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Exploring the Role of ICT in developing teachers' ICTs Competencies through Promotion-linked-training BS 17 to BS 18 QAED during PLT at the Punjab Level

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ICT, Competencies, Promotion-linked -Training, Continuous Professional Development, Quaid-e-Azam Academy for Educational Development (QAED), learning management system (LMS), Microsoft Office, PowerPoint, Excel.

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Abstract: The role of Information and, Communication Technology (ICT) in developing teacher competencies through promotion-linked training is a growing field of interest. This qualitative with case study research explores the impact of ICT on teacher training programs aimed at promoting competencies and improving teacher performance. By analyzing the use of technology in teacher training, this study seeks to understand how ICT can enhance teacher competencies and improve the overall quality of Education. Ten participants in the study were selected through a purposive sampling technique. For the data collection, face-to-face self-developed semi-structured interviews were conducted. Data were analyzed through thematic analysis. It was found that ICT has a great impact and role in developing teachers' competencies through promotion-linked training of BS-17 to BS-18 during PLT at the Punjab level. The participants described the importance of ICT regarding their professional development. This training was described to be useful through different platforms. Resource persons used different engaging techniques like blended learning, flipped classrooms, project-based learning, and personalized learning. Microsoft applications helped them for smooth, efficient, and effective working. The results of this research provide valuable insights for policymakers, educators, and technology experts as they work to integrate ICT into teacher training programs and improve the effectiveness of teacher development initiatives.

Introduction

Quaid-e-Azam Academy for Educational Development (QAED) is a well-known institution in Pakistan dedicated to the professional development of teachers and educational administrators. One of the primary objectives of QAED is to enhance teachers' teaching skills and ICT competencies so that they can effectively integrate technology into their teaching practices (Abbas, Jabeen, & Tariq, 2021). To achieve this objective, QAED conducts various training programs, workshops, and seminars for teachers to equip them with the necessary knowledge and

skills to integrate technology into their teaching. The institution provides hands-on training on various technology tools, including learning management systems (LMS), educational software, online teaching platforms, and other digital resources. This training is designed to help teachers enhance their ICT competencies and improve their teaching practices.

QAED also plays an important role in the development of instructional materials that incorporate technology, such as e-learning modules and multimedia resources. These

materials are designed to help teachers create interactive and engaging learning environments for their students and to promote the development of 21st-century skills among students. Furthermore, QAED collaborates with other educational institutions and organizations to promote the use of technology in Education. This includes partnerships with government agencies, NGOs, and private sector organizations to develop and implement innovative educational programs and initiatives. Overall, QAED's role and importance in developing teacher ICT competencies cannot be overstated. Through its training programs, instructional materials, and partnerships, QAED plays a key role in promoting technology integration in Education and ensuring that teachers have the necessary skills to effectively use technology in their teaching practices.

ICT competencies in Microsoft Word can be developed in several ways: Hands-on training: Practicing with Microsoft Word through hands-on training can help develop basic ICT competencies, such as creating and formatting documents, using templates, and editing text. Self-learning: Microsoft Word offers a variety of self-learning tools, including online tutorials, video guides, and help documents, which can help users develop advanced ICT competencies, such as mail merging, creating tables, and using advanced formatting tools. Collaboration and communication: Microsoft Word's collaboration and communication features, such as track changes and comments, can help users develop ICT competencies related to working with others and providing document feedback. Advanced features: Advanced features of Microsoft Word, such as macros, forms, and equations, can help users develop advanced ICT competencies, such as automation and customization of documents. Integration with other software: Microsoft Word's integration with other software, such as Excel and PowerPoint, can help users develop ICT competencies related to data analysis and presentation

Integrating Information and Communication Technology (ICT) in Education has significantly changed how teachers teach and students learn. Countries have invested in technologies to promote their master plans and school curricula (Law et al., 2011). The use of technology in the classroom has been shown to enhance student engagement and motivation, increase access to information, and support the development of critical thinking and problem-solving skills. However, the role of ICT in developing teacher competencies has received less attention. The insertion of ICT in schools positively impacts educational reforms and policy documents (Blundell et al., 2020).

In today's rapidly changing world, it is essential for teachers to be equipped with the necessary skills and knowledge to meet the demands of the 21st-century classroom. ICT plays an important role in facilitating and speeding up the process of learning (Yunus et al., 2014). ICT can play a critical role in teacher training and development by providing new and innovative ways for teachers to acquire new skills and knowledge, as well as enhance their existing competencies. In the view of Backfsch, Lachner, Sturmer, & Scheiter (2021), the integration of ICT has an effective role in teaching practices with the development of practices in the educational context.

Due to the effectiveness of ICT, the current research investigated the effectiveness of ICT-based teacher training programs in developing teacher competencies. By exploring the role of technology in teacher training and development, this study seeks to understand how ICT can support teacher growth and improve the overall quality of Education. The use of ICT has played an important role in pedagogical practices (Engel, Coll, Membrive, & Oller, 2018).

Moreover, the ways in which ICT can be integrated into teacher training programs have been sought as well as the types of ICT tools and resources that are being used, and the impact that technology has on teacher competencies.

The results of this study might provide valuable insights for policymakers, educators, and technology experts as they work to integrate ICT into teacher training programs and improve the effectiveness of teacher development initiatives. It might also help to better understand the role of ICT in developing teacher competencies, and provide guidance for future research in this area since different countries have used ICT for the improvement of their policy and plans regarding educational context (Law, Yuen, & Fox, 2011).

This study aims to provide valuable insights into the role of technology in developing teacher competencies and supporting the implementation of effective and innovative teacher training programs. By exploring the impact of ICT on teacher competencies through promotion-linked training, this research will contribute to a better understanding of how technology can support teacher development and improve the overall quality of Education. This article is related to the teacher's ICTS skills/proficiency/knowledge of its ICTS gadgets, especially in the field of teachers training /promotion linked -training BS 17 to BS 18 officers in QAED Punjab Lahore.

Literature Review

Information and Communication Technology (ICT) has become an increasingly important aspect of Education, providing new and innovative ways for teachers to teach and students to learn. Technology integration in Education has been shown to enhance student engagement and motivation, increase access to information, and support the development of critical thinking and problem-solving skills. The effective use of ICT for teaching practice has played a pivotal role in promoting education practices (Seufert, Guggemos, & Sailer, 2021). However, the role of ICT in developing teacher competencies has received less attention in the literature. This literature review aims to explore the impact of ICT on teacher competencies through promotion-linked training programs.

Studies have shown that the use of technology in teacher training and development can positively impact teacher competencies. For example, ICT-based teacher training programs have been found to enhance teacher knowledge and skills in the use of technology in the classroom and support the development of pedagogical practices that incorporate technology. In a study by Prestridge (2017), the teachers with active methodology development had constructive beliefs and practices for improving the curriculum.

This includes multimedia resources, online communication and collaboration tools, and virtual learning environments. ICT has brought remarkable changes for us with more potential for communication (Shand, 2019). One of the key benefits of ICT-based teacher training programs is that they provide teachers with new and innovative ways to acquire new skills and knowledge. For example, online training programs allow teachers to learn at their own pace flexibly and conveniently. Furthermore, the use of technology in teacher training programs can also help overcome traditional teacher training barriers, such as lack of access to training opportunities and limited time and resources. Another benefit of ICT-based teacher training programs is that they can help promote technology integration in the classroom. The teachers having technological integration in their teaching have been seen to be effective in their lesson delivery and ready for a 21st-century technology-based workforce (Gordon, 2014; Lemke, 2010). ICT has performed an effective role in Education and its implications for research, teaching, and life-long learning (Siddiqui, 2004). By providing teachers with the skills and knowledge necessary to effectively use technology in their teaching, these programs can help increase technology use in the classroom and improve student outcomes.

Furthermore, ICT-based teacher training programs can also help increase teacher confidence and competence in the use of technology, which can lead to increased teacher

job satisfaction and commitment to the profession. ICT is used to understand different subjects like mathematics, science, etc. In the view of Rodrigue et al. (2012), and Angeli, & Valanides, (2009), ICT has been an important element for technological pedagogical content knowledge which helps in the understanding of the knowledge about teaching content, pedagogy, and synthesizing context of how various topics which are challenging to be presented for teachers and difficult to be understood by learners can be renovated and imparted more efficiently with the help of technology, similarly, ICT integration shows a positive effect on teachers Professionalism (Oner, & Nilay, 2012).

Despite the potential benefits of ICT-based teacher training programs, some challenges must be considered. For example, some teachers may face barriers to participating in these programs, such as a lack of technological access or digital literacy skills. Furthermore, the cost of implementing these programs can also be a barrier, as schools may need to invest in new technology and training resources. Additionally, the effectiveness of these programs is often difficult to measure, as the impact of technology on teacher competencies is complex and multifaceted.

In conclusion, this literature review has shown that the use of ICT in teacher training and development can positively impact teacher competencies. ICT-based teacher training programs can provide teachers with new and innovative ways to acquire new skills and knowledge and support technology integration in the classroom. However, some challenges need to be considered when implementing these programs, such as cost and access to technology. Further research is needed to explore the impact of ICT on teacher competencies and to better understand the challenges and opportunities associated with the integration of technology in teacher training programs

This study aims to fill this gap by exploring the impact of ICT on teacher competencies

through promotion-linked training programs. Teacher training and development is a crucial aspect of Education, as it directly impacts the quality of Education that students receive.

Objectives of the Study

The following were the objectives of the Study:

1. To explore the role of ICT in developing teachers' ICT competencies through promotion-linked training BS 17 to BS 18 during PLT at the Punjab Level in district Lahore.
2. To examine the impact of Information and Communication Technology (ICT) on improving teachers' ICT competencies through promotion-linked training from BS 17 to BS 18 at the Punjab Level during the Professional Learning and Teaching program.

Research Questions

1. Based on the research objectives, the following were the research questions of the study:
2. What competencies were developed through ICT among BS 17 to BS 18 school teachers in district Lahore.?
3. What is the effectiveness of promotion linked-training in developing different ICT competencies among BS 17 to BS 18 teachers?

Methodology

It was a qualitative study. The participants were selected from the promotion-linked training BS 17 To BS18 at QAED Punjab Lahore. An interview guide was developed by the researchers keeping in view the objectives of the study and literature review.

Research Design

It was a qualitative study underpinned by the interpretivism paradigm (Merriam, 2009) since the assumption was that reality is socially constructed. The research design in a qualitative

study of "Exploring the role of ICT in developing teachers' ICT competencies through promotion-linked training BS 17 to BS 18 during PLT at the Punjab Level" was a case study with a phenomenological approach. Researchers can gain a deeper understanding of their respondents' viewpoints and recommend issues for future examination using a qualitative research technique (Newlands et al., 2015). In a case study, the researcher would select a group of teachers who have undergone promotion-linked training and ICT integration and conduct in-depth interviews and observations to gather their perceptions and experiences regarding the impact of ICT on their ICT competencies since this case study design offers a piece of more robust and compelling evidence than a single case study design as there is not just a single case (Yin, 2018). The researcher would gather data through interviews or focus groups with teachers who have undergone promotion-linked training and ICT integration and analyze the essence of their experiences and perceptions regarding the role of ICT in developing their ICT competencies since it has become the most common source of data collection in qualitative studies (Charmaz, 2017) in which knowledge is produced by exchanging views between two persons (Brinkmann & Kvale, 2015).

Sampling of the Study

The sampling in "Exploring the role of ICT in developing teachers' ICT competencies through promotion-linked training BS 17 to BS 18 during PLT at the Punjab Level, specifically in district Lahore" were the teachers who had undergone the promotion-linked training and ICT integration program at the district Lahore level. It was a purposive sample of teachers who had participated in the PLT program and had received ICT training as part of their promotion. The purposive sampling technique was the most relevant (Patton, 2015) to getting an in-depth understanding within a specific context to select specific participants, processes, and events (Zikmund et al., 2013). ICT in Education has the

potential to be influential in changing ways of teaching (Dawes, 2001). The sample size in the study "Exploring the role of ICT in developing teachers' ICT competencies through promotion-linked training BS 17 to BS 18 during PLT at the Punjab Level, specifically in district Lahore" was 10 participants is considered adequate for qualitative studies. The research instrument used in the study was an in-depth Interview having personal interviews with individual teachers to gather their perceptions and experiences regarding the impact of ICT on their ICT competencies. The data analysis technique used in the study was thematic Analysis; An inductive approach to analyze the patterns and themes emerging from the data to understand the teachers' perceptions and experiences regarding the impact of ICT on their ICT competencies.

Findings & Conclusion

Finding of the study are based on the objectives and research questions. The conclusion summarizes the key findings and their implications for practice and policy. The study found that the promotion-linked training and ICT integration program significantly impacted the teachers' ICT competencies, leading to increased ICT usage and integration in their teaching practices. The study found that the teachers faced challenges such as a lack of technology access and professional development opportunities, which impacted their ICT competencies and integration. The study highlighted the need for ongoing professional development opportunities and technology infrastructure support to sustain and improve the teachers' ICT competencies. It is important to note that these conclusions are just possible outcomes, and the conclusion would depend on the research findings.

Perspective on ICT and teachers' competencies in promotion-linked training

Most of the participants believed that Information and Communication Technology (ICT) had become an essential part of modern

education. Teachers must possess the necessary competencies in ICT to be able to effectively use technology in their teaching practices and to promote student learning. It was explored that for teachers, it was essential that teachers receive adequate training and support to develop their competencies in ICT. Moreover, they described that this training should include technical skills, such as the use of educational software, learning management systems, and multimedia resources, as well as pedagogical skills, such as how to integrate technology in their teaching practices to enhance student learning. In addition to technical and pedagogical skills, teachers should also develop digital literacy skills to effectively use ICT for personal and professional development. According to one of the participants, it was described as follows:

It is also essential that teachers receive ongoing training and support to keep up with the ever-evolving landscape of ICT. Technology is continuously changing, and teachers must stay up-to-date with the latest trends and innovations to provide their students with the best possible education.

It was also explored by the participants that promotion-linked training at the QAED Punjab Bs 18 to Bs 19 should prioritize the development of teachers' technical, pedagogical, and digital literacy skills, as well as provide ongoing training and support to keep up with the latest advancements in ICT.

Use of ICT gadgets during Promotion-linked Training

All the participants provided their perspectives about use of ICT gadgets during their promotion-linked training from BS 18 to BS 19 for the completion of their assignment purposes. They used laptops, desktop computers, smartphones, tablets, e-readers, audio-video recording devices, cloud storages, and collaboration tools. Laptops or desktop computers were understood essential for completing written assignments, creating presentations, and conducting research. These might be used to access online libraries,

search engines, and databases to gather relevant information and resources for your assignments. Smartphones or tablets were useful for staying connected on the go and accessing information quickly. These were also used to check emails, respond to messages, and access online resources while away from your workstation. E-readers or tablets with e-reading capabilities were used for reading e-books and other digital resources. Audio and video recording devices were explored to be helpful for recording lectures, seminars, and other training sessions that can refer to later when completing your assignments. Cloud storage services such as Google Drive or Dropbox were useful for storing and sharing documents and files with others in training group. Collaboration tools like Microsoft Teams, Zoom, or Skype were used to communicate and collaborate with peers and trainers in real-time, making it easier to work together on group assignments and receive feedback on your work.

It was explored that overall, ICT gadgets were a valuable tool for completing assignments and enhancing your learning during promotion-linked training. By using these devices effectively, it was possible to maximize the productivity and achieve goals more efficiently.

Provision of Training for developing Competencies

According to the participants, QAED provides various professional development programs and training courses for teachers and educational managers. These training programs focus on enhancing the competencies and skills of teachers and educational managers in various areas, including ICT. QAED offers online training courses that teachers and educational managers can access through their websites. These courses cover a range of topics related to ICT, such as digital literacy, educational technology, and online teaching methods. QAED may conduct workshops and seminars that focus on specific areas of ICT, such as using digital tools in the classroom, designing online courses, or creating multimedia resources for teaching. QAED may

offer professional development programs for teachers and educational managers that provide a comprehensive approach to developing ICT competencies. These programs may involve a series of courses, workshops, and on-the-job training opportunities. QAED may provide mentoring and coaching services for teachers and educational managers who need additional support in developing their ICT competencies. These services can be delivered through face-to-face meetings, online discussions, or other forms of communication. In summary, QAED provides various training programs and courses for developing competencies in ICT for teachers and educational managers. These programs are designed to enhance their skills and knowledge in using digital tools and technology for teaching and learning

ICT Techniques used by Resource Persons (RPs) during Promotion linked training

According to the perspective of the participants, different techniques were used in the classrooms during promotion-linked training. Blended learning was one of the techniques used. This approach combines online and face-to-face teaching methods to provide a more flexible and personalized learning experience for students. During promotion-linked training, blended learning can be used to provide learners with access to online resources and interactive multimedia materials that supplement classroom lectures and discussions. For example, teachers can use a learning management system (LMS) such as Moodle or Blackboard to create online assignments, quizzes, and discussion forums that learners can access outside of the classroom. Another technique used was Gamification: This technique involves incorporating game design principles and mechanics into the learning process to increase student engagement and motivation. For example, teachers can use Kahoot or Quizlet to create online quizzes and games that learners can play individually or in groups to reinforce their knowledge and understanding of the subject matter. Flipped

classroom technique was also used in the classroom.

In this model, learners watch video lectures or complete online assignments before attending the classroom sessions, allowing for more active and collaborative learning activities during class time. For example, teachers can use screen casting software such as Camtasia or Loom to create video lectures that learners can access online and then use classroom time to facilitate discussions, group activities, and problem-solving exercises. Project-based learning involves providing learners with real-world projects that require them to apply their knowledge and skills in a practical setting. For example, during promotion-linked training, teachers can assign learners a project that requires them to research a specific topic and create a multimedia presentation that demonstrates their understanding and application of the subject matter. Personalized learning involves tailoring the learning experience to the individual needs and preferences of each learner. For example, teachers can use adaptive learning software such as Dream Box or ALEKS to provide learners with personalized assignments and activities that are tailored to their learning pace, style, and level of proficiency. In summary, there are various ICT techniques and RPs that can be used during promotion-linked training in the classroom. These techniques can enhance the learning experience by providing learners with access to online resources, increasing engagement and motivation, promoting active and collaborative learning, and tailoring the learning experience to individual needs and preferences.

Perspective about Use and Benefits of Microsoft Office Applications (Power Point, Excel)

All the participants were aware of Microsoft Office usage and its benefits. They were of view that Microsoft Office suite, including PowerPoint and Excel, offers a wide range of features and functionalities that can support and benefit individuals in their professional development

and training. The benefits described by the participants are as follows:

1. Organizing and presenting information: PowerPoint can help in creating informative and visually appealing presentations that can be used for training sessions, meetings, and conferences. It can help in organizing information and presenting it in a structured and professional manner.
2. Data analysis and management: Excel is a powerful tool that can help in managing and analyzing data, which can be useful for monitoring progress, identifying trends, and making data-driven decisions.
3. Collaboration and communication: Microsoft Office suite enables collaboration and communication between individuals and teams through features like co-authoring and sharing documents. This can be helpful in training and career advancement as it allows individuals to work together and share knowledge and ideas.
4. Skill development: Microsoft Office suite offers a range of features and functionalities that require specific skills to use effectively. Learning these skills can be beneficial for career advancement and training.

According to the participants, overall, Microsoft, PowerPoint, and MS Excel can be valuable tools in supporting and benefiting individuals in their training and career advancement, providing a range of features and functionalities that can help organize information, analyze data, collaborate with others, and develop new skills.

Barriers about using ICT during Training

Few of the participants described some general barriers that individuals face while using ICT during training or in their professional development:

1. Technical difficulties: This is one of the most common barriers to using ICT during

training is technical difficulties. This may include issues with hardware, software, internet connectivity, or compatibility of different ICT tools.

2. Lack of access to ICT tools: Another barrier reported was the lack of access to ICT tools, which may be due to financial or logistical constraints. This can limit individuals' ability to access online training resources or collaborate with others using ICT.
3. Lack of training and support: Even if individuals have access to ICT tools, they may not have the necessary skills or knowledge to use them effectively. This can be due to a lack of training and support on how to use specific tools or software.
4. Resistance to change: Some individuals may be resistant to using ICT tools, especially if they are used to traditional methods of learning or communication. This can lead to a lack of engagement and participation in ICT-based training programs.
5. Security and privacy concerns: With the increasing use of ICT tools, there is a growing concern about security and privacy risks. This can make individuals hesitant to use ICT tools, particularly when sharing sensitive or confidential information.

It is explored through findings that these are some of the common barriers that individuals may face while using ICT during training or in their professional development. It is essential to address these barriers to ensure that individuals can fully benefit from the potential of ICT in their training and career advancement.

Suggestions for incorporation of ICT

According to the participants, following were the some relevant suggestions for incorporating ICT into teacher/educational managers training Bs 18 to Bs 19 at QAED Punjab:

1. Provide access to ICT tools and resources: The first step is to provide teachers and educational managers with access to ICT tools and resources. This may include hardware such as laptops or tablets,

software such as educational apps or productivity tools, and internet connectivity.

2. Offer training and support: It is important to offer comprehensive training and support to teachers and educational managers on how to use ICT tools effectively. This may include training sessions, online tutorials, and ongoing support from ICT specialists.
3. Encourage collaboration and sharing: Teachers and educational managers should be encouraged to collaborate and share resources using ICT tools. This can help build a sense of community and promote the exchange of ideas and best practices.
4. Focus on pedagogical approaches: The use of ICT tools should be integrated with pedagogical approaches that emphasize student-centered learning and active engagement. This can help enhance the quality of teaching and improve learning outcomes.
5. Address security and privacy concerns: It is important to address security and privacy concerns when using ICT tools. This may include implementing appropriate security measures and ensuring that personal information is protected.
6. Monitor and evaluate progress: It is essential to monitor and evaluate the impact of incorporating ICT into teacher/educational managers' training. This can help identify areas that need improvement and inform future training initiatives.
7. Incorporating ICT into teacher/educational manager training can be a valuable way to enhance the quality of education and improve the skills and knowledge of teachers and educational managers. By providing access to ICT tools and resources, offering training and support, encouraging collaboration and sharing, focusing on pedagogical approaches, addressing security and privacy concerns, and

monitoring progress, educational institutions like QAED Punjab can ensure that teachers and educational managers are well-equipped to use ICT effectively in their work.

Discussion

The role of Information and Communication Technology (ICT) in developing teachers' ICT competencies has been widely discussed in recent years. The promotion-linked training (PLT) program for teachers from BS 17 to BS 18 in the Punjab region is an effective way to explore the role of ICT in enhancing these competencies (Backfsch, Lachner, Stürmer, & Scheiter, 2021). Changes in Education that occurred with the intensive introduction to Education resulted in a need to develop national educational policies and strategies to contribute to social and educational development. The draft program for the development of ICT in Education was created, which covered the process of computerization and digitization of Education.

The PLT program provides opportunities for teachers to learn and apply ICT tools and resources in their teaching practices. It improves their digital literacy and helps them integrate technology into their lessons to enhance student learning outcomes. Moreover, the PLT program provides a platform for teachers to collaborate and share their experiences, best practices, and challenges, fostering continuous professional development. In conclusion, through ICT practices, teachers /educational managers in their promotion-linked training will be able to make their presentations, PowerPoint, worksheets on Excel, and finally, write a letter in MS Word. The PLT program at the Punjab level plays a crucial role in exploring the role of ICT in developing teachers' ICT competencies, which is essential for improving teaching and learning in the digital age (Bicalho, et al., 2022).

Recommendations

Based on the discussion of the role of ICT in developing teachers' ICT competencies through PLT, the following recommendations can be made:

1. Provide regular and updated training programs: Regular training sessions should be organized to keep teachers up-to-date with the latest ICT tools and resources that they can use in their teaching practices. Encourage collaboration and peer learning:
2. The PLT program should provide opportunities for teachers to collaborate and share their experiences, best practices, and challenges with each other, fostering a culture of continuous professional development. Integrate technology into lesson plans:
3. The PLT program should emphasize integrating technology into lesson plans and help teachers use technology effectively to enhance student learning outcomes.
4. Offer technical support: Adequate technical support should be provided to teachers to ensure that they can effectively use
5. Provide incentives for teachers: Teachers who complete the PLT program should be given incentives, such as career advancement opportunities, to encourage more teachers to participate and enhance their ICT competencies.
6. Integrate ICT into teacher evaluation processes: The use of ICT in teaching should be considered as part of teacher evaluation processes to encourage and recognize the effective integration of technology in teaching practices.
7. Provide access to technology and resources: Teachers should have access to technology and resources, such as laptops, internet connectivity, and digital content, to ensure they can effectively integrate technology into their teaching practices.

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