



# ICT Teacher Professional Development Matrix and Planning Tool

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## Introduction

GeSCI, in partnership with H2 has developed a planning template and an accompanying ICT-TPD Matrix to enable teacher professional development organisations working in Rwanda specifically and in GeSCI partner country engagements generally to plan their ICT integration paths in Teacher Professional Development.

## Background

There is a commonly accepted rhetoric that education systems need to effect changes in the preparation of its citizens for lifelong learning in a 21<sup>st</sup> Century Knowledge-based or Information Society. The growing demands in knowledge specialization will require both a change in the traditional view of the learning process and an understanding of how new technologies can be used to facilitate new learning environments in which students are engaged in the kind of team and project work that can enable them to take greater responsibility for their own learning and construction of their own knowledge. Many educators, business and industry representatives and government leaders believe that creating a paradigm shift in views of learning, coupled by applications of new information technologies, can play a key role in renewing educational systems to bring them into alignment with the needs of a Knowledge Society for All (GeSCI 2009).

The UNESCO ICT-Competency Standards for Teachers (ICT-CST) project (UNESCO 2008a; ibid. b; ibid.c) was launched marking the culmination of many attempts made by governments, academia, and the private sector to establish a universal terminology or standards for ICT integration in teacher professional development.

The 'Development Path' approach was explored at the *Teacher Professional Development for Tomorrow, Today* national workshop held in Kigali, Rwanda in April 2009 (MinEduc-GeSCI 2009). Facilitated by GeSCI and the Ministry of Education, the UNESCO ICT-CST project was introduced to enable planning for holistic ICT integration in six areas of *Policies, Curriculum and Assessment, Pedagogy, ICT, Organisation and Administration and Teacher Professional Development*.

In his opening address to the workshop, Dr. Mathias Harebamungu, the Permanent Secretary of the Ministry of Education, Rwanda, advocated that ICT be recognised as a primary driver for socio-economic growth in a country lacking in natural resources. This necessitates a requirement for teacher competencies and on-going professional development in ICT to ensure a solid base of human resource development (ibid.)

The Vice Rector of Academics, Kigali Institute of Education, Dr. James Vuningungu emphasised the requirement to strengthen ICT in a more structured ICT improved environment as a collective and coordinated effort carried out by all stakeholders. He considered that the ICT-TPD Planning task should focus on assessing the current status of ICT integration, identifying challenges and proposing ways and means for further development of ICT in professional learning programmes (ibid.).



One of the recommendations coming out of the workshop report was for GeSCI to explore the potential for further developing a TPD-ICT Development Path planning tool which would combine adaptations from a) the UNESCO ICT-CST framework and b) an Irish e-Learning Roadmap **tool introduced** and trialled in the second African Knowledge Exchange (AKE II) e-Learning multi-country workshop held in Kigali in June 2008.

## ICT Competency Standards for Teachers

UNESCO's "ICT Competency Standards for Teachers" provides a framework that allows teacher professional development providers to connect their course offerings to the broader national educational improvement and economic development policy goals.

The objectives of the UNESCO ICT Competency Standards for Teachers project are:

- To constitute a common set of guidelines that professional development providers can use to identify, develop or evaluate learning materials or teacher training programs in the use of ICT in teaching and learning.
- To provide a basic set of qualifications that allows teachers to integrate ICT into their teaching and learning, to advance student learning, and to improve other professional duties.
- To extend teachers' professional development so as to advance their skills in pedagogy, collaboration, leadership and innovative school development using ICT.
- To harmonize different views and vocabulary regarding the uses of ICT in teacher education (UNESCO 2008a).

In developing the framework, UNESCO identified three productivity factors that lead to growth based on increased human capacity: capital deepening (the ability of the workforce to use equipment that is more productive than earlier versions), higher quality labour (a more knowledgeable workforce that is able to add value to economic output), and technological innovation (the ability of the workforce to create, distribute, share and use of new knowledge).

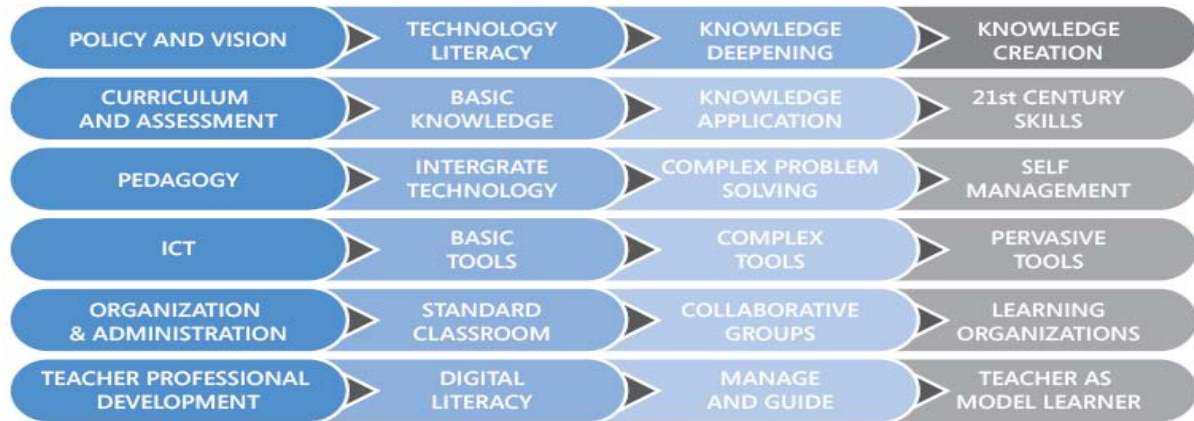
These three productivity factors serve as the basis for three complementary, somewhat overlapping approaches that connect education policy with economic development:

1. Increase the technological uptake of students, citizens, and the workforce by incorporating technology skills in the curriculum—or the **technology literacy** approach.
2. Increase the ability of students, citizens, and the workforce to use knowledge to add value to society and the economy by applying it to solve complex, real-world problems—or the **knowledge deepening** approach.
3. Increase the ability of students, citizens, and the workforce to innovate, produce new knowledge and benefit from this new knowledge—or the **knowledge creation** approach (ibid.).

The "ICT Competency Standards for Teachers" framework has been created by crossing these three approaches to education reform with the six components of the educational system—

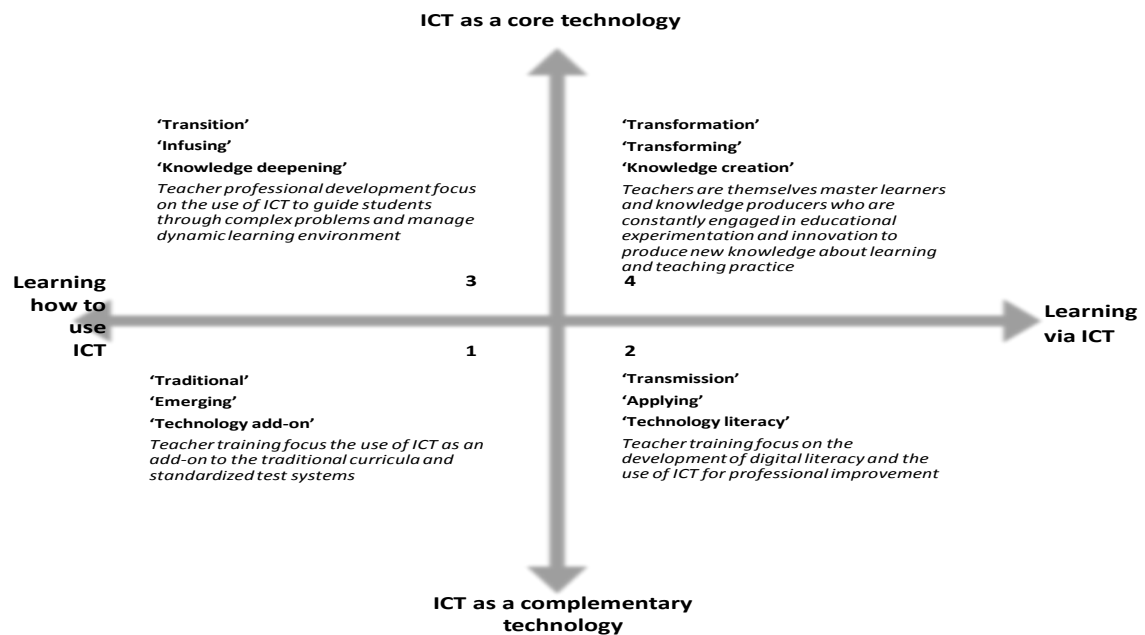


**Policy and Vision, Curriculum & Assessment, Pedagogy, ICT, Organisation & Administration, and Teacher Professional Development.**



Source: UNESCO 2008b

Each of the cells of the above matrix constitutes a module in the framework. Within each of these modules, there are statements which refer to specific curricular goals and teacher skills. The UNESCO (2008a; *ibid.b*; *ibid.c*) ICT-CST project attempts to bridge mainstream and ICT specialist domains in TPD programmes into a holistic framework for a modular continuum of ICT integration - moving from *technology literacy* to *knowledge deepening* through to *knowledge creation* purposes which develop increasing capacity for teacher empowerment in the utilization of ICT as a tool to enhance the quality of learning (as outlined below).



**A consolidated continuum of approaches for ICT Integration in Teacher Professional Development**  
Sources: Kennedy, 2005; Olakulehin, 2008; UNESCO, 2008b

A number of observations and issues regarding the UNESCO ICT-CST project emerged from the review at the Kigali workshop. These included:

- In some elements teachers have not attained the first stage of technology literacy as yet – while teachers ‘know about’ taxonomies (Blooms) classifying learning types and levels.
- The UNESCO competency standards may be too high. There is a need to develop national standards using UNESCO standards as a reference.
- The group analysis of the current situation was indicative of a pattern placing current status of provision close to Technology Literacy levels in most components.
- Strengths in current provision will provide much leverage for reaching Knowledge Deepening and in some components Knowledge Creation levels in the 10 year development path for 2010 – 2020.

### ICT Teacher Professional Development Matrix

Based on the Kigali review, GeSCI has taken the ICT Competency Standards statements and restructured them to create an ICT Teacher Professional Development Matrix (ICT-TPD Matrix). The ICT-TPD Matrix is designed to enable organisations/coordination committees to identify the object of ICT integration in current programme/activity provision (where they are at) while also highlighting activities they can include to plan their programmes (where they want to be). This will form the first step in a four stage planning process.



## The Planning Framework

This planning framework is designed to provide teacher education organisations with the rationale and tools to assist in the development of an ICT Teacher Professional Development (TPD) Plan. The planning process is designed to enable teacher education providers to

- assess the current status of ICT integration;
- identify priorities and challenges for progression;
- propose ways and means for further development of ICT in professional learning programmes.

When setting out to formulate, develop and implement an ICT-TPD Plan for the organisation, it is important that the key stakeholders within the organisation are centrally involved. Who these are will depend on how the organisation is structured and how key decisions are made and carried through.

## The Planning Team

The following are some of the individuals who should play a key role in facilitating the successful implementation of the ICT-TPD Plan:

- Leadership
- Head of Academic Studies/ department
- Head of Computer Science/ department
- Head of Curriculum unit/department
- Head of ICT unit/department
- Lecturing/Training Staff

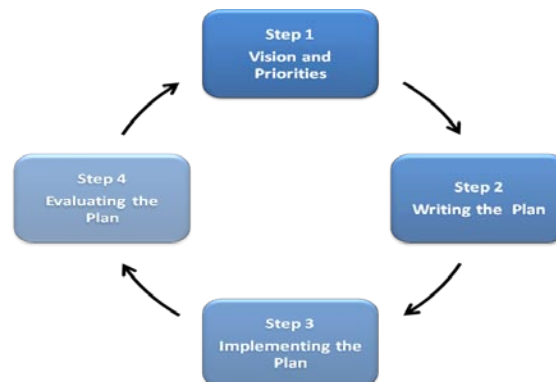
Key to deciding who should be part of the planning team is ensuring commitment for necessary funding and engagement with staff throughout the organisation. At the Kigali workshop Dr. Nduwingoma, Head of the Department of Computer Science KIE, proposed multi-stakeholder consultation (students, teachers, curriculum leaders, ICT coordinators, and teacher educators), national institutional roundtable discussions (NCDC, Examinations Council, KIE) and internal review on all professional programmes to ensure that every teacher is equipped with a deep knowledge of technology literacy for effective implementation in practice (MinEduc-GeSCI 2009). Creating and implementing a successful ICT-TPD Plan will require an organisational approach where each staff member plays their part. It is vital that the planning team liaises with the staff and other stakeholders throughout the planning process.



## The Planning Process

ICT-TPD Planning is carried out in a 4 step process:

1. Setting the Priorities
2. Writing the Plan
3. Implementing the Plan
4. Evaluating the Plan



### STEP 1: Vision and Priorities

A strong vision and plan developed by a defined planning team will provide a strong basis for success. An effective ICT vision will support and enhance the organisations’s overall aims in terms of learning, teaching, management and administration and should complement the organisation’s ethos, beliefs and values.

The ICT-TPD Matrix provides the organisation with a snapshot of where it is at and where it would like to be in regard to ICT provision and allows it to identify priorities for progression to the next stage.

The ICT-TPD Matrix builds on the “ICT Competency Standards for Teachers” and presents clear progression paths under the following key areas:

- Policy
- Curriculum and Assessment
- Pedagogy
- ICT
- Organisation and Administration
- Teacher Professional Development

Stages of development, in line with the “ICT Competency Standards for Teachers” are described as:

- Emergent
- Technology Literacy
- Knowledge Deepening
- Knowledge Creation



It is not unusual that an organisation may be at different stages across each area. For example, an organisation may find that it is mainly in the **Emergent Stage** in terms of ICT but is at the **Technology Literacy** stage in terms of Teacher Professional Development. The ICT-TPD Matrix is designed to generate discussion among the stakeholders rather than being a scorecard.

The ICT priorities will emerge from the ICT-TPD Matrix but should be considered along with conducting an ICT audit.



### **STEP 2: Writing the Plan**

Once the organisation has identified its ICT priorities, it now identifies targets and tasks that need to be carried out over a specified period of time.

Each priority is divided into a small number of attainable targets. These targets are used to aid the monitoring of the overall progress towards achieving the specific priority.

Each target in turn is broken down into one or more tasks that will translate the desired targets into practical achievements.

When setting tasks, the organisation may find it useful to apply the SMART principle, thus ensuring that each task is Specific, Measurable, Achievable, Relevant and Time Bound.

### **STEP 3: Implementing the Plan**

During the implementation period, the organisation needs to put in place monitoring and evaluation procedures that are simple and practical. It should be clear from the action plan:

- who is to report back;
- to whom they are to report;
- how frequently they are to report.

Remember that the purpose of monitoring is to maintain control of the plan, to keep it on track and to ensure its successful completion by helping to identify problems early on so that solutions may be found.

### **The Planning Team**

The planning team plays a lead role in ensuring that the plan is owned by lecturing/ training staff and students/ teachers. Facilitation is essential in ensuring that the plan is successfully implemented. The planning team should consider ways in which they can assist the teaching staff. These could include:

- discussing ICT regularly at staff and department meetings;
- having formal/informal discussions with individual staff members;
- facilitating peer-to-peer coaching where more ICT-confident faculty/ trainers work with other faculty/ trainers on a one-to-one basis;
- sharing ideas, resources and/or classroom management approaches that prove positive or effective for individual faculty/ trainers with other staff members.

### **Leadership**

Leadership is key to the successful implementation of the ICT-TPD Plan. The Management of the organisation leads the planning process by:

- ensuring that adequate staffing and financial resources are made available as identified and agreed in the plan;



- supporting the heads of appropriate departments;
- ensuring that all staff members have a copy of the plan and that their roles are understood fully;
- monitoring how the plan is progressing and consulting regularly with staff members, both formally and informally, in relation to the plan;
- facilitating an annual evaluation of the plan and its continuing year-on-year progression.

### **Lecturing/Training Staff**

Each department should identify their priorities, targets and tasks in the context of the overall plan. Each lecturer/ trainer can contribute to the successful implementation of the plan by:

- being aware of and by being committed to the ICT-TPD Plan;
- sharing ideas and resources with colleagues in relation to ICT;
- identifying and pursuing their own continuing professional development needs.

ICT is constantly evolving and there is a need to ensure that the continuing professional development needs of the staff are reviewed regularly. It is vital that the organisation facilitates ongoing professional development for staff members throughout the planning and implementation of the plan. This can be done in a number of ways:

- work with colleagues to identify their ICT professional development needs;
- inform staff of relevant professional development programmes, which may include online and face-to-face courses
- distribute relevant literature, podcasts, etc., on the use of ICT in teaching and learning among staff.

### **ICT infrastructure**

It is important to monitor the provision and use of ICT equipment throughout the organisation. There are a number of deployment options to be considered you should consider the model that best meets your ICT priorities and budget.



#### **STEP 4: Evaluating**

Evaluation is the final step in the planning cycle and provides the basis for ongoing planning and progression. It is at this point that the organisation assesses how well it has met the targets set out in the ICT-TPD plan overview and whether or not the priorities identified there have been addressed. In reality, the process of evaluation requires ongoing review and reflection and is facilitated by good monitoring procedures. The organisational development planning services provide comprehensive guidance on strategies to evaluate your whole plan.

#### **Evaluation prompts**

The planning team will co-ordinate the evaluation of the ICT-TPD plan. The following questions may assist the planning team to evaluate if the organisation is getting to where it wants to be:

#### **Leadership and planning**

- How is the leadership directing and managing the implementation process?
- Is the leadership proactive in supporting the staff in their integration of ICT into their practice?
- Is the vision statement adequate for the guidance of the ICT-TPD Plan?
- Is the safe and ethical use of all ICT a priority both within and outside of the classroom?

#### **ICT in the curriculum**

- Are faculty/trainers using the ICT-TPD plan to inform their lecture/training programmes?
- How are faculty/trainers reviewing progress of the ICT action plans in their own lectures/training programmes?
- Do students/teachers feel that the implementation of the ICT-TPD plan has changed how they learn?

#### **Professional development**

- What provision has been made within the organisation for faculty/trainers to engage in ongoing ICT knowledge-sharing and collaboration activities?
- Has the organisation organised or facilitated professional development opportunities for the faculty/ trainers?
- What courses or other professional development programmes have staff members availed of?



### ICT culture

- Has the organisation utilised ICT to communicate with faculty/trainers and students/teachers?
- How has the organisation developed a web presence and utilised collaboration and ICT learning tools as part of the course delivery?
- Has the organisation introduced the use of virtual learning environments.

### ICT infrastructure

- What new infrastructure has the organisation acquired?
- Is the technical support for it adequate?
- What digital resources is the organisation using and do they provide suitable ICT opportunities?
- Has the organisation ensured that licences for digital resources are catalogued?

### Feedback

Feedback and objective evidence is a critical component of any evaluation. It is important to evaluate if the changes made by implementing the ICT-TPD Plan are enhancing learning and teaching. All feedback should be considered by the planning team, in the context of the existing plan, and this information should inform the future development of the ICT-TPD Plan.



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