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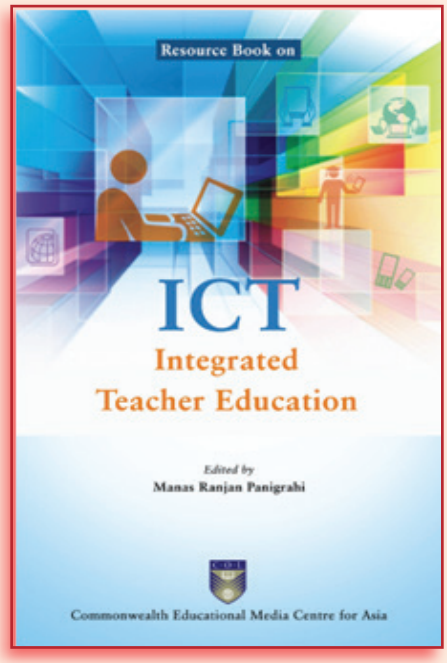
Resource Book on ICT Integrated Teacher Education

The Edited Resource book on ICT Integrated Teacher Education is published from the banner of Commonwealth Education Media Centre for Asia (CEMCA). The book is edited by Dr. Manas Ranjan Panigrahi of CEMCA. The book has 5 chapters which focus on the various aspects of need of ICT integration in teacher education in terms of providing quality teaching and learning. As mentioned by the editor the chapters of this book are intended to assist informed educational leaders, teacher educators, school teachers and others to implement technology plan and integration of ICTs in teaching and learning. The five chapters in this resource book, covering different aspects of the theme are sequentially analysed as follows:



Chapter 1: Trends and Challenges in ICT Integrated Teacher Education in Commonwealth Asia by Manoj Kumar Dash (pp. 9 – 19)

This chapter discusses different aspects of integration of ICTs in teacher education programmes and also identifies barriers and challenges to technology integration. It highlights criteria of integration of technologies for learning of students and their teachers who desire to integrate ICT in education. Understanding the means of integration of ICTs in teacher education, its strength and function. This chapter focuses elaborately on technology mediated approaches for teaching-learning and their social impact, Open Educational Resources for teacher development, ICTs and Learning Management Systems, further it discusses the issues of technology mediated Teacher Education initiatives, and challenges in ICT-integrated Teacher Education. The sustainability of ICT culture in Teacher Education is one of the major concerns discussed here in this chapter. The effective integration of ICTs in the curriculum is a must. It is the duty of Teacher Education institutions to make sure that ICT is infused and integrated to the curriculum and should become the integral part of every paper. The chapter concludes with a note that Teacher Education institutions must create an environment for teachers that enable them to create appropriate learning experiences for students in the present learning scenario.

Chapter 2: The Technological Pedagogical Content Knowledge Framework for Teachers and Teacher Educators by Matthew

J. Koehler, Punya Mishra, Mete Akcaoglu and Joshua M. Rosenberg (pp. 20 – 30)

This chapter focuses on teacher educators need to visualise ICT integration in a holistic manner, it presents a very popular framework-Technological Pedagogical Content Knowledge (TPACK) and its importance in teacher education. This chapter argues that good teaching with technology requires shift in existing practices in both pedagogy and content domains. It states that the use of technology in the classroom introduces a new set of variables into the teaching context, and adds complexity due to its rapidly changing nature. Although the author categorically mentions that this chapter/paper provides only a brief summary of the TPACK framework and related ideas. It gives an overview of Technological Knowledge (TK), Content Knowledge (CK) and Pedagogical Knowledge (PK) separately and their combinations in the form of Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and Technological Pedagogical Content Knowledge (TPACK). The implications of all these for teachers and teacher educators in terms of their role as the designers of the entire process of teaching learning and giving a progressive shape to curriculum transaction is discussed elaborately. The chapter suggests that effective interplay between technology, pedagogy and content is established through the TPACK framework. Applying this framework to the task of teaching with technology requires a context-bound understanding of technology, where technologies may be chosen and repurposed to fit the very specific pedagogical and content-related needs of diverse educational contexts.

Chapter 3: Using UNESCO's ICT Competency Framework for Teachers in Guyana by Andrew Moore, Neil Butcher and Sarah Hoosen (pp. 31 - 45)

This chapter presents a detailed description of the implementation of the UNESCO's ICT competency framework as a model of teacher professional development in Guyana and highlights the processes involved in the use of OER in developing learning materials in an efficient and cost-effective manner. This chapter surveys the challenges faced by the education system of Guyana, one of them is the low retention of qualified teachers and subsequent employment of untrained and unqualified teachers. It discusses the ICT strategy adopted for teacher education which considers international trends as well as the local environment and ICT in education projects in Guyana. Further this chapter discusses the critical role of the UNESCO ICT Competence Framework for Teachers (CFT), which emphasises the role that ICT can play in supporting six major education areas, namely ICT in education policy and vision; curriculum and assessment issues; pedagogy; ICT; school organisation and administration; and teacher professional development. The mapping of the UNESCO's ICT CFT structure to the Guyana teacher training environment is further detailed. This chapter further puts light on the innovative curriculum and material development processes employed in Guyana which involves mapping the curriculum to ICT opportunities, selection and use of OERs and free resources. facilitated development of guides for selection of simple pathways for resource mapping, evaluation and revision. This chapter gives a ready account of exploiting the 'Release Early, Release Often' (RERO) model of development. In all the initiatives

discussed in this chapter which are designed to build capacities of educators illustrate that digital resources and ICT tools add value to the system. After an initial investment of time and resources ICT will lead to improved productivity, enhanced teaching and learning and more effective administration and communication channels. This chapter very well displays Guyana's ICT Professional Development Strategy for Teachers and illustrates a potential pathway to achieving a transformation.

Chapter 4 Technology, Education and Design: The Sciences of the Artificial by Som Naidu (pp. 46 – 60)

This chapter reflects on the design of effective, efficient and engaging teaching-learning experiences. This is the product of synergies derived from knowledge about the technology, pedagogy and the subject matter.

This chapter starts with mention of Herbert Simon's classic book *The Sciences of the Artificial* where he differentiates between the natural sciences and the sciences of the artificial. It discusses that the science of the artificial include areas such as computing, engineering, architecture and education and these disciplines are concerned with defining how things ought to be. This defining characteristic of the science of the artificial is design. In this chapter there is an exploration of the fields of technology, education and design, and a discussion on their separate as well as combined implications for the the design of learning and teaching experiences.

The chapter proceeds further with providing implications for learning experience design, it provides a relationship between technological knowledge, pedagogical knowledge and subject matter knowledge. It further elaborates instructional theories proposed by different people. This chapters establishes very well that great teaching is about designing a potent learning experience for the learners where their learning is more effective, efficient, engaging and enjoyable. The teaching of this kind requires a careful thought of what is to be taught and learned in terms of subject matter, the method of transaction or the pedagogical approach and what tools and technologies were being used by teachers and the learners as well as the expected time to be spent on all this. The author suggests through this chapter that 'great teaching happens when students can claim to have learned something', and for this it is required to have an in-depth understanding of the subject matter as well as the pedagogy, the technology and the knowledge that lies at the intersections of these variables. It further explains the importance of technological pedagogical content knowledge (TPCK) in the educational system.

Chapter 5: Teleconference Based Model of Capacity Building for ICT Integration by Saroj Pandey (pp. 61-72)

This chapter describes the use of teleconferencing and videoconferencing models in professional development of teachers. This chapter elaborates how these modes brought proliferation of innovative means for professional development of teachers. The effective and successful use of EDUSAT in training of in-service teachers overcoming the issues of access, quality and transmission loss under Sarva Siksha Abhiyan (SSA) in India, with which the conventional professional development models suffer. The teleconference or videoconference based models address the challenges of providing quality training to the huge number of teachers of the country, most likely in rural, hilly and remote areas where conventional

system has not reached effectively. This chapter provides an elaborate description of 'Use of Teleconferencing for Special Orientation of Primary Teachers (SOPT) by National Council of Educational Research and Training (NCERT). An elaborate outlook on the transformation of teleconferencing to videoconferencing and involvement of various agencies like CIET-NCERT and ISRO has been elaborated. The challenges faced during the transformation from teleconferencing to videoconferencing have been well discussed in this chapter.

The chapter well establishes the superiority of teleconferencing and videoconferencing methods over the traditional face-to-face model of in-service education of teachers (INSET) which generally follows the multilayered cascade model of training that affects the quality of training from one layer of hierarchy to another due to transmission loss.

Concluding Remarks

The resource book ends with providing the brief profile of the Editor and Authors. As a whole this book provides very important information and useful content related to ICT integration in Teacher Education. The material provided through different chpaters in this resource book can be instrumental in knowledge generation in terms of ICT integration especially for Teacher Educator.

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