Using Video in Physical Education

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In this digital age, it is important for teachers to embrace technological advancements to improve their own pedagogy and to enhance the learning of pupils. Within this article, the use of video technology within a physical education setting will be explored and research will be presented detailing the benefits of using video technology. The main barrier to applying video in physical education lessons will be discussed along with a potential way to overcome this barrier. The article will conclude with potential future uses of video technology within physical education.

How is video used within physical education?

At present, there is limited research data on the use of video within physical education. However, anecdotally, it appears that some, if not many, physical education departments are using video as a teaching tool and its popularity is growing due to technological advancements. This section will explore some of the ways video is used within physical education lessons and the discussion will be supported with the application of research.

Video analysis

Through discussions with teachers and observations of lessons, it appears that physical education teachers apply video analysis within practical lessons to enhance pupils' knowledge and understanding of movement patterns. The idea is that by observing a video clip of a peer or themselves, a learner will be able to gain a greater understanding of the movement pattern required to produce a successful performance. Once the learner has an understanding of the required movement pattern, video analysis can be used to enable learners to evaluate and improve either their own or a peer's performance.

A recent study by Casey and Jones (2011) showed how video analysis could be used to enhance the engagement and learning of low achieving students in physical education. The study explored the use of video-analysis software as a way of developing gross motor skill development with underachieving and disaffected students. The results of this project displayed that students achieved a deeper understanding of the core skills of throwing and catching in a supportive learning environment. The findings also showed that the introduction of video analysis had a significant outcome on the engagement of these students and helped them to enhance their learning and engagement in physical education. A further finding was that the students were then able to assess their peers' performances and help them to improve.

It appears that there could be benefits to learning by using video analysis software within physical education lessons, particularly with learners who are low achieving and disengaged.

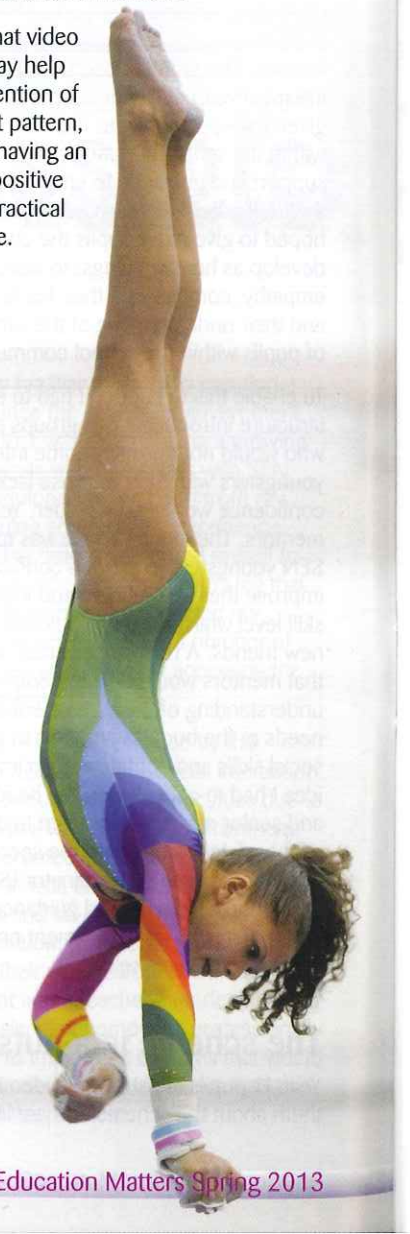
Video feedback

Video feedback is similar to video analysis. A physical education teacher would record a pupil's performance via a camera, enabling the learner to be given the opportunity to observe their performance. Additionally, the teacher would usually provide some verbal cues, instructions or feedback to supplement the feedback from the video. The teacher may not place as much emphasis on the learner to analyse their own performance as there is with video analysis.

Guadagnoli, Holcomb and Davis (2002) conducted a study into video feedback on the distance and consistency of golf shots. They found, initially, that verbal feedback and video feedback had a negative impact on golf performance. However, two weeks later, they conducted a post-test with this group of golfers and found a long-term positive impact on the distance and consistency of their golf shots.

Although this study was conducted with adults, it does highlight that short term benefits may not always be gained by using video feedback with verbal feedback. However, video feedback may produce quite significant long-term benefits for learners.

It appears that video feedback may help with the retention of a movement pattern, rather than having an immediate positive impact on practical performance.



Video modelling

Video modelling occurs when a physical education teacher shows the learner a video of a movement pattern being performed (usually by an elite performer), with the intention of helping the learner to gain knowledge and understanding of the key elements of the movement pattern. This may help with the key process of developing skills in physical activities. The teacher could show the video model in slow motion or at a slower speed enabling the learner to observe key sections of the movement that potentially could be lost when observing a real time live demonstration.

Luk, Cruz and Lin (2009) explored the use of video modelling and video feedback in combination with verbal cues on the accuracy and form of a basketball free throw. The study revealed that those participants who were aided with the use of video, either through video modelling or video feedback, displayed greater shooting technique and performed shots that were more accurate than those who received verbal cues only or no information at all. This implies that video modelling and video feedback may enhance the performance of a specific movement pattern.

There are some concerns with video modelling that physical education teachers should be aware of. It is important that video modelling is applied with caution, as many learners may not actually be able to perform the same movement patterns displayed by elite sporting performers. Bartlett (2012) stated that learners will develop their own unique solutions to be able to perform a movement pattern so trying to copy an elite performer may not be wholly appropriate. It may also increase the risk of injury.

It appears that using video technology, either through video analysis, video feedback and/or video modeling, may be beneficial for learning movement patterns. At this stage, it is important to not forget the role of the teacher when applying video during lessons. The teacher is essential in providing verbal cues, instructions and feedback to support the learner and help the learner to make sense of the video they are observing. This is because learners will not be able to regulate the information they receive from a video and, on occasions, the information provided by a video might exceed their processing ability (Liebermann and Franks, 2004).

The main barrier to using video in physical education

Through interviews with physical education teachers in the south of England, it appears that teachers are keen to apply video technology within lessons and that they feel there are benefits to pupil learning. However, there was one main barrier identified by all of the teachers: this was the amount of time it takes to set up equipment. Some teachers even expressed concern that pupil physical activity time may be reduced due to the lengthy set-up time. Some teachers described the process of setting-up, which included setting up a tripod for the camera, positioning the camera appropriately, connecting the camera to a laptop, allowing time for the laptop to load up, connecting the laptop to a projector and selecting the appropriate functions for the video software.

Overcoming the main barrier

A key technological advancement in the last few years, which should significantly reduce set-up time, is the development of tablet devices. Although there is a cost to these devices, there are many benefits to investing in them. Most tablet devices include a built-in camera, which can be used to record practical performance in video format as well as producing still images. For a teacher, this means that they do not have to set up a camera, which then may have to be connected to a laptop for pupils to analyse performances. A tablet device could simply be taken to the lesson and, within seconds, used to record pupils' practical performances. Some teachers argue that portable video camcorders or even digital cameras have similar benefits (i.e. they are quick to use and enable learners to view performance without having to link to a laptop) but cost less. However, the counter argument is that a tablet device will generally provide a larger viewing screen, can easily be connected to projectors via a VGA adaptor (if a larger image is required) and will enable the use of applications (apps). This last benefit is very significant, as apps add another dimension to using tablet devices and could help to enhance pupil learning and engagement substantially.

Apps are computer software that enable the user to perform a specific function. There are many video-based apps (e.g. Ubersense and Coach's Eye) that can be used to conduct video analysis, video feedback and/or video modelling and they mostly offer very similar functions. These functions usually include the ability to produce a video of a performance; to zoom in on a performance; to add notes to the performance; to add lines, squares and circles to the performance; to explore joint angles; to overlay one performance over another performance; to change the speed of the video (slow motion); to trim the beginning and the end of the performance; and to keep a specific library of video clips for each performer/class. Most apps are very intuitive; this allows the teacher and pupils to be confident in using the apps with little training.

Future uses of video within physical education

At present it appears that video is being used in physical education lessons to help pupils gain knowledge and understanding of movement patterns and to enhance their performance of movement patterns. Video is also being used to enable pupils to evaluate and improve practical performances either of themselves or peers.

Video analysis could also play a significant role in helping pupils to understand tactics and principles of play for games activities. For example, a game could be filmed and sections of the game analysed to highlight certain tactics and/or principles. Whilst observing a section of a game of football, a teacher could ask the pupils to observe and describe how a defensive player provided cover to assist a team member. This may enable the pupils to see this key principle of defence 'in action'.

In addition, video could be used to support teachers' assessments of pupils. Video recordings of pupils' practical performances could be performed during a unit of work. This would enable a teacher to clearly observe pupils' progress and achievements, helping the teacher to produce more accurate and evidence-based assessments. The key to this use is to capture video that enables the teacher to conduct assessments in an efficient manner, otherwise a huge amount of time could be spent on observing video footage that may not support assessments.

To summarise, it seems that there are benefits to learning when applying video technology within physical education lessons. With the development of tablet devices, it is hoped that video can be used much more efficiently by teachers and that some of the future uses can be applied successfully.

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