**INVESTIGATING TEACHER INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) NEEDED COMPETENCIES TO BE ACQUIRED FROM CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMMES (CPDP): VIEWS FROM EUROPEAN UNION**

***By***

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**Abstract**

*The aim of the study presented in this paper was to investigate the Information and Communications Technology (ICT) competencies that teachers need to develop by participating at ICT Continuing Professional Development Programmes (CPDP). The Study which covered 19 member countries of the European Union was guided by one research question. Data were collected through the use of e-mailed questionnaire and analyzed using frequencies and percentages. Eight teacher needed ICT competencies were identified. Among the recommendations was that the general goal of every CPDP should be the development of teacher competencies and capabilities in the instructional use of ICT.*

**Introduction**

All aspects of human activities are continuously undergoing changes as a result of rapid development in information and communications technology (ICT). In the area of education these developments are giving rise to both instrumental and target oriented innovations. This is due to the fact that ICT in education is introducing changes not only in the ways and means for delivering instruction but also in the educational goals and objectives. Consequently, educationalists are presently viewing goals of education as encompassing the development of literacy and numeracy as well as the development of ICT and lifelong learning skills. Besides, ICT is giving rise to the formulation of new or additional educational objectives. The achievement of the new educational objectives require modifications in the content, methodology and evaluation strategies. Pelgrum and Law (2003:32) quote Voogt and Odenthal as listing the following as the potential goals and content of the ICT driven education:

1. Information, investigation, communication, and social skills, as well as meta-cognitive skills, will be emphasized to a greater extent;
2. School subjects and parts of school subjects will be combined with each other so that their boundaries will dissolve;
3. The learning content will be adjusted to become more relevant to real life contexts;
4. Students performance will be assessed with a greater diversity of methods (open test methods, portfolios, diagnostic and summative tests).

These potential features of the ICT driven curriculum indicate some of the effects of ICT in the instructional process. In terms of methodology the National Grid for Learning (NGfL) and the Department for Education and Employment (DfEE, 2001:4) rightly state that with ICT “we are moving from the world of the black board, overhead projector and traditional schools television to a world where the interactive whiteboard in the classroom complements desktop and laptop computers at schools, at home and in the library.” Besides, ICT is confirming the old education adage that learning takes place through the action of the learner. Consequently, ICT is geared towards learner-empowerment with the teacher performing as a learning guide or manager of instruction.

Howard (2003:4) quotes Qualifications and Curriculum Authority (QCA) as defining ICT for curriculum purpose as:

The range of tools and techniques relating to computer-based hardware and software, to communications including both directed and broadcast, to information sources such as CD-ROM and the Internet, and to associated technologies such as robots, video-conferencing and digital TV.

ICT in education refers not only to technologies but also to services and techniques. Clarke (2006:9) presents it as covering “applications, techniques and systems”. The benefits of ICT in education to the learner; the teacher, an academic institution and to the society in general are well documented by such authorities as IICT in Schools Commission (1997), Blunkett (2001), Sharp, Potter, Allen and Loveless (2002), Becta (2004), and Duffty (2006) among others. The extent to which a society reaps these benefits of ICT depends on the level of preparedness of the teachers. It is worthy of note that the use of ICT in education though a complex but pedagogically enriching innovation, presents challenges to teachers in the instructional process. Consequently, this type of innovation requires effective teacher preparation covering initial teacher education and continuing professional education. In this regard, O’Hara (2004:4) observes that “while ICT is compulsory in initial teacher education (ITE) in only half of European States, all countries have in-service training programmes for practitioners”. Pelgrum and Law (2003:26) note that teachers “must be given opportunities to regularly update their knowledge and skills as well as to exchange their views on changing curricula and pedagogical practices with the integration of technology into education.” With the rapid rate of technological innovations, the need for teachers’ continuing development in ICT cannot be over emphasized. Teachers cannot succeed in preparing learners for effective life in the presently technology dominated society by using outdated technologies. In fact DfEE (1997:15) warns that “we need to build up the store of knowledge and keep abreast of rapid technological development if we are to prepare the future generation.” The best place to start building “up the store of knowledge” is with those who are already engaged with the job of preparing the future generation and these are the teachers. This underpins the need for teachers to “continuously update their knowledge and skills in the subject area they teach and find meaningful ways of using ICT for teaching and learning in the subject area” (Pelgrum and Law, 2003: 71). However, teachers need to develop competencies not only in using ICT for teaching and learning in the subject area but also in using ICT in diverse ways. It is also necessary to note that what is presented to teachers in a continuing professional development programme (CPDP) depends on the judgment of the CPDP providers. What then are the ICT competencies that teachers need to develop through CPDP? What competencies do teachers expect CPDP to help them develop? These questions present the problems that necessitated this study.

In this paper ICT competencies are taken as synonymous to ICT capability which involves knowledge of skills, knowledge of how and when to apply the skills as well as reasons for using the particular ICT or the contributions of that ICT to the solution of problems. In the same regard CPDP refers to courses, seminars and all learning activities organized for teacher’s professional development. Also the European Union (EU) refers to

a family of democratic European countries, committed to working together for peace and prosperity… It fosters cooperation among the people of Europe, promoting unity while preserving diversity and ensuring that decisions are taken as close as possible to the citizens (Europa, 2006:1).

The EU upholds the interest of Europe as a whole. It takes decisions and draws proposals for legislation through Committees and Working Parties. Membership of these Committees and Working Parties are constituted by representatives from Member States. At the present, there are 27 countries and 490 million people in the EU.

**Research Question**

The study was led by the following research question:

* *What competencies do teachers need to acquire from Continuing Professional Development Programmes (CPDP)?*

**Method**

***Design and area of study:***The study which covered 19 member countries of the European Union (EU) was conducted with a survey design.

***Population and Sample:*** All the 51 members of the European Commission (EC) work programme on “Implementation of Education and Training 2010 – Working Group C: “ICT in Education and Training” and the 115 members of academic staff in the Faculty of Education at the University of Glasgow constituted the population. There was no sample selection and the population was 166. This population was chosen based on the fact that the members of EU have been involved in planning ICT CPDP for teachers in EU countries and the staff of University of Glasgow have been preparing teachers for the instructional use of ICT.

***Instrumentation:*** Questionnaire was the instrument used for data collection. Copies were e-mailed to all the 115 tutorial staff members of the Faculty of Education, University of Glasgow and the 51 members of the European Commission Work Programme on “Implementation of Education and Training 2010 – Working Group C: ICT in Education and Training.” The questionnaire comprises two sections. The first section presents a description of the Nigerian educational system with regards to the state of development and implementation of ICT in education. The second section comprises 13 items structured on a four point scale ranging from strongly agree to strongly disagree. Copies of the questionnaire were emailed to the respondents twice with an interval of four weeks. The need for sending the questionnaire twice to the same respondents was necessitated by the low response recorded at the first instance. A total of 56 copies of the questionnaire were completed and returned.

***Validation and Reliability:*** The instrument was validated first by two doctoral students in the Faculty of Education, University of Glasgow, United Kingdom (UK) and later by two lecturers in the Faculty of Education, University of Edinburgh, UK. As a result of the validation, one item was added to the instrument and more explanation was provided on the situation of ICT in Nigeria. Reliability was ascertained by administering the instrument to 10 post graduate students in Education at the University of Glasgow. A score of 0.82 was obtained for internal consistency when the Kuder-Richardson Formula 20 was applied to the obtained data.

***Data Analysis:*** This was done using frequency and percentage scores. Only scores of 50% and above were accepted as indicating teacher-needed competencies to be developed through CPDP.

**Results**

**Table 1: Competencies to be Acquired from Continuing Professional Development Programmes (CPDP)**

**N = 56**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/No.** | **Items** | **Strongly Agree** | | **Agree** | | **Disagree** | | **Strongly Disagree** | |
|  | The needed competencies are the ability to: | F | % | F | % | F | % | F | % |
| 1. | Analyse issues relating to the use of ICT in education | 38 | 68 | 18 | 32 | - | - | - | - |
| 2. | Explore new products and environment. | 22 | 39 | 24 | 43 | 4 | 7 | 6 | 11 |
| 3. | Make dynamic use of ICT for instruction. | 44 | 79 | 12 | 21 | - | - | - | - |
| 4. | Use different operating systems. |  |  | 2 | 3 | 24 | 43 | 30 | 54 |
| 5. | Depend only on the already acquired skills. |  |  | 2 | 3 | 30 | 54 | 24 | 43 |
| 6. | Locate resources for continuing professional development in ICT pedagogy. | 28 | 50 | 28 | 50 | - | - | - | - |
| 7. | Help other teachers in the instructional use of ICT. | 20 | 36 | 34 | 61 | 2 | 3 | - | - |
| 8. | Organize school programmes with ICT. | 18 | 32 | 30 | 54 | 5 | 9 | 3 | 5 |
| 9. | Plan and monitor personal development using ICT tools. | 19 | 34 | 34 | 61 | 2 | 3 | 1 | 2 |
| 10. | Write ICT instructional programmes. | - | - | 3 | 5 | 18 | 32 | 35 | 63 |
| 11. | Seek no collaboration with other teachers. | 3 | 5 | 6 | 11 | 26 | 46 | 21 | 38 |
| 12. | Use ICT for disciplinary purposes. | 1 | 2 | 9 | 16 | 27 | 48 | 19 | 34 |
| 13. | Develop a vision for instructional use of ICT. | 22 | 39 | 34 | 61 |  |  |  |  |

When scores for strongly agree and agree are added, 5 items score below 50%. This shows that the respondents do not consider items 4,5,10,11, and 12 as presenting competencies that teachers need to acquire from CPDP.

**Discussion**

According to the respondents used in this study the competencies that teachers are expected to acquire from continuing professional development programmes (CPDP) include the ability to analyse issues related to the use of ICT in education, organize school tasks with ICT, make dynamic use of ICT for instruction, develop a vision for instructional use of ICT, plan and monitor personal development using ICT tools, locate resources for continuing professional development in ICT pedagogy, help other teachers in the instructional use of ICT as well as the ability to explore new products and environments. These findings are in line with those of Williams, Wilson, Richardson, Tuson and Coles (1998) who report in a study they conducted for SOEID which was aimed at investigating the knowledge and skills required by teachers for effective use of ICT that teachers feel they need training with regards to their subjects, personal ICT development and the use of available technology. Williams et al (1998) state that the teachers feel they need opportunities, time and ongoing support so as to gain maximum benefits from training. With reference to research findings in the UK, the NGfL (1997:9) concludes that “in those subjects for which staff had attended specialist curriculum ICT courses, confidence in ICT use in teaching was highest, confirming the value of following up basic awareness training with more in depth work”. The findings of this study are also in line with the recommendation by the NGfL (1997) that ICT CPDP for teachers should go beyond basic ICT training on IT awareness and the application of word processing packages to encompass helping teachers acquire the knowledge and skills necessary for appropriate and effective use of ICT in the instructional process. In this regard Sharp, Potter, Allen and Loveless (2002:3) opine that CPDP should present teachers with the “knowledge, skills and understanding of the ways in which ICT supports their professional practice” and help them “make informed decisions about when and when not to use ICT effectively in their teaching”. The implication is that CPDP should be geared towards developing in the teachers not only technical knowledge but also the development of ICT capabilities. This ICT capability is the ability to understand what ICT can do in a given instructional situation as well as the ability to use ICT knowledge and tools to locate, analyse, process and present information. Hence the development of ICT capabilities or competencies should be the major aim of teacher ICT CPD programmes.

**Conclusion and Recommendations**

This study has revealed some competencies teachers need to acquire from CPD programmes. This implies that CPDP (continuing Professional Development Programme) providers should consider how to incorporate the acquisition of these competencies in teacher ICT CPD programmes. This is to ensure that teachers derive maximum benefits from attending such programmes. It will also ensure the provision of adequate resources and the elimination of time wastage when programmes are organized.

For teachers to derive maximum benefits from CPDP so as to be able to prepare children for the technology dominated world of tomorrow, the following recommendations are made:

* ICT CPD programmes for teachers should not be limited to the use of ICT facilities.
* ICT CPD programmes should help teachers achieve both personal and professional development in ICT pedagogy.
* ICT CPD programmes should aim at developing in teachers the ability to be dynamic in the use of ICT in education as well as in having a vision for the instructional use of ICT.
* The general goal of every CPDP should be the development of teacher competencies and capabilities in the instructional use of ICT.

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