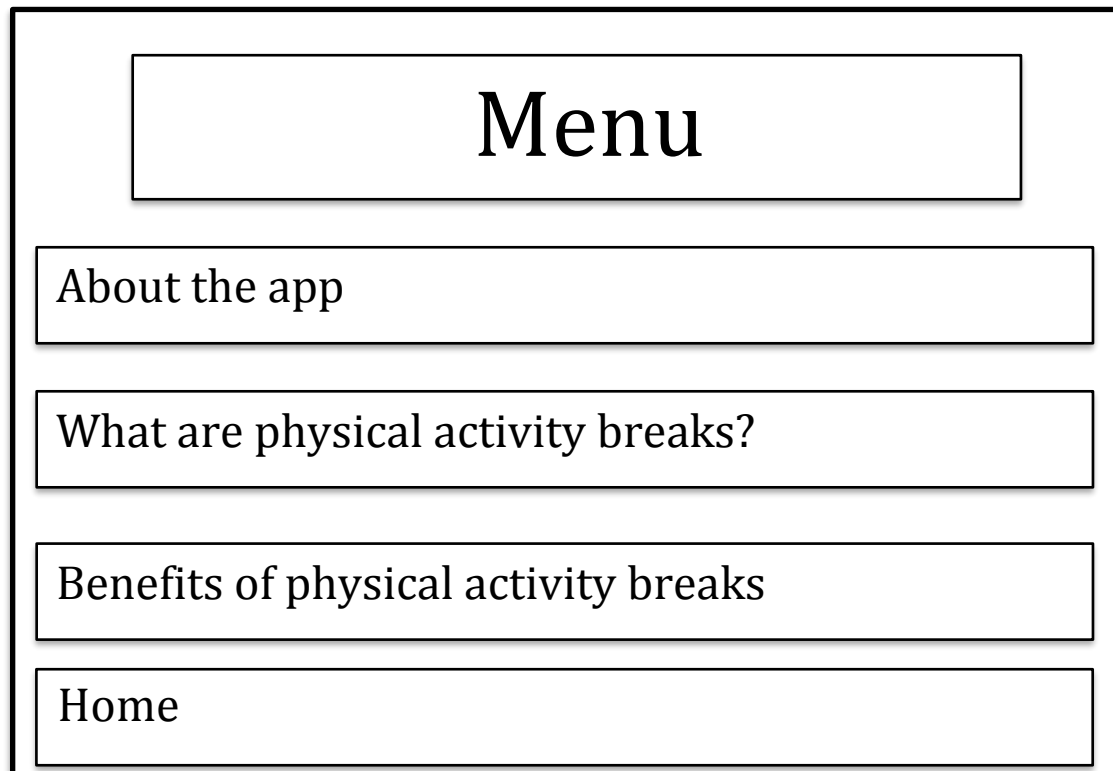
The last page of my app helps prepare the students for the work beginning. I feel this is appropriate because once the students see this page they would automatically know that their Physical Activity Break has ended and it is time to refocus again in preparation for teaching to begin.

3.4 App Design Storyboard

App First Page



App Menu



Activity Selection Page

Warm-up			
Select one of the warm-up exercises below.			
Activity 1	Activity 2	Activity 3	Activity 4
Activity 5	Activity 6	Activity 7	Activity 8

Sample Activity Page

Activity Title	
Activity Picture	Activity Description
Timer	Next Page Button

Final Page – Time for Work

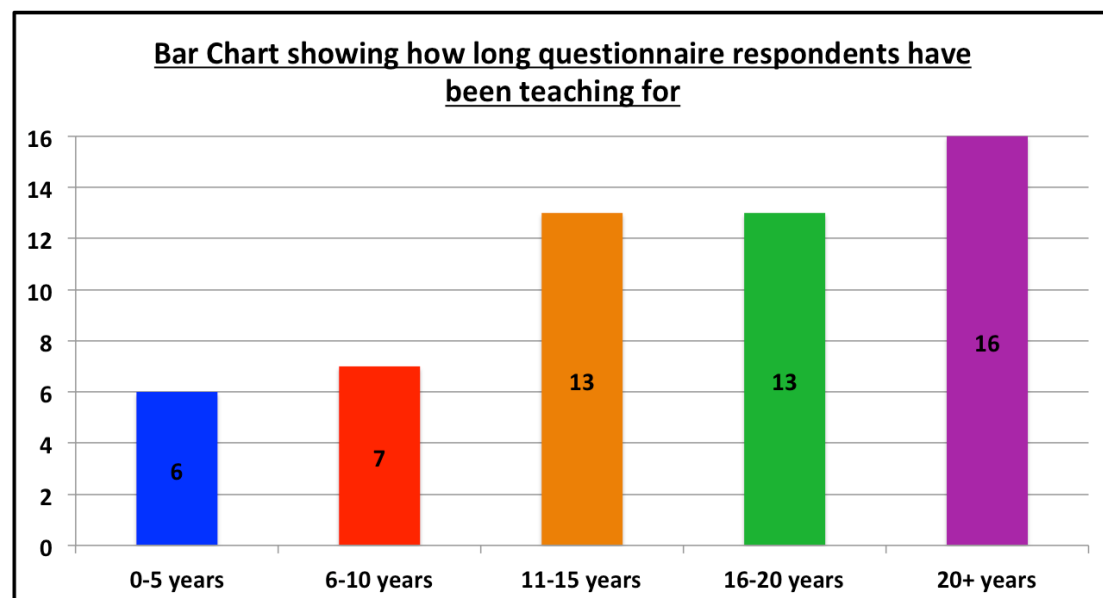
Time for Work		
Books	Pencil Case	Homework Diary

4 Chapter Four – Results

4.1 Questionnaire Results

4.1.1 Background to Teachers from the questionnaire

I received fifty-five questionnaire responses (thirty-five female and twenty male) from five post-primary schools (See Appendix 1). As the graph below shows, I obtained a good range of teachers who have been teaching for different lengths of time. This helped to give me a good reflection in my results on Physical Activity Breaks and iPads/Tablets in the classroom. As the table below shows, questionnaire responses were received from a mixed range of different subject teachers.



Subject	Number of Teachers
Art	1
Business Studies	4
Design & Technology	2
English	6
Geography	2
History	5
Home Economics	5
ICT	5
Languages	7

Mathematics	6
Music	1
Physical Education	3
Religious Studies	1
Science	5
Sociology	2

4.1.2 Physical Activity Breaks

Twenty-seven (49%) of the teachers had implemented a Physical Activity Break into a lesson they had planned, whereas twenty-eight (51%) had never implemented a Physical Activity Break before. From those teachers who said they had implemented a Physical Activity Break, they had to outline what exercises they used. From analysing the answers, I found that out of the twenty-seven teachers, thirteen of them had only ever done very basic exercises of walking or running on the spot. Therefore, even for these teachers, I believe my app could be very beneficial, as it would provide them with a wide range of exercises that they could implement into the classroom.

However, from the results, some teachers had implemented very inventive Physical Activity Breaks. One teacher responded “2min chair exercise to upbeat music, e.g. swimming...touch toes etc.” I found this response very interesting, as it is similar to the design behind my app, as all my exercises in the app will be carried out to music.

Another teacher responded:

“When I have them for a double class (which is 2 hours long) at the end of the first class, I take the learners out for a lap around the block. By doing this I feel it gives them a new lease of life and gives them energy for the next class.”

This teacher uses the Physical Activity Break during double periods, as they can be very long for any pupil to concentrate for. I believe this is a good idea as it helps

break the lesson up and as the teacher states, it can provide pupils with a new lease of life before the second half of the lesson commences. However, I personally do not believe I would use Physical Activity Breaks in a thirty minute lesson, as time is too restricted during these lessons.

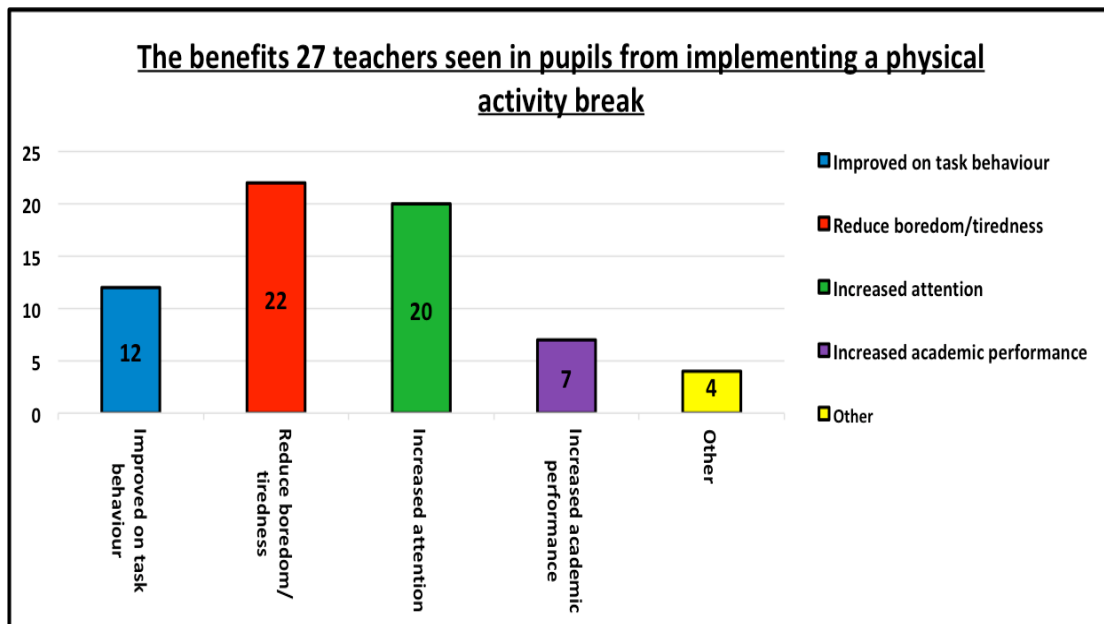
One teacher also responded:

“Mostly reacting to how the use of an adverb impacts on the verb. I would ask boys to walk (verb) around the room. I would then invite other boys to add an adverb (quickly, slowly etc.) and the pupil would have to respond accordingly.”

This is a stimulating method of implementing a physically activity break as it still allows the students to learn, but while being active in the classroom.

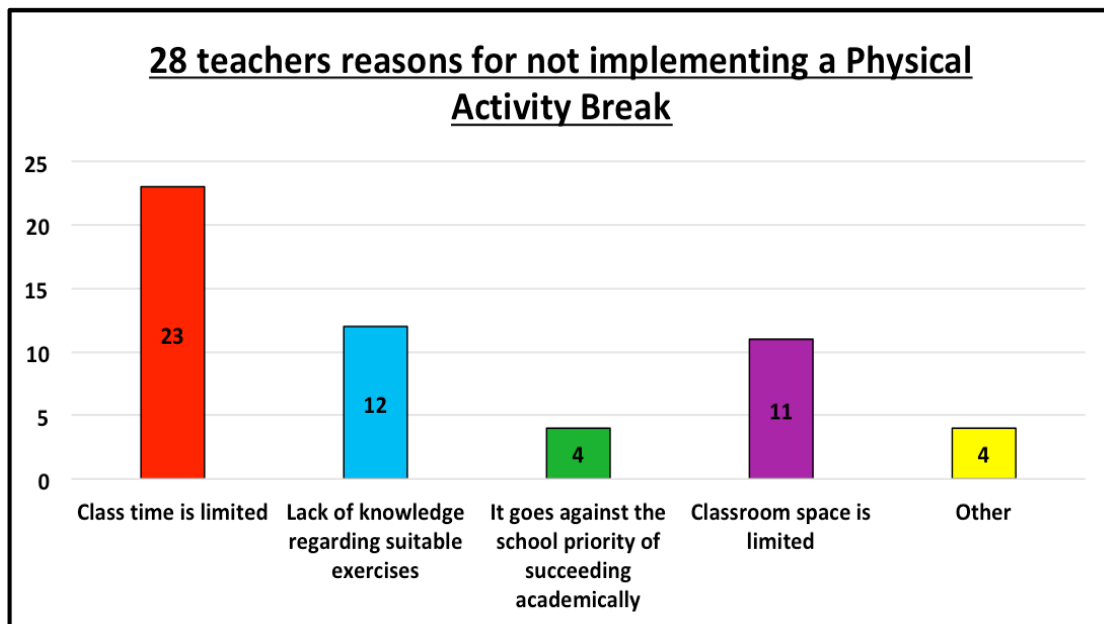
4.1.3 Benefits seen from implementing a Physical Activity Break

For this question, only the teachers who said they had completed a Physical Activity Break before had to answer it. As the graph below displays, there was a range of benefits, of which teachers could select multiple answers. As the graph shows, the most popular benefit that teachers seen was ‘Reduced boredom/tiredness’ as twenty-two of the twenty-seven (81%) teachers who had implemented a Physical Activity Break believed this to be true. The lowest perceived benefit was increased academic performance as only seven of the twenty-seven (26%) teachers believed this to be true. Some of the ‘other’ benefits that teachers believed included, ‘more alert’ and ‘less likely to switch off during lesson.’



4.1.4 Reasons for not implementing Physical Activity Breaks

For this question, only the teachers who said they had not completed a Physical Activity Break before had to answer it. As the graph below shows, there was a range of reasons, of which teachers could select multiple answers. As the graph illustrates, the main reason why teachers had not implemented a Physical Activity Break was 'Class time is limited', as twenty-three of the twenty-eight (82%) teachers who had not implemented a Physical Activity Break believed this to be one of the reasons. Another reason for not implementing a Physical Activity Break that was of particular interest to me, was the fact that twelve of the twenty-eight (43%) teachers believed that they had a 'lack of knowledge regarding suitable exercises.' This provided me with great confidence that the app that I have designed would be of particular use to these teachers, as it would provide them with a large range of physical exercises, which are suitable for the classroom. Four teachers had other reasons for not implementing Physical Activity Breaks and some of these included 'never thought of it' and 'pressure of delivering content and getting courses covered.'



4.1.5 Physical Activity Breaks improving academic success

One of my questions was ‘Research shows that Physical Activity Breaks improve academic success. With this in mind, would you implement Physical Activity Breaks into your classroom?’ For this question I received a positive response as forty-five of the fifty-five teachers (82%) said that ‘yes’ they would implement Physical Activity Breaks into their classroom if it helped to improve academic success. For this question, seven teachers answered ‘not sure’ and three teachers answered ‘no’. If they answered either, they then had to explain their choice. Some teachers still felt that timing was still a big issue as their responses included: “Exam pressure at KS4 - not enough time to get through the course as it is. I would consider it at KS3”, “It's dependent on the time available in each lesson as well as the pupils in the class that you are teaching”, and “Very restricted time.” Other teachers were still unconvinced and wanted to see evidence of the research before they would decide whether to implement it into their classroom. Some teachers’ responses included: “Need to be convinced about the research. DT, being a practical subject ensures pupils are active in the workshop.” “Never tried it, need to see evidence of research.” One thing interesting to note from this question, is that of the three teachers who said ‘no’, they have all been teaching for 20+ years, so possibly they know what has worked for them successfully over the years and would not consider a change.

4.1.6 The development of an app to promote Physical Activity Breaks

With the main idea behind my Capstone Project being around the development of an app to help teachers promote Physical Activity Breaks in the classroom, I had to find out whether teachers thought this would be helpful to them. Overall, forty-seven of the fifty-five teachers (87%) agreed that an app containing suitable exercises for the classroom would be beneficial to them to deliver Physical Activity Breaks. However, although these figures certainly favour the development of an app, one teacher provided me with some feedback regarding this question. This teacher believed that the wording of the question could be better, as someone may believe the app would be helpful – how would it not be? However, this does not necessarily mean that they would download it/pay for it/use an app for this.

4.1.7 iPads/Tablets

For teachers to make use of my app in the classroom they would need to have access to an iPad/Tablet. However, of the fifty-five teachers who completed the questionnaire forty-three (78%) of them were provided with their own personal iPad/Tablet by the school. This reassured me, as many teachers would then have the ability to make use of my app in their lessons. However, for those teachers who were not provided with their own iPad/Tablet, they could possibly make use of my app if they had a smartphone.

Furthermore, from my literature review one of the main problems I found regarding iPads/Tablets in the classroom was that of the 171 teachers who were surveyed, 57% of them said that they had either received no training at all or inadequate training (Fawcett, 2011, p. 33). With this report being carried out in 2011, I decided to find out in my own questionnaire if teachers had been provided with training on the use of iPads/Tablets in the classroom. Of the fifty-five teachers who completed the questionnaire, it was very pleasing to see that forty-seven (85%) said 'yes' they had received training.

Although, it was good to see that many schools had provided their teachers with training on the use of iPads/Tablets in the classroom, ultimately this would make

no major difference to using my own app as I have designed it in such a simplistic, user-friendly way that anyone would be able to use it.

4.2 Interview Results

I carried out five interviews with post-primary teachers in relation to my app (See Appendix 2). The tables below contain a summary of my interview results for each question. I have included colour trends when the interviewees responded with similar points, in order to spot similarities easily. E.g. for the first question, four of the interviewees mentioned the music in my app, so I highlighted this point in red etc. Underneath each table, I have analysed each question by explaining the results from the tables above.

4.2.1 What parts of the app did you like?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
<p>Very well laid out.</p> <p>Very easy to navigate around.</p> <p>Timer – acts as a good visual for the students.</p>	<p>Menu page – provides good information about the app.</p> <p>Extensive range of exercises included.</p> <p>Music – helps to create upbeat atmosphere and prevent it from becoming a lethargic task.</p>	<p>Music – make the Physical Activity Break more enjoyable for the students.</p> <p>Wide variety of exercises included.</p> <p>Easy to use – navigation very good.</p> <p>‘Time for work page’ prepares students for the lesson beginning.</p>	<p>Extensive range of exercises included.</p> <p>Music – makes the Physical Activity Break more enjoyable for the students.</p> <p>Easy to use with good navigation throughout.</p>	<p>Easy to use and navigation is very good.</p> <p>Very well laid out.</p> <p>Music – creates a fun environment for the students.</p> <p>Wide range of exercises included.</p> <p>Timer – ensures five minutes is only ever used up.</p>

Four out of the five interviewees mentioned the music contained within the app for each activity, the extensive range of exercises included and the ease of use of the app as the best parts of the app. I also received some good feedback on the use of the timer, 'the menu' and 'time for work' page and the app being very well laid out. I was very happy with the feedback I received for this question, as it was good to feel that the considerable time and effort I invested into designing this app has been worthwhile.

4.2.2 Are there any parts of the app that you think could be changed?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
Minor thing - having the timer count down, rather than counting up.	None.	A way of making the exercises being chosen at random rather than having to select them.	A random selector for the exercises to prevent selecting the same exercises each day.	Taking control of what exercises are done out of the teacher and students hands, as I may be inclined to select exercises I like more often.

The main thing that the interviewees identified that could be changed with the app, was to have a random selector for the exercises rather than the user having to choose them. This point interested me greatly, as I had actually wanted this feature in the app myself. However, after speaking with many app developers it was going to be impossible for me to design this feature myself, and I would have to get a developer to do this for me, which was then going to come at a considerable cost. Although, I do believe that this feature would definitely enhance the app and it could be something that I could look into adding in the future.

4.2.3 Overall did you find the app user-friendly?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
<p>Yes I did very much.</p> <p>The buttons - made it easy for me to navigate my way through the app.</p> <p>Menu option - allowed me to see what Physical Activity Breaks are and the benefits of carrying them out in the classroom.</p>	<p>Yes definitely.</p> <p>Simplistic design – makes it very easy to use.</p> <p>Very well laid out – with clear buttons ensuring Physical Activity Break flows nicely from one stage.</p> <p>Clear explanation and picture of how the exercise should be performed.</p>	<p>Without doubt, very easy to use.</p> <p>Well-spaced out - buttons and activities are not squashed on top of each other.</p> <p>Menu page – very good, gives you a good insight into what the app is about.</p>	<p>Yes very much so.</p> <p>Home menu – liked this as it gave you extra information about the use of the app, and the benefits of carrying out Physical Activity Breaks.</p> <p>Use of colour - authentically pleasing and the font was a good size, which made it easy to read.</p>	<p>100%! Very easy to work around.</p> <p>All the exercises are very well laid out and easy to understand and I particularly like the way the exercises are all of the same design</p>

All five interviewees believed that the app was very user-friendly. This pleased me greatly, as one of the main focuses when designing my app was to ensure that it had a very simplistic design and that no training would be required to use it. Three of the interviewees also mentioned the ‘menu’ page. This was interesting, as I thought many would pay little attention to the menu page, but obviously they considered it very beneficial.

4.2.4 If you were to implement Physical Activity Breaks into your classroom, do you think you would find this app useful?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
Quite sceptical about using it as I feel class time can be quite limited. Although, if I was to make use of the app, I feel it would benefit me greatly as I do not come from a sporting background so I wouldn't be too confident of particular exercises suitable for the classroom.	Most certainly – although I'm still not sure if I would do it yet in my own classroom. However, I believe that if I was to do it I would definitely make use of the app.	As a PE teacher myself with plenty of experience, I know different exercises that I could do. However, for a maths, science or Religion etc. who doesn't have any background in physical activity, then this app would be very beneficial.	Oh very much so, as you can easily turn on the iPad and the exercises would be all there in front of you.	Yes certainly, the extensive range of exercises included in the app would mean I wouldn't have to waste time trying to come up with suitable exercises as they are all included within the app for me.

All five interviewees believed that if they were to implement Physical Activity Breaks into their classroom, that they would find this app very beneficial. However, two interviewees were still unsure whether they would implement it in their classroom, but they did say if they were to do it, that they would definitely make use of the app. Many of the interviewees felt this app is very beneficial in providing a wide

range of exercises, as some of them wouldn't be sure of what exercises to do in the classroom. Overall, I was very pleased with the feedback for this question, as they all felt my app would be very useful at implementing Physical Activity Breaks into the classroom, which is ultimately what I set out to achieve.

4.2.5 You have seen that there was a timer at the bottom of the page for each exercise; in your opinion do you think this is useful?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
<p>Yes I liked the timer.</p> <p>I feel this could be a good visual for the children carrying out the Physical Activity Break. However, it could possibly be a better idea to have the timer count down, rather than counting up.</p>	<p>A great idea!</p> <p>Class time is limited – so the timer helps ensure I am not spending too much time on each exercise.</p> <p>Good visual for the students so they know how long is left of each exercise before moving on.</p>	<p>I would say it is useful.</p> <p>By having the timer it ensures that the Physical Activity Break does not run over the five minutes. It also lets the students know how long they have left to do of each activity.</p>	<p>Yes very useful.</p> <p>Class time is limited - this ensures that each part of the Physical Activity Break is kept strictly to the set time. This helps ensure that the total Physical Activity Break does not exceed five minutes.</p>	<p>Yes a great feature of the app.</p> <p>It can act as a visual for both the students, and myself to ensure that no longer than five minutes is spent on the whole Physical Activity Break.</p>

All five interviewees believed that having the timer on the page for each exercise was very useful. Four of the interviewees felt that it acts as a good visual for the students, so that they know how long is left of each exercise. Furthermore, from my questionnaire, the main reason

why teachers had never implemented a Physical Activity Break was because ‘class time is limited’, however four interviewees felt that since class time is so limited that the timer can help ensure that the Physical Activity Break does not exceed five minutes. Overall, it proved to be a good idea to include the timer into my app design.

4.2.6 Do you think the students would enjoy you using this app in the classroom?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
Yes, I think they very much so would enjoy it. It's something different for the children, so I've no doubt they would get excited about it and would benefit from it in some way.	For any student, anything that gets the students out of doing work for a while they always seem to always enjoy.	Yes I think they would. Students can get bored during classes and this would help break up the lesson. Overall, I think it's a great idea and pupils would really enjoy it.	Oh yes definitely. It proved very successful when I used it and I would be interested to see some research on carrying out Physical Activity Breaks in the classroom and the link with improved academic performance.	I couldn't see any reason why students wouldn't approve of this. When I do something different with my students they always seem to love it and I am sure this would be the same case here with this app.

All five interviewees felt that students would enjoy using this app in the classroom. The interviewees felt that the students would definitely enjoy it, as it is something different for them and it would get them out of doing work for a while. Overall, I felt if the app was tested and

students enjoyed it, then it could prove to be successful and teachers may be more likely to adopt it into their classroom if they could see the benefits that it brings them.

4.2.7 Is there any particular times of the school day that you feel this app would be best to be used?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
<p>Morning time - some students can come in very 'sleepy' so it could be a good thing to use to waken them up.</p> <p>Form class - it would take away from my own worries and mean that the students are not losing out on subject class time.</p> <p>Mid-afternoon - as students can begin to tire as the school day reaches</p>	<p>First two classes in the morning provide the students with that extra burst of energy to get them going.</p> <p>Triple periods - this could be used well halfway through this triple period lesson to give them a break the work and provide them with a new lease of life prior to beginning the second half of the lesson.</p>	<p>Early morning - as students can be tired from staying up late the night before, so this could help to get the students focused for your class.</p> <p>Afternoon - a lot of pupils just want home so it could help refocus them.</p>	<p>Afternoon - as they can be quite tedious for the students. Also mornings it could be used and between break and lunch.</p> <p>Mornings.</p> <p>Between break and lunch.</p>	<p>Personally, I probably wouldn't have set times to use this app.</p> <p>However, if I was about to teach the lesson and the students looked very tired or inattentive then it would perhaps be a good idea to make use of the app then.</p> <p>If I was to have set times.</p> <p>Mornings and afternoon - as I find students are often lacking a lease of life at these times and it</p>

it latter stages after lunch.				can be difficult to get them engaged during lessons.
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The general consensus from all five interviewees was that morning time and mid-afternoon would be the best times to use my app. The interviewees felt that in the morning time, students can often come into school tired, so the app could be used to get the students focused for the start of the day. Mid-afternoon was also a popular choice, as the interviewees felt that towards the end of the day students can often tire, so the app could be used to give them that extra burst of life to allow them to finish out the day with increased attention.

4.2.8 Is there any times of the day when you think it wouldn't be a good idea to implement this app?

Interviewee One	Interviewee Two	Interviewee Three	Interviewee Four	Interviewee Five
Not after break and lunch - as the students have just had a break. PE - as students will be doing some form of physical activity during it.	Break and lunch - I wouldn't see much need for it to be done directly after these times.	Lunch - as pupils are already getting a break from work so essential they wouldn't need a Physical Activity Break.	Friday afternoon - as students just want the weekend to come. Year 10s – as they can be quite challenging.	Break and lunch - I don't feel would be that necessary as the students have just been on a break and don't need made anymore hyper.

The majority of interviewees felt that directly after break and lunch, would be two times when it wouldn't be needed to implement the app into the classroom, as the students have just had a break from the classroom so it would defeat the purpose behind the app. However, after completing these interviewees I was then out at a Special Needs School and was speaking to some of their teachers. One thing I found interesting from them, was that they often implement a classroom break for the students directly after break and lunch rather than going straight into work, as they find it can help to calm the students down again and get the students in the correct state of mind before beginning work. So although, none of my interviewees felt it would be needed to use it directly after break and lunch, it could perhaps be used in special schools during this time, with the music in the app even adapted to calming music for the students.

Chapter Five – Conclusion

In this Capstone Project, I carried out research into Physical Activity Breaks in the classroom. I also developed an app that could be used by teachers to incorporate five minutes of physical activity in the classroom throughout the school day. Overall, I thoroughly enjoyed this project and believe that it was a worthwhile experience. I feel that this project will benefit my own professional development. I invested a considerable amount of time and effort in the project, particularly, in the planning and development of my app. However, this time was beneficial, as I learned a lot from the process and the app received very positive feedback from all five teachers.

Surprisingly, from the questionnaire results, more teachers had implemented a Physical Activity Break before than I had expected. In saying that, none of these teachers had adopted a specific program, but rather just incorporated random exercises. On the other hand, there were also a large number of teachers who had never implemented a Physical Activity Break into one of their lessons before. The main reasons that were identified were due to class time being limited and teachers having a lack of knowledge regarding suitable exercises for the classroom. However, this is where I believe my app could be very useful for teachers, as it contains an extensive range of exercises that are all suitable for the classroom and it contains a timer to help ensure that the Physical Activity Break does not exceed five minutes.

Furthermore, my research also found that many teachers in schools now have access to an iPad/Tablet, so therefore, if my app was to be adopted into schools, then it seems that the majority of teachers would have no issue in accessing it. The feedback I received on my app was brilliant and gave me a real sense of satisfaction and achievement. After setting out to design a very simplistic, user-friendly app, I am very pleased with the outcome, as all five teachers seemed to agree on its ease of use. The extensive range of exercises included within the app, would help ensure that teachers would always have suitable exercises to select

from. With class time being so limited, I have also included a timer in the app, to help ensure that the Physical Activity Break does not exceed five minutes. Overall, I am very happy with the resource I have developed. From the feedback I have received, I believe that this would be a very useful app for any teacher wishing to adopt Physical Activity Breaks into their classroom.

Finally, this project has proved to be very successful and with the benefits that Physical Activity Breaks can offer to students, and with so many other countries around the world adopting Physical Activity Break programs into their schools, then perhaps, it is time the education system in Northern Ireland followed suit. Personally, I believe the app that I have designed could be a great vehicle for delivering this in the classroom. However, due to time constraints I was unable to actually test this app in the classroom. Ultimately, if I had more time and to take this research project further, I would access this avenue and get different teachers to implement it to receive some further feedback on it. When undertaking teaching practice this year, I plan to try out my app in the classroom to see if it could be successful and ways that I could look at enhancing it further.

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6 Appendices

6.1 Appendix 1 - Questionnaire Results

Physical Activity Breaks in the Classroom

55

Responses

03:51

Average time to complete

Active

Status

...

1. What is your gender?

[More Details](#)

Male	20
Female	35
Prefer not to say	0



2. How long have you been teaching?

[More Details](#)

0-5 years	6
6-10 years	7
11-15 years	13
16-20 years	13
20+ years	16



3. What is your main subject?

[More Details](#)

55

Responses

Latest Responses

"Mathematics"

"Computer Science"

"Business Studies"

4. Have you ever implemented a Physical Activity Break into a lesson you have planned?

[More Details](#)



5. What exercises did you carry out during this Physical Activity Break?

[More Details](#)

28
Responses

Latest Responses

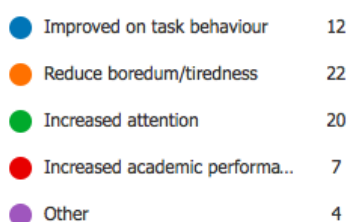
"Jogging on the spot"

"Stand up , shout sit down , repeated number of times or stand up ...

"Stan up sit down 10 times when they look like they are falling asle..."

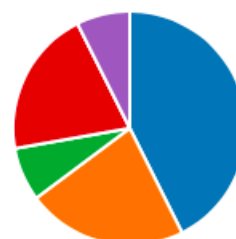
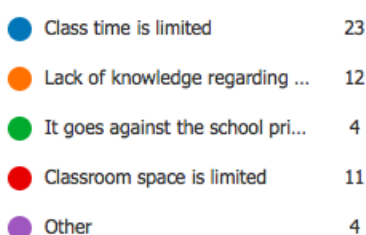
6. What benefits did you see in your students from implementing a Physical Activity Break into one of your lessons?

[More Details](#)



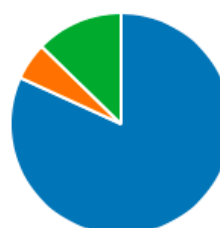
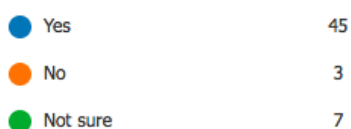
7. Why have you not implemented Physical Activity Breaks into your classroom?

[More Details](#)



8. Research shows that Physical Activity Breaks improve academic success. With this in mind, would you implement Physical Activity Breaks into your classroom?

[More Details](#)



9. Give a brief explanation why you wouldn't implement Physical Activity Breaks into your classroom, if they help improve academic success.

[More Details](#)

14
Responses

Latest Responses

"I do but it's dependent on the time available in each lesson as well..
"My priority is to teach mathematics and as class time is short I don..
"See above"

10. If Physical Activity Breaks became a statutory requirement within the classroom, would the development of an app containing suitable exercises help to assist you with the delivery of this requirement?

[More Details](#)

Yes 48
No 7



11. Does your school provide you with your own personal iPad/Tablet?

[More Details](#)

Yes 43
No 12



12. How often do you use your iPad/Tablet within the classroom?

[More Details](#)

Every day 22
Most classes 5
Some classes 16
Seldom 5
Never 2



13. Has your school provided you with training on the use of iPads/Tablets within the classroom?

[More Details](#)



14. Rate in your opinion the usefulness of iPads/Tablets within the classroom?

[More Details](#)

55
Responses



6.2 Appendix 2 - Interviews

Prior to carrying out an interview, I got each teacher to fill in the questionnaire again so that I could get some understanding to their background on Physical Activity Breaks as all my questionnaires were anonymous. The interviews were semi-structured, in that I had planned questions beforehand, however when opportunities arose I often asked other questions if needed. Each interviewee will remain anonymous throughout.

6.2.1 Interview One

The first interview took place on Wednesday 22nd November at 15:40. The interviewee was a male English teacher, who has been teaching for 6-10 years. The interview took place in the interviewee's classroom. This interviewee has never carried out a Physical Activity Break in a lesson before, mainly due to the fact that he felt class time is limited and he has a lack of knowledge regarding suitable exercises for in the classroom. The interviewee was given 10 minutes to play about with the app and see the different features of it, prior to me asking any questions on it.

(Start of Interview)

Interviewer: What parts of the app did you like?

Interviewee: Well I thought it was very well laid out, as it was very easy to navigate between the different parts of the app. I wouldn't be too familiar with apps myself, but I found it very easy to navigate around the app. Particularly, I also liked the timer, as I feel this could be a good visual for the children carrying out the Physical Activity Break. However, it could possibly be a better idea to have the timer count down, rather than counting up.

Interviewer: You mentioned there about the timer, is there any other parts of the app that you think could be changed?

Interviewee: No not really, well the timer is only a minor thing so it wouldn't be a major problem.

Interviewer: You already mentioned about the navigation, but overall did you find the app user-friendly?

Interviewee: Yes I did very much, as I already said, I haven't much experience with apps or iPads, but the buttons in the app were very clear which made it easy for me to navigate my way through the app. Also on the home page there was a menu option, which allowed me to see what Physical Activity Breaks are and the benefits of carrying them out in the classroom.

Interviewer: From your own perspective of the app, do you think students would enjoy you using this app in the classroom?

Interviewee: Yes, I think they very much so would enjoy it. However, I would still be quite sceptical about using it as I feel class time can be quite limited. Although, if I was to make use of the app, I feel it would benefit me greatly as I do not come from a sporting background so I wouldn't be too confident of particular exercises suitable for the classroom. However, this app has a great range of exercises that I could make use of for in the classroom. It's also something different for the children, so I've no doubt they would get excited about it and would benefit from it in some way.

Interviewer: Is there any times of the day when you think it would be best to implement this app?

Interviewee: Well obviously every day is different, but first thing in the morning some students can come in very 'sleepy' so it could be a good thing to use to waken them up. It could perhaps be used well during form class, as it would also take away from my own worries and mean that the students are not losing out on subject class time. Mid-afternoon could also be an option as students can begin to tire as the school day reaches it latter stages after lunch.

Interviewer: Is there any times of the day when you think it wouldn't be a good idea to implement this app?

Interviewee: I do not think it would be necessary to do it right after break and lunch as the students have just had a break and it is likely that many of them were outside being active. Also, during PE I do not think there would be a need for it, as they will obviously be doing some form of physical activity during it.

Interviewer: So to conclude, if you were to implement Physical Activity Breaks into your classroom do you think you would find this app useful?

Interviewee: Yes definitely, well if I was told to implement Physical Activity Breaks into my classroom without any resources I wouldn't really know what to do and would find it quite difficult. However, with this app all the exercises and how to complete the exercises is obtained very well within the app and it would very much make it a lot easy for myself.

Interviewer: Thanks very much for your time.

6.2.2 Interview Two

The second interview took place on Friday 24th November at 10:30. The interviewee was a male History teacher, who has been teaching for 20+ years. The interview took place in the interviewee's classroom. This interviewee has never carried out a Physical Activity Break in a lesson before. The interviewee was given 10 minutes to play about with the app and see the different features of it, prior to me asking any questions on it.

Interviewer: After looking at the app, what parts of the app did you like?

Interviewee: Firstly, from someone who has never carried out a Physical Activity Break and knew very little about it, I liked the way they was a menu page on the home screen providing information on this. Within the app, I felt there was an extensive range of exercises and as highlighted in the questionnaire that I answered, I said I had never done this before due to having a lack of knowledge regarding suitable exercises for in the classroom. However, I feel this app would make it very easy for myself to deliver Physical Activity Breaks due to great range of exercises and they are explained very well with pictures provided. Furthermore, I like the idea of having music for each exercise as it will provide an upbeat atmosphere for the students and prevent the Physical Activity Break from becoming a lethargic task.

Interviewer: On the other hand, after mentioning various good points about the app, are there any areas of the app that you think could be developed?

Interviewee: To be honest, I am no expert in this area so I wouldn't want to try run the app down. However, I didn't experience any faults or see any problems that could be changed.

Interviewer: Overall, after using the app did you find it user-friendly?

Interviewee: Yes definitely, the simplistic design behind this app makes it very easy to use and I couldn't imagine any teacher having any problems navigating around the app. It is very well laid out and the Physical Activity Break flows nicely from one stage to the other by using the clear buttons on each page. Also, from not knowing exactly how to carry out the exercises, I like the way the user is provided with a clear explanation and picture of how the exercise should be performed.

Interviewer: So if you were to implement Physical Activity Breaks into your classroom, do you think you would find this app helpful?

Interviewee: Most certainly, although I still wouldn't be sure if I would do it yet in my own classroom, I believe that if I was to do it I would definitely make use of the app as I wouldn't know what exercises to do without the app and the exercises on the app are timed so it would ensure I do not spend too much time on it during my lesson.

Interviewer: You just mentioned the timer there; do you think this a good idea then in the app?

Interviewee: A great idea! I believe class time is already limited so if I was to ever do this I would want to ensure that I want not be spending too much time on each exercise as it would only further eat into my teaching time. I would say the timer would also act as a good visual for the students so they know how long is left of each exercise before moving on.

Interviewer: Do you think students would enjoy you using this app in the classroom?

Interviewee: From a History perspective, students either seem to love or hate the subject. For those students who do not particularly like the subject, I think this could be something different for them that they would enjoy, which could help them to hopefully improve their attention during the lesson. For any student

though, anything that gets the students out of doing work for a while they seem to always enjoy.

Interviewer: Is there any particular times of the school day that you feel this app would be best to be used?

Interviewee: Often first two classes in the morning it can be difficult to get the students motivated, however by doing this at the start of the day it could provide the students with that extra burst of energy to get them going. Furthermore, in my school senior students have triple periods, this app could possibly be used well halfway through this triple period lesson to give them a break the work and provide them with a new lease of life prior to beginning the second half of the lesson.

Interviewer: After mentioning the times when you think it would be good to use the app. Is there any specific times during the school day when it wouldn't be the best idea to make use of it?

Interviewee: I suppose if students are outside at break and lunch, I wouldn't see much need for it to be done directly after these times.

Interviewer: Thanks very much for your time.

6.2.3 Interview Three

The third interview took place on Friday 24th November at 12:45. The interviewee was a male PE teacher, who has been teaching for 11-15 years. The interview took place in the interviewee's school office. This interviewee has carried out a Physical Activity Break in a lesson before. The interviewee was given 10 minutes to play about with the app and see the different features of it, prior to me asking any questions on it.

Interviewer: After looking at the app there for a period of 10 minutes or so, what parts of the app did you like?

Interviewer: Well I suppose it's something that I had never really seen before and as such there is a lot of good things in it. Firstly, the music is very good, as it would make the breaks more enjoyable for the students. There is a wide variety of exercises to do with the students, which would prevent you always doing the same exercises with the same students. It's easy to use, especially for myself who wouldn't be the most technologically advanced; I found it very easy to navigate around the app, as the buttons are all very clear. Furthermore, I liked the wee 'time for work' page at the end as it initiates to the students 'let's go it's time for work now.'

Interviewer: You mentioned a lot of good things with regards to the app there, however is there anything that you think could be changed?

Interviewee: I suppose there is very few, but maybe a way of making the exercises being chosen at random rather than myself having to select them. In that a random warm-up, activity and cool-down would just be fired automatically for the students to do.

Interviewer: You've already mentioned that you found the app easy to use, but overall do you think this app was user-friendly?

Interviewee: Without doubt, in my opinion it was very easy to use. It is all well-spaced out, in that buttons and activities are not squashed on top of each other. I think the menu page is very good, in that it gives you a good insight into what this app is about. It means you aren't just throwing this app at me without giving myself any background information into Physical Activity Breaks, which I feel is very appropriate.

Interviewer: As a PE teacher if you were to implement Physical Activity Breaks into the classroom; do you think you would find this app useful?

Interviewee: I suppose yes in the exam classes that I would take in the classroom it definitely would be. Obviously in your practical PE it wouldn't be as relevant as the students will naturally take part in physical exercise anyway. I think for other subjects it is an excellent idea. As a PE teacher myself with plenty of experience, I know different exercises that I could do. However, for a maths, science or Religion etc. who doesn't have any background in physical activity, then this app would be very beneficial.

Interviewer: You seen that there was a timer at the bottom of the page for each exercise; in your opinion do you think this is useful?

Interviewee: I would say it is useful, as it could help put teachers at ease as you see a lot of teachers within the school who don't like losing any time during lessons. However, by at least having the timer in it ensures that the Physical Activity Break does not run over the 5 minutes. So if they have a double period of an hour long they can take 5 minutes for a Physical Activity Break and still know they have 55 minutes for the rest of the lesson. It also lets the students know how long they have left to do of each activity.

Interviewer: As a PE teacher you might know better than most as you are always taking PE lessons, but with this app do you think students would enjoy taking Physical Activity Breaks in the classroom?

Interviewee: Yes I think they would, from my own experience as a pupil you often would get bored during classes and this would help break up the lesson. Overall, I think it's a great idea and pupils would really enjoy it.

Interviewer: What times of the day do you think this app would be best to be used?

Interviewee: For myself I can think of two main times – early morning being one as students can be tired from staying up late the night before from playing video games etc. especially in today's world. This could then help to get the students focused for your class. Then also, in the afternoon as a lot of pupils just want home so it could help refocus them.

Interviewer: You mentioned there the early morning and afternoon as good times to make use of the app, but is there any times that you could think of that it wouldn't be a good idea to make use of the app?

Interviewee: I suppose the main time would be after lunch, as pupils are already getting a break from work so essential they wouldn't need a Physical Activity Break.

Interviewer: Thanks very much.

6.2.4 Interview Four

The fourth interview took place on Friday 24th November at 15:45. The interviewee was a female Business Studies teacher, who has been teaching for 16-20 years. The interview took place in the interviewee's classroom. This interviewee has carried out a Physical Activity Break in a lesson before. The interviewee was given 10 minutes to play about with the app and see the different features of it, prior to me asking any questions on it.

Interviewer: After looking at the app that I have developed for Physical Activity Breaks, what parts of the app did you like?

Interviewee: I particularly liked the extensive range of activities that are included within the app and I liked the idea of having the warm-up, the activity and the cool-down. I also really liked the use of music for each part of the Physical Activity Break. All the songs seemed to quite relevant from the UK Top 40 Charts, so the students will be able to relate to them easily and it will allow them to enjoy the Physical Activity Break more. Furthermore, I liked the ease of use and navigation throughout.

Interviewer: Is there any particular parts of the app that you think could be changed or developed further?

Interviewee: One thing I think would be a great idea would be to have a random selector for the exercises, as I would be quite conscious that I would select the same exercises each day.

Interviewer: You have already touched on it, but overall did you find the app user-friendly?

Interviewee: Yes very much so. First of all on the home page I really liked the home menu, as it gave you extra information about the use of the app, and the benefits of carrying out Physical Activity Breaks. Since I have carried out Physical Activity

Breaks before in lessons and I have researched some benefits of doing this, I was already aware of some of these benefits. However, I feel many teachers would not be aware of these benefits and by seeing these benefits more teachers may consider implementing it into some of their lessons. I also liked the use of colour throughout the app as it was authentically pleasing and the font was a good size, which would make it easy to read. I also feel it would be easy to use in the classroom setting because as the name suggests 'TAKE 5' ensures that only 5 minutes of a lesson is used up, which I feel is essential due to the pressures of covering course content etc.

Interviewer: If you were to implement physical breaks into your classroom, do you think you would find this app useful?

Interviewee: Oh very much so, as you can easily turn on the iPad and the exercises would be all there in front of you.

Interviewer: As you seen on each exercise page, I had a timer at the bottom of the page as the warm-up would be less time than the main activity. Do you think this timer is useful?

Interviewee: Yes very useful, because with class time being limited it ensures that each part of the Physical Activity Break is kept strictly to the set time. This helps ensure that the total Physical Activity Break does not exceed 5 minutes.

Interviewer: Do you think the students would enjoy you using this app in the classroom?

Interviewee: Oh very much so, I think there are a great variety of activities that the students would enjoy. However, the teacher would have to ensure that they do not select the same activities every day as this could result in the students losing interest in the idea. So as long as there is proper use of the app, then it should be successful.

Interviewer: Whenever you carried out your own Physical Activity Break during a lesson did the students seem to enjoy it?

Interviewee: Oh yes definitely, it proved very successful when I used it and I would be interested to see some research on carrying out Physical Activity Breaks in the classroom and the link with improved academic performance.

Interviewer: Is there any times of the day when you think this app would be best to be used or is there any times when you think it wouldn't be a good idea to use this app?

Interviewee: I think this could be very useful in the afternoon, particularly Monday afternoons as they can be quite tedious for the students. Also mornings it could be used and between break and lunch. I would be cautious of using this app on a Friday afternoon, as students just want the weekend to come. Furthermore, Year 10s can be quite challenging so I would have to manage doing it with them as it could lead them astray, however I don't know this for definite.

Interviewer: Finally, to conclude have you any further comments with regards to the app overall?

Interviewee: I think this is a brilliant app and one that I would be very interested and keen to use within my classroom.

Interviewer: Thanks very much.

6.2.5 Interview Five

The fifth interview took place on Sunday 26th November at 11:30. The interviewee was a female ICT and Business Studies teacher, who has been teaching for 16-20 years. The interview took place in the interviewee's home. This interviewee has never carried out a Physical Activity Break in a lesson before. The interviewee was given 10 minutes to play about with the app and see the different features of it, prior to me asking any questions on it.

Interviewer: So after using the app there for a short while, what features of the app did you like?

Interviewee: Firstly, it must be noted that I found this app extremely easy to use and navigation is very good. Each stage of the app is very well laid out and I found it easy to go from one part to another. One thing of particular interest was the use of music for each exercise. From my own experience of attending fitness classes, music is often played at these classes and it creates a fun environment, so I liked the idea of having a similar approach with the app. Also, from someone who has never carried out a Physical Activity Break before, I liked the wide range of exercises that is included in the app. After completing your questionnaire I said that class time is too limited for the reason for not implementing a Physical Activity Break before, however, by having set times for each part of the Physical Activity Break and a visual timer I believe is very good. This would possibly change my opinion if I knew a set 5 minutes at the start of the lesson was only going to be used up.

Interviewer: After listing a wide range of features you liked about the app, are there any features in the app that you think could be changed?

Interviewee: Overall, I want to make it clear that I think this app is very inventive before I start discussing possible changes. However, one thing that springs to mind would be taking control of what exercises are done out of the teacher and students hands, because if there was a particular exercise I liked, I have a feeling I would be

more inclined to choose it more often and this would defeat the purpose of the app.

Interviewer: You already mentioned that the app was easy to use. So overall, did you find the app user-friendly?

Interviewee: 100%! I wouldn't regard myself as an iPad or app expert but I still found this app very easy to work around and I'm sure that would be the case for most teachers. All the exercises are very well laid out and easy to understand and I particularly like the way the exercises are all of the same design and not just random photos taken off the Internet. This gives the app a more professional outlook.

Interviewer: If you were to implement Physical Activity Breaks into your classroom, do you think you would find this app useful?

Interviewee: Yes certainly, the extensive range of exercises included in the app would mean I wouldn't have to waste time trying to come up with suitable exercises as they are all included within the app for me.

Interviewer: You already basically answered this question earlier, but you liked the timer on each page?

Interviewee: Yes a great feature of the app, as it can act as a visual for both the students, and myself to ensure that no longer than 5 minutes is spent on the whole Physical Activity Break.

Interviewer: Do you think students would enjoy you using this app in the classroom?

Interviewee: I couldn't see any reason why students wouldn't approve of this, as it is different and I am sure they would never have seen anything like it before.

Particularly, in ICT when I do something different with my students they always seem to love it and I am sure this would be the same case here with this app.

Interviewer: Is there any particular times of the school day when you think it would be best to use this app?

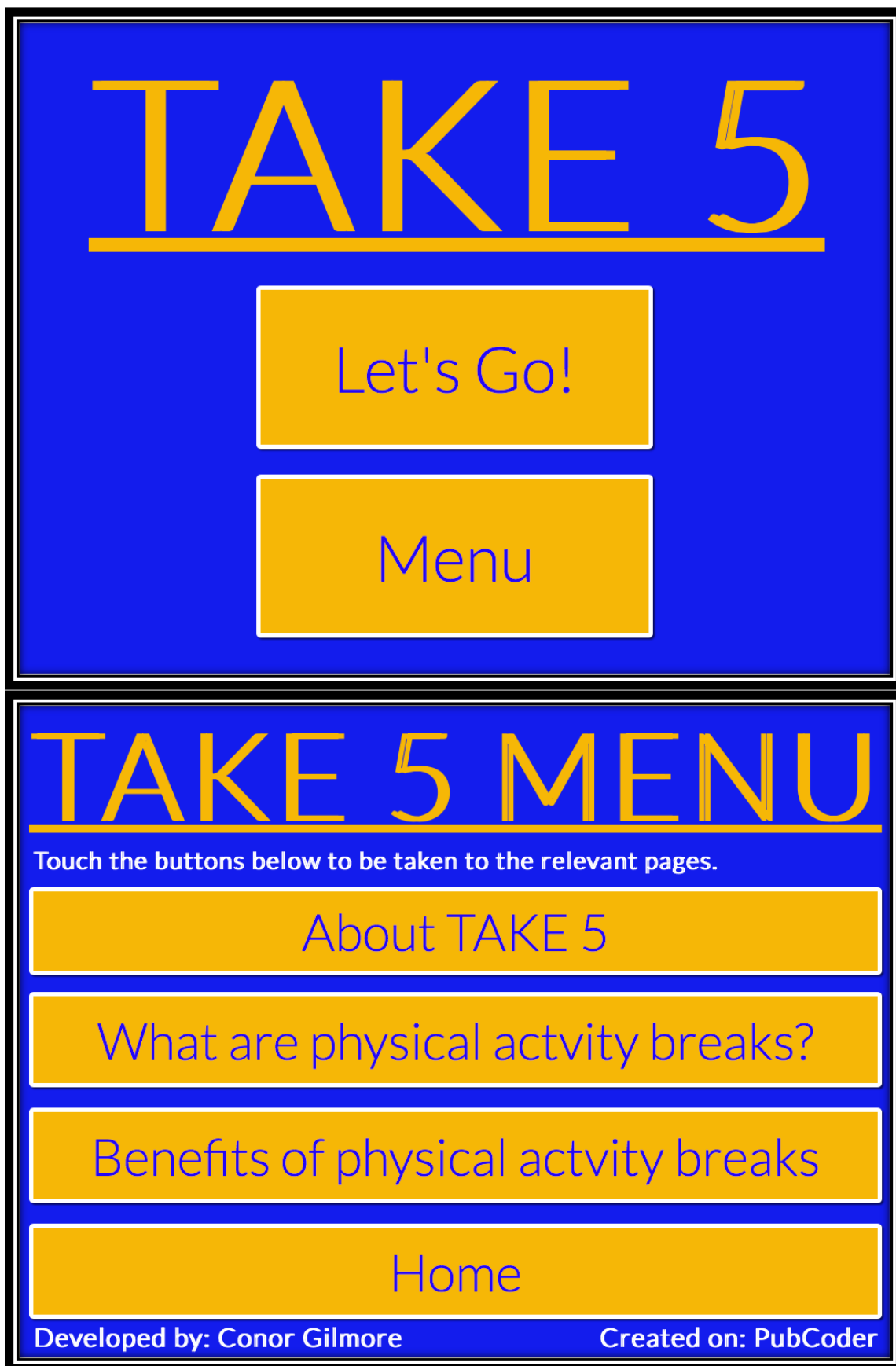
Interviewee: Personally, I probably wouldn't have set times to use this app. However, if I was about to teach the lesson and the students looked very tired or inattentive then it would perhaps be a good idea to make use of the app then. If I was to have set times I suppose first two periods and last two periods of the day would be best, as I find students are often lacking a lease of life at these times and it can be difficult to get them engaged during lessons.

Interviewer: On the other hand, is there any particular times during the school day when you think it wouldn't be a good idea to make use of the app?

Interviewee: I suppose directly after break and lunch, I don't feel would be that necessary as the students have just been on a break and don't need made anymore hyper.

Interviewer: Thanks very much.

6.3 Appendix 3 – My App



About TAKE 5

Hi my name is Conor Gilmore and I am the developer of TAKE 5. TAKE 5 is an app I developed as part of my final year project for St. Mary's University College Belfast. TAKE 5 is designed for teachers to use within their classroom on either an iPad or Tablet to promote short physical activity breaks within the classroom.

Short physical activity breaks at the start of lessons can offer many benefits for your students, which can be viewed on our 'menu' page.

For any questions regarding TAKE 5 or the development of the app, please do not hesitate to contact me on: cgilmore25@stmarys-belfast.ac.uk

[Home](#)[Menu](#)

What are Physical Activity Breaks?

Classroom physical activity breaks includes any physical activity performed in the classroom during the school day. Classroom physical activities can last from 5 to 15 minutes and can be done all at one time or several times during the school day. For the purpose of TAKE 5, I have planned the physical activities to last for 5 minutes as the name suggests, however these times can be altered according to the teacher. Teachers can include physical activity into their planned academic lessons or provide short breaks in class.

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Benefits of Physical Activity Breaks?

- Improves health of students
- Improves physical activity level of students
- Improves academic performance of students
- Improves on task behaviour
- Increases motivation
- Reduces boredom and tiredness
- Reduces obesity
- Reduces BMI
- Can help overcome the potential loss of Ulster GAA and IFA coaches

[Home](#)

[Menu](#)

Warm-up

It's time to warm-up! Click on one of the warm-up exercises below.



Arm Circles



Dance in Place



Hula Hoop



Jump Rope



Jumping Jacks



Rollerblade in Place



Shoot Hoops



Jump High

Arm Circles

Complete this warm-up exercise for one minute and then click next.



Arm Circles

With arms straight out to your side, raise them to shoulder height and move them in circles for 1 minute. You can make small or big circles, and go forward or backward. Mix it up and have fun! (Keep your arms in line with your shoulders.)

00:07.9

Next

Dance in Place

Complete this warm-up exercise for one minute and then click next.



Dance in Place

You don't need music to dance! Let loose and show off your fun dance moves for 1 minute!

00:04.3

Next

Hula Hoop

Complete this warm-up exercise for one minute and then click next.



Hula Hoop

Pretend you have a hula hoop and move your hips in circles for 1 minute. You can make your hula hoop go in big or small circles, fast or slow! For more of a challenge, add arm circles.

00:05.8

Next

Jump Rope

Complete this warm-up exercise for one minute and then click next.



Jump Rope

Pretend you have a jump rope handy and begin jumping. Hop on one foot, criss cross, or do doubles! Continue for 1 minute. How many jumps can you do?

00:04.3

Next

Jumping Jacks

Complete this warm-up exercise for one minute and then click next.



Jumping Jacks

From a standing position, quickly jump and spread your feet while bringing both arms above your head. Then jump and bring your feet together and arms to your side. Repeat for 1 minute. Count out loud to see how many you can do!

00:03.7

Next

Rollerblade in Place

Complete this warm-up exercise for one minute and then click next.



Rollerblade in Place

Stay in place and pretend to rollerblade. To gain speed, lean forward and “push” your rollerblades along the floor one at a time. Be sure to move your arms! Do this for 1 minute.

00:02.4

Next

Shoot Hoops

Complete this warm-up exercise for one minute and then click next.



Shoot Hoops

Move your body and pretend to dribble a basketball for 1 minute. You can even pretend to shoot hoops and make the game winning shot!

00:09.0

Next

Jump High

Complete this warm-up exercise for one minute and then click next.



Jump High

Get your heart rate up by jumping! Bend your knees and swing your arms up high while jumping. Challenge yourself and see how high you can jump! Repeat for 1 minute.

00:02.6

Next

Move

It's time to get active! Click on one of the move exercises below.



High Knees



Butt Kicks



Frog Jumps



Push Ups



Mountain Climbers



Run in Place



Surfer



Squats

High Knees

Complete this move exercise for two-three minutes and then click next.



High Knees

Bring your knees up one by one as if you are climbing stairs. Add arms by bringing the elbow of your opposite arm to your knee (left elbow to right knee and vice versa). Continue for 2 to 3 minutes. Challenge yourself to bring your knees up high!

00:04.0

Next

Butt Kicks

Complete this move exercise for two-three minutes and then click next.



Butt Kicks

00:04.2

Next

Butt kicks are like running in place, except instead of bringing your legs forward as you run, kick your butt one leg at a time. Keep your arms moving too! Do this for 2 to 3 minutes.

Frog Jumps

Complete this move exercise for two-three minutes and then click next.



Frog Jumps

00:05.1

Next

Test your frog legs! Squat down like a frog with your hands touching the floor between your legs. Jump straight up and come down to starting position. Repeat for 2 to 3 minutes.

Push Ups

Complete this move exercise for two-three minutes and then click next.



Push Ups

Plant your hands and feet (or knees) shoulder width apart on the floor and hold up your body in a straight line. Bend your arms and lower your body until it almost touches the floor. Push back up. Repeat for 2 to 3 minutes.

00:03.4

Next

Mountain Climbers

Complete this move exercise for two-three minutes and then click next.



Mountain Climbers

Place your hands on the floor, shoulder width apart, while stepping your feet back to get balanced. Bring one knee in towards your chest. As you straighten your knee, bring the other knee in, as if you are climbing. Continue for 2 to 3 minutes.

00:04.1

Next

Run in Place

Complete this move exercise for two-three minutes and then click next.



Run in Place

Run while staying in the same place. Get your arms moving with your legs! Change the pace from slow to fast in between. Continue for 2 to 3 minutes.

00:02.3

Next

Surfer

Complete this move exercise for two-three minutes and then click next.



Surfer

Lie on the floor face down with your arms at your side, hands on the floor. Pop up into a surfer position and “ride the wave.” Return to the starting position and pop up facing the other way. Repeat for 2 to 3 minutes. How many waves can you catch?

00:03.2

Next

Squats

Complete this move exercise for two-three minutes and then click next.



Squats

00:05.1

Next

Spread your feet shoulder width apart and squat down like you are sitting on an imaginary chair. Once you are “sitting,” stand back up. Repeat for 2 to 3 minutes. (Try to keep your knees over your ankles. You should be able to see your toes.)

Cool-down

It's time to cool-down! Click on one of the cool-down exercises



Toe Touches



Butterfly Stretch



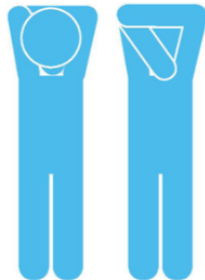
Cobra



Overhead Stretch



Quadriceps Stretch



Triceps Stretch



Upper Back Stretch



Arm Across Chest

Toe Touches

Complete this cool-down exercise for one minute and then click next.



Toe Touches

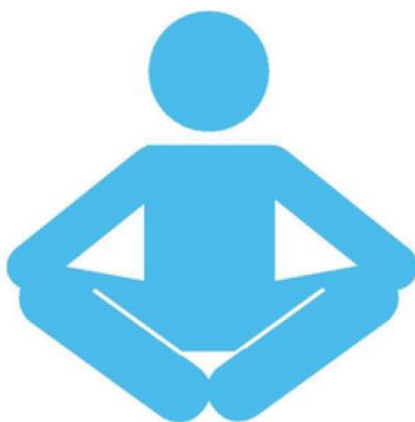
Place your feet together and reach down towards your toes as far as you can comfortably go. Hold this stretch for 30 seconds. Come up slowly to a standing position and repeat again.

00:09.7

Next

Butterfly Stretch

Complete this cool-down exercise for one minute and then click next.



Butterfly Stretch

Sit up straight on the floor and bring your knees to your chest. Spread your legs so your feet are pressed together and your knees are as close to the floor as possible. Hold your feet with your hands and hold the stretch for 30 seconds. Relax your legs and repeat one more time.

00:06.9

Next

Cobra

Complete this cool-down exercise for one minute and then click next.



Cobra

Lie face down on the floor and place your hands under your shoulders. With your shoulders rolled back, push your upper body up while keeping your legs on the floor. Push just enough to feel a comfortable stretch and hold for 30 seconds to 1 minute. (Do not throw your head back or push to a point that is painful.)

00:04.0

Next

Overhead Stretch

Complete this cool-down exercise for one minute and then click next.



Overhead Stretch

Raise your arms above your head and hold one hand with the other. Reach toward the sky and stretch for 30 seconds. Relax and repeat once more. (Do not add extra tension by intertwining your fingers.)

00:03.1

Next

Quadriceps Stretch

Complete this cool-down exercise for one minute and then click next.



In a standing position, bend your knee and reach behind you. Grab your foot and hold until you feel a stretch in the front of your thigh. Hold for 30 seconds and repeat on the other side. (If you struggle to balance, use a desk, chair, or wall for support.)

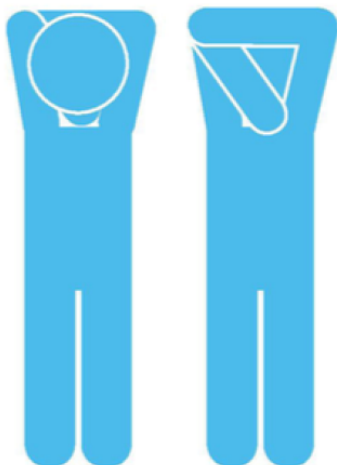
Quadriceps Stretch

00:02.9

Next

Triceps Stretch

Complete this cool-down exercise for one minute and then click next.



Raise one arm straight up. Bend that arm until you touch your back and hold for 30 seconds. You should feel a stretch in the back of your upper arm. Repeat with the other arm.

Triceps Stretch

00:08.0

Next

Upper Back Stretch

Complete this cool-down exercise for one minute and then click next.



Reach your arms in front of you at shoulder height. Cup one hand with the other. Reach forward and curve your upper body. Tuck your head between your arms and hold the stretch for 30 seconds. Come back to an upright standing position and repeat once.

Upper Back Stretch 00:02.3

Next

Arm Across Chest

Complete this cool-down exercise for one minute and then click next.



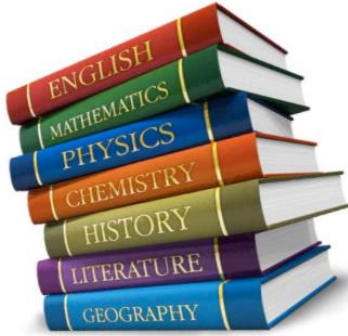
Bring one arm across your chest and hold for 30 seconds. You should feel a stretch in your upper arm/shoulder area. Repeat with the other arm.

Arm Across Chest

00:03.4

Next

Time for work!



Books



Pencil Case



Homework
Diary