Vol.1 No. 4 September, 2013 ISSN : 2320 –2653

INTEGRATION OF ICT INTO TEACHER EDUCATION

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Abstract

Teachers to use new technologies to enhance subject matter training in teacher education programs in various contexts, and intends to come out with the some possible ways of pedagogically appropriate integration of Information and Communications Technology (ICT). The computer is a powerful educational tool. The teachers and teacher educators need to integrate ICT into subject teaching and learning using contemporary pedagogical approaches. Teacher educators need to focus on teacher thinking and teacher beliefs to facilitate changes in the teaching learning process.

Introduction

ICT can be an effective tool in supporting teaching and learning. All countries in the region, including emerging countries, teachers in primary, secondary and tertiary levels are being trained in the use of information and communication technologies (ICTs) in education with varying degree and scope. Teachers need to be trained in following areas are (a) personal skills in use of ICT, (b) professional skills and competence in ICT, such as understanding the relevance of ICT in education, understanding the importance of ICT in teaching and learning, understanding how to plan ICT for teaching and learning across the curriculum, and managing ICT in the classroom (Altun, 1997).

ICT in Teacher Education

ICT is used in teacher education for a number of reasons. At one level, the teacher education institutions wish to ensure that newly qualified teachers have the appropriate ICT skills. It may be that in the long term there will be less need for this ICT skills development, as students will develop better ICT skills before they reach teacher education. The second dimension to ICT in teacher education is the development of students' capacity to make appropriate use of ICT in their teaching.

This is more challenging, as student-teachers sometimes tend to use the most obvious applications of ICT, resulting in over-use of these ideas. In some teacher education institutions, developing ICT capacity in student-teachers is the responsibility of one ICT specialist. To achieve a wider spread of ICT usage within teacher education may involve more staff development activities in some institutions. A third dimension to ICT in teacher education is the use of virtual learning environment to provide supports to student teachers.

Utility of ICTs for Teachers

The most teachers perceived ICT as very useful and as making teaching and learning easier. It was recommended that professional development policies should support ICT-related teaching models, in particular those that encourage both students and teachers to play an active role in teaching activities. Additionally, emphasis should be placed on the pedagogy underlying the use of ICTs for teaching and learning. They feel that their own use of computers benefits their learners, and secondly, teachers feel learners benefit from using computers themselves. Teachers see ICT as kindling students' interest and learning in the subject.

Integrating ICT into Teacher Education

The impact of new technologies on the workplace and everyday life, teacher education institutions try to restructure their education programmes and classroom facilities, in order to husband the potentials of ICT in improving the content of teacher education. Information and communication technology as tools within the school environment include use for school administration and management, teaching and learning of ICT related skills for enhancing the presentation of classroom work, teaching/learning repetitive tasks, teaching/learning intellectual, thinking and problem solving skills, stimulating creativity and imagination; for research by teachers and students, and as communication tool by teachers and students.

Information and Communications Technologies are computer based tools used by people to work with information and communication processing needs of an organization. Its purview covers computer hardware and software, the network, and other digital devices like video, audio, camera, and so on, which convert information into digital form. Successful integration of ICT in the school system depends largely on the competence and on the attitude of teachers towards the role of modern technologies in teaching and learning. Thus, experienced teachers, newly qualified, and student-teachers need to be confident in using ICT effectively in their teaching.

ICT and Teacher Education Programs

There is an expectation that contemporary teacher education programs prepare graduates to use ICT effectively as an integral dimension of their teaching and their students' learning. The most obvious, and probably the most direct response to meet these expectations of the graduate teachers, is to include units (subjects) with a focus on computer skills and computer education. With the phenomenal development in software, teacher education programs shifted their focus to the use of commonly available applications such as word processing, spreadsheet and web authoring.

Approaches to ICT Integration

Integration	Approach	Format Features	Limitations
Skill Development approach	One or more unit dedicated to relevant ICT skills and competencies	- Opportunities for students to gain ICT skills regardless of their past experience. - Potential to transfer to the Classroom - Emphasis on basic computer operations and programs	- ICT units and skills are viewed by students as discrete components of their programs - ICT skills are perceived as targeted learning outcomes without any emphasis on their applied values to the classroom - Research does not indicate any evidence of skill transfer to classrooms
Pedagogy approach	Inclusion of one unit or more to teach students how to integrate ICT skills into their teaching	- Opportunities to learn ICT skills as well as how to implement them in the classroom - Potential to transfer to the classroom	- ICT skills are perceived as targeted learning outcomes without any emphasis on their applied values to the classroom - Research does not indicate any evidence of skill transfer to classrooms
Curriculum units approach	Inclusion of specialised software within the curriculum unit	- Opportunities to model to participating students actual integration within authentic settings - Potential to transfer to the classroom	- Use of software as tools for learning rather than as medium of learning - Confining the use of the specialised software to their particular curriculum areas rather than the classroom as a whole
Practice-driven approach	Inclusion of the design ICT resources to be used in their practicum experience	- Opportunities to the student teachers to monitor their own learning through the use of tools such as digital portfolios	- Limited to student teacher professional learning - Dependent upon student teacher's prior ICT experience

ICT skills needed by Teachers Today

Many school leaders still perceive the lack of ICT-related knowledge of teachers as a major obstacle to the realisation of their ICT-related goals (Pelgrum and Law (2003). The literature describes the kind of skills teachers may need when integrating ICT in new student-centred learning approaches. However, identifying which competencies each teacher needs to acquire is far from simple, as this depends very much on the circumstances of their particular school. Personal teaching styles also play a major role. Again, one size fits all does not usually work. We also need to recognise that substantial learning can take place while teaching, and even learning, from students.

The UNESCO (2008) ICT competency standards for teachers go further, describing three approaches: technological literacy, knowledge deepening, and knowledge creation. These approaches are seen as part of a development continuum, and each approach has different implications for education reform and improvement, plus different implications for changes in the components of the education system: Pedagogy, teacher practice and professional development, curriculum and assessment, and school organisation and administration. ICT plays a unique, but complementary role in each of these approaches, with new technologies requiring new teacher roles, new pedagogies, and new strands to teacher education. The successful integration of ICT into the classroom depends on the ability of teachers to structure their learning environments in non-traditional ways, merging technology with new pedagogies (Davis, et al., 2009).

To sum up

This requires a very different set of classroom management skills to be developed, together with innovative ways of using technology to enhance learning and encourage technology literacy, knowledge deepening and knowledge creation. At the knowledge creation end of the continuum, the curriculum goes beyond a focus on subject knowledge to explicitly include 21st century skills that are needed to construct new knowledge and engage in lifelong learning – the ability to collaborate, communicate, create, innovate and think critically. Teacher development is seen as a crucial component here. This in turn supports students who are creating knowledge products, and who are engaged in planning and managing their own learning goals in a school that is a continuously improving, learning organisation. Teachers model the learning process for students, and serve as model learners through their own ongoing professional development, both individually and collaboratively.

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