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Teachers professional development using ICT

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Abstract
In this digital age, information and communication technology (ICT) professional development for educators is essential to enhance student learning outcomes and teaching practices. This study looks at several methods for assisting teachers' professional development in integrating ICT. These tactics include webinars and online classes, virtual learning communities, workshops, mentoring, resource access, practical experience, reflective practice, encouraging a culture of ongoing learning, rewards, acknowledgment, and group projects. Schools and other educational institutions can enable teachers to use ICT tools and technology in the classroom more skillfully by putting these techniques into practice. This will ultimately result in more impactful and engaging learning experiences for students.

Keywords: Webinars, online courses, virtual learning communities, professional development, teachers and information and communication technology (ICT) integration

Introduction

Overview

Information and communication technology (ICT) integration is becoming more and more crucial in today's quickly changing educational environment to improve teaching methods and encourage student participation. Since technology is still a major factor in many facets of life, teachers need to constantly improve their abilities to use ICT tools and resources in the classroom. In addition to examining various ways and strategies to help teachers' growth in this area, this paper analyzes the significance of professional development for teachers in ICT integration. There are several advantages to integrating ICT into education, such as having access to large information repositories, having the chance to create individualized and interactive learning experiences, and improving teacher-student collaboration. But in order to fully enjoy these advantages, teachers must have the know-how, competence, and self-assurance needed to successfully incorporate technology into their lesson plans. In order to give instructors the skills they need to successfully negotiate the challenges of ICT integration and realize the full potential of this tool to enhance student learning, professional development is essential.

This essay will examine some ICT-based professional development strategies for educators. These techniques include webinars and online courses; virtual learning communities as collaborative platforms; in-person workshops and training sessions; personalized coaching and mentoring; access to resources and support materials; reflective practice; cultivating a culture of continuous learning; rewards and recognition; and cooperative projects. Through a thorough analysis of these approaches, this article seeks to shed light on how educational establishments such as schools can enable educators to successfully incorporate ICT into their lesson plans and establish more stimulating and memorable learning environments for their pupils.

Technology is Necessary for Teachers' Professional Development

In today's educational environment, information and communication technologies (ICTs) are critical to teachers' professional growth. This is the reason why Getting Ready for Digital Learning Settings: Since technology is being used in classrooms more and more, educators must be skilled in utilizing ICT technologies to design dynamic and productive online learning environments. ICT-focused professional development programs assist educators in gaining the abilities needed to use instructional software, traverse online platforms, and incorporate digital resources into their lesson plans.

Improved Teaching and Learning Practices: Information and Communication Technologies (ICTs) provide a wealth of materials and technologies that help improve

teaching and learning methods. Teachers can enhance their ability to enhance student learning and engagement by learning how to use digital resources including interactive simulations, educational applications, multimedia presentations, and online collaboration platforms through professional development. Adaptation to Changing Educational Needs: New technologies are always being developed, and this is causing a steady evolution in the educational scene. ICT professionals can modify their teaching methods to fit the evolving demands of their students and the curriculum by staying current on the newest developments in educational technology through professional development in this area.

Personalized Learning and Differentiated Instruction: With the use of ICTs, educators may provide individualized learning experiences and customized instruction based on the requirements and learning preferences of each student. ICT professional development programs give educators the tools they need to use technology to monitor student progress, give timely feedback, and customize instruction. How to Get Ready for 21st Century Skills: 21st-century abilities including critical thinking, communication, teamwork, and computer literacy are necessary for success in today's digital world. ICT professional development gives educators the know-how to help students acquire these abilities, setting them up for success in a world that is becoming more and more reliant on technology.

International Collaboration and Professional Networking: Teachers can collaborate globally and network professionally because to ICTs. Teachers can interact with colleagues globally through online communities, webinars, and social media platforms. They can exchange best practices, work together on projects, and have access to a plethora of tools and knowledge to further their professional growth.

In summary, ICTs are essential to teachers' professional development because they help them learn in digital environments, improve teaching and learning strategies, adjust to changing student needs, support individualized and differentiated instruction, help teachers develop 21st-century skills, and facilitate international collaboration and professional networking. Teachers can get the skills and knowledge necessary to successfully incorporate technology into their teaching methods and create dynamic and engaging learning experiences for their students by enrolling in focused professional development programs in ICT.

Education as Career

Teaching is more than just a job; it's a calling, a vocation that necessitates passion, devotion, and a strong desire to influence future generations. The following are some salient features of teaching as a profession:

Knowledge and Expertise: Teachers are highly knowledgeable and skilled in both their subject areas and teaching strategies. To gain the abilities required to effectively impart knowledge and support learning in their students, they go through significant training and education.

Professional Development and Lifelong Learning: Teaching is a career that necessitates ongoing professional development and lifelong learning. To effectively promote student learning and continuously improve their teaching strategies, educators need to stay current on the most recent research, trends, and best practices in the field.

Moral Obligations: Teachers have moral obligations to the community, their peers, and their students. Since they are responsible for the health and education of their pupils, they have a duty to act morally, professionally, and with integrity in all facets of their employment.

Impact & Influence: Teachers have a significant impact on their pupils' life. In addition to teaching academic material, they act as mentors, role models, and supporters of their students' personal and professional development.

Student-Centered Approach: A student-centered approach that prioritizes fulfilling each learner's unique needs, interests, and talents is essential to effective teaching. In inclusive and encouraging learning settings, teachers help students feel respected, valued, and equipped for success.

Collaboration and Communication: To promote the learning and wellbeing of their students, teachers work in partnership with other educators, parents, and other stakeholders. They resolve problems, build strong bonds with children, parents, and coworkers, and advance a collaborative and teamwork-oriented culture through effective communication.

Flexibility and adaptation: To address the constantly evolving demands and difficulties of the educational environment, teaching need both flexibility and adaptation. Effective adaptation of teaching methods, strategies, and approaches is vital for educators in order to suit a diverse student body and dynamic learning environments.

Social Justice and Advocacy: Teachers frequently act as advocates for equity and social justice in the classroom. Regardless of their circumstances or background, they strive to establish inclusive and equitable learning environments where all students have access to a top-notch education and prospects for achievement.

All things considered, teaching is a noble vocation that has a significant impact on how people will develop as individuals, as communities, and as a society. Along with knowledge and experience, it also calls for empathy, compassion, and a sincere desire to improve the lives of others.

Using ICTs for Teachers' Professionals Development

In recent years, there has been a noticeable increase in the use of Information and Communication Technologies (ICTs) in teacher professional development. ICTs are used in the following ways to support educators' professional development:

Webinars and Online Courses: With the use of ICTs, educators can take use of a vast array of online courses and webinars that address a variety of subjects linked to pedagogy, education, and technology integration. Teachers can participate in professional development activities at their own pace and convenience thanks to these online learning tools.

Virtual Learning Communities: Through virtual learning communities, ICTs allow educators to communicate and work together with peers worldwide. Teachers can share materials, discuss ideas, and look for help and guidance from other educators through online venues like social media groups, forums, and professional networking sites.

Digital Resources and Tools: Instructors can improve their teaching methods by using the plethora of digital resources and tools that ICTs give them access to. ICTs give teachers creative ways to engage students and create dynamic learning experiences, from educational apps and software to multimedia materials and interactive learning platforms.

Remote Coaching and Mentoring: With the use of ICTs, teachers can obtain coaching and mentoring from instructional coaches and seasoned educators remotely. Teachers can obtain individualized support and feedback to enhance their teaching methods and professional development using online chat, video conferencing, and virtual collaboration tools.

Professional Learning Networks and Online Collaboration: Information and Communication Technologies (ICTs) enable teachers to create professional learning networks and collaborate online. Teachers can exchange ideas, work together on projects, and take part in professional learning communities that are centered around certain subjects or interests through virtual communities of practice, online forums, and social media platforms.

Digital Portfolios and Reflective Practice: With the use of ICTs, educators can construct digital portfolios that highlight their successes, offer insights into their methods, and track their ongoing professional development. Digital portfolio systems give educators a place to gather proof of their successful lessons, make objectives, and participate in reflective practice to keep getting better at what they do.

Blended Learning and Flipped Classroom Models: ICTs facilitate the application of flipped classroom and blended learning models, which combine technology with conventional teaching methods to improve student outcomes. More individualized and interactive learning opportunities can be provided in the classroom by teachers using interactive multimedia materials, video lectures, and online learning platforms to deliver content outside of scheduled class times.

In general, there are several advantages to using ICTs for teachers' professional development, such as easier access to chances for professional learning, networking and collaboration, individualized support and feedback, and improved teaching techniques. ICTs will become more and more crucial in enabling educators to stay current, connected, and productive in their line of work as technology develops. The introduction of ICTs increases the requirement for instructors to engage in ongoing professional development. In order to help meet these increased needs, ICTs can be useful tools. They can help with routine administrative tasks, help with access to more and better educational content.The following lists some of the main MOOC providers' details:

Coursera: Two Stanford Computer Science professors created Coursera in 2012.Anyone, anywhere may learn from the best colleges and education providers in the world and earn certificates using the Coursera platform (https://www.coursera.org/). It enabled free internet access to the courses.

EdX: Harvard University and MIT created EdX, an online learning platform and MOOC provider, in 2012. edX provides learners worldwide with access to top-notch courses from the top universities and institutions worldwide. edX is distinct from other MOOC providers, such Courser, in that it operates using open source software and is a nonprofit. In a similar vein, India has launched a number of ICT projects to help with teachers' professional development.

ICT in Courses and Curriculum for Education

To prepare students for success in the digital age, information and communication technology (ICT) integration is a critical component of education curricula and courses. ICT can be included into educational programs in the following ways.

- Provide introductory classes that concentrate on enhancing students' ICT literacy abilities. These courses should cover fundamental computer functions, internet navigation, digital communication, and information literacy. These courses give students the fundamental abilities and information required to use technology for communication and learning in an efficient manner.
- Incorporate classes or modules on digital citizenship that instruct students on how to use technology in a safe, ethical, and responsible manner. Digital etiquette, cyberbullying avoidance, online privacy, and ethical social media use are a few possible topics. Students who receive instruction in digital citizenship are better equipped to navigate the increasingly connected world as responsible digital citizens.
- Using Technology to Bridge Disciplines: Integrate ICT resources and technologies into many disciplines and topic areas. Give educators the tools and encouragement they need to integrate technology into their lesson plans so that students may interact with multimedia, digital resources, and curriculum-related interactive learning activities.
- Project-Based Learning with Technology: Create classes that combine technology integration with project-based learning (PBL) strategies. Urge students to conduct research, work together, produce, and present their projects using ICT technologies. PBL with technology gives students the chance to work on real-world, realistic assignments while honing their critical thinking, problem-solving, and digital literacy abilities.
- Education in STEM (Science, Technology, Engineering, and Mathematics) and Coding: Include ICT in STEM education by providing courses on robotics, digital design, coding, and programming. Through practical experience with technology, these courses help students develop the creativity, computational thinking, and problem-solving abilities necessary for success in STEM disciplines.
- Courses for Online and Blended Learning: Provide courses for online and blended learning that use online platforms and ICT tools to give instruction and involve students in interactive learning. With the flexibility and

accessibility of online courses, students may learn at their own speed and access materials from any location with an internet connection.
- ICT-Enhanced Assessments: Create and administer tests that efficiently gauge students' knowledge and abilities by utilizing ICT tools and platforms. Use digital assessment techniques that let students show what they've learned in a variety of ways, like interactive simulations, online tests, and multimedia projects.
- Professional Development: Give teachers chances to grow professionally so they can improve their ICT proficiency and pedagogical understanding. Provide online courses, training sessions, and seminars with an emphasis on digital pedagogy, technology integration, and efficient use of ICT technologies in the classroom.

Schools and other educational institutions can provide students with the information and abilities necessary to prosper in a technologically advanced world by incorporating ICT into their curricula and courses. ICT-enhanced learning opportunities help students develop into lifelong learners, critical thinkers, and problem solvers who can quickly adjust to the demands of a continuously evolving digital environment. In order to support teachers in strengthening their professional capacities and utilizing ICTs effectively in their teaching-learning processes.The curriculum is implemented as a sequence of short-term courses for teachers, comprising twenty refresher courses, three introductory courses, and optional subject-specific courses. Any teacher who completes the twenty refresher courses and all three induction courses is qualified to sit for the test that leads to the NCERT-awarded Diploma in ICT in Education.

Teachers participate in a variety of activities during a hands-on session that follows an instructor-led demonstration in both the induction and refresher courses. Every task has a corresponding deliverable that needs to be documented in an electronic portfolio. As part of the training, teachers must also turn in a variety of tasks. A thorough and ongoing evaluation is offered by the cumulative record in the portfolio, which shows their accomplishments throughout the courses. There is also provision for performance enhancement.

Online Professional Development for Teachers in-Service

For the purpose of offering online courses pertaining to teachers' in-service professional development, NCERT has created a second website. The same course portal is used to deliver many courses to in-service instructors.

In this link: itpd.ncert.gov.in.The portal offers courses on general themes and subject-specific pedagogy, such as teaching science at the secondary level, in addition to skill-based courses like action research and diploma programs in guiding and counseling, among others. In the future, the site will provide more courses for educators who instruct students in a variety of areas at all academic levels.

MOOCs via SWAYAM

SWAYAM, or Study Webs of Active Learning for Young Aspiring Minds, is a Massive Open Online Courses (MOOCs) platform that was launched on July 9, 2017, by MHRD, GoI. The goal of SWAYAM is to give everyone access to the best teaching and learning resources, including the most marginalized. SWAYAM intends to close the digital divide for students who have been left out of the digital revolution and unable to integrate into the knowledge economy.in order to encourage lifelong learning and excellent education. In these classes, the four quadrant approach was applied in the following ways:

- Quadrant 1: e-Tutorial (Video) with video content transcribed
- E-material (PDF, Text, e-Books, Illustrations, Documents, etc.) in Quadrant 2 includes web resources (open material, Wikipedia, related connections, etc.).
- Assessment in Quadrant 3
- Discussion forum in quadrant four

The e-Tutorial quadrant is comparable to a lecture given in a classroom during a face-to-face instruction session in a school or other institution. Comparably, the second quadrant, or e-Content, deals with giving students text materials and references to help them comprehend the material better, and the evaluation quadrant handles the activities and things needed to evaluate students' progress online. The final quadrant facilitates the online teaching and learning process by offering tools for students to interact with teachers and one another to exchange ideas, clear up misunderstandings, pose questions, and more.

Several important points Best of Class

With technology being incorporated into teaching and learning more and more in today's educational environment, professional development for teachers using ICT (information and communication technology) is crucial. The following are some essential ideas on how ICT might help instructors advance their careers:

- **Online Courses and Webinars:** Instructors can participate in webinars and online courses that concentrate on incorporating ICT into their lesson plans. These courses may address subjects including making multimedia presentations, developing online learning activities, utilizing educational software, and digital tools for assessment.
- **Virtual Learning Communities:** Teachers can participate in online communities where they can discuss best practices for ICT integration, work together with peers, and share resources. Teachers may connect and learn from each other in areas like Edmodo, Twitter, and LinkedIn groups.
- **ICT Workshops and Training Sessions:** With an emphasis on ICT integration, schools and other educational institutions can host workshops and training sessions. Technology specialists or seasoned educators who can provide useful ICT tools and techniques can lead these workshops.
- **Coaching and Mentoring:** Teachers' professional development with ICT can be greatly benefited by receiving personalized coaching and mentoring help. Skilled mentors can provide direction, criticism, and encouragement to educators as they manage the integration of technology into the classroom.
- **Access to Materials and Resources:** Educational institutions can guarantee that instructors have a range of materials and resources at their disposal for the integration of ICT. This can contain lesson plans, instructional videos, online tutorials, and carefully curate lists of websites and apps with educational

content.

- **Practical Experience:** It is important to give educators the chance to get their hands dirty with ICT tools and technology. This may entail providing instructors with a safe and encouraging environment in which to test out various software programs, hardware, and platforms.
- **Reflective Practice:** Promoting reflective practice among educators is essential to their professional development when it comes to ICT. It is important for educators to constantly evaluate their experiences, accomplishments, and difficulties while incorporating technology into the classroom and modify their methods as necessary.
- **Culture of Continuous Learning:** Teachers' continued professional development with ICT depends on creating a culture of continuous learning. It is imperative that educational institutions and leaders emphasize the value of remaining current with cutting-edge technologies and creative pedagogies.
- **Encouragement and Acknowledgment:** Teachers who exhibit competence in integrating ICT might be encouraged to participate in professional development activities by being acknowledged and awarded. This can include honors, credentials, or chances to assume leadership positions in projects involving the integration of technology.
- **Collaborative Projects:** Teachers' professional development can be improved by encouraging them to work together on ICT-related projects. Creating digital curriculum resources, putting technology-enhanced courses into practice, or carrying out action research on how ICT affects student learning are some examples of collaborative initiatives.

  Through the implementation of these measures, educational institutions and schools can provide effective support for teachers' professional development through the use of ICT, which will ultimately result in improved teaching practices and student outcomes.

In summary

Finally, in order to equip students for success in the digital age, information and communication technology (ICT) must be incorporated into educational curricula and courses. Educational institutions can equip students with the skills, knowledge, and competencies required to thrive in a technology-driven world by implementing ICT literacy courses, digital citizenship education, technology integration across disciplines, project-based learning with technology, STEM and coding education, online and blended learning courses, ICT-enhanced assessments, and professional development for educators.

Through the use of ICT in the classroom, students can develop into responsible digital citizens, critical thinkers, problem solvers, and lifelong learners who can adjust to the needs of a society that is becoming more technologically advanced and networked. Teachers can design individualized, dynamic, and interesting learning experiences that cater to the varied needs and interests of their students by utilizing ICT tools and resources.

ICT integration in education also promotes innovation, creativity, teamwork, and communication—skills necessary for success in the workforce of the twenty-first century. It gives pupils the information and abilities in digital literacy they need to function in and contribute to a globalized, knowledge-based economy. It is crucial that educational institutions embrace ICT integration as technology develops further and give students the chance to acquire the skills and competencies necessary to prosper in a constantly shifting digital environment. By doing this, we can make sure that our students are equipped with the necessary skills to thrive in the digital age and make significant contributions to society.

References

1. Mishra P, Koehler MJ. A framework for teacher expertise regarding technological pedagogical content knowledge. Teachers College Record. 2006;108(6):1017-1054.
2. UNESCO. A toolkit for policy makers, planners, and practitioners utilizing ICT in education; c2017.
3. Niederhauser D, Davis N. Technology integration readiness for educators. Teachers College Record. 2007;109(5):1043-1060.
4. International Society for Education Technology (ISTE). Guidelines for Teachers; c2020.
5. Knezek G, Voogt J, editors. The International Handbook of Primary and Secondary Education with Technology. Springer; c2008.
6. Johnson L, Cummins M, Adams Becker S, Estrada V, Freeman A. NMC Horizon Report, K–12 Version, 2016. The Consortium for New Media; c2016.
7. Roblyer M, Doering A. Using Educational Technology in Teaching: A Global Approach. Pearson; c2013.