

ORIGINAL RESEARCH ARTICLE

The effects of a Moodle-based instructional unit on physical activity in schools on 15–20 years experienced permanent Irish primary teachers physical activity knowledge, attitudes and behaviour

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Childhood obesity is nearing epidemic proportions in Ireland and abroad. Childhood is a key period in the prevention of obesity and additional conditions that are associated with a sedentary lifestyle. The study aimed to discuss the effect of a short eLearning course for Irish primary teachers and its effect on their behaviours, attitudes and knowledge towards physical activity in schools. Research on activity levels in children was also examined with schools being seen as a core change agent in the combat against childhood obesity.

Keywords: Irish primary teachers; physical activity; knowledge; attitude; behaviour

Introduction

A change in Irish educational legislation and a national strategy to ensure a well-developed, educated workforce and increase competency in new areas of the curriculum is being implemented making teacher professional development mandatory (teachingcouncil.ie). This is quite a complex and challenging task to ensure training is relevant and flexible to cater for teacher experience and learning styles (education.ie).

Childhood obesity has emerged as a serious health challenge. Globally 40 million children up to the age of 12 are overweight or obese (WHO 2011). Obesity is defined as ‘a disease in which excess body fat has accumulated to an extent that health is adversely affected’ (Irish Heart 2012). The rise in the consumption of energy-dense and highly calorific foods with no relative increase in physical activity has resulted in weight gain. Therefore, physical activity has a major role in the promotion of overall wellness and disease prevention in children (Woods, Moyna, and Quinlan 2010). Physical activity is defined ‘as any bodily movement produced by skeletal muscles that results in energy expenditure’ (Chow 2008). Evidence illustrates how behavioural patterns established at childhood are sustained through adulthood. Unhealthy children become unhealthy adults and put financial pressure on the state.

A positive teacher attitude towards physical activity promotion in schools is essential. Attitude has been defined as a learned predisposition to respond positively or negatively to a specific object, situation, institution or person (Aiken 2000). A change

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in behaviour can be seen as a definition of learning. As attitude is a key factor in forming people's behaviour, it is an essential aspect to teacher education.

Physical education at primary level

School can be seen as a key agent in the promotion of physical activity as most children attend schools at some stage in their life with students spending half their waking hours at school (Guinhouya *et al.* 2009). Under Irish regulations students must spend 183 days at school annually (Department of Education and Skills 2012). The educational environment provides numerous opportunities for children to be physically fit and engage in physical activity through scheduled physical education (PE) classes and break times which allow students to partake in unstructured play. A recent study conducted of 55 child obesity prevention studies found that increasing physical activity sessions and developing physical activity skills during the school week were among the promising strategies for obesity prevention (Waters 2011). The effective implementation of such would require a positive attitude and knowledgeable approach by teachers towards physical activity.

At present, Irish schools are allocated just over half of the European Union average of 109 min of PE classes per week. Primary teachers have identified that there is insufficient time in the day to cover all 11 subjects due to an overloaded curriculum (Halbert 2010). In the Irish context, 52% of school time is given to English, Irish and Mathematics. This imbalance leaves the remainder 48% of time for PE and other subjects. The European Union Education Information Network found that Irish schools offered less PE time than any of their other European counterparts, where 45 h is the minimum. There has been an increase in PE participation in schools since 2004, with 31% of principals stating that PE was undertaken 2–3 times a week. By 2009 this had risen to 53%. Schools participating in PE classes once a week have dropped from 62% in 2004 to 42% in 2009 (Woods *et al.* 2010). Forty-six minutes is reported as being the average amount of time given to PE. A decade ago the Department of Education acknowledged that the availability of amenities and PE resources was dependent on the ability of the school to offer a full and balanced PE curriculum (Department of Education and Science). In 2010, Woods *et al.* noted that 81% of principals stated that they had no access to onsite sports facilities for carrying out PE classes. Cotter and the Department of Education (1977) also noted that less than 20% of schools had adequate equipment and PE apparatus. This has not improved since half of the schools in the Kildare region do not have the recommended PE equipment for the revised curriculum (Power 2009). A report carried out by the INTO highlights this lack of resources when schools were asked how adequate the equipment and resources in schools were to teach the following PE strands.

| Strand | Good (%) | Adequate (%) | Poor (%) |
|-----------------------|----------|--------------|----------|
| Games | 59 | 33 | 8 |
| Athletics | 36 | 36 | 28 |
| Dance | 26 | 39 | 35 |
| Outdoor and adventure | 23 | 34 | 43 |
| Gymnastics | 23 | 28 | 49 |

Obtained: www.into.ie

Recommendations for physical activity in schools

Children's physical activity levels have decreased dramatically over the past decade. Sedentary behaviours are continuing to replace outdoor activities that promote physical activity. Children in the broader extent are being driven to school instead of walking and cycling and the participation in sporting exercises and physical leisure has decreased (Rice and Howell 2000).

Students should engage in 60 min of moderate-to-vigorous daily activity according to the Health Service Executive (HSE) Ireland. The children's sports participation and physical activity study found that 19% of 5–12-year-olds met the 60 min of moderate-to-vigorous physical activity recommendations with girls being less likely to meet the targets.

Over a quarter of the participants in the study were overweight, exhibited hypertension and were unfit (Woods *et al.* 2010). The study is comparable to international research (Cale and Almond 1992; Dale, Corbin, and Dale 2000) in which the following conclusions were drawn.

1. No clear urban/rural difference existed.
2. Gender difference is evident in physical activity levels.
3. Physical activity decreases with age.
4. Low activity levels are evident among children.

The growing up in Ireland study highlighted that only 25% of children met the recommended 60 min of daily moderate-to-vigorous physical activity per day. Twenty-nine per cent of boys were reported to meet the WHO (2009) recommendation compared to 21% of girls (Murphy, 2010). Similar patterns were seen during sports participation. A high proportion of children (97%) were recorded as taking part in sport at least once a week, with boys 56% more likely to take part in sport at least once a day with girls only 33%. As there is a proven link between physical activity and weight control, these findings indicate that the gender difference in weight control can be offset by increasing physical activity levels among girls which would be a key aspect of a physical activity teacher eLearning course.

Incorporating ICT into physical activity

The increase usage of technology in all areas of society has prompted the integration of a module exploring how ICT could be incorporated into supporting and enhancing physical activity promotion and PE departments (Green 2002). Cummings (2001) further suggests that the pervasion of ICT in education is now impacting PE as much as on any other subject and has the capability to offset the challenge of access to resources for PE classes. Learning is an active process and educationalists have realised the potential benefits interactive technology can contribute to encouraging active education (Papert 2005). New online websites and ICT tools have provided teachers with additional resources to contribute and enhance a physical activity lesson.

However, little research has been conducted in the usage of ICT in the development of students' gross motor skill outside of a commercial which is especially true in PE lessons (Thomas and Stratton 2006). As students perform exercises and skills in their PE classes, PE teachers can use technological tools and systems to quantify processes and results to help them learn more about themselves according to Kirkwood and Manon, 2002 (Papastergiou, 2010).

Implementing ICT into physical activity has produced mixed attitudes and opinions among teachers. Computers can contribute to a sedentary leisure-time behaviours. It is estimated that children watch 3–4 h of TV at home, and a total of 74% of boys and 54% of girls spent some time each day playing video games, with 30% of boys and 12% of girls spending 1 h or more (Growing up in Ireland Report 2009). They also send almost 100 text messages daily (Pollak *et al.* 2010). This increase in children's media consumption results in less time sleeping, reading, time for physical activity and social interaction which may lead to poor social skills in later life.

In contrast, positive active technology usage has been used to promote physical activity and change exercise behaviours for a long period of time through pedometers, accelerometers and heart rate monitors which have been used as motivational tools. Interactive online games and persuasive technology can be incorporated into teaching methodologies to promote physical activity and change exercise behaviour (Marcus, Ciccolo, and Sciamanna 2009).

Evolution of approaches to physical activity

To date PE within schools has been teacher led and focused on the traditional pedagogical foundations of the subject. Little change has occurred in regard to methodologies, with teaching practices being replicated and set until recently. This traditional approach to PE has been described as 'not fit for purpose' by numerous academics (Kirk 2010, Lawson 2009). Physical activity itself has been reflected on in terms of sports techniques on sports pitches and in gymnasiums in schools, which isolates the understanding and appreciation by students of the lifelong benefits of the subject. Lawson's (2009) argument that PE is not capable of educating in a post-industrial age reflects how ICT could be incorporated into the subject in the future.

It could aid in ensuring that the subject is:

Individualised: Students must be helped at their own ability levels for optimal personal improvement with subject matter being differentiated, which is in contrast to the traditional approach providing the same instruction for all students at the same time.

Fair: Students are assessed based on personal improvement and assisted in goal setting for improvement of health-related fitness. The traditional approach used standardised fitness test scores to determine grades and awards.

Educational: Students must learn why physical activity is important and how it is beneficial. The traditional approach told students what to do, but not why. Incorporating ICT into the subject's pedagogical framework can enhance learning and understanding, utilising Gardner's theory of multiple intelligences. ICT resources and media can be used to present and individualise material and instruction in a way that children find it appealing to their intelligences productively and relevant to learning style (Mokhtar, Majid, and Foo 2008).

Teacher professional development in physical activity

Teacher professional development in literary terms is broadly defined as in-service education, staff development, teacher development, career development and lifelong learning. It is 'any activity which enhances their knowledge and skills and enables them to consider their attitudes and approaches to the education of children, with a view to improve the quality of teaching process' (Coulter 2012). It has become a priority in many countries which is highlighted in the Organisation for Economic

Co-operation and Development (OECD) report ‘Teachers Matter’ (O’Gorman,2010). An interconnected approach to teacher education from initial teacher training through to career-long learning needs to be established (Organisation for Economic Co-operation and Development 2005). ELearning courses can play a more significant role in when integrated into a supported professional development framework. When teachers are given the opportunity, via high-quality professional development, to learn new strategies for teaching to rigorous standards, they report changing their teaching in the classroom (Alexander, Heaviside, and Farris 1998). School policies have an effect on the promotion of physical activity and cardiovascular fitness levels of children. Through implicit and explicit policies, schools can endorse procedures during the course of the day to positively influence the promotion of physical activity levels among students in schools.

*E*Learning and changes to teacher’s attitudes and behaviours

Teacher attitudes are important. A sustainable change to teacher’s attitudes and behaviours towards physical activity must occur at three levels (Sallis 1997). These include a change in resources, change in teaching approaches and a change in beliefs. This may be due to a lack of analysis by teachers of relevant research in the area of physical activity according to Ward and O’Sullivan (1998). Huberman (1995) suggests the change process for teachers is cyclical in nature, with the change in beliefs leading to an adoption of practices that brings positive change to students’ learning and academic results (Saunders 2013).

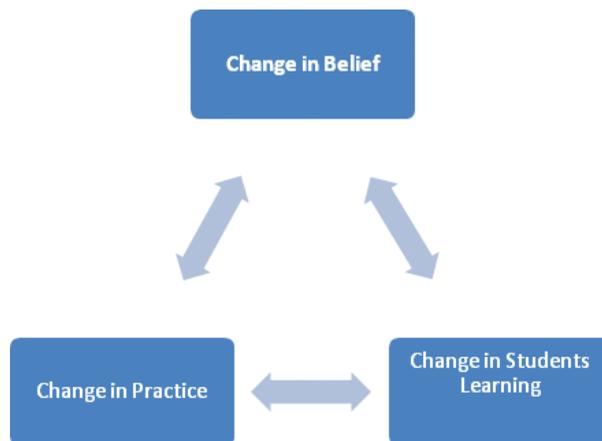


Figure: Huberman (1995)

This model corresponds to Desimone’s model of teacher change which sees professional development as the key agitator in changing teacher attitudes and behaviours (Desimone, Smith, and Philips 2011). Teachers completing the eLearning course came from a wide range of previous experiences, knowledge, self-direction, interests and competencies. An eLearning course must accommodate this diversity and create a community of learners (Specks 2001). The need for a positive teacher-led approach to physical activity has been identified as the key opportunity to ‘encourage’ school-age

children to be involved daily in 60 min or more of moderate-to-vigorous physical activity (Chow, McKenzie, and Louie 2008; Strong *et al.* 2005). ELearning content needs to be relevant to the education sector ensuring that teachers are motivated by the material and ensure that it adds to their own professional experiences (Pope and O'Sullivan 1998).

It facilitates critical thinking needs through peer assessment and contributions which is 'the capacity to question the actions, justifications and decisions, and to imagine alternatives to current structures and moralities that are fairer and more compassionate predictable preferences and capabilities in learning' (Edmondson 2007a).

Determinants for a successful eLearning course in physical activity

The eLearning course focused on physical activity content that is educationally relevant to Irish primary teachers and aimed to target teachers' learning needs to have positive effects on teacher knowledge, attitudes and instructional practices. In order for a successful eLearning professional development course participants' characteristics must be taken into account (Palloff and Pratt 2001). According to research effective learners seek further professional development because they have higher expectations, they enjoy learning, can work independently and recognise the benefits of peer interaction. Participant's reaction to eLearning content is related to user's attitude towards eLearning, personal interest in the area of physical activity and satisfaction with technology during a learning experience (Curran, Fleet, and Kirby 2010). Research suggests successful eLearning courses depend on individual learner variables, environmental variables, technology variables, contextual variables and pedagogic variables (Attwell 2006). For a successful eLearning course, each of these factors must be taken into consideration. According to Phipps and Merisotis (1999), three determinants illustrate the success of an eLearning course: student learning outcome, student satisfaction and student's attitude to eLearning and the technologies used.

ELearning course content: An increase in teacher's knowledge and skills in this area is linked to the degree the course focuses on content knowledge rather than generic professional development focusing on teaching strategies (Berry and Van Dreil 2012). The existence of strong, relevant and educational focused content is essential for teacher professional development. The eLearning course should have evidence of curricular strategies that have a high level of probability to affect students' learning and adopt teacher's attitudes (Joyce and Showers 2002). Petrie (2009) determined that teachers' confidence and motivation to teach PE was enhanced if they were provided with the learning opportunities regarding PE pedagogical knowledge, which must be taken into consideration when completing an eLearning course.

Communal setting: A change in teachers' attitude towards physical activity occurs in a communal setting (Joyce and Showers 2002). Teachers must be given the opportunity to interact, discuss methodologies, proffer advice and share their own experiences (Bandura 1995). A virtual community of practice, which, according to Wenger and Snyder (2000), is a group of people bound together through a shared passion for a joint enterprise. This social theory of learning is facilitated through forum postings on the eLearning course. Course participants can share resources, experiences, learning

tools and methodologies. This also facilitates peer persuasion which is a powerful method of changing attitudes (Schunk, Hanson, and Cox 1987). An online community of learners develops and maintains a sense of efficacy regarding new physical activity teaching strategies (Kennedy 1987). This group decision support system offers participants a way to catalogue, more comprehensively, the group's total information and then share that information collectively. (Blanco *et al.* 2009). This aspect reflects the functional theory of group decision-making, which would be necessary to ensure that teachers decided to increase time allocated towards physical activity. Participants through the forum postings are more likely to make use of group procedures to enhance the way they gather, analyse and weight information (Wittenbaum, Hollingshead, and Botero 2004).

Literature review summary

Research from this review of literature has shown that initial teacher training accompanied by continual lifelong learning through eLearning courses can be seen as an essential aspect in the promotion of physical activity in schools. Research has appropriately identified schools as being a key setting in the promotion of physical activity which is an essential component of a healthy lifestyle and an important aspect in the education of children (Biddle and Mutrie 2007). Children need 60 min of play with moderate-to-vigorous physical activity every day to grow up to a healthy weight. Consequently, teachers must be up to date with all modern methodologies and strategies for promoting physical activity. A positive attitude towards physical activity is required by teachers who will commit to professional development and learning when the goals and objectives are considered realistic and important to them (Sallins *et al.* 1997). ICT solutions if they are known to teachers allows for them to be incorporated into a physical activity lesson. This provides a solution to the lack of resources in some schools. The hypothesis of the research is that through completing the eLearning course teachers will increase their knowledge of the benefits of physical activity resulting in a more positive attitude towards the subject which will encourage them to incorporate it more into the school environment.

Method

A combination of methods was chosen as it seemed most appropriate to address the research question. They are complementary in the essence of following the results from the questionnaires with a focus group interview to provide the opportunity to elaborate on findings from the initial research method. Through using quantitative and qualitative approaches, the research incorporated the most valuable features of each method (Bryman 2012).

One short questionnaire was developed and used (see Appendix 1). In the first instance, the questionnaire was used for establishing initial attitudes, practices and knowledge about physical activity in the educational environment. Post-course, the questionnaire was administered to examine the change in knowledge and attitude towards physical activity after the short eLearning course.

A post-study semi-structured focus group was then undertaken which was led by the tutor. Participants were asked about their experience of the eLearning course.

The data collected from this small discussion were used to supplement the pre- and post-questionnaire data and build a more complete picture of the overall study.

Survey

The pre- and post-course questionnaire was designed and administered through a combination of Survey Monkey and Articulate Storyline software. The design process was undertaken after the literature review and underwent modifications in response to feedback from individuals and pilot trials. The pre-course questionnaire was administered directly before the commencement of the eLearning course with the post-course questionnaire directly after.

A Likert Scale was administered (1 = strongly disagree, 5 = strongly agree) regarding teachers' attitudes and practices towards physical activity.

To maximise the response rate and due to the timing of the research over teacher holiday period, the questionnaire was confined to five questions. Consequentially, the detail and depth of research which was initially envisaged was reduced, but was compensated with questions in the focus group being expanded to include elements that were withdrawn from the questionnaires.

Focus group

A focus group was held with seven participants from the study group. The selection of participants for the teacher focus group involved purposeful sampling (Merriam and Tisdell 2015). This took place in Galway for convenience due to transport and location. All participants were contacted by phone to arrange a time and date most suitable. On the day the researcher had an accompanying information sheet which outlined the study's nature and purpose and provided space for notes on the main points discussed. A number of open set questions were posed with the researcher recording answers.

This method, although it went exceptionally well, posed some considerations for the research. These included order effects where the participant's performances may have been affected by either internal or external effects. Social desirability could play a part in this process also where units behave differently to present themselves in what they believe to be the most socially acceptable light. (Birley and Moreland 2014)

Study design

Participants

Participants were selected by the researcher with $n = 7$. The teachers were selected from diverse settings by non-probability sampling from a selection of different primary school types (DEIS, Rural and Urban). This was chosen to avoid a misrepresentation of different sections and a sampling error.

Data analysis techniques employed

The data from the questionnaire were collected and qualitatively correlated through tools available on Survey Monkey.

Instructions to participants

Participants were emailed instructions for accessing the course and what the course entailed. The study group email included a link to the course, with each individual receiving the password and username for the website, which they were asked to keep confidential.

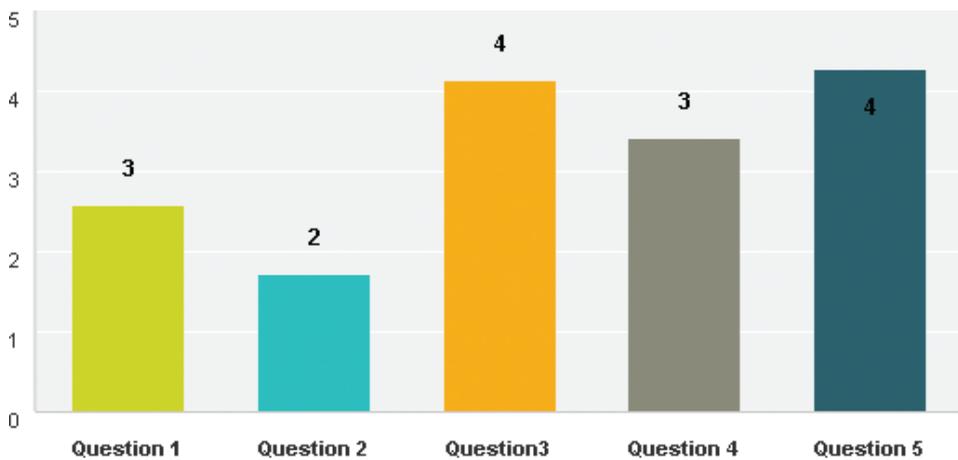
Results

All participants completed every component of the trial – pre-questionnaire, post-questionnaire – and were available for the focus group discussion session.

Through the online evaluation questionnaire, participants rated their perceived attitude towards physical activity before and after the trial period along with their confidence and knowledge of incorporating physical activity in schools on a 5-point Likert scale (1 = least difficult, 5 = most difficult). For this study, $n = 7$ participants. The results of the questionnaire are outlined below.

Pre-course questionnaire

Weighted average responses to pre-course questionnaire



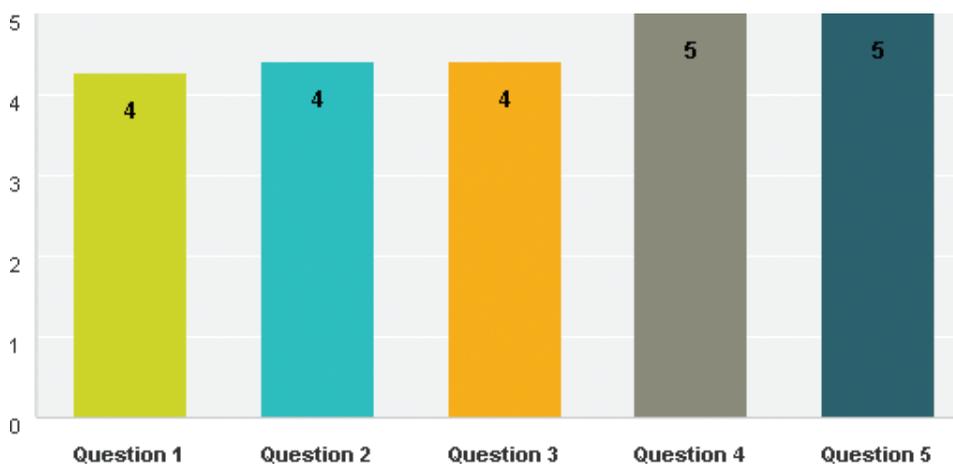
| | |
|--|------------|
| I am confident in teaching physical education | Question 1 |
| I understand the benefits ICT can bring to promoting and improving physical activity participation in schools | Question 2 |
| I have a good range of ideas for increasing physical activity in the school and have competence in implementing them into everyday school life | Question 3 |
| I understand the role I have as a teacher to promote it within a school | Question 4 |
| I understand the importance of promoting physical activity and the overall benefits it brings to students | Question 5 |

Data table reflecting responses to pre-course questionnaire

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree | Total | Average Rating |
|------------|-------------------|-------------|----------------------------|-------------|----------------|-------|----------------|
| Question 1 | 0.00% 0 | 71.43% 5 | 0.00% 0 | 28.57% 2 | 0.00% 0 | 7 | 2.57 |
| Question 2 | 71.43% 5 | 0.00% 0 | 14.29% 1 | 14.29% 1 | 0.00% 0 | 7 | 1.71 |
| Question 3 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 85.71% 6 | 14.29% 1 | 7 | 4.14 |
| Question 4 | 0.00% 0 | 28.57% 2 | 14.29% 1 | 42.86% 3 | 14.29% 1 | 7 | 3.43 |
| Question 5 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 71.43% 5 | 28.57% 2 | 7 | 4.29 |

Post-course questionnaire

Weighted average responses to post-course questionnaire



| | |
|--|------------|
| I am confident in teaching physical education | Question 1 |
| I understand the benefits ICT can bring to promoting and improving physical activity participation in schools | Question 2 |
| I have a good range of ideas for increasing physical activity in the school and have competence in implementing them into everyday school life | Question 3 |
| I understand the role I have as a teacher to promote it within a school | Question 4 |
| I understand the importance of promoting physical activity and the overall benefits it brings to students | Question 5 |

Data table reflecting responses to post-course questionnaire

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree | Total | Average Rating |
|------------|-------------------|------------|----------------------------|-------------|----------------|-------|----------------|
| Question 1 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 71.43% 5 | 28.57% 2 | 7 | 4.29 |
| Question 2 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 57.14% 4 | 42.86% 3 | 7 | 4.43 |
| Question 3 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 57.14% 4 | 42.86% 3 | 7 | 4.43 |
| Question 4 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 100.00% 7 | 7 | 5.00 |
| Question 5 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 100.00% 7 | 7 | 5.00 |

Findings

The first question in the survey asked about teacher’s confidence in teaching physical activity which would be representative of their initial knowledge and attitudes towards the area. Initially, 28.57% participants felt they were confident in teaching physical activity; this increased to 71.43% in the post-course questionnaire, which highlighted the benefit that an eLearning course could bring to increasing teachers’ confidence in incorporating physical activity throughout the school environment.

There was a significant increase between the results of the second question pre and post-eLearning course with a marked improvement on the questions average rating from 1.71 in the first questionnaire to 4.43 in the second. This reflected the need for any future teacher professional development course to include modern ICT methods and resources in the course content that are suitable for physical activity.

The third question highlighted that there was an increase in the study group’s knowledge of ideas and strategies for increasing physical activity in schools post-eLearning course with a 28.57% increase in participants strongly agreeing with the statement.

There was a significant increase in participants strongly agreeing with the fourth and fifth question, where participants stated that they had an increased appreciation of the teacher’s role in promoting physical activity and the benefit that this would bring to students and the overall wellness within the school environment.

The post-course focus group evaluations of the e-learning course were very positive. Participants in the study group found the following features of the module most helpful: interactivity, interface of the eLearning course, the modern ideas and strategies highlighted and their relevancy to the education environment. In addition, participants commented that short questions about module concepts were useful at a modules completion.

A selection of comments that represent the focus group session is outlined below.

Information was well presented, interesting and representative for the primary school environment. I enjoyed looking over material again through the course and the ability to look back on topics.

Easy to follow, very accessible and would suit time wise to complete the course at my own pace.

I have taken one online course previously and found this shorter succinct course on physical activity more appropriate and interesting. I enjoy eLearning courses as they give me the flexibility to complete the material in my own time in comparison to face to face courses.

It was very informative and interesting. I believe it would be suitable for both an introductory for novices in the area of physical activity and for those who have more experience and knowledge in the area. It was very relevant for the educational environment but also broadened my own interest in the field of promoting physical activity.

In addition to the positive feedback, participants also suggested areas for improvement. A number suggested more usage of multimedia material, in particular instructional videos, on improving physical activity. Although they enjoyed reading the material, a number expressed their view that there should be audio overview. A few in the study group had difficulty with Internet speeds due to a rural location and found that material was slow to download. The research group consisted of teachers with between 15 and 20 years of teaching experience. They had no initial experience of eLearning during their initial teacher education at college and had a basic knowledge of educational ICT equipment and resources. They were cognisant of the new digital strategy in schools and adoption in educational policies being more digitally orientated. They have more recently accessed eLearning content for CPD.

Conclusion

This short study may have important implications for the design of future eLearning material for Irish primary teachers. Catering content that is relevant to the Irish educational sector and ensuring that it appeals to participants' interests would optimise motivation for learning and participation.

In particular, the findings suggest that a targeted eLearning course, which combines examples of Irish Schools and general information, is more effective than generic courses and online learning material and would positively influence teachers' attitudes towards physical activity. Change is the only constant in the educational environment particularly with the introduction and development of new ICT resources and methodologies. Teacher professional development needs to be proactive and respond to these changes as initial teacher training needs to be supplemented. ELearning courses, in particular, offer the flexibility and adaptability to cater for this need. Teacher participation in online professional development can influence attitudes and behaviours which, in turn, lead to a progressive adoption of teaching practices, translating into improvements in targeted student outcomes.

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Appendixes
Questionnaire

Dear Sir/Madam

I am currently undertaking a Masters in E-learning Design and Development at Cork Institute of Technology. In fulfillment of my dissertation I am required to research a topic area. The topic I have chosen is: **The effects of a Moodle-based instructional unit on Physical Activity in Schools on Irish Primary Teachers physical activity knowledge, attitudes, and behavior**

I would be very grateful if you could, complete the questionnaire through the following link. Needless to say all information provided will be treated with strict confidence and individual firms will not be identified.

The questionnaire can be complete online, and should only take several minutes of your time. I would be very grateful if you could complete within one working week.

Yours Faithfully
Dave Brennan

| Statement | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree |
|--|-------------------|----------|----------------------------|-------|----------------|
| I am confident in teaching Physical Activity | | | | | |
| I understand the benefits ICT can bring to promoting and improving physical activity participation in schools | | | | | |
| I have a good range of ideas for increasing physical activity in the school and have competence in implementing them into everyday school life | | | | | |
| I understand the role I have as a teacher to promote it within a school | | | | | |
| I understand the importance of promoting physical activity and the overall benefits it brings to students | | | | | |

Focus Group Material

Introduction by Facilitator

Hello, my name is David Brennan and I will be the facilitator for this focus group. The focus group is part of a Masters in ELearning project I am completing with Cork Institute of Technology. Thank you for taking the time to participate. This focus group was assembled to assess the effects of a Moodle-based instructional unit on Physical Activity in Schools on Irish primary teacher's physical activity knowledge, attitudes, and behavior.

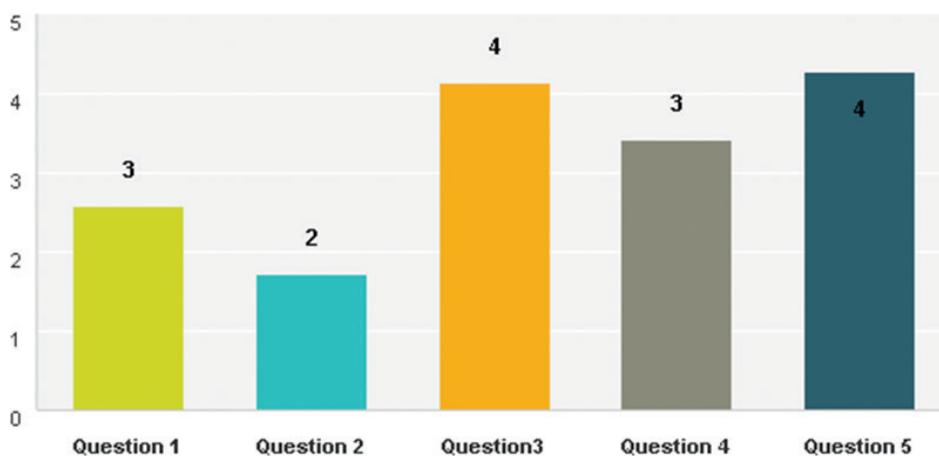
During this focus group I will ask questions and facilitate a conversation about how you found the course and your ideas and thoughts on the benefit of the short learning course. Please keep in mind that there are no “right” or “wrong” answers to any of the questions I will ask. The purpose is to stimulate conversation and hear the opinions of everyone in the room. I hope you will be comfortable speaking honestly and sharing your ideas with us.

Please note that I will be taking notes during the focus group to ensure we adequately capture your ideas during the conversation. However, the comments from the focus group will remain confidential and your name will not be attached to any comments you make. Do you have any questions before we begin?

Focus Group Questions

1. Let’s do a quick round of introductions. Can each of you tell the group your name, where you are working, what class you have and briefly how you feel about teaching physical activity?
2. What do you understand by the term teacher professional development?
3. What do you think the role of e-learning is in teacher education? Considering the potential benefits, disadvantages and role within an institution that pre-dominantly teaches through face-to-face sessions.
4. What is the role that physical activity can play in the school environment?
5. Are there enough professional development courses available in the physical activity area and do they cover the most modern methods and strategies to increase physical activity in schools.
6. What positive impact has the course had on your outlook in regards to physical activity?
7. Did you enjoy the course and was the information presented relevant to the Irish primary education sector?
8. Is there anything else anyone would like to add?

Pre Course Charts

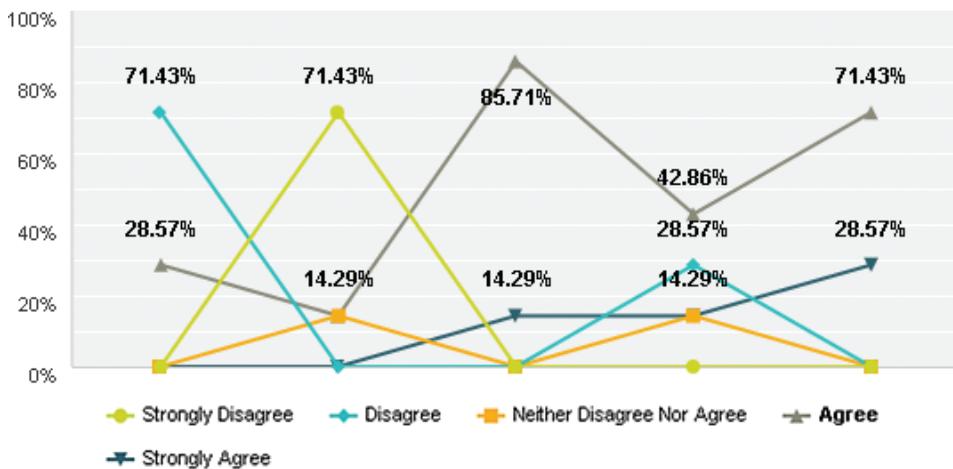


| | |
|--|------------|
| I am confident in teaching Physical Education | Question 1 |
| I understand the benefits ICT can bring to promoting and improving physical activity participation in schools | Question 2 |
| I have a good range of ideas for increasing physical activity in the school and have competence in implementing them into everyday school life | Question 3 |
| I understand the role I have as a teacher to promote it within a school | Question 4 |
| I understand the importance of promoting physical activity and the overall benefits it brings to students | Question 5 |

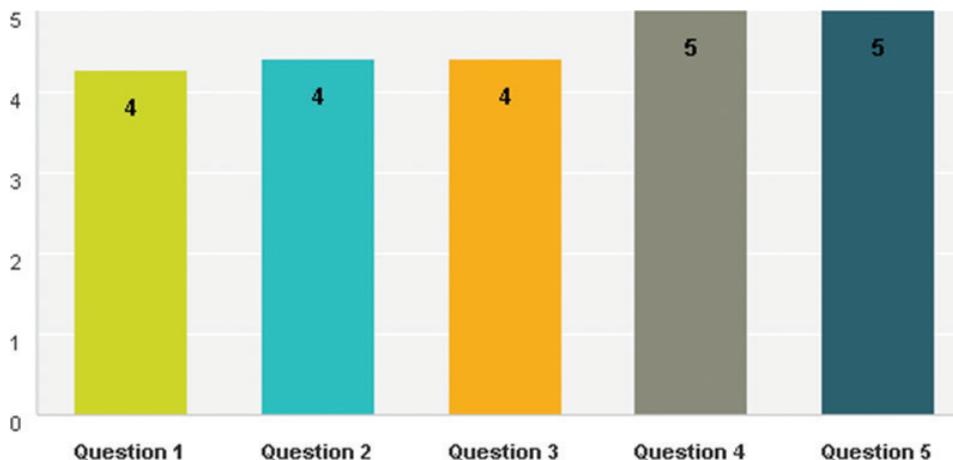
Table Pre Course Questionnaire

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree | Total | Average Rating |
|------------|-------------------|-------------|----------------------------|-------------|----------------|-------|----------------|
| Question 1 | 0.00% 0 | 71.43% 5 | 0.00% 0 | 28.57% 2 | 0.00% 0 | 7 | 2.57 |
| Question 2 | 71.43% 5 | 0.00% 0 | 14.29% 1 | 14.29% 1 | 0.00% 0 | 7 | 1.71 |
| Question3 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 85.71% 6 | 14.29% 1 | 7 | 4.14 |
| Question 4 | 0.00% 0 | 28.57% 2 | 14.29% 1 | 42.86% 3 | 14.29% 1 | 7 | 3.43 |
| Question 5 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 71.43% 5 | 28.57% 2 | 7 | 4.29 |

Distribution Graph
Pre Course Questionnaire



Post Course Charts



| | |
|--|------------|
| I am confident in teaching Physical Education | Question 1 |
| I understand the benefits ICT can bring to promoting and improving physical activity participation in schools | Question 2 |
| I have a good range of ideas for increasing physical activity in the school and have competence in implementing them into everyday school life | Question 3 |
| I understand the role I have as a teacher to promote it within a school | Question 4 |
| I understand the importance of promoting physical activity and the overall benefits it brings to students | Question 5 |

Table Post Course Questionnaire

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree | Total | Average Rating |
|------------|-------------------|------------|----------------------------|-------------|----------------|-------|----------------|
| Question 1 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 71.43% 5 | 28.57% 2 | 7 | 4.29 |
| Question 2 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 57.14% 4 | 42.86% 3 | 7 | 4.43 |
| Question 3 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 57.14% 4 | 42.86% 3 | 7 | 4.43 |
| Question 4 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 100.00% 7 | 7 | 5.00 |
| Question 5 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 100.00% 7 | 7 | 5.00 |

Post Course Questionnaire Distribution Graph

