



The role of collaborating educational technology and methods of teaching in physical education

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Abstract

In classrooms today, it is not uncommon to see students working together in small groups with their peers or even working in stations around the room and interacting with their teacher. Collaborative learning is not something new; teachers have been using this method in classrooms for many years. The changes, however, come in the types of activities used as well as the different tools available for having students collaborate. With the advances in technology, we have many more ways to collaborate that can occur outside of the classroom and beyond the school day. It can be of benefit to give students opportunities to collaborate within a virtual space, as that often can have a positive impact on their interactions in the physical learning space as well. In preparing students for the future, where they will likely need to work with others as part of a team, they will need experience in developing the skills to collaborate, to problem-solve, to think critically, and to have discussions as part of the learning or decision-making process.

Keywords: Physical education, collaborative learning, social skills, attitudes, technology.

Introduction

Collaborative learning is an educational approach where students work together in small groups to solve problems, complete tasks, or understand concepts, leveraging each other's skills and resources to achieve shared goals, moving beyond passive listening to active discussion, debate, and co-creation of knowledge, with the teacher acting as a facilitator. This social learning method enhances understanding by promoting teamwork, critical thinking, and communication skills through peer interaction and shared responsibility for learning outcomes, applicable in classrooms or online.

Collaborative learning has been shown to be a useful tool for improving several social skills in students; however, it is very difficult to set up the initial conditions that guarantee its effectiveness. Since group projects are made for students and, most importantly, by students, we should not forget to take their opinions based on previous experience into consideration, which might increase the efficiency of their own learning.

We have the opportunity to create these experiences for them, and as the teacher, we then shift to more of a facilitator and work alongside with students to help them navigate these collaborations as they work on learning the content material or even focus on a more involved activity such as project or problem-based learning.

Life skills/social skills have become equally important to the "technical skills" that are still very often prioritized at schools in many countries. In order to create the best opportunities for students to collaborate, teachers need to consider what the purpose is of designing a more collaborative and interactive learning environment. Part of the consideration should be on how we can help students to build their social-emotional learning skills, to develop communicative abilities as well as to work as part of a collaborative team, that promotes discussion, interaction and problem-solving. There are many ways to create different activities in the classroom that can help students to practice in more authentic ways, and also build confidence and social networks for learning.

Collaborative learning creates an environment where students at various performance levels work together in small groups towards a common goal, which encourages their active participation. The importance of teamwork capability is repeatedly highlighted in reports from western and other economies. The authors emphasise that teamwork capability can be developed, supported, and improved through effective teamwork pedagogy in which collaborative, cooperative, or experiential learning strategies are necessary.

Ways to Collaborate

The "collaboration" is not focused on the tech used but rather focused on giving students opportunities to work together, to develop their interpersonal skills, to become self-aware and to develop their awareness of others. A lot of possibilities exist, it simply comes down to what is available in terms of technology and what the specific needs are that the collaboration will help to serve.

1. Google and Microsoft: By using these types of tools, students can work on learning the content in a more authentic and meaningful way, but they also work on their digital citizenship skills by learning to engage in the same virtual space and be mindful of the work being done by their partners. Using these tools also promotes the opportunity for more global collaboration as students and teachers can connect with other classrooms throughout the world because of this technology.

2. Blogging: Blogging is a good way to help students develop their literacy skills and to practice the content by applying their knowledge in a more authentic way. Students can collaborate by writing their own blog post and then offering peer feedback or writing a response to a peer's blog post. Blogging can be used for any grade level or content area. Students can also collaborate on writing posts together and then share to build upon the learning happening within the collaborative group.

3. Project Based Learning: The use of project-based learning is a good way to help students prepare for their future by engaging in authentic work, exploring real-world issues and working with peers to come to a solution. In HQPBL (High Quality Project-Based Learning), one of the six criteria is collaboration. By implementing HQPBL, students can work together to come up with ideas, to brainstorm and problem-solve. Each individual contributes through ongoing research, collaboration and conversation, some of which may occur outside of the classroom and even involve students and teachers from other schools.

4. Hands-on activities: There are a lot of different learning possibilities that come down to simply using the traditional tools of paper, pencil, markers, and other classroom materials. Students are very creative and sometimes when given these basic materials and tasked to find a way to practice, they work together and come up with innovative ideas that move away from completing a worksheet or textbook activity or doing something that is already created online. Their collaboration leads to the design of a new, meaningful way to review the material and it's also something that can be shared with their peers and other classes.

5. Creating a wall of discussion: Students need to be involved in class discussions, however, at times they may not feel comfortable speaking in front of their peers. For this reason, some of the digital tools available for having students share ideas, such as Padlet, are quite helpful for collaborating. Students can post their ideas, even anonymously, share photos, videos, weblinks links or record audio to add to the collaborative space.

Review of Literature

- Teaching Strategies Zelazo, Muller, Frye & Marcovitch (2003) assert that a strategy is a way of translating aim into meaning. Shore (2003) views a strategy as involving a teacher's attempts to translate aims into practise. Hence, teaching strategies are ways of presenting instruction to students attaching effect and meaning or impression.
- Harrison & Blackmore (1992)^[1] assert that there is no one best strategy for any one teaching style, rather strategies should be selected that best meet the needs of instructional situation, and each strategy should be adapted to the parameters of that particular style. This shows that a teacher should be well versed in a variety of teaching strategies so as to link them to appropriate teaching styles.

Application of Teaching Strategies

As alluded to above, various teaching strategies can be employed in the teaching of Physical Education. Such strategies include but are not limited to the following:

1. Lecture strategy

Magill (1993) defines a lecture as a verbal presentation to an audience of a defined segment of information to a large group of students in a short time. It covers outside reports, outside speakers and panel discussions. And also asserts that

a teacher can select a lecture strategy for students to simply listen. This shows that the lecture strategy is useful when presenting information to a number of students.

2. Cooperative Learning Teaching Strategy

Harrison & Blackmore (1992) assert that cooperative learning teaching strategy is a strategy that utilized learning in groups where learners are assigned a learning task or project to complete as a team. The teams are heterogeneous and are evaluated both individually and as a group. Postulates that there are three common cooperative learning structures utilized in the cooperative teaching strategy. These include the pairs check, jigsaw and group activities.

3. Interactive Teaching

Bronson (2009) defines interactive teaching as the type of teaching that incorporates a two way communication between the teacher and pupils, pupil to pupil and the teacher continuously monitors and responds to pupils 's thinking by adjusting the flow and focus of the lesson. According to Collis and Lacey (1996) in the interactive teaching strategy the aim is to allow pupils to dig deeper into meaning and concepts. It is about the notion of knowledge being constructed jointly rather than content being delivered to learners by teachers. Therefore, interactive teaching focuses on interpersonal relationships among learners and teachers.

4. Learning Contracts

Swanson & Holton (1997) assert that learning contract is a document used to assist planning of a learning project, a written agreement negotiated between a learner and a teacher. Hence, a learning contract involves negotiation and agreement on the part of learner and the teacher. According to Dixon (1991) a learning contract considers psychological principles of the adult learner since the learner is encouraged to take more responsibility for their own learning. The elements of learning contract include learning objectives and goals, and the strategies and resource available to achieve the objectives. It also demands the evidence to indicate that objectives have been achieved.

5. Questioning Strategy

According to Wells (2001) questioning is a core function of both learning and teaching. It is a designer of curricular and instructional activities that facilitate interactions. Questioning enables interaction where student interact with their teacher and peers. Questioning promoted higher order thinking through explanation of high level questioning. (Covey 1990) Active Teaching According to Hermin and Toth (2006) active learning refers to the level of academic student engagement in and outside classroom.

6. Active teaching

Active teaching is intended to make students active rather than passive participants in learning. Silberman (1996) states that active hands on teaching strategies and learning activities are designed to take students out of their seats or classroom. This shows that active teaching involves active participation on the part of the student rather than passive recipients. Buehl (2001) asserts that many individuals learn

best and become proficient in skills by practicing them rather merely being a spectator to the skill. This shows that individuals learn by doing which are active hands on approach

The role of technology in collaborative learning

Technology has made great inroads in the classroom over the past few years. Hardware ranging from smart whiteboards to tablets is a common sight in schools and software like Google Classroom, Google Drive and Khan Academy continue to perforate everyday learning. And that's great – especially as teachers are drawn to using technology more regularly and in more collaborative ways. However, technology has a long way to go before being used to its full effect and teachers continue to dictate the nature of learning. The real use case for technology in the classroom is still evolving, and as such, improvements in learning outcome for students are yet to be proven.

- Alongside this technological transformation, we're witnessing the changing role of the teacher in the classroom. Accelerating technology and its impact on the education industry, has forced educators to adapt and the nature of skills required for this career have become unpredictable. So, what does this mean for teacher, technology and classroom?
- Perhaps it requires a change of roles and part they play in students' learning. Teachers need to harness the power of technology by letting students learn at their own pace, in a project based, collaborative approach. Technology has the potential to further enable personalised progression and ensure strong foundations for the core subjects like literacy and numeracy. It also plays a large role in assessing students and analysing development, to ensure these learnings are fully embedded in the business end of education.
- By mixing computer aided learning with more traditional forms, this hybrid approach can inspire students and empower teachers with the freedom to embrace their changing roles in the industry
- Use of new technology needs to be made clearer, such that teachers can focus on impact and learning outcome rather than the physical operational aspects. IT helpdesks can play the role of technology partner here. For example, helping teachers to install and understand virtual reality equipment in the classroom so they can focus on engaging the technology to help students learn more collaboratively.
- Today's students are much more clued up about technology than their parents' generation and use it on a constant basis. Everything from Facebook and Twitter through to computer games, mobile phones and apps, form a large part of their lifestyle – and teachers can use this reliance to encourage collaborative learning. By mixing computer aided learning with more traditional forms, this hybrid approach can inspire students and empower teachers with the freedom to embrace their changing roles in the industry.

Applying Technology in Physical Education Class: Lots of Possibilities

PE Tech Tools

a. Physical Education Apps

The boom in mobile technology has provided physical educators with a wealth of tools. There are numerous apps

that can be taken advantage of, with some allowing for movement tracking and nutritional help, while others assist in enhancing athletic activities like basketball. Apps involving video and picture analysis can be used to examine athletic movements, and ultimately help to improve physical skills.

Physical educators should not shy away from trial and error while thinking of new ways to use apps in and beyond the classroom. Apps like My Fitness Pal, Coach's Eye, and Team Shake show the breadth of offerings available and can get you thinking about many different possibilities.

b. Wearable Tech

Wearable technology has changed the way we collect and evaluate personal data. With increasing awareness in physical education departments about the importance of feedback from daily activities, technological tools such as pedometers, smart watches, and heart rate monitors are increasingly being used. With wearable technology, students will be able to track and analyse their heart rates, activity levels, or the number of steps to take within a time frame.

With a pedometer for instance, during a 3 vs 3 basketball game, students may be asked to make predictions on how many steps they think they can take during the game. Once the game is over, they can then chart the steps and do some problem solving into ways to add to their steps for the next game. The open-mindedness and enthusiasm that many students have can be leveraged to not only to improve their physical well-being at this stage, but also to impart lifelong lessons about taking responsibility for their own health.

c. Virtual Connections

Effective learning involves two-way communication where students are able to engage in discussion and challenge the teacher's ideas in order to achieve a deeper understanding. Many classrooms have already started taking advantage of the online world by creating classroom blogs or websites. A classroom website is valuable for encouraging discussion after class, or enabling communication for students applying PE techniques or working on sport practices or exercise outside of classroom.

Another awesome way to leverage virtual connectivity is to invite guests into your classroom via video chat programs such as Skype and Hangouts. Students can also be encouraged to get involved with online courses about nutrition, exercising, and fitness principles, or web quests geared toward purposeful inquiry.

d. Gaming Systems

Interactive video games such as Dance Dance Revolution, Wii Fit, and Wii Sports, can be invaluable in promoting physical activity of students and are already in use across many physical education centers. They serve as a reasonable alternative to exercising in bad weather and produce results similar to those seen with outdoor physical activity. Physical education teachers can easily tap into students' love of video games to foster interest in physical education. Video games are extremely engaging and immersive, and can be taken beyond the school environment and continued at home.

e. Video Resources

As a result of advancements in technology and faster internet becoming available today, it is now possible to stream videos on YouTube and Vimeo. Physical education

teachers can take advantage of this and recommend workout videos to students, as well as other types of content which provide useful demonstrations for skill development.

Whether they are dance or yoga videos, students may become so entranced with some YouTube channels that follow them, encouraging them to do even more than the teacher asks. No matter the level of the class, teachers will be able to find age-appropriate videos to share.

Conclusion

The students are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful. Shared learning gives students an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers. Group work can be used to encourage deeper learning and promote students' autonomy by transferring some of the responsibility for teaching and learning to them.

To make the collaborative learning successful, it is necessary to monitor and regulate the interactions. Therefore, the teacher retains an important role in the success of collaborative learning as a facilitator. His role is not to provide the right answer to the students or to say which group members are right, but to facilitate and redirect the group work in a productive direction with minimal pedagogical intervention. In a collaborative classroom, the teacher encourages students' use of their own knowledge, ensures that students share their knowledge, expertise and their learning strategies, treat each other respectfully, and focus on high levels of understanding.

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