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Teacher Professional Development in Technology

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Introduction

Millions of people have been managing with the evolving nature of teaching and learning without effective teacher professional development, teachers—the single most significant school-based determinant of student learning—are at the center of the response to recover learning losses from the COVID-19 pandemic-induced education crisis. The shifting expectations placed on teachers must be carefully considered as education systems shift towards remote solutions or decide it is safe for schools to reopen,

ensuring they are equipped and supported through efficient teacher professional development procedures. Technology can be utilized effectively to improve access, participation, engagement, and ongoing application of new skills in the classroom. Education systems must make investments in workable strategies to support and continuously improve teacher professional development as they work to recover from the current crisis. Policymakers are becoming more interested in offering teachers remote and alternate assistance options .[1]

In low-income nations, there is a strong argument for improved in-service technology-assisted teacher professional development. The lack of qualified instructors needed to expand universal access to high-quality education is a significant driving force. To achieve high-quality universal education, it is crucial to both recruit new instructors and eliminate those who are already working there. Technology can improve access, participation, engagement, and ongoing application of new skills in the classroom when used properly.[2,3]

In response to these challenges, technology-assisted professional development (TAPD) is a way to enhance the abilities of both experienced and recently qualified teachers in settings where there are not enough teachers of sufficient quality and quantity. Another driving force is the requirement for novel approaches to enhancing education in times of war and catastrophe. Eight promising technologies that can assist effective professional learning for teachers in low-income and unstable states were examined by the authors of Technology-supported Professional Development for Teachers: Lessons from Developing Countries. These technologies include:

1. Audio learning

The process of learning and remembering information by listening is known as auditory learning. It describes the capacity to pick up knowledge by carefully listening, comprehending, retaining, and recalling spoken information. To better understand and retain new knowledge, auditory learners may find that listening to lectures, discussions, podcasts, or audio recordings is preferable to reading or writing .[4]

Students learn in different ways, and recognizing how one learns can help teachers tailor their lessons to the various learning preferences of their students. A potent strategy for improving student learning and retention is to recognize their preferred learning styles and offer learning material accordingly. For instance, a learner who processes information primarily through hearing may retain every word spoken during a lecture yet struggle to recollect material read aloud from a book or the board. There are a few of the following traits that auditory learners frequently exhibit:

- Superior recall of information that has been spoken
- Improved verbal communication abilities, including listening and speaking Good oration/storytelling/public speaking skills
- The ability to communicate thoughts clearly
- Recognizing these traits can assist teachers in identifying auditory learners in the classroom. Auditory learners are more likely to participate in class discussions, have good public speaking skills, enjoy having conversations, and be good at explaining and communicating verbally.
- These students frequently struggle with silence or ambient noise

Readers are urged to remember that some outdated technologies have a significant influence, as stated in the advice. It emphasizes the effectiveness of interactive radio and audio content that has already been recorded. It is evident that there is a risk that the importance of other more traditional technologies, like radio, will be overshadowed by the current concentration on mobile phones.

Figure 1: Teaching to the students by audio learning

2. Video learning

Video-based learning is a crucial component of any effective employee upskilling or onboarding process, say L&D specialists, now more than ever given the rise of remote and hybrid workplaces. This manual is for you if you want to start using video-based training in your business or if you want to improve your training approach.

A remote training method known as "video-based learning" uses live or previously recorded video to impart new knowledge and skills. Video-based learning creates a multi-sensory learning environment that encourages engagement and knowledge retention by utilizing visuals, graphics, on-screen text, and audio.

Figure 2: Teaching to the students by video learning

Motives for using video-based learning

There are a number of reasons why video-based learning is especially well-suited for corporate training programs:

(i) Both instructor-led teaching and independent learning scenarios can benefit from video learning.

(ii) Since video-based learning is self-paced, learners can better plan their training around their busy schedules and learn at a time and speed that works for them.

(iii) Video also supports micro learning and just-in-time learning, which have both been successful in corporate training.

(iv) It is simpler to evaluate the effectiveness of your video-based learning, particularly when using a platform of the highest caliber, such as Kaltura Virtual Classroom, which includes in-depth analytics dashboards.

(v) Scaling video learning is simple since it can be accessed by an endless number of students at any time and from any location.

Technology advancements have made it much simpler to film classroom activities with a camcorder, camera, or smart phone. This kind of content presents intriguing chances for individual and intergroup reflection on instructional effectiveness. Video has the ability to give educators real-world examples of effective pedagogy.

3. Open Educational Resources

Learning, teaching, and research materials in any format or medium that are in the public domain or are protected by copyright and published under an open license, allowing free access, re-use, re-purpose, adaption, and redistribution by others, are known as open educational resources (OER). An open license is one that allows the public to access, use, repurpose, adapt, and redistribute educational resources while also respecting the copyright owner's intellectual property rights.

Figure 3: Students can be studied by Open Educational Resources

The OER Dynamic Coalition wants to encourage networking and information exchange to forge connections among the following recommended areas of focus:

(i) Increasing the ability of stakeholders to produce, get, utilize, adapt, and redistribute OER.
(ii) Making supporting policies is item.
(iii) Supporting equitable and inclusive OER.
(iv) Promoting the development of OER sustainability models.
(v) Encouraging global co-operation.

Teachers can access a multitude of resources for self-study and collaborative peer reflection through OER and other digital materials through tablet, smartphone, and laptop. It can be utilized offline as well as online.

4. Computerized student testing

We enjoy many aspects of online learning in many educational programs, but assessment is not always one of them. Online assessment quality, validity, security, integrity, and accuracy are frequently questioned. However, computer-based testing has so many advantages for online students, teachers, and programs, particularly in terms of administration, grading, and scale, that it merits a much closer examination. This article, which is one in a series on assessment, argues in favor of using computer-based/online testing more frequently.

Additionally, delivering consistent'real-time' data regarding students' academic achievement via online assessments has the potential to be an effective technique to show teachers the effects of different pedagogical approaches: "Teachers in fragile settings could further be enabled to take control of their own learning and increase their own likelihood of achieving quality standards if they could receive objective information/data on their own teaching performance over a period of time."

Figure 4: Computerized student testing

5. Computers in schools

There is virtually little proof that IT rooms in schools, which house a large number of school computers, improve student performance. However, these IT spaces provide a neglected asset for teacher professional development through the use of social media, online forums, online social networking, downloading of resources, and enrollment in online courses.

Computers serve a purpose in education to deliver audio-visual instruction, do research, facilitate online learning, keep records, create papers, and learn about new, developing technology.

Figure 5: Students learning/teaching by computers in schools

Important Uses of Computer in Education

(i) New Era of Classroom Teaching
(ii) Student Research
(iii) Simplify Record Keeping
(iv) Online Library
(v) Easy to access information
(vi) Online Learning
(vii) Easy to Create Any Documents
(viii) Track the performance of students
(ix) Learn New Technologies
(x) Computer-Based Training (CBT)

6. Mobile phones

Students can use their phones as a class calendar to note significant dates, and teachers can send out group SMS to the entire class to keep everyone informed about tasks. Cell phones can be useful for projects in terms of gathering media. Using a cell phone, you can capture pictures, record videos, and keep audio diaries.

Mobile phones shouldn't be used in areas with kids present, like a playground or a school. Utilization of phones, including sending and receiving messages and emails, should be restricted to times when there are no children present, such as in staff rooms, office spaces, and unoccupied classrooms.

Although there is not much concrete evidence of an impact yet, mobile phones show great promise. They are "economical, transportable, simple to use, and many offer web browsing." The importance of mobile phones for professional education is projected to rise as advancements in technology occur .[5]

Figure 6: Students learning by Mobile Phones

7. Online communication

Technology has transformed education in that it has made it more accessible. E-books, audiobooks, movies, podcasts, and other forms of information are now accessible to everyone with a reliable internet connection. The improvement of communication and collaboration in our classrooms is also a result of technology. Since we are no longer confined to the four walls of the classroom, we are no longer constrained by physical space for learning. Teachers today have a wide variety of communication tools to select from as a result of the changes in communication methods brought about by technological improvements.[6]

Detlef R. Prozesky emphasizes the link between teaching and communication in his article, "Communication and effective teaching." Teaching and communication go hand in hand since teachers are continually imparting new knowledge, or transferring information, to students. In light of this, we'll examine some of the top teaching-related communication tools in this blog post. We'll group them into three categories for your convenience:

- Communication tools for teachers working together
- Communication tools for teachers and students
- Communication tools for teachers and parents

Although platforms like Skype/Zoom/Google Meet allow for low-cost virtual coaching, this presently requires a stable internet connection, which eliminates many teachers in rural and underprivileged areas.

Figure 7: Online Communication

8. Serious gaming -

To impart particular skills, knowledge, and attitudes, serious games blend learning techniques, game mechanics, and knowledge and structures. They leverage the challenges and rewards offered by games to solve problems in a variety of contexts while also providing fun and engagement for the user. The idea of the serious computer game is one intervention that has potential but has been almost utterly disregarded. Such games could be a particularly entertaining method to examine professional issues.

Since they may be used to address a wide range of issues and concerns, serious games are utilized in many different contexts.[7] There are a few localities where

serious games are more prevalent than in other places:

- Education: By incorporating games into exercises and simulations, certain subjects are taught. In this approach, pupils might, for instance, learn algebra or a foreign language. This is one of the most popular uses for serious games, commonly referred to as instructional games.
- Healthcare: By converting workouts into game actions, games are also employed in rehabilitation. The practice of medical procedures in a controlled setting is another application in healthcare.
- Sustainability projects: encourage participation in sustainability initiatives or behaviour changes.
- Training and consulting: A growing number of consulting firms employ serious games to teach and demonstrate teamwork as well as social and logistical aspects in the workplace.

What are the advantages of serious games?

So why are businesses using games to achieve more and more important objectives? What could be wrong with a simple book or online course? The traditional approaches are still effective, but games give us a fresh means of imparting information. And it works well as a tool for the reasons listed below:

1. Higher immersion and engagement: Due to the way games are made, players are constantly encouraged to keep playing through the use of rewards, plot advancement, and other feedback mechanisms. To fully immerse yourself in the subject, combine this with a stunning setting.
2. A secure environment for experimentation: In the actual world, your choices have repercussions, which occasionally result in material damage or

harmed sentiments. Games establish a secure, virtual world where players can explore wildly without worrying about negative consequences.

3. Positive emotions improve learning: According to studies, students who play educational games feel happier overall. Compared to traditional and video learning approaches, this results in a better learning experience.

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