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# ICT in Education Teachers' Professional Development Toolkit

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## Acronyms

CCNC	Commonwealth Computer Navigator's Certificate
CCTI	Commonwealth Certificate for Teacher ICT Integration
CFT	Competency Framework for Teachers
COL	Commonwealth of Learning
ComSec	Commonwealth Secretariat
ICT	information and communication technology
M&E	monitoring and evaluation
OER	open educational resources
UNESCO	United Nations Educational, Scientific and Cultural Organization

## Defining the Value Proposition

The increasing global move toward knowledge societies, wherein knowledge is the primary production resource rather than capital and labour, has placed increasing emphasis on the need to ensure that individuals are educated and become skilled participants in society and the economy. Information and communication technology (ICT) is regarded as an essential means to support the achievement of genuine knowledge societies, often compelling education systems worldwide to adopt strategies to encourage its integration into education systems.

The possible benefits of introducing ICT at the school level are widely documented, and its value and significance are particularly noted with regard to its potential to improve teaching and learning strategies, enhance communications and productivity, and improve management and administration. For example, teachers indicate that the use of productivity software provides powerful tools to demonstrate learning. Furthermore, access to the Internet has provided a cost-effective way to supply staff and students with the latest quality resources where previously under-resourced media centres and libraries struggled to meet this demand. Additionally, teachers and school management use software solutions to streamline and automate class and school administration tasks. In some instances, school data is collected within a school information system that integrates all aspects of school life, from admissions, marks, and student and staff information to report creation, library records, finance and even the generation of student promotion schedules required by district, provincial and national education offices. As more schools adopt digital systems, the collection, sharing and analysis of school data with district officials and central education ministries also promises improved educational planning at a national level.

Harnessing ICT effectively to build knowledge societies and more effective education systems has implications for changing skills requirements, particularly for teachers. As teachers are at the heart of curriculum delivery, they play a pivotal role in the adoption and integration of ICT in education. However, despite the potential contribution of ICT in education, many countries have a shortage of ICT professionals and lack teachers with ICT skills. The relatively recent appearance of user-friendly educational technologies means that older generations of trained teachers are either ignorant of the potential of ICT and/or lack the skills and confidence to deploy it effectively. In addition, ICT in Education curricula for both pre- and in-service teachers are often either non-existent or have been tacked onto existing subject curricula and treated unevenly, almost as an afterthought, rather than being properly integrated into learning programmes.

There are as many schools of thought on how best to equip teachers with skills and knowledge to use ICT for teaching as there are tried-and-tested models for professional development. The dominant schools of thought regarding ICT integration are divided on the issue of whether teachers need ICT literacy skills regardless of how those skills will be applied pedagogically, or whether ICT integration should be deployed in a manner that equips teachers with ICT literacy skills and at the same time shows teachers how to use these skills to plan lessons and utilise technology for teaching and learning. Increasingly, approaches toward the latter are becoming more widespread, moving towards ICT skills being deployed in a context of broader educational reform, which embraces a shift away from teacher-centred, lecture-based instruction toward student-centred, interactive, constructivist learning. As one example, the UNESCO ICT Competency Framework for Teachers emphasises that it is not sufficient for teachers to have ICT skills and be able to teach these to their students; they need to help students become collaborative, problem-solving, creative learners by using ICT so they will be effective citizens and members of the workforce.

It is clear that teacher professional development is essential to create new learning environments. Thus, ongoing investment in continuous teacher training and professional development offerings is vital for successful use of ICT in education. As a contribution to this process, this toolkit introduces a

series of tools which address teacher professional development, based primarily on project experiences of the Commonwealth of Learning (COL), Commonwealth Secretariat (ComSec) and Microsoft in Caribbean and Pacific countries. It outlines what the tools are, provides links to them for downloading purposes, describes activities that can be implemented to use the tools effectively and presents a few hypothetical scenarios to illustrate their potential application. These tools can be harnessed as part of national or institutional strategies ensuring that ICT in education is effectively integrated into the training of new teachers and the continuing professional development of in-service teachers.

## **1 Where the Tools Come From (Context of Tool Development)**

The tools and activities described here reflect the experiences of COL, ComSec, Microsoft and their Caribbean and Pacific government partners in the revision and improvement of teacher education through devising professional development initiatives for ICT in education. In Guyana, this entailed: surveying current ICT trends at schools, higher education (HE) institutions and the ministry of education; evaluating current government-sponsored ICT in education projects; creating professional development, advocacy and communication, and monitoring and evaluation strategies; reviewing ICT in education curricula at both HE institutions in Guyana; creating an “ICT in Education for Teachers” course of over 150 notional hours; and training staff to deploy the course.

St. Vincent and the Grenadines also needed an ICT in education professional development strategy for teachers. The main concern, however, was to devise ways to improve human capacity to support the activities stated therein. COL and ComSec helped devise plans to develop one cache of ICT in education “master teachers” who would act as mentors to others, and another cache to provide ICT in education training for school principals. A COL/ComSec facilitator also created an instrument to select teachers most likely to succeed at ICT in education training.

Both Trinidad and Tobago and Dominica were supported through the development of an ICT in education professional development strategy for teachers. Dominica also needed a set of baseline survey tools to identify current ICT in education trends. Samoa already had clear ICT in education policy directives but did not have a clear implementation plan. COL and ComSec provided advice on these issues and also offered access to a number of open-license ICT in education programmes for teacher education institutions to adapt and deploy.

The participating countries can be characterised as having modest access to skills capacity and financial resources. Consequently, the activities and tools described here are designed to work in environments where skills and funding to revise and adapt the teacher education curriculum and to develop associated teaching resources are in short supply (although they would be equally useful in better resourced environments). Simultaneously, though, these countries are in no way identical, and each has approached the problem of revising teacher professional development programmes differently. Consequently, COL and ComSec have supported each nation in unique ways and have developed and deployed customised strategies to achieve the desired end.

Through discussion and collaboration with teachers, teacher trainers and education ministry personnel in these countries, COL and ComSec were able to assemble various tools that comprise the “toolkit” described here. In addition, a resource produced before these activities — the UNESCO ICT Competency Framework for Teachers (ICT-CFT) — provided a conceptual framework for activities in every country. This framework is intended to inform education stakeholders about the role that ICT can play in enhancing different aspects of education. The set of teacher competencies described

in the framework are designed to facilitate improvements to school administration, teaching and learning, and teacher professional development, through the exploitation of technology.<sup>1</sup>

## 2 An Overview of Available Tools

The work described above involved advising and supporting ministries of education and teacher training institutions to strategise and implement key activities. This necessitated the development of tools designed to support these activities. Generic versions of the tools and some sample documents now comprise a powerful toolkit that can be harnessed to implement ICT in education professional development strategies for teachers. These tools are licensed under a Creative Commons Attribution license,<sup>2</sup> and we encourage others who see value in them for supporting ICT in education activities in their country or institution to adapt and use them as they consider appropriate.

### 2.1 ICT Competency Framework for Teachers

A critical question is what *are* the ICT skills, values and proficiencies you want your educator community to strive towards? A good way to start answering this question is by interrogating the UNESCO ICT Competency Framework for Teachers. This framework provides a comprehensive set of essential competencies defined and agreed by an international committee of educators working under the banner of UNESCO.

Its unique cyclical structure encourages teachers to develop their skills in ever more sophisticated ways. Early work focuses on digital literacy, a second band encourages a deepening of understanding and the third band calls for the application of knowledge through the creation of new teaching tools and products. These levels of sophistication approximate the developmental needs of students at both teacher training colleges and universities (education faculties). The framework calls for study, within each band, of the following education topics: the national education sector; curriculum; pedagogy; assessment and administration; ICT skills; and teacher growth. Consequently, the framework focuses primarily on education needs rather than technology per se and therefore sees technology in a supporting role.

UNESCO has produced a document that outlines the underlying philosophy, the defined competencies and the framework which holds them together. A positive consequence of closely aligning ICT in education teacher professional development strategies to the UNESCO framework is that one can more easily identify open teaching courses and materials to support the training (there is an expanding pool of teacher training resources that cover UNESCO competencies), while also ensuring adherence to a globally recognised set of competencies and standards.

UNESCO [ICT Competency Framework for Teachers](#).

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<sup>1</sup> Read more about the UNESCO ICT-CFT on the UNESCO website: [www.unesco.org/new/en/unesco/themes/icts/teacher-education/unesco-ict-competency-framework-for-teachers](http://www.unesco.org/new/en/unesco/themes/icts/teacher-education/unesco-ict-competency-framework-for-teachers)

<sup>2</sup> Creative Commons copyright licenses offer a middle ground between full copyright, which reserves all rights, and public domain, which reserves none. Individuals and institutions can choose a combination of rights that make it easier for others to copy, distribute, edit, and mix the resource while at the same time preserving attribution rights, amongst others, for the creator. For a full description of the available licenses, visit Creative Commons at <http://creativecommons.org/licenses>

## 2.2 ICT in Education Surveys

These survey tools were designed to ascertain where education stakeholders stand in terms of their ability to implement ICT in education initiatives. Designed to support baseline capacity audits, the three versions offered below survey ICT usage by personnel at schools, teacher training institutions and ministries. The surveys ascertain what ICT is currently being used for and individual proficiency levels, and also what the stakeholders believe ICT can contribute to education, thus providing an indicator of willingness to advance. They are designed to be simple and quick to administer, relatively straightforward to analyse, and repeatable to enable comparative surveys to be completed longitudinally.

ICT in Education: [Teacher Survey](#)

ICT in Education: [Teacher Educator Survey](#)

ICT in Education: [Ministry Survey](#)

## 2.3 ICT in Education Professional Development Strategy Document

The blueprint! A document whose purpose is to combine different ICT in education initiatives at school, college and ministerial levels, provide direction and identify priorities and key initiatives can hardly be written using a template. Each context will be different, requiring sensitive insight and creative responses to potential problems and barriers. However, much can be learned by perusing such documents written for particular settings. While slavish adherence to what is written in any of the documents below will result in a cumbersome solution, they are useful in showing the types of issues that need to be considered when devising a suitable strategy:

Guyana: [ICT Professional Development Strategy for Teachers](#) (2010)

St. Vincent and the Grenadines: [ICT Professional Development Implementation Plan for Educators](#) (2012)

Dominica: [ICT Professional Development Implementation Plan for Educators](#) (2012)

Trinidad and Tobago: [ICT Professional Development Implementation Plan for Educators](#) (2012)

## 2.4 Curriculum Map Template

While it can be argued that all the UNESCO competencies are important, it is not always possible to free up enough time to cover them all in either pre-service training or in-service professional development courses. Consequently, it is important to choose and then map a proposed ICT in education curriculum in as much detail as possible before developing courses and teaching and learning materials to support professional development initiatives. The completed template tool below uses a spreadsheet to map a curriculum for an ICT in education course developed originally for Guyana. It uses extensively the structure and competencies identified in the UNESCO ICT-CFT. It also identifies potential open educational resources (OER) that could be used by course developers to build the course.

The spreadsheet functionality allows course planners to “balance” desired competencies accurately with the available contact/notional hours, in this instance sixty notional hours for Technology Literacy and ninety hours for Knowledge Deepening. Strip out the Guyana detail for a clean template to start your own mapping.

[Curriculum Map Template](#) (Guyana ICT in Education for Teachers course)

## 2.5 Teacher Basic ICT Readiness Assessment Tool

In one particular context, a method was needed to determine whether nominated school teachers were likely to encounter success in the various ICT in education professional development training initiatives described below. This was necessary because most courses aimed at encouraging the use of ICT in teaching require proficiency levels above those of a first-time user. This test is disarmingly simple, yet effective and easy to implement. The test also comes with setup instructions, an assessment protocol, and a marking memo. It is designed to be administered by school personnel and can easily be adapted.

[Teacher Basic ICT Readiness Test](#)

## 2.6 ICT in Education for Teachers Course and Materials

Through the implementation of country-specific activities, we discovered the value in using a course development model that is more closely aligned with web development approaches than with traditional publishing models. This allows for a shorter time to initial deployment, entails regular iterations of design and testing, and encourages more frequent versioning of courses. It is also much cheaper than traditional courseware development. (See Appendix A for a more detailed description.) Using this approach after one has mapped the curriculum focus turns to developing ICT in education course materials and training guides using free and open resources. The advantage here is that by building wraparound guides to existing materials and keeping repurposing to a minimum, these courses can be developed cost-effectively and over a relatively short period. An entire programme can be “assembled” at very little cost.

As a consequence of the work in Guyana, however, there is now a set of assembled courses already comprised of OER, which can be further refined and adapted in new contexts (as has recently been done by the Sampoerna School of Education in Indonesia, for example). Adapting an existing course makes it even quicker for derivative programmes to be deployed. Developed by adapting OER and aligned closely with the UNESCO ICT-CFT, this set of ICT in education units provides the substance for context-relevant teacher professional development. The course also includes facilitation notes for facilitators new to the field of ICT in education. The course has been made available under a Creative Commons Attribution license, which allows repurposing, and can be used as a starting point for the development of new courses in different countries. It exists in both paper and electronic formats, and has been designed to work in low-tech environments where connectivity is not robust.

Use the hyperlink below to access the full ICT in Education for Teachers course and think about what you need to change (scope, content, activities and/or assessment) to make it contextually relevant.

[ICT in Education for Teachers course](#) (Pre-Service Edition)

[ICT in Education for Teachers course](#) (In-Service Edition)

Another option for customising existing ICT in education professional development programmes includes COL's own Commonwealth Certificate for Teacher ICT Integration (CCTI) course, which does an excellent job of exposing teachers to good practice when deploying technology in their classrooms and schools. A course aimed at providing beginner teachers with basic ICT skills is the Commonwealth Computer Navigator's Certificate (CCNC) course. Both of these certificate courses can be customised and run by local service providers.

[Information about the CCTI course](#)

[Information about the CCNC course](#)

## 2.7 An ICT in Education Advocacy Strategy

Once the ICT in education strategy is being deployed and professional development opportunities are available, how do we get teachers on board, spread awareness, incentivise and open up channels of communication? The writing of a communication and advocacy strategy document can help senior management consider what options would work within their context. A template would not do this planning any justice. Instead, the toolkit contains an example from Guyana that can be used as an initial starting point for discussion and debate. Extract from it any pertinent ideas and approaches, but it is imperative that new documents both heed local norms and expectations and identify communication channels that reach all stakeholders.

[Guyana Communication and Advocacy Strategy](#) (2011)

## 2.8 Monitoring and Evaluation Strategy

How do we know whether the strategies and related activities are having the desired impact? A monitoring and evaluation (M&E) strategy is essential to ensure the desired objectives are being achieved. The M&E document below is an example of one such strategy. Interrogate and reconstruct it to suit local needs and conditions.

[Guyana M&E Strategy](#) (2011)

## 3 Using the Tools

In an ideal situation, the activities listed below might act as stepping stones to achieve an environment where both pre- and in-service teachers can integrate ICT into their daily responsibilities seamlessly and confidently. Rather than studying these activities in sequence, one should rather regard them as items on a menu. Consider what combination and order would be appropriate for your context. The tools presented above were developed to support many of these key activities.

- **Conduct an eReadiness Audit:** Where are teachers, teacher trainers and education officials in terms of their ICT proficiencies? How might one describe the typical ICT setup in schools, colleges and the ministry? It is necessary to identify infrastructure, equipment and skill baseline levels in order for planned strategies and activities to respond appropriately to the existing context. Audit schools, teacher training colleges, faculties of education, district offices and the ministry to ascertain this information.

**Toolkit Tip:** When developing instruments to collect this data, use the surveys identified in the toolkit and adapt as necessary. Ensure a big enough sample of each stakeholder group is canvassed and then collate results to see where skills and attitudes are positioned. The aggregate information can help to inform the ICT in education strategy document.

- **Review National ICT and Education Priorities:** Determine to what extent the existing national policy environment either supports the training of teachers to integrate ICT into their duties or needs to be changed so that it does support this. In some instances, a national ICT policy will have been developed, while in others, ICT has been incorporated into other sector policies. Evaluate what role ICT is supposed to play within the education sector and determine what strategies have been formulated to actualise the vision.

- **Establish an ICT in Education Steering Committee:** Set up a body of local and international authorities, at the highest possible level, to drive the programme forward. This group will act as a think tank, but also as troubleshooters when problems look likely to derail the programme. Consequently, the committee will need influence. Where possible, it will benefit from international participation and input to enable benchmarking of national strategies and activities against international best practices.
- **Devise an ICT in Education Implementation Strategy:** From the results of the survey or audit, identify the gaps and develop a strategy to close them. Formulate a set of specific activities that will respond to the findings and recommendations of the policy review and eReadiness audit, and allocate funds to ensure the implementation activities can be carried out.

The toolkit contains four sample strategy documents from Caribbean countries, focusing on teacher professional development but also considering wider ICT in education issues. These can be reviewed for ideas on relevant approaches and directions.

- **Review and Revise the ICT in Education Curriculum:** Determine to what extent teacher education and professional development programmes need to be revised so that they integrate ICT into operations effectively and encourage the attainment of the perceived education benefits covered in the policy environment. Ideally, the revised curriculum should see the integration of ICT into the training of **all** teachers, not just those who teach subjects focussed on technology. An ideal option would be to formulate a compulsory ICT in education course that focuses on the role of ICT in education policy, curriculum, pedagogy, assessment, administration and professional development, as well as subject method.

The toolkit includes a copy of the UNESCO ICT-CFT, which helps reviewers to identify ideal competencies, and a curriculum planning template for those tasked with revising the curriculum.

- **Identify and Adapt Open Resources and Open Courseware:** In order to develop new teaching and learning materials to support the new curriculum cost-effectively, use existing free open resources and teaching materials and adapt these to contextualise them for local use. In some instances, materials have already been aligned to international ICT in education curricula, such as the UNESCO ICT-CFT. An open license allows repurposing of those resources that need to be adapted.

Appendix A describes a possible courseware and materials development model in full. The toolkit also contains many items that can support this activity. There are links to four existing ICT in education courses, two of which have used free and open resources and can be easily adapted. Also provided in the Guyana curriculum planning template is a list of available OER that have the potential to provide content to support the achievement of the UNESCO ICT-CFT competencies.

- **Develop an Advocacy Strategy:** Determine how to spread awareness of the various initiatives identified in the implementation strategy, establish communication channels between the schools, higher education institutions, district offices and ministry, and devise a reward system or incentivise educators who “buy in” to the programme vision.

The toolkit contains a sample document from Guyana which identifies the strategies the ministry advocated there. Interrogate and extract approaches as appropriate, but ensure your document responds to local conditions.

- **Train Pre- and In-Service Teachers to Integrate ICT into their Operations:** Set up structures so that the training of teachers can be rolled out. This would include instructor training and other initiatives at both college and faculty levels, as well as professional development courses for those teachers already working.

In the toolkit are links to full ICT in education courses that also contain facilitation notes to help with training those personnel who will be tasked with conducting this training.

- **Monitoring and Evaluation, and Revision of the Strategy, Courses and Materials:** Running concurrently with many of the items above, M&E should collect experiences and feed recommendations into a continuing process of revision and improvement. It is a good idea to consider your M&E strategy prior to any development, in order to evaluate the effectiveness of planning and development phases, as well as professional development deployment.

The Guyana M&E strategy is included in the toolkit as a starting point for devising local variations.

Readers of the above list will in all likelihood comment that in their context, some — or perhaps many — of the activities described above have already been commenced or completed, so the purpose here is to identify a set of free and open tools that can be adapted to support those key activities still to be concluded.

## 4 Scenarios

Below are three scenarios in which different needs necessitate the use of different combinations of the key activities and tools.

### 4.1 Scenario 1: Need for Education Authority Frameworks

This first scenario might arise when the ICT in education professional development initiative is being driven by individuals from within the education ministry or the state or provincial education authorities. This type of personnel would prioritise the identification of tools that would allow the authority to coordinate activities and initiatives. They would place value on tools that provide frameworks for others to conduct their specific ICT in education responsibilities.

In Guyana, for example, many of the key activities described above were already in place. There was evidence that tertiary education students were bringing their own laptops to class. Both the University of Guyana's Faculty of Education and the Cyril Potter College of Education had different ICT in education curricula that were being implemented. The government was piloting a number of ICT "success maker" laboratory installations at various primary and secondary schools.

What was required was a "blueprint" to align and mesh these ICT in education initiatives. Existing initiatives were often working in isolation and on occasion counter-productively. Arising from this need was the Guyana ICT in Education Professional Development Strategy. This document acted as a much-needed implementation plan. The strategy, developed by the government with support from COL and ComSec, focussed principally on the professional development of teachers at both the pre- and in-service levels but also acted as a framework identifying key activities. For example, it proposed a review of existing ICT in education curricula in order to establish a new set of courses to coordinate activities across both HE institutions. It also established a need to develop new teaching

and learning materials to suit the different complexities required by different levels of study. Finally, the strategy identified a need for training key personnel, monitoring and evaluation, and ongoing communication and advocacy. Within this strategy, the UNESCO ICT-CFT provided a structure for rethinking the ICT in education curriculum. The key competencies as defined in the UNESCO framework provided Guyana education officials with an international framework to use as a starting point when developing local variations of ICT in education curricula that had emerged independently at both college and university levels.

Similarly, the advocacy and communication and M&E strategy documents developed in Guyana were responses to the ministry's need to encourage adoption, reward participation, and coordinate communication by all stakeholders, and later evaluate the success of the programme. These strategy documents again provided a framework for ensuring the coordination of all ICT in education endeavours and their evaluation.

## **4.2 Scenario 2: Need for Institution-Driven Change**

This second scenario might arise when institutional leads want to revise teacher education, possibly either within the framework of a national strategy or on their own initiative. This toolkit would provide assistance to these individuals who wish to include ICT "know-how" and understanding in the training of both pre- and in-service teachers.

The UNESCO ICT-CFT, championed above as a framework for ministry officials responsible for curriculum revision, can also work as a framework for college and faculty staff desiring to develop specific competencies in their pre- and in-service teachers. The competencies described within the framework are an excellent resource from which to choose what needs to be emphasised within any professional development programme. It is important that all subject teachers appreciate the beneficial role that ICT can play in the teaching of their subject.

The curriculum mapping template is a tool principally for course designers, and is thus useful for any staff tasked with either developing a new course or revising an existing one. Balancing credits, time and significant outcomes or objectives is always a tricky task, and this template allows an overview of what is deemed important and how those competencies/knowledge might be achieved.

In St. Vincent and the Grenadines, as well as in Samoa, the lack of human capacity to first develop a fully operational ICT in education course and then find instructors for both the pre- and in-service teacher training was seen as the largest hurdle. The toolkit, containing a fully fleshed-out course, copyrighted with an open license permitting repurposing, is a boon to those institutions facing similar concerns. They simply need to adapt the ICT in Education for Teachers course, either the pre- or the in-service version, rather than developing one from scratch. This course also contains facilitation notes for instructors to ease their training of new personnel for the task.

## **4.3 Scenario 3: Need to Ascertain Success**

Whether teacher training is organised by the ministry or by an institution, the role of the researcher is paramount to understanding both the context in which one is working and the extent to which certain activities can be considered effective. The toolkit has something for this group too. The baseline surveys were developed for the Guyana Ministry of Education, who wanted to describe the current context prior to the development of their ICT Professional Development Strategy for Teachers. The surveys were used to collect data from schools, HE institutions and the ministry.

However, they can be used and adapted to new circumstances, based on the needs of the entity coordinating the research.

The Basic ICT Readiness Test was developed for St. Vincent and the Grenadines, where the Ministry of Education was in the process of enrolling candidates for the CCTI course and/or the ICT in Education for Teachers course, but was concerned to ensure that the correct candidates were selected from amongst in-service teacher applications. Again, this research/selection tool can easily be adapted for new needs and different courses.

While the M&E strategy is not a research instrument per se, it does provide researchers in the field of ICT in education professional development with an excellent overview of what such a strategy should take into account and what research agenda should be set. The strategy attached here was initially devised for Guyana but has already been adapted for other national contexts.

## **5 Conclusion**

This document has attempted to show that while developing or revising ICT in education professional development programmes might initially appear daunting at either national or institutional levels, it need not be. Much work in the field has already been completed; consequently, not only is a great deal of guidance and advice available, but frameworks, tools and even full courses are available under open licenses, for adoption and repurposing. This toolkit and the list of key activities described above are the fruits of much discussion and collaborative engagement between COL, ComSec and Microsoft, and their Caribbean and Pacific partners. Hopefully, these tools will enable activity in new contexts.

# Appendix A:

## Approach to Curriculum Revision and Materials Development

### Introduction

Traditionally, most course designers follow a publishing model wherein they strive for a “polished” final product. The popular and often quoted ADDIE<sup>3</sup> Model is indicative of this approach. “Analyse, Design, Develop, Implement and Evaluate” has been the mantra of a generation of instructional designers. While the model does not exclude the opportunity for reiterative cycles of improvement, the single loop described in the acronym suggests that one round of evaluative reflection should be sufficient for most courses. In many ways, this approach mimics the publishing model that strives to create a polished, authoritative tome, which might be tweaked in subsequent editions but whose first edition can stand alone. Perhaps because many lecturers hope to ultimately publish their research findings and/or their course materials in either journals or academic publications, and their teaching materials as textbooks, the publishing model is easily assumed to be appropriate for course development too.

An alternative approach to the development of courses and their materials, however, might better serve both students and lecturers. The recent creation of a professional development course for teachers in the Caribbean<sup>4</sup> used a very different approach. It brought into play combinations of new course design components and tools that demanded a different mind-set to assemble and deploy the course. The ubiquitous use of electronic materials, along with user-friendly digital technologies and a preference for free and open teaching resources — each of these components characterised by constant flux and evolution — demanded a quicker and cheaper development cycle than was normally associated with course design and materials development. The optimal “assemblage” of components one month was quickly superseded by new needs and new opportunities a few months later.

Consequently, the course development model designed for the Caribbean project was closer to what some open source software designers advocate for the development of software: “Release Early, Release Often”<sup>5</sup> (RERO). The thinking is that only once the product is deployed and developers can hear user feedback can it truly be customised to suit user needs, and that more “eyes” make it easier to eliminate bugs or other problems. Regular cycles of testing and revision align the product quickly and cost-effectively with user needs.

With course design, however, there are some other advantages to this approach. Besides responding rapidly to user feedback and fashioning a course aligned with student expectations, this model also enables designers to quickly improve the course as new OER or open courseware become available. The digital nature of the materials allows for quick and cost-effective changes to the content. Course components can be replaced easily without affecting those components that are still desired. Also,

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<sup>3</sup> See the Wikipedia entry on the ADDIE model for a more detailed description: [http://en.wikipedia.org/wiki/ADDIE\\_Model](http://en.wikipedia.org/wiki/ADDIE_Model)

<sup>4</sup> This Teacher Professional Development project was a collaboration between the Guyana Ministry of Education, the Commonwealth of Learning and the Commonwealth Secretariat. See a generic version of the course at [http://ccti.colfinder.org/sites/default/files/PreService\\_International](http://ccti.colfinder.org/sites/default/files/PreService_International)

<sup>5</sup> See the Wikipedia entry on the “Release Early, Release Often” development philosophy: [http://en.wikipedia.org/wiki/Release\\_early,\\_release\\_often](http://en.wikipedia.org/wiki/Release_early,_release_often)

as new tools come on the market, be they social networking, productivity or utility tools, these can be accommodated in the existing design with minimal disruption.

In addition, as class sizes grow, students are increasingly expected to be participants in conducting courses in ways that cannot be anticipated during the “development” phase as articulated by traditional models. Class participants can nominate digital tools that they prefer when working with their peers, for reporting and discussing topics and issues.<sup>6</sup> The digital nature of the tools, while not necessarily integrated directly into the course platform, can work in parallel. This model of course development allows for high levels of participant connectivity because it embraces a digital platform for course coordination, but also because it allows for frequent reflection and readjustment based on user feedback and developer evaluation.

## The Development Model

The model below contains phases of analysis, development, deployment and evaluation, as all instructional designers would encourage, but the phases do not necessarily follow the sequence previously suggested, while they also often overlap. These processes are mediated through a series of specific activities, a consequence of the new development tools at our disposal. The steps described below outline the activities within a typical development cycle (see Figure 1) and also the pacing of subsequent development phases (see Figure 2):

Figure 1: Activities During a Typical Development Phase (with ADDIE stages approximated)

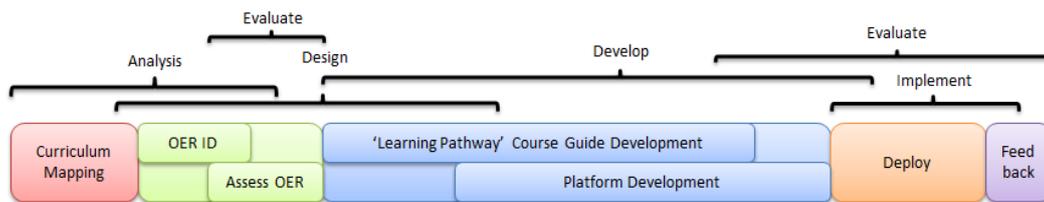
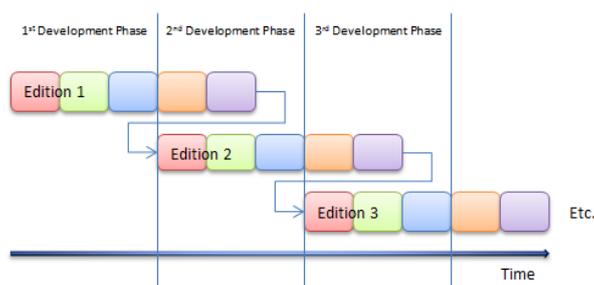


Figure 2: Pacing of Development Phases



1. **Curriculum Mapping:** The proposed course or programme is thoroughly mapped ahead of any development phases. The map contains high-level objectives as well as specific unit outcomes, proposed content, teaching methodology and the number of credits and/or sub-credits. This detail is necessary because the map will shape the development phases and will be used to assess to what extent various draft versions satisfy the course's overall purpose and function.

<sup>6</sup> Having multiple channels of communication within a course has become a feature of massive open online courses (MOOCs) and encourages course designers to embrace a decentralised model of class coordination. Read more at Wikipedia: [http://en.wikipedia.org/wiki/Massive\\_open\\_online\\_course](http://en.wikipedia.org/wiki/Massive_open_online_course)

2. **OER Identification:** An Internet search for OER that support the teaching of the various course units is required. These resources are available free of charge and do not require permission to use, distribute and, in many instances, repurpose. They are copyrighted with an open license — typically a Creative Commons license. Several existing OER websites make this search process easier than it sounds.
3. **Assess Appropriateness of OER:** Beyond pinpointing OER that are closely aligned to the course direction identified by the curriculum map, a developer also must determine the quality and suitability of each OER found, as well as the amount of repurposing required. Ideally, resources should need little or no repurposing. Developers have to assess *how* the OER would be used to achieve the outcomes plotted in the curriculum map. This requires a certain level of creativity and subject familiarisation.
4. **Course Guide Writing:** A course guide is written that identifies a proposed learning pathway through the OER materials via a set of suggested teaching/facilitation plans. In addition to identifying the sequence of learning events, the guide should also offer a suggested set of student activities so that the learning process is not merely didactic but calls on students to engage critically with the sourced OER. Assessment opportunities should also be a component of the guides.
5. **Platform Development:** As the course, materials and guides are digital, a platform should be devised to allow distribution to staff and students. A low-tech solution would be to develop an HTML interface for the materials.<sup>7</sup> This would allow the sharing of course resources via flash disk or CD-ROM should connectivity be an issue. The course materials could be read using mobiles, laptops, eReaders or desktop computers. The digital basis of the course allows for quick revision and updates. In more resourced environments where access to digital media is more prevalent, multimedia can be exploited more readily. Also, communication tools can be harnessed to make the course less “teacher-centred” by encouraging peer-to-peer engagement.
6. **Deployment/Testing:** Much can be learned during the deployment phase. Students and teachers should work through the materials in an authentic setting to thoroughly test the assumptions of the developer(s).
7. **Evaluation:** There should be an opportunity to evaluate the course before it ends. Collect student and staff feedback on how best to improve the course.
8. **Revision:** A revision phase follows so that collected user feedback can inform changes to the course. Issues around curriculum revision, OER selection, the learning pathway with its activities, and assessment need to be reappraised, as does the acquisition of new digital tools.

## Application of the Model in Guyana

COL, ComSec and Microsoft recently supported the development of an ICT Professional Development Strategy for Teachers in Guyana, built around the UNESCO ICT-CFT. Part of the process involved creating a set of training modules for teachers to help them move through basic technological literacy to more advanced use of technology. This was done in recognition that if ICT are to become part of how teachers teach, learners learn and school managers operate, the teacher education curricula (of both pre- and in-service teachers) should reflect the important roles that ICT might play in a typical school. Thus, at a series of meetings with the National Centre for Educational Resource Development (NCERD) and key players from the Guyanese education system, such as staff of Cyril Potter College of Education (CPCE) and the University of Guyana (UG), overall requirements for these modules were defined. These can be summarised as follows:

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<sup>7</sup> To see the interface designed to distribute the course guides, materials and assessment that were handled in the Caribbean project, visit: <http://ccti.colfinder.org/sites/default/files/guyana/index.html>

1. A pre-assessment tool is required to assess whether participants have basic ICT skills to be able to participate in the first module. If not, students will be provided with a remedial training module to learn basic ICT skills (i.e., use of mouse, keyboard, etc).
2. The Information Literacy module is expected to last approximately sixty to ninety hours, comprising a blend of face-to-face interaction and self study. It draws on the module designs already prepared by NCERD and CPCE, but takes into account the new course descriptions prepared for a revised teacher education programme in Guyana. Development of this module is based on the requirements of the UNESCO ICT-CFT, and to the greatest extent possible draws in existing materials to keep the course design cost-effective and globally relevant.
3. The advanced Knowledge Deepening module, also based on the requirements of the UNESCO ICT-CFT, will last approximately ninety hours and comprise a blend of face-to-face interaction and self study.

Given the limits of available capacity within the relevant Guyanese structure, draft modules were developed by a consultant contracted by COL and ComSec. The innovative curriculum and materials development process used in Guyana involved the following:

1. The existing curriculum was reviewed, which involved examining the ICT in education curriculum at CPCE and UG. It was recognised that the curriculum and associated materials should be designed to work within the national context and mirror the conditions that teachers will find on the ground.
2. A curriculum programme was mapped ahead of any development phases. This was based on the UNESCO ICT-CFT and included high-level objectives as well as specific unit outcomes, proposed content, and teaching methodology. This process allowed writers to weigh the different focus areas and determine the number of hours a student should spend working on the materials.
3. Guided by the curriculum map, a four-person, part-time development team conducted an Internet search for potential resources relevant to the subject matter. In addition to locating OER and free resources that were closely aligned to the course direction identified by the curriculum map, the developers also determined the quality and suitability of each resource found, as well as the amount of repurposing required. Resources that required little repurposing were selected as far as possible.
4. The development team constructed a set of simple user guides to lay out the recommended learning pathway through the selected resources. In addition to identifying the sequence of learning events, the team also suggested a set of student activities so that the learning process was not merely didactic but would call on students to engage critically with the sourced OER. In addition, teaching guidelines and a list of further reading and references for the lecturers were assembled.
5. The content was piloted with stakeholders in Guyana to test the development team's assumptions. Various units of the course were deployed at CPCE, where staff reported a mostly positive experience. Initial feedback from CPCE staff, as well as comments and suggestions from UG staff, were all collected and collated to inform revisions to the course materials. During 2012, the Knowledge Deepening course is being integrated into the UG degree programme.
6. A revision phase followed so that the collected user feedback informed changes to the course. This included less emphasis on the teacher facilitation notes, so that they were aimed directly at the students rather than at the lecturing staff and hence became teaching materials rather than guides. In addition, the OER and free resources were downloaded onto a CD-ROM. An electronic version of the course was developed so that staff and students could choose between using the paper-based versions or the electronic CD-ROM. The latter was deemed important to eliminate the need for connectivity.

The overall cost of the development team is reflected in Table 1.

Table 1 Time and costs of developing OER (the case of the Guyana ICT in education programme)

Development Team	Time (days)	Cost (US\$)
Educational consultant/instructional designer/graphic and Web designer/editor	32	16,624
Instructional designer 2	17	6,684
Instructional designer 3	19	7,290
Graphic and Web designer	7	1,453
<b>TOTAL</b>	<b>76</b>	<b>32,051</b>

According to the educational consultant who was also the main instructional designer, the Information Literacy module lasts approximately seventy hours, whilst the Knowledge Deepening module lasts approximately ninety hours. If one compares the cost of this development with the notional figures provided in the previous section, there is a clear indication that the approach of building a course using existing content is significantly more cost-effective. In Guyana, it took seventy-six days (or 608 hours) to produce 160 hours of learning (of which eighty are effectively text- or print-based and eighty are computer-based instruction). The following table compares Swift's estimates of time to design one notional student hour of learning with the actual time taken to develop the Guyana materials.

Table 2 Comparing the Guyana design with Swift's notional estimates

Media	Swift's notional estimate of time required to produce material equivalent to one notional hour of learning	Actual hours taken to develop one notional learning hour of material
Print	20–100 hours	3.8 hours
Computer-based instruction	200–300 hours	3.8 hours

However, as these estimates are for distance education course development whereas the Guyana courses are a blended learning design, it is possibly more useful to compare the costs with the notional estimates from Bryan Chapman. The result is no less startling.

Table 3 Comparing Guyana design with Chapman's notional estimates

Media	Chapman's notional estimate of time required to produce material equivalent to one notional hour of learning	Actual hours taken to develop one notional learning hour of material
<b>Instructor-led training (ILT)</b> , including design, lesson plans, handouts, PowerPoint slides, etc.	34 hours	3.8 hours
<b>Standard eLearning</b> , which includes presentation, audio, some video, test questions, and 20% interactivity	22 hours	3.8 hours

These figures do not indicate an even greater cost saving, as the time reflected also includes the development of content based on international examples (i.e., not Guyana-specific and containing more generic content). Thus, the outcomes of the project were eight versions of content. These are:

- Guyana Pre-service Information Literacy module (print version and CD version)
- Guyana In-service Information Literacy module (print version and CD version)
- Guyana Pre-service Knowledge Deepening Module (print version and CD version)
- Guyana In-Service Knowledge Deepening Module (print version and CD version)
- International Pre-service Information Literacy module (print version and CD version)
- International In-service Information Literacy module (print version and CD version)
- International Pre-service Knowledge Deepening Module (print version and CD version)
- International In-Service Knowledge Deepening Module (print version and CD version)

As all of this content is being shared under an open license, the potential for achieving economies of scale grows further as and where it is used by other institutions. Already, the material is being adapted for use in countries as diverse as St. Vincent and the Grenadines and in Indonesia, where it is being redeployed with marginal redevelopment time required to contextualise the materials effectively.

It is important to note that, in this case, a key contributor to cost reduction was that the leader of the team was multi-skilled and thus able to serve several functions. The education consultant in this instance served multiple roles: as an instructional designer, graphic and Web designer, workshop facilitator and general editor. Traditionally, such functions have tended to be spread across multiple people, raising costs. This kind of multi-tasking has been facilitated by the growing access to content development tools provided by ICT, but does also suggest that effective economic use of OER for course design and development does require highly-skilled designers to work successfully.

Thus, while curriculum revision and content creation has is often considered a time-consuming and expensive process, the creation of an ICT-friendly component for the teacher education curriculum in Guyana was achieved at a relatively low cost by using an existing curriculum framework (the UNESCO ICT CFT) and repurposing OER.

# ICT in Education Teachers' Course

## Welcome

### A] Course Introduction

This CD ROM has been developed to support the training of teachers to integrate ICT into their teaching practices. The materials, guides and activities are strongly aligned with the UNESCO ICT Competency Framework for Teachers (CFT).

While the course embraces the role ICT can bring to the classroom it is also not held prisoner by the need for high end or sophisticated technology platforms. The course can be deployed in areas of limited or no connectivity via CD ROM or memory stick as most of the resources have been previously downloaded and collected. There are also web and paper based versions of the lessons and guides.

This course uses materials that are Open Education Resources (OER) or free to use for educational purposes, allowing the use and distribution, and in some instances the repurposing of the materials, at no additional cost. (See the Open License tab for more information).

But most importantly we hope the lessons are fun and engaging enough to introduce new possibilities and refresh the participant's passion for teaching and learning.

Open the UNESCO ICT CFT document [here](#).

### B] Getting Started with the CD-ROM

The UNESCO ICT CFT encourages cyclical growth of a teacher's ICT competency. New users should work through the *Technology Literacy* materials first and then graduate to the *Knowledge Deepening* materials. In time we will also include materials for the final cycle: *Knowledge Creation*. The guide below explains how best to navigate the CD ROM version of the ICT in Education Teachers'

The screenshot shows the main interface of the 'ICT in Education Teachers' Course'. At the top, there are navigation tabs: 'Course Introduction', 'Technology Literacy', 'Knowledge Deepening', and 'Knowledge Creation'. The 'Getting Started' section is highlighted. On the left, a vertical menu lists: 'Welcome 1', 'Getting Started 2', 'Assessment 3', 'Acknowledgement 4', and 'Open License 5'. The main content area is titled 'Get Started' and contains the following text:

**Ready?**

The UNESCO ICT CFT encourages cyclical growth of a teacher's ICT competency. New users should work through the *Technology Literacy* materials first and then graduate to the *Knowledge Deepening* materials. In time we will also include materials for the final cycle: *Knowledge Creation*.

**Step 1:** Identify which level you want to start with by clicking the appropriate coloured tab along the top of the screen.

Within each cycle there are 5 focus areas: *Understanding ICT, Curriculum & Assessment, Pedagogy, Organisation and Administration and Professional Development*.

**Step 2:** Identify from the tabs on the left hand side of the screen which theme you are working in.

**Units:**

Each focus area has a number of units or lessons that looks at how to integrate ICT into these areas. Units can contain *Notes, Computer Practicals, Tutorials & Self Study*.

**Step 3:** Work your way sequentially through the module units by selecting the appropriate unit number from the list on the left of the content box.

**Step 4:** You can access unit components using the index on the right hand side of the content box. Ideally you should work through these components sequentially too.

On the right side of the content box, there is a list of components: 'Lecture Notes', 'Tutorial', '< Practical Session', and 'Self Study'. A red circle with the number '4' points to this list.

Four red circles with numbers 1, 2, 3, and 4 are overlaid on the screenshot, with red lines pointing to specific elements: 1 points to the top navigation tabs, 2 points to the left-hand menu, 3 points to the 'Units' list, and 4 points to the component list on the right.

**Step 1:** Identify which level you want to start with by clicking the appropriate coloured tab along the top of the screen.

Within each cycle there are 5 focus areas: *Understanding ICT, Curriculum & Assessment, Pedagogy, Organisation and Administration and Professional Development.*

**Step 2:** Identify from the tabs on the left hand side of the screen which theme you are working in.

Each focus area has a number of units or lessons that looks at how to integrate ICT into these areas. Units can contain *Notes, Computer Practicals, Tutorials&Self Study.*

**Step3:** Work your sequentially through the module units by selecting the appropriate unit number from the list on the left of the content box.

**Step 4:** You can access unit components using the index on the right hand side of the content box. Ideally you should work through these components sequentially too.

## C] Assessment

This Teachers' ICT in Education Course is predominately competency based. Theory and specific technology skills covered here are merely components necessary to achieve the following larger objective:

*Create an educational environment within schools where ICT are used seamlessly by both educators and students in the pursuit of either quality teaching or engaged learning. ICT is also used to leverage high levels of administrative effectiveness and productivity.*

To this end a suggested assessment strategy is formulated here. The strategy is made up of formative **portfolio tasks** and a summative test or **examination** at the end of each cycle: Technology Literacy and Knowledge Deepening.

Portfolio tasks, identified by the icon on the right, have been selected from amongst the various activities that make up individual units. They have been selected because they most closely represent opportunities where learners have mastered the UNESCO ICT CFT competencies. Where possible a suggested mark allocation has been allocated to the task.



Portfolio Task

Examination opportunities exist at the end of each cycle. These demo papers test understanding of various theories and knowledge but also investigate a learner's ability to apply them. A memo has been included. These documents can either be used for real summative assessment or for revision purposes.



Exam Paper

**Technology Literacy: Portfolio 65%, Examination 35%**

The following activities make up the portfolio tasks for the Technology Literacy cycle:

- Classroom & Policy Report (Module 1, Unit 3 - TL.4.b.)
- Spreadsheet Markbook (Module 2, Unit 5 - TL.4.j.)
- Multimedia Presentation (Module 3, Unit 4 - TL.3.c.)
- Computer Classrooms (Module 4, Unit 2 - TL.5.b.)
- Teacher Productivity (Module 5, Unit 1 - TL.6.a.)

The course facilitator will ask for these activities to be submitted.

The demo examination paper and memo below can be used to revise this cycle's content and theory. The course facilitator will test you using a similar paper under examination conditions.

- [Demo examination paper](#)
- [Memorandum](#)

### **Knowledge Deepening: Portfolio Tasks 65%, Examination 35%**

The following activities make up the portfolio tasks for the Knowledge Deepening cycle:

- Learning Activity (Module 1, Unit 1 - KD.1.a)
- Adapt & Create a Rubric (Module 2, Unit 4 - KD.2.b)
- PBL Assignment (Module 3, Unit 4 - KD.3.f)
- ICT as a Collaboration Tool (Module 4, Unit 4 - KD.4.f)
- Lifelong Learning (Module 5, Unit 1 - KD.6.a)

The course facilitator will ask for these activities to be submitted.

Use the demo examination paper and memo below to revise this cycle's content and theory. The course facilitator will test you using a similar paper under examination conditions.

- [Revision examination paper](#)
- [Memorandum](#)

### **Grade Spreadsheet**

Facilitators can use the ICT in [Education Grade Spreadsheet](#) to help them track student progress

## **D] Acknowledgements**

The following institutions and organisations are thanked for their important contributions in the development of the original version of this ICT in Education Teacher's course.

- Commonwealth Secretariat
- Commonwealth of Learning
- Microsoft
- Ministry of Education, Guyana
- University of Guyana (Faculty of Education)
- Cyril Potter College of Education, Guyana
- NCERD (Guyana)
- Neil Butcher & Associates

The Development Team: The following individuals also need to be thanked for their input into the development of this course:

- Neil Butcher
- Andrew Moore
- Cathy MacDonald
- Donna Preston
- Clinton

MacLoed

## E] Open License



ICT in Education Teachers' Course by Commonwealth Secretariat / Commonwealth of Learning is licensed under a [Creative Commons Attribution 3.0 Unported License](#).

The CD ROM & Web versions of this course and the paper based unit guides have been released under an open license: **Creative Commons Attribution 3.0 Unported License**. This means that we encourage you to copy, share and where necessary adapt the guides to suite local contexts. However, we do reserve the right that all copies and derivatives should acknowledge the original authors, namely the Commonwealth Secretariat / Commonwealth of Learning.

It should also be noted that the individual resources collected on the CD have their own copyright conditions. Most are OER and some while having all rights reserved do allow free use for educational purposes. Please observe these individual copyright conditions.

# KD Module 1: Understanding ICT in Education

## Unit 1: Advancing Policy through Classroom Action and the use of Technology



### Objectives:

Pre-service teachers should be able to explain and analyse the principles of using ICT in education. Describe how these principles can be put into practice in their own teaching. Analyse the issues that arise in implementing these principles and how the issues can be addressed (UNESCO ICT, KD.1.a).



### Duration:

Total of 3 notional hours – 1 hour lecture and 2 hours group tutorial.



### A] Lecture (Total 1 hour)

#### Notes to Lecturer

The students will require some guidance on how to go about developing relevant and engaging learning activities. The checklist of questions below should be presented to the students as a tool that can be used in order to focus their thinking and guide them as they develop a particular learning activity. These questions are only suggestions; you may want to change them or add some of your own. For more ideas refer to 'Being a Teacher'. [See [Being a Teacher: Professional Challenges and Choices](#)]. Ideally you should work through an example lesson plan and facilitate a discussion on whether the lesson meets the requirements of the guidelines listed below. Example lesson plans can be downloaded from the web [see [www.lessonplanspage.com](http://www.lessonplanspage.com)].

## 6 Guidelines for Creating Learning Activities<sup>8</sup>[CC: BY-ND]

A learning activity that is not carefully planned and structured can confuse and discourage learners. As educators, our challenge is to use activities in a way that will motivate learners, and help them to achieve worthwhile learning outcomes. If activities don't motivate and encourage learners, learners will try to find ways not to do them! When planning an activity, you should ask yourself the following four 'big' questions:

<sup>8</sup>SchoolNet SA, South African Department of Education, & South African Institute for Distance Education. (2010). *Commonwealth Educators' Network*. Retrieved from <http://www.schoolnet.org.za>.

**1. WHO is the activity for?**

- Is the activity at a manageable level for learners in this grade?
- Will the activity be real and interesting for the learners? (This will apply particularly if it is based on things that are part of their experience.)

**2. WHY are they doing it?**

- What is the purpose of the activity?
- What new information will the learners learn?
- What will the learners learn to do? For example, will they learn new skills, will they learn new ways of thinking, will they practice working together, etc.?
- Will learners see some purpose in the activity?
- Is it clear to them why it is worthwhile to do the activity?
- Does the activity give them an opportunity to assess what they have done, or to think about what they are learning?

**3. HOW will they do it?**

- Are the instructions clear, simple and well-ordered? (If not, the whole activity could be ineffective!)
- Does the activity require learners to work together meaningfully? (Collaborating with others is a valuable way of learning, although obviously some activities will be designed for individuals.)

**4. WILL they really do it, and want to do more?**

- Have you used exciting/interesting material to stimulate the learners (for example, pictures, sounds, objects, articles, etc.)?
- Does the activity come from somewhere and go somewhere?
- Does it lead them into the next activity or topic?
- Does it provide the right level of challenge? (This can be tricky because if activities are too difficult too soon, some learners will lose confidence. It is useful to vary the level of challenge. Some activities can be easier than others, hence it is often useful to add optional challenges for learners who complete these activities quickly.)
- Does the activity provide feedback which will help to motivate learners and build their confidence?
- Have you encouraged learners to express their own ideas, and think about their own opinions? (This makes them feel valued and encourages critical thinking.)

Carefully planned learning activities that address the checklist of questions above will help develop the personal attributes or soft skills of learners, including:

- Empathy
- Teamwork
- Leadership
- Communication
- Good manners
- Negotiation
- Sociability
- The ability to teach.

## 7 How Teaching Activities Support Education Policy

Remember, when you are creating activities, all the educational experiences must not only motivate learners and help them to achieve worthwhile learning outcomes, but also work towards achieving national objectives and priorities. See some national statements below:



The Goals of the Learning and Technology Policy Framework from Canada (Alberta)  
(Ref: [Alberta Learning](#) 2004)

The following goals will provide direction for the use of technology and support the achievement of Alberta learning system objectives:

1. Access to quality learning opportunities is expanded
2. Learning is enriched
3. Learning outcomes are improved
4. Information and communication technology skills of Albertans are enhanced
5. The efficiency of learning system management is improved
6. Research and knowledge creation are advanced
7. Markets for learning programs, resources and services are expanded'



The Vision and Mission of Kenya's National Information Communication Technology Strategy for Education and Training (Ref: [Min. Info. Comm.](#) 2006)

### **Vision**

The vision of the ministry is to facilitate ICT as a universal tool for education and training. In order to achieve this vision every educational institution, teacher, learner and the respective community should be equipped with appropriate ICT infrastructure, competencies and policies for usage and progress. It calls for recognition of the fact that ICT provides capabilities and skills needed for a knowledge-based economy. It also calls for transforming teaching and learning to incorporate new pedagogies that are appropriate for the 21st century.

### **Mission**

The ministry's mission is to facilitate effective use of ICT to improve access, learning and administration in delivery education programmes and services. The principal objective will be to integrate ICT in the delivery of education and training curricula.



Australian Strategic Plan to guide the Implementation of the Digital Education Revolution initiative and related initiatives (Ref: [DER](#) 2008)

Aspirational Goals include:

- All students have personal access to an appropriate information access and/or computing device in all areas of learning

- Teachers devise student centric programs of learning that address agreed curriculum standards and employ contemporary learning resources and activities.
- Students engaged in rigorous and stimulating programs of learning that meet their individual needs and prepare them for success in 21st Century
- Courses and resources are available anywhere, anytime
- Parents able to view student programs and progress at anytime online and communicate with teachers and school leaders
- Students and teachers routinely collaborate, build and share knowledge using digital technologies – blogs, file sharing, social networking, videoconferencing, etc.
- Students and teachers are able to innovate in their use of ICT to achieve learning outcomes.
- School leaders routinely plan at the school and system level for ongoing improvement enabled by ICTs



### Namibia

Namibian National Curriculum for Basic Education

(Ref: [Namibian MoE](#) 2008)

#### 4.3 Framework of Phase ICT Competencies

4.3.1 PRE-PRIMARY PHASE: On completion of the Pre-Primary

Learners participate freely in ICT- related activities and use educational games, software and multimedia appropriate to their purpose.

4.3.3 UPPER PRIMARY PHASE: On completion of the Upper Primary

Learners demonstrate understanding and correct use of software applications such as Microsoft Office and/or Open Office. They conduct basic navigation through the Windows environment or other operating systems.

4.3.4 JUNIOR SECONDARY PHASE: On completion of the Junior Secondary

Learners proficiently and legally use a computer and the most usual application packages, do basic programming, ensure computer hygiene, and explain the components and processes involved in computer information technology.

4.3.5 SENIOR SECONDARY PHASE: On completion of the Senior Secondary

Learners make appropriate selections from a range of hardware and software to solve information problems and systematically try out and evaluate ICT solutions. They communicate effectively through and about ICTs, and explain the practical and social effects of ICTs.



## C] Tutorial (2 hours)

### Notes to Tutor

During the Technology Literacy course, students were given an opportunity to review the specific objectives of the National ICT Policy/Strategy Document, list the objectives that should be addressed within the classroom setting and brainstorm three classroom practices that would support the objectives. In this unit students will build on this knowledge by developing a carefully planned learning activity that aligns to the learning outcomes of the relevant 'Word Processing' section of an Information Technology Curriculum Guide.

Students should be divided into groups consisting of no more than 4 members. The team members in each group should be allocated a particular teaching level. Each group will require the Information Technology curriculum statement/guide from your particular country. If you are unable to get a copy of the curriculum statements/guide for your country, you can make use of ones from Guyana that are available on this CD.

Please note that Task 3 is a recommended **Portfolio Task** and it is recommended you collect the presentations in for evaluation. A marking memo is available [here](#).

### Task 1: Download Information Technology Curriculum Guide

Working in tutorial groups (3-4 members), select the Information technology Curriculum Guide that is relevant to your groups' particular teaching level.

Note: You may be assigned a grade that is different from your level of study. It is important to complete this activity as it will help you to become familiar with the ICT curriculum guides and develop an understanding of the learning outcomes which can be applied to you specific level of specialism or integrated into other subject/learning areas.



Guyana

- [Information Technology Curriculum Guide \(Grade 7\)](#)<sup>9</sup> [CC: BY-NC-ND]
- [Information Technology Curriculum Guide \(Grade 8\)](#)<sup>10</sup> [CC: BY-NC-ND]
- [Information Technology Curriculum Guide \(Grade 9\)](#)<sup>11</sup> [CC: BY-NC-ND]

Study the learning outcomes of the relevant 'Word Processing' section of the curriculum guide.

- Grade 7 – Introduction to Word Processing [See page 11]
- Grade 8 – Intermediate Word Processing [See page 11]
- Grade 9 – Advanced Word Processing [See page 22]

### Task 2: Information Technology Lesson Plan

Create an activity for the Information Technology subject area that addresses the learning outcomes for the 'Word Processing' topic. The activity should be aligned to the particular grade (7, 8 or 9) allocated to the group. When planning the activity make use of the checklist of questions presented as a tool to focus your thinking and guide you as you develop the learning activity.

Complete the form below by adding the details of a specific classroom activity using both the curriculum guide and your own knowledge of Information Technology.

<b>8 Lesson Plan</b>	
Level (Primary/Secondary):	<b>Secondary</b>
Grade:	

<sup>9</sup>Guyana Ministry of Education. (2011). *Level 7-Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy>.

<sup>10</sup>Guyana Ministry of Education. (2011). *Level 8-Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy>.

<sup>11</sup>Guyana Ministry of Education. (2011). *Level 9-Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy>.

Subject:	<b>Information Technology</b>
Topic:	
Objective:	
- <i>Skills:</i>	
- <i>Knowledge:</i>	
- <i>Attitude:</i>	
Content:	
Description of Activities (Methods/Strategies/Materials):	
Evaluation:	
Areas of Integration:	

### Task 3: Presentation of Learning Activity

Please note that this activity is a recommended **Portfolio Task** and will be submitted for evaluation.



**Portfolio Task**

Prepare a short presentation which describes the learning activity and demonstrates the way in which it addresses the following questions:

1. WHO is the activity for?
2. WHY are they doing it?
3. HOW will they do it?
4. WILL they really do it, and want to do more?
5. In what way does this lesson plan contribute to the nations' needs as expressed in national policy?
6. Explain and analyse the principles of using ICT in education.

Your tutor will also collect in the individual presentations.



## Resources Used in this Lesson Unit

SchoolNet SA, South African Department of Education, & South African Institute for Distance Education. (2010). *Commonwealth Educators' Network*. Retrieved from <http://www.schoolnet.org.za>.

Guyana Ministry of Education. (2011). *Level 7-Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy/Public/Resource.aspx?cat=6>.

Guyana Ministry of Education. (2011). *Level 8 - Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy/Public/Resource.aspx?cat=7>.

Guyana Ministry of Education. (2011). *Level 9 - Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy/Public/Resource.aspx?cat=7>.

Guyana Ministry of Education. (2011). *Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy/Public/CGuide.asp>.

Canada (Alberta) Minister of Learning. (2004). *Learning and Technology Policy Framework*. Retrieved from <http://www.csdms.in/gesci/pdf/CANADA-Alberta.pdf>

Kenya Ministry of Education. (2006). *National Information Communication Technology (ICT) Strategy for Education and Training*. Retrieved from [http://www.cck.go.ke/regulations/downloads/national\\_ict\\_policy.pdf](http://www.cck.go.ke/regulations/downloads/national_ict_policy.pdf)

Australian Department of Education, Training and Youth Affairs. (2008). *Strategic Plan to guide the Implementation of the Digital Education Revolution initiative and related initiatives*. Retrieved from <http://www.csdms.in/gesci/pdf/AUSTRALIA.pdf>

Namibian Ministry of Education (2008). *National Curriculum for Basic Education*. Retrieved from <http://www.nied.edu.na/publications/nieddocs/National%20Curriculum%20for%20Basic%20Education%20Jan10.pdf>

# KD Module 1: Understanding ICT in Education

## Unit 2: Modification of Lesson Plans to Support Policy



### Objectives:

Pre-service teachers explain and analyse the principles of using ICT in education. Describe how these principles can be put into practice in their own teaching. Analyse what issues arise in implementing these principles and how the issues can be addressed (KD.1.a).

Pre-service teachers operate various open-ended software packages appropriate to their subject matter area, such as visualisation, data analysis, role-play simulations, and online references (KD.4.a).



### Duration:

Total of 6 notional hours – 2 hour tutorial, 2 hour computer practical and 1.5 hour self-study activity (preferably at a computer) and a second 30-minute tutorial.



### A] Computer Practical (2 hours)

#### Notes to Facilitator

During the Technology Literacy course, students were introduced to the Internet and WWW and were given an opportunity to develop basic searching skills and later, more complex Boolean searching skills. In this unit students will apply the skills and knowledge developed in order to search for educational websites and summarise the services available. Students should be divided into groups consisting of no more than 10 members. Each group will require access to a computer with Internet connectivity in order to access educational websites. Once the activities have been completed, you should coordinate a report-back session and facilitate discussion among the various groups.

## 9 Exploring Educational Resources Online<sup>12</sup>[CC: BY-ND]

As you find your way around the Internet and the WWW you will soon realise that there are many educational websites offering different products and services. As a teacher it may be in your interest

<sup>12</sup>SchoolNet SA, South African Department of Education, & South African Institute for Distance Education. (2010). *Commonwealth Educators' Network*. Retrieved from <http://www.schoolnet.org.za>.

to organise the sites you will be visiting according to what they can offer. There are many websites that offer lesson plans for specific learning areas. For examples, see below:

#### Mathematics

- Maths Forum - <http://mathforum.org/>
- Mathsnet - <http://www.mathsnet.net>

#### Science

- School Science - <http://www.schoolscience.co.uk>
- Discovery Education - <http://school.discoveryeducation.com>

#### Other

- BBC Education - <http://bbc.co.uk/education>
- SAILOn (Subject Area Interactive Lessons Online) - <http://www.pasadenaisd.org/sailon/>

#### Task 1: Summarise Resources Available on Websites

- Working in groups (2 x 4-5 members), select at least two educational websites (either through searching or from the list provided).
- Visit each website and use the table below to summarise the details of the resources that can be found on the site.

<b>10 Name of website:</b>	
<b>11 Learning/subject area(s):</b>	
<b>12 Features and offering</b>	<b>13 Yes/No</b>
<i>Free educator support materials</i>	
1. Lesson plans	
2. Homework for learners	
3. Collaborative activities for educators	
4. Curriculum frameworks	
5. Computer-based worksheets	
6. Printer-friendly resources for classroom use	
<i>Software</i>	
7. Freeware – totally free software	
8. Shareware – free commercial software samples for trialling	

9. ICT-based learning and teaching aids for buying	
10. Simulation software (role-playing real situations, allowing students to interact )	
11. Drill and practice software (repetitive sums or problems to solve)	
<i>Information and communication</i>	
12. General information on mathematics education	
13. Chat room	
14. Any other educator interaction space online	

**Task 2: Review Resources Available on Websites**

- Each group should swap summaries created with two other groups.
- Visit each of the websites and review in conjunction with the summary created.

**Task 3: Finding Appropriate Resources on Websites**

- Record the thoughts and opinions of your group about finding appropriate resources on websites. Do you think this process could be helpful in your teaching practice? How?
- Nominate a presenter who will take responsibility for presenting the ideas of the group to the class.

**B] Tutorial (Total 2 hours)****Notes to Tutor**

During the Technology Literacy course, students were introduced to word processing and afforded an opportunity to spend time working through the online activities in order to develop their skills and confidence. In this unit, students build on the knowledge already developed by considering innovative ways in which a word processor can be used as a resource by learners during the learning process. Students will be expected to review an example activity and draft a list of issues that should be considered when implementing a classroom activity in which the word processor is used as a resource by learners during the learning process. Students will need access to a computer with Internet connectivity as they will be expected to spend time online searching for innovative lesson plans and/or classroom activities. The facilitator will need to be on hand to support students who encounter problems completing the activities. Students should be encouraged to try and solve problems by working with their peers.

**14 Using a Word Processor as a Learning Resource<sup>13</sup>[CC: BY-ND]**

It is important to think about innovative ways in which the word processor can be used as a resource by learners during the learning process. Learners enjoy working with computers, and often tackle quite routine tasks with more enthusiasm if the task is performed using a word processor. Computer

<sup>13</sup>SchoolNet SA, South African Department of Education, & South African Institute for Distance Education. (2010). *Commonwealth Educators' Network*. Retrieved from <http://www.schoolnet.org.za>.

literacy is not just about learning what you can do on the word processor. Computer literacy is most effective when the computer is used as a resource for learning.

## **15 Task 1: Creative Writing Activity (1 hour)**

- Study the creative writing activity below. This is an example of a way in which the word processor can be used as a resource by learners during the learning process.

**Creative Writing (Example Activity)***Preparation:*

Find one or more interesting pictures that will encourage debate or creative writing. The picture will be the subject of writing for the lesson. Each small group in the class will write a passage based on the picture.

*Lesson:*

Divide the class into small groups around each word processor. Each group should discuss the picture, and then start writing. The first person in the group starts writing the opening sentence of a passage. Then, the second person writes the second sentence, the third person writes the third sentence, and so on. All members of the group should watch the screen as the activity proceeds. This is usually a fun activity that leads to a lot of laughter as learners try to follow each other's thinking, and the story can take many unexpected twists and turns. Encourage them to have fun and be creative. This could continue until five minutes before the lesson time has expired. Afterwards, the passages could be printed and pasted on the wall or sent by e-mail to you, the educator.

- Consider the successes and potential problems of this activity.
- Write down your thoughts regarding the successes and problems of the activity.
- Draft a list of the issues that should be considered when implementing a classroom activity in which the word processor is used as a resource by learners during the learning process.
- Save a copy of the list (either on the computer hard drive or on a removable storage device).

**16****17 Task 2: Search for Lesson Plans and/or Classroom Activities (1 hour)**

- Search the WWW for innovative lesson plans and/or classroom activities in which the word processor can be used as a resource by learners during the learning process.
- Refer to the list of issues that should be considered when implementing a classroom activity in which the word processor is used as a resource by learners during the learning process.
- Summarise the details of the resources that can be found on the websites visited.

Tip: Save the resources found (either on the computer hard drive or on a removable storage device).

**C] Self Study (Total 90 minutes)**

During the Technology Literacy course you were requested to study a curriculum guide and develop a lesson plan that illustrated the way in which an ICT tool or resource could add value to a curriculum activity. The following self-study activity will require you to develop a lesson plan by modifying resources found in the previous activity to address one of the learning outcomes from the IT Technology Curriculum Statements / Guide of your particular country.

**Task 1: Modifying a Lesson Plan**

1. Select one of the innovative lesson plans and/or classroom activities found on the www to create a learning activity in which the word processor is used as a resource by learners during the learning process.

2. Modify/adapt the activity, as required, to ensure that it aligns with one of learning outcomes from the IT Curriculum Statements of your particular country. If you are unable to get a copy of the curriculum statements/guide you can make use of one from another country (Available [here](#)).
3. Develop a lesson plan using [this template](#) or the version on page 5
4. Use the 'Learning Objectives' list on the next screen as a guide.
5. Print out a copy of your modified lesson plan.

**Learning Objectives List**

*Skills: Use advanced formatting features:*

- Lists
- Fonts
- Tables
- Borders
- Shading

*Knowledge:*

- Text to be formatted within a given document must first be selected (highlighted).
- Bullets are used to stress important points.
- Numbering is used for itemising.
- Tables can be inserted to organise information and data on a page.
- Borders and shading can be used to enhance or highlight a particular word, thought or idea.

*Understanding: The type and audience of the document must be taken into consideration when choosing various formatting features.*

*Attitude: Willingness to exert time and effort to use all available formatting features to improve the look, readability and appeal of a document.*

- Develop a lesson plan using MS Word.

<b>18 Lesson Plan</b>	
Level (Primary/Secondary):	
Grade:	
Subject:	
Topic:	
Objective:	
- Skills:	
- Knowledge:	
- Attitude:	
Content:	
Description of Activities (Methods/Strategies/Materials):	
Evaluation:	
Areas of Integration:	



D] Tutorial (30 minutes)

## 19 Notes to Tutor

You should coordinate a report-back session and facilitate discussion among the various groups. The class should be divided into pairs (two students per group). Each student will be required to review and present a brief summary of the lesson plan to the class, highlighting successes and problems of the activity.



## Resources Used in this Lesson Unit

SchoolNet SA, South African Department of Education, & South African Institute for Distance Education. (2010). *Commonwealth Educators' Network*. Retrieved from <http://www.schoolnet.org.za>.

Guyana Ministry of Education. (2011). *Level 8 – Information Technology Curriculum Guide*. Retrieved from <http://www.education.gov.gy>.

# TL Module I: Understanding ICT in Education

## Unit 1: Internet Navigation



### Objectives:

Pre service teachers should be able to describe the Internet and the World Wide Web, elaborate on their uses, describe how a browser works and use a URL to access a website. (UNESCO ICT-CFT, TL.4.e)



### Duration:

Total of 2 notional hours – 30 minute lecture, 30 minutes self-study session and a 1 hour computer practical session.



**20** A] Lecture (30 minutes)

### 21 Notes to Lecturer

Students will need an overview of the concept of 'Internet', specifically what it is and what services are on offer. One could also look briefly at the origin of the Internet. More importantly, however, is alerting them to what meanings lie in the structure of the URL. The open education resource, 'A Brief Guide to the Internet', below can be used to facilitate this section. In the second phase of the tutorial, use your computer to demonstrate basic browser operations: inserting a URL, back, forward, stop, home, etc. Another OER below could be used to guide this process. Finally, set the students a task to do on their own. There is a free online tutorial that covers the ground you have introduced. Ask them to complete the first half: 'Introduction' and 'Getting started'.

## 22 A Brief Guide to Using the Internet<sup>14</sup>[CC: Unknown]

### 23 What is the Internet?

The Internet is a large computer network linking smaller computer networks worldwide. This network allows information to be transferred between computers and allows anyone with access to the Internet to find information from millions of different sources around the world. The Internet is a vast source of information that is constantly changing and expanding.

The most popular free Internet service is the World Wide Web (WWW). The WWW allows people to look at information easily by using 'Hyper Text Transfer Protocol' (HTTP). HTTP is a set of rules for exchanging information on the Internet. It performs the 'search and retrieve' functions for information.

Each page of information on the WWW has its own unique address, which makes it possible for individual users and Internet search engines to find information. Within the hypertext on www pages are 'hyperlinks': text or images which, when clicked on with a mouse, will let the user move from webpage to webpage.

Once you are connected to the Internet, you can use an Internet 'browser' to look for information on the WWW. A browser is a program that lets you locate and view webpages. The most widely used browser is Internet Explorer.



### 24 Understanding URLs

Each page of information on the WWW has a unique address, called a URL ('Uniform Resource Locator'). The URL is displayed in the address window at the top of the screen.

Here is a simple address of a website: <http://www.google.com>

- http:// – All Internet addresses start with these letters. They stand for 'hypertext transfer protocol'.
- www – Stands for 'World Wide Web' and generally follows the 'http://'.
- google – This part of the address will often describe the site content or owners.
- .com – This part tells us about the type of website. This is a commercial site; other types include:
  - '.gov' – government
  - '.edu' – educational
  - '.com' – commercial
  - '.org' – organisation
  - '.net' – network services, often used by commercial sites that do not easily fit into the other categories.

Some websites contain a country locator address, which shows which country the website originates from. There are several examples of abbreviations from specific countries:

<sup>14</sup>[http://www.paclii.org/gateway/Files/Legal\\_Research/PacLII\\_Using\\_Internet.pdf](http://www.paclii.org/gateway/Files/Legal_Research/PacLII_Using_Internet.pdf)

- 'au' – Australia
- 'fr' – France
- 'nz' – New Zealand

Interestingly, websites originating from the United States of America do not contain a country locator address.

## 25 Moving around the Internet

There are a number of different ways to move from website to website, and most people use a combination of methods. How you go about finding information will depend on how much you know about the information you are looking for!

*TIP: If you know the URL of a webpage, you can simply type it into the Address window, press the Enter/Go button and your browser will take you to that page.*



## 26 Browsing

Browsing is the term used to describe the action of finding sites by simply following hyperlinks. Text that is linked to other text ('hyperlinks') appears in a special colour and/or style and is often underlined.

## 27 Basic Internet Navigation<sup>15</sup>

 BACK	This button will take you back to whatever document you were previously viewing. Pressing it immediately takes you back one document. If you have browsed many pages, or are well into a multi-page document, pressing it repeatedly will continue to back you up one page at a time. Once you reach your starting location, it will be greyedout and unavailable.
 FORWARD	This button will take you forward to the next document if you have previously browsed multiple documents and had then backed up to the page you are currently viewing. (If you have not backed up at all, the forward button will be greyedout.) Pressing it repeatedly will continue to move you forward one page at a time. You can move forward until you reach the last page that you had browsed, at which time the forward button will be greyed out.
 STOP	The stop button stops ANY current operations by Internet Explorer. It will stop any type of file from loading. It can also be used to stop animations from continuing once a page is loaded. If you press it before a page has finished loading, the page will display everything it had finished loading before the stop button was pressed. If a document is completely loaded and there are no animations, movies, or other files still running, the stop button will have no immediate function.

<sup>15</sup>[http://www.newbie.org/internet\\_explorer/](http://www.newbie.org/internet_explorer/)

 HOME	<p>This button will return you to the page you have selected as the default start-up page for Internet Explorer. It will not take you back to the beginning of your web browsing but will return you to your home location from where you are. If you press back after reaching your home page, you will go back to the page you left after you hit the Home button.</p>
 REFRESH	<p>This button will reload the current page or document that you are viewing. It is useful if the page updates very frequently so that you can view these changes as soon as they are available. If you are loading a document and the transfer was interrupted, you can reload the full document again by clicking here.</p>
 HISTORY	<p>The addresses of pages you have accessed during your current Internet session are kept in the History list. Instead of using Back and Forward successively you can go in 'one jump' to any of the pages in the History list. The History list is retained even if you close your browser.</p>

Fortunately, accessing and using the Internet is fairly simple. Let this tutorial be your guide to the Internet as you connect and explore the network's vast and useful resources.



## B] Self Study (30 minutes)

Access the online tutorial below, entitled 'Basic Internet', and spend an hour completing the first two sections, 'Introduction and Getting Started'. The skills you learn here will be essential in future modules.

Basic Internet Tutorial: <http://www.scribd.com/doc/3116372/Basic-Internet-Tutorial-1>  
[CC BY-NC-ND].



## B] Computer Practical (1 hour 10 minutes)

28

### 29 Notes to Facilitator

An introduction will be necessary to set up this practical. Use the OER content below to introduce the critical role search engines play in acquiring information from the Internet. Then once you are satisfied that the students understand the significance of the practical, launch the two assignments described below.

30

### 31 Web Searching Tips and Techniques

Searching the Web requires practice, caution and patience, as search tools often deliver a significant amount of irrelevant information.

The simplest method of searching is to type in the information you're interested in and allow the search engine to find all the pages that contain that information. However, as the WWW is so large this may bring up more pages than you want and/or more than you have time to review. All search engines have particular tricks to help you narrow down your search and once you've spent some navigating the WWW you'll soon see how pages on websites can help you by providing links to other information.

## 32 Search Engines

A web search engine is designed to search for information on the World Wide Web and FTP servers. The search results are generally presented in a list of results and are often called hits. The information may consist of webpages, images, information and other types of files. Some search engines also mine data available in databases or open directories. Unlike web directories, which are maintained by human editors, search engines operate algorithmically or are a mixture of algorithmic and human input.<sup>16</sup>

[CC BY-SA]

There are three components to a search engine:

- Collection: 'Robot', 'Spider' or 'Worm' wanders, brings back resources, sorts, indexes and creates the database. Alternately, webmasters can contact search engine owners/operators to add their sites to the database.
- Database: when using a search engine, you are actually searching the database, not 'the Internet'.
- Search Interface: this component is the interface between the end user and the database. Some search engines allow for complex strategy development with Boolean operators, phrase and proximity searching, and nesting. Others are simple keyword searches.<sup>17</sup>

The main search engines are:

- Google: <http://www.google.com>
- Alta Vista: <http://www.altavista.com>
- Yahoo: <http://www.yahoo.com>
- Bing: <http://www.bing.com>

Examples of metasearch engines (search tools that send the request to multiple search engines) are:

- Brainboost: <http://www.brainboost.com>
- DeeperWeb: <http://deeperweb.com>
- Dogpile: <http://www.dogpile.com>
- Excite: <http://www.excite.com>

## 33 Task 1 (30 minutes)

Select two of the search engines listed above (one main search engine and the other a metasearch engine) and carry out searches on the following topics. Spend some time reading through the information returned by the search engines.

<sup>16</sup>[http://en.wikipedia.org/wiki/Search\\_engines](http://en.wikipedia.org/wiki/Search_engines)

<sup>17</sup><http://www.dartmouth.edu/~library/biomed/guides/web-search/components.html>

- Web Searching Tips
- Web Searching Techniques
- Web Searching Guides

## 34 Task 2 (35 minutes)

Complete the following online tutorial at Educator Learning Journeys.

*Use Basic ICT Tools to Support Teaching and Learning*

Unit 4: Search Engines and Learning Activities: Efficient Search Strategies

'Quickly finding appropriate resources on the Internet is one of the key skills for 21<sup>st</sup> Century teachers and students. This topic shows you how to improve your efficiency by refining your searches (rather than starting again) by using natural language to search online, and by navigating efficiently between your search results.'

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

Pacific Islands Legal Information Institute. (n.d.). *A brief guide to using the internet*. Available online at [http://www.pacii.org/gateway/Files/Legal\\_Research/PacLII\\_Using\\_Internet.pdf](http://www.pacii.org/gateway/Files/Legal_Research/PacLII_Using_Internet.pdf).

Newbie.org. (n.d.). *Learn to use Internet Explorer*. Available online at [http://www.newbie.org/internet\\_explorer](http://www.newbie.org/internet_explorer).

Scribd.com. (2011). *Basic Internet Tutorial 1*. Available online at <http://www.scribd.com/doc/3116372/Basic-Internet-Tutorial-1>.

Wikipedia. (2011). *Web Search Engine*. Available online at [http://en.wikipedia.org/wiki/Search\\_engines](http://en.wikipedia.org/wiki/Search_engines).

Dartmouth College. (2011). *Dartmouth college*. Available online at <http://www.dartmouth.edu/~library/biomed/guides/web-search/components.html>.

Microsoft. (2011). *Educator learning journeys – unit 4: search engines and learning activities: efficient search strategies*. Available online at <https://eljmicrosoft.intuition.com>.

# TL Module I: Understanding ICT in Education

## Unit 2: National ICT Policy and its Impact on Education



### Objectives:

Pre service teachers should be able to identify key characteristics of classroom practices and specify how these characteristics serve to implement policies. (UNESCO ICT-CFT, TL.1.a)



### Duration:

Total of 3 notional hours – 1 hour computer practical session, 1 hour self-study preferably at a computer, 1 hour group tutorial.



### A] Computer Practical (Total 1 hour)

#### Notes to Facilitator

Students will need to be provided with an opportunity to work in a computer laboratory setting in order to develop their Internet searching skills. The facilitator should guide the students through the steps to open the web browser, access the specified document and save it. The facilitator should be on hand to support the students as required but should also encourage the students to interact with their peers when help is required. Ensure that the workstations have Adobe Acrobat Reader loaded (visit <http://getadobe.com/reader/> as the student will need this browser plugin to access policy documents).

Students will require a copy of the National ICT Policy/Strategy Document for your particular country for the self-study activity. Search [here](#) for your country's policies. If your country does not have one or you are unable to get a copy students can make use of a National ICT Policy/Strategy Document from another country. Use one of these copies from [Namibia](#) or [New Zealand](#).)

#### Task 1: Downloading Documents/Resources

In Unit 1 you had the opportunity to navigate the World Wide Web. In this unit we will use this skill to locate a specific website and download an education and technology policy document. That document will act as the focus of this unit's activities.

**Step 1:** Open your Internet browser (e.g. Internet Explorer or Mozilla Firefox) either by clicking on the icon on your desktop or by selecting the 'Start' button, then 'All Programs' and then the name of your browser.

**Step 2:** Now look for the address field in the browser. Browsers programs normally locate this field at the top of the screen. In the address field, type in the following URL:

[http://www.gesci.org/assets/files/Knowledge\\_Centre/country-policies.pdf](http://www.gesci.org/assets/files/Knowledge_Centre/country-policies.pdf) (No Internet? Click [here](#) for a copy from the CD ROM.)

**Step 3:** Press enter on the keyboard or select the GO button with the mouse pointer. The browser will access the site directly. You will notice that this is much faster than using a search engine.

**Step 4:** Scroll down to the bottom of the screen and click on the ICT4Guyana National Strategy Document.

**Step 5:** Save the file by selecting the save button at the top left hand side of the screen.



You will notice that a 'pop-up window' will appear. Click on the 'SAVE' button and take note of where the file has been saved onto your computer.

Saving downloads – that is, documents and files saved from the WWW – is not difficult but it does take a bit of organisation to be able to find it later on your computer. Having a specific folder for the document you have downloaded will make it easier to find, back up or install at a later time. [Read more at <http://www.basiccomputerinformation.ca/saving-downloads/>[CC BY-NC-ND].]



## B] Self-Study (Total 1 hour)

The following self-study activity will provide you with an opportunity to develop an understanding of the relationship between classroom practices and the way in which they contribute to the implementation of national policies. You will spend time reading through and familiarising yourself with the National ICT Policy/Strategy Document relevant to your particular country. (Don't have? Use one of these copies from [Namibia](#) or [New Zealand](#)).

It is important to understand the relationship between classroom practices and the way in which they serve to contribute to the implementation of national policies. This is often overlooked, as the passage below suggests.

'There are often huge gaps between policies and the changes in classroom practice that they are intended to affect (Cohen & Hill, 2001). Policies are articulated, but teachers are often not aware of the specifics of these policies or their goals. In turn, policies are implemented as programs, but often these programs are not effective in achieving change at the classroom level. A study by Cohen and Hill (2001) found that policies were most effectively implemented in classrooms where teachers had extended opportunities to learn policy-related materials. Rather than general reviews of policy statements or discussions of their implications, the most effective teacher-development experiences were concrete, content-specific, and instructionally useable practices directly connected to policy. Consequently, ICT policy implementation can best be assured when teacher professional development includes specific skills and tasks that incorporate ICT into their everyday classroom practices and explicitly connect these practices to ICT and broader education policies.'<sup>18</sup>

Extracted from: Kozma, R. (in press). *Comparative analysis of policies for ICT in education*. In J. Voogt and G. Knezek (Eds.) *International handbook of information technology in primary and secondary education*. Springer: New York.

<sup>18</sup>Ministry of Human Resource Development Government of India. (2008). *National Policy on ICT in School Education*. Retrieved from [http://www.csdms.in/gesci/Kozma\\_Policy\\_Recommendations\\_for\\_India.asp](http://www.csdms.in/gesci/Kozma_Policy_Recommendations_for_India.asp).

Even though the passage states that '*general reviews of policy statements or discussions of their implications*' does not provide the most effective teacher development experience, it is in fact the starting point. Only once you have a clear understanding of the policy and the objectives/statements that apply to your particular educational setting, you can begin to construct and implement learning practices that support the objectives/statements.

[Read more at [http://www.csdms.in/gesci/Kozma\\_Policy\\_Recommendations\\_for\\_India.asp](http://www.csdms.in/gesci/Kozma_Policy_Recommendations_for_India.asp)] [CC BY-NC-ND].]

### Task 1: Review National ICT Policy/Strategy Document

Spend some time reading through and familiarising yourself with the National Policy/Strategy document. Focus specific attention to the following aspects of the document:

- Vision/Mission
- Goals and Objectives
- Strategic Plan



## C] Tutorial (1 hour)

### Notes to Tutor

Students should be divided into groups consisting of no more than 10 members. Each group will require a copy of the National ICT Policy/Strategy document as well a mechanism for capturing notes and ideas (computer or pen and paper). One member of the team should be appointed as the scribe and should take responsibility for documenting the outcome of the discussion (i.e. the group's response to the queries listed below.)

### Task 2: Example Answers

The following goals/objectives could be listed from the [ICT Framework for Education in New Zealand](#):

- A more learner-centred education system transcending organisational boundaries.
- More informed decision making within the education sector by learners, teachers, parents, communities, public, businesses, researchers, policy makers, and administrators.
- Increased ease and opportunity of access and reduced compliance costs for all participants.
- Increased confidence, capability and capacity from the use of ICT by all participants in the education sector.
- Greater opportunities for the generation, application and sharing of new ideas and technologies.
- More effective and efficient investment in ICT by education sector government agencies.

### Task 3: Example Answers

See some examples of classroom practices that could support the specific ICT objectives listed in the [Namibian ICT Integration for Equity & Excellence in Education Policy](#) document.

Specific Objective	Example Classroom Practice/Activity
<ul style="list-style-type: none"> <li>• Leverage ICT to assist and facilitate learning for the benefit of all learners and teachers across the curriculum</li> </ul>	Devise a research project where students can interact with students and/or experts in other areas/countries.
<ul style="list-style-type: none"> <li>• Produce ICT literate citizens;</li> </ul>	Set assignments where the computer skills

	developed can be implemented within local contexts. For example, helping parents research prices of local produce, etc.
<ul style="list-style-type: none"> <li>Produce people capable of working and participating in the new economies and societies arising from ICT and related developments</li> </ul>	Link the teaching of ICTs to business studies or entrepreneurship. Students use ICTs to research, cost, market and track expenditure and profit, etc.

Working in tutorial groups (8-10 members), read through the ICT vision, overall objective and specific objectives of the *National ICT Policy/Strategy Document*.

### **Task 2: National ICT Policy/Strategy within the Classroom Setting**

List the specific ICT objectives of the *National ICT Policy/Strategy* that should be addressed within the classroom setting.

### **Task 3: Classroom Practices that Support the Specific ICT Objectives of the *National ICT Policy/Strategy***

Brainstorm three classroom practices that would support the specific ICT objectives as listed in the *National ICT Policy/Strategy Document*.



## **Resources Used in this Lesson Unit**

New Zealand Ministry of Education (2006) *ICT Strategic Framework for Education*. Retrieved from: <http://csdms.in/gesci/NEW%20ZEALAND.asp>

Namibian Ministry of Education (N/A) *ICT Integration for Equity and Excellence*  
Retrieved from <http://csdms.in/gesci/pdf/NAMIBIA.pdf>

Newbie.org. (n.d.). *Learn to use Internet Explorer*. Retrieved from [http://www.newbie.org/internet\\_explorer](http://www.newbie.org/internet_explorer).

Basic Computer Information. (2011). *Saving downloads*. Retrieved from <http://www.basiccomputerinformation.ca/saving-downloads/>.

Ministry of Human Resource Development Government of India. (2008). *National Policy on ICT in School Education*. Retrieved from [http://www.csdms.in/gesci/Kozma\\_Policy\\_Recommendations\\_for\\_India.asp](http://www.csdms.in/gesci/Kozma_Policy_Recommendations_for_India.asp).

# TL Module I: Understanding ICT in Education

## Unit 3: Report on Policy Impact



### Objectives:

Pre-service teachers are able describe and demonstrate the basic tasks and uses of word processors, such as text entry, editing text, formatting text and printing (UNESCO ICT-CFT, TL.4.b)



### Duration:

Total of 4 notional hours –1 hour computer practical session, 2.5 hours self-study preferably at a computer and a 30-minute tutorial.



### A] Computer Practical (Total 1 hour)

#### Notes to Facilitator

Students will need to be provided with an opportunity to work in a computer laboratory setting in order to develop their word processing skills. Students should spend time working through the activities listed below in order to develop their skills and confidence. The facilitator will need to be on hand to support students who encounter problems completing the activities. Students should be encouraged to try and solve problems using the Microsoft Word Help facility as well as working with their peers to resolve issues. See Using a Word Processor<sup>19</sup> for more information about Word Processors.

## 35 What is the Purpose of Word Processing Software?

Most basically, the purpose of *word processing software* is to enable a computer and an attached printer to be used as a typewriter. More generally, as the name suggests, its purpose is to create, compose, edit, format, store and send to print any text material or linguistic data. Advanced word processors include many ancillary functions, such as the insertion of images and coordination with database information<sup>20</sup>.

Microsoft Word is a word processing software package. You can use it to type letters and reports, develop lesson plans, and create worksheets and test papers, etc. Using Microsoft Word can support your work both in and out of the classroom.

<sup>19</sup>[CC: BY-NC-ND]

<sup>20</sup> Wikianswers. (2011). *Answers corporation*. Retrieved from [http://wiki.answers.com/Q/What\\_is\\_the\\_purpose\\_of\\_a\\_word\\_processing\\_software](http://wiki.answers.com/Q/What_is_the_purpose_of_a_word_processing_software)

Spend some time familiarising yourself with Microsoft® Word by drawing on the support of the Word Help and How to Training and Guides in order to:

- Learn how to create your first document in Word
- Develop an understanding of how to type where you want to on a page
- Correct spelling errors
- Make a list
- Change page margins
- Add emphasis to some words
- Quickly add some style
- Save your work.

## 36 Word 2010<sup>21</sup>

### 37 [CC: BY-NC-ND]

Microsoft developed the online course '*Create your First Word Document I*' in order to help you:

- Create and save a new document
- Fix spelling and grammar as you type
- Add formatting to your text
- Change page margins.

#### **Course 1: Create your First Word Document I**

- [Complete the Online Course](#) (30 minutes).
- Complete the Offline Course (30 minutes).

Microsoft has developed the online course '*Create your First Word Document II*' in order to help you:

- Move around in the document
- Use formatting marks
- Move text around in the document
- Change line spacing and alignment.

#### **Course 2: Create your First Word Document II**

- [Complete the Online Course](#) (30 minutes).
- Complete the Offline Course (30 minutes).

If you have had no previous experience using Microsoft Word you may find the video '[Getting Started with Microsoft Word 2010](#)' useful!

*Note: If you are using another version of Microsoft Word, work through the activities which relate to the version of Word loaded onto your computer. It should be noted that the activities related to other versions of Microsoft Word are only available online.*

<sup>21</sup> Microsoft Corporation. (2011). *Word Help and How-to*. Retrieved from <http://office.microsoft.com/en-us/word-help/>.

## 38 Word 2007<sup>22</sup>

39 [CC: BY-NC-ND]

Microsoft developed the online course '*Create your First Word Document I*' in order to help you:

- Create and save a document
- Accept or reject suggested revisions for spelling and grammar as you type
- Change page margins
- Adjust spacing by deleting any extra spaces between words or extra lines between paragraphs.

### Course 1: Create your First Word Document I

- [Complete the online course](#) (30 minutes).

Microsoft developed the online course '*Get to know Word 2007 II*' in order to help you:

- Move the insertion point around a document, using either the mouse or the keyboard, so that you can get to where you need to in order to make changes.
- Select text to make revisions.
- Move text by cutting and pasting.

### Course 2: Create your First Word Document I

- [Complete the online course](#)(30 minutes).

If you have had no previous experience using Microsoft Word you may find the online guide on [Word 2007 Help and How-to](#) useful!

40

41 OR

## 42 Word 2003<sup>23</sup>

43 [CC: BY-NC-ND]

Microsoft developed the online audio course '*Create your First Word Document*' in order to help you:

- Create a document and edit it

<sup>22</sup> Microsoft Corporation. (2011). *Word Help and How-to*. Retrieved from <http://office.microsoft.com/en-us/word-help/>.

<sup>23</sup> Microsoft Corporation. (2011). *Word Help and How-to*. Retrieved from <http://office.microsoft.com/en-us/word-help/>

- Use menus and toolbars in Word to accomplish basic tasks from changing document margins to undoing changes
- Use basic formatting to make text bold or italic
- Change line spacing, indent paragraphs, and apply basic styles to a document
- Save and print a finished document.

**Course 1: Create your First Word Document**

- [Complete the online audio course](#) (60 minutes).

If you have had no previous experience using Microsoft Word you may find the online guide on [Word 2003 Help and How-to](#) useful!



## B] Self Study (Total 2.5 hours)

The following self-study activity will give you an opportunity to use and demonstrate your knowledge of Microsoft Word. You will be required to write a short report, format it and save it (either on the computer hard drive or on a removable storage device). It should be noted that you will require a copy of the ICT4D Guyana National Strategy to complete the assignment.

### Assignment 1

Write a short (1000 word), well-presented report using Microsoft Word and save a copy either on the computer hard drive or on a removable storage device.



**Portfolio Task**

1. The report should outline various classroom practices/practical strategies that could be implemented in order to support the ICT vision of the National Policy/Strategy of your country. For example, from Cambodia it is stated...

'The long-term vision of Education for All in Cambodia is to ensure equal access to quality basic education for all citizens and to prepare its citizens to play an active role in reconstructing the country as well as integrating Cambodia to the knowledge-based global community. The Ministry of Education, Youth and Sport (MoEYS) is introducing various initiatives to facilitate greater integration of information and communication technology (ICT) to improve the effectiveness of education at all levels and to produce the technologically literate, productive and critically thinking workforce for the country'. (Ref: [Min Educ. Cambodia](#) )

1. The report should consist of the following three sections:

#### **Introduction**

- Provides background information
- Outlines the terms of reference
- Includes a brief, accurate background for the body of the report.

#### **Body**

- Contains the main information of the report
- Divided into topics
- Listed in a logical order with headings and sub-headings.

#### **Conclusion**

- Covers judgment/opinion based on information in the body of the report.

2. The report should address the following formatting requirements:

- Text should be formatted in Times New Roman font, size 12 pt
- Text should be double spaced
- Text should be aligned to the left
- Margins (1") on all sides
- Headings should be sized appropriately providing a clear differentiation between sections
- Title page including appropriately-sized (very large) text.

3. Print out the report and keep a copy for use in the tutorial.

## 44 Useful Resources

- [Writing a Report](#)[CC: BY-NC-ND]
- [Report Writing](#)[CC: BY-NC-ND]
- [Academic Report Writing Template](#)[CC: BY-NC-ND]

## C] Tutorial (Total 30 minutes)

### Notes to Tutor

The tutor group should be divided into pairs (two students per group). Each student will be required to review and mark their partner's report and award them a mark out of 20.

The tutor should present the following marking criteria to the class:

- The report contains a title page (2 marks)
- The title page includes appropriately sized (very large) text (2 marks)
- The text is formatted in Times New Roman font, size 12 pt (2 marks)
- The text is double spaced (2 marks)
- The text is aligned to the left (2 marks)
- The report includes margins (1") on all sides (2 marks)
- The report has appropriately sized headings, providing a clear differentiation between sections (2 marks)
- The report consists of three sections (introduction, body and conclusion) (2 marks)
- The report outlines various (more than one) classroom practices/practical strategies that could be implemented in order to support the National ICT vision of the Guyana National ICT Strategy (4 marks).

The group should be divided into pairs (two participants per group). Each individual will be required to review and mark their partner's report and award them a mark out of 20. The facilitator should present the marking criteria to the class:

Types of responses to anticipate:

*'Produce the technologically literate, productive and critically thinking workforce...'*

Any activity pertaining to digital literacy would support the National ICT vision of your country or the Cambodia example. The goal of Digital Literacy is to teach and assess basic computer concepts and skills so that people can use computer technology in everyday life to develop new social and economic opportunities for themselves, their families, and their communities.



## Resources Used in this Lesson Unit

- Wikianswers. (2011). *Answers corporation*. Retrieved from [http://wiki.answers.com/Q/What is the purpose of a word processing software](http://wiki.answers.com/Q/What_is_the_purpose_of_a_word_processing_software).
- Etheridge, D. (2011). *Microsoft Word 2007 tutorial – free & online*. Retrieved from <http://www.baycongroup.com/wlesson0.htm>.
- Microsoft Corporation. (2011). *Word Help and How-to*. Retrieved from <http://office.microsoft.com/en-us/word-help/>.
- RMITUniversity: Study and Learning Centre, Initials. (2008). *Super Tips/Writing a Report*. Retrieved from [https://www.dlsweb.rmit.edu.au/lsu/content/pdfs/2\\_assessmenttasks/super\\_report.pdf](https://www.dlsweb.rmit.edu.au/lsu/content/pdfs/2_assessmenttasks/super_report.pdf).
- ICT Guyana. (2006). *ICT4D Guyana National Strategy*. Retrieved from [http://www.ict4d.gov.gy/ictstrategy/ICT4D\\_Strategy\\_FinalDraft.pdf](http://www.ict4d.gov.gy/ictstrategy/ICT4D_Strategy_FinalDraft.pdf).
- Centre for Independent Language Learning. (2010). *Academic Report Writing Template*. Retrieved from <http://www2.elc.polyu.edu.hk/CILL/reports.htm>.
- Scribe Consulting. (2011). *Report writing*. Retrieved from [http://www.betterwritingskills.com/Report\\_Writing\\_Sample.pdf](http://www.betterwritingskills.com/Report_Writing_Sample.pdf).
- Lawrenceville Press, Inc. (2007). *Using a Word Processor*. Retrieved from <http://www.lvp.com/chapters/mso20034.pdf>
- Min. Education, Cambodia (2004). *Policy and Strategies on ICT in Education in Cambodia*. Retrieved from [http://planipolis.iiep.unesco.org/upload/Cambodia/Cambodia\\_Policies\\_strategies\\_ICT.pdf](http://planipolis.iiep.unesco.org/upload/Cambodia/Cambodia_Policies_strategies_ICT.pdf)

# TL Module 2: Curriculum & Assessment

## Unit 1: Curriculum Standards



### Objectives:

Pre service teachers should be able to match specific curriculum standards to particular software packages and computer applications and describe how these standards are supported by these applications. (UNESCO ICT-CFT, TL.2.a)



### Duration:

Total of 3 notional hours – 2 hours computer practical session and 1 hour tutorial, preferably at a computer.



### A] Computer Practical (Total 2 hours)

#### 45 Notes to Facilitator:

Students will need to have access to a computer with Internet connectivity. You should be on hand to provide support as required and the students should be encouraged, wherever possible, to liaise with their peers to solve problems. Upon completion of the tutorials, students should have developed an understanding of the relationship between the level of effectiveness of an ICT resource and a particular classroom setting. The facilitator should present a plenary session in order to consolidate the students' understanding. The plenary session should note the following: *'The 'best' ICT resource or tool for any given situation depends on your specific learning objective(s), the resources you have access to and the level of skill you and your students have in using the tool'*.

#### 46 Selecting ICT Resources to Support Curriculum Outcomes

*'The education paradigm in the 21st Century has moved away from teacher-centred instruction to student-centred learning. The challenge for teachers is to make the best use of ICT in order to enhance teaching and learning.'*

## 47 Task 1: Educator Learning Journey Tutorials (Unit 1: Bringing Teaching and Learning to Life)

Complete the following online tutorial at the Educator Learning Journey's website.

### **Tutorial 1 (Online): Supporting Teaching and Learning with ICT (25 Minutes)**

'21<sup>st</sup> Century teachers and students need to develop '21<sup>st</sup> Century skills', such as critical thinking, creativity and collaboration. ICT tools can foster the development of those skills and enhance traditional ways of teaching and learning, if used in the right way. This topic demonstrates how the 'best' ICT resource or tool for any given situation depends on your specific learning objective(s), the resources you have access to and the level of skill you and your students have in using the tool.'<sup>24</sup>

Access at <https://eljmicrosoft.intuition.com>[CC: Unknown]

### **Tutorial 2 (Online): Finding the Right Resources (30 Minutes)**

'With so many ICT resources available, it is important that teachers are able to identify those that are reliable and appropriate and that they can organise them effectively. It is also essential that they adapt ready-made resources to their specific curriculum goals. This topic focuses on finding and organising resources and adapting ready-made resources to meet your teaching and learning requirements.'<sup>25</sup>

Access at <https://eljmicrosoft.intuition.com>[CC: Unknown]

## 48 Task 2: Educator Learning Journey Tutorials (Unit 2: Evaluating ICT Instructional Resources)

### **Tutorial3 (Online): Selecting the Best ICT for your Learning Outcomes (35 Minutes)**

'While there are a variety of resources online it is important for you to choose those resources that are suitable for your students' learning needs and environment. In this topic we will analyse a specific scenario and identify suitable ICT tools that can be used by the teacher and the students before, during, and after the lesson.'<sup>26</sup>

Access at <https://eljmicrosoft.intuition.com>[CC: Unknown]

### **Tutorial 4 (Online): ICT to Support Students' Individual Needs (25 Minutes)**

'How do you cater to the learning needs of all students in your classroom? In this topic we will look at how you can use ICT tools to reach out to students with varied needs – physical, social or emotional and behavioural. We will also look at how ICT tools can be used to differentiate tasks to make them more suitable for students with learning difficulties.'<sup>27</sup>

<sup>24</sup>Microsoft.(2011). *Educator Learning Journeys – Unit 1 – Bringing Teaching and Learning to Life*. Retrieved from <https://eljmicrosoft.intuition.com>.

<sup>25</sup>Microsoft.(2011). *Educator Learning Journeys – Unit 1 – Bringing Teaching and Learning to Life*. Retrieved from <https://eljmicrosoft.intuition.com>.

<sup>26</sup>Microsoft. (2011). *Educator Learning Journeys – Unit 2 – Evaluating ICT Instructional Resources*. Retrieved from <https://eljmicrosoft.intuition.com>.

<sup>27</sup>Microsoft. (2011). *Educator Learning Journeys – Unit 2 – Evaluating ICT Instructional Resources*. Retrieved from <https://eljmicrosoft.intuition.com>.

Access at <https://eljmicrosoft.intuition.com>[CC: Unknown]



## B] Tutorial (Total 1 hour)

### 49 Notes to Tutor:

Students should be divided into groups consisting of no more than 10 members. The team members in each group should have a particular teaching level and area of focus/or subject in common. Each group will require access to a computer with Internet connectivity in order to download a curriculum guide from the Guyana Ministry of Education website. The following activity will provide students with an opportunity to consider the way in which a particular ICT tool or resource can add value to a curriculum activity. Once the activities have been completed, the tutor should coordinate a report-back session and facilitate discussion amongst the various groups.

#### Task 1: Select Curriculum Guide

Working in tutorial groups (8-10 members) select a Curriculum Guide that is relevant to your groups' particular teaching level and area of focus/or subject.

- Primary Curriculum Guides<sup>28</sup>[CC BY-NC-ND]
- Secondary Curriculum Guides<sup>29</sup>[CC BY-NC-ND]

Study the curriculum guide and identify an area where you believe ICT could enhance the teaching of the topic.

#### Task 2: Lesson Plan

Complete the form below by adding the details of a specific classroom activity using both the curriculum guide and your own knowledge of your subject or teaching area. You will need to insert a description of the activities and a list of ICT tools/resources (see section at the bottom of the form) – this information cannot be found in the curriculum guide and should be based on your own knowledge.

Hint: The ICT tools and resources listed in the lesson plan should add value to the particular activity!

<b>50 Lesson Plan</b>	
Level (Primary/Secondary):	
Grade:	
Subject:	
Topic:	
Objective:	

<sup>28</sup>Guyana Ministry of Education.(2011). *Primary Curriculum Guides*.Retrieved from <http://www.education.gov.gy/web/index.php/resource-library/category/3-primary-curriculum-guides.html>.

<sup>29</sup>Guyana Ministry of Education.(2011). *Secondary Curriculum Guides*.Retrieved from <http://www.education.gov.gy/web/index.php/resource-library/category/4-secondary-curriculum-guides.html>.

- <i>Skills:</i>	
- <i>Knowledge:</i>	
- <i>Attitude:</i>	
Description of Activities (Methods/Strategies):	
List ICT Tool/Tools:	

**Task 3: Overview of how the ICT Tool/s will enhance the lesson**

- Write an explanation of how you believe the ICT tool(s) used in the lesson will contribute to enhancing/improving the lesson.
- Nominate a presenter who will take responsibility for presenting the ideas of the group to the class.



## Resources Used in this Lesson Unit

Microsoft.(2011). *Educator Learning Journeys – Unit 1 – Bringing Teaching and Learning to Life*.Retrieved from <https://eljmicrosoft.intuition.com>.

Microsoft. (2011). *Educator Learning Journeys – Unit 2 – Evaluating ICT Instructional Resources*. Retrieved from <https://eljmicrosoft.intuition.com>.

Guyana Ministry of Education.(2011). *Primary Curriculum Guides*.Retrieved from <http://www.education.gov.gy/web/index.php/resource-library/category/3-primary-curriculum-guides.html>.

Guyana Ministry of Education.(2011). *Secondary Curriculum Guides*.Retrieved from <http://www.education.gov.gy/web/index.php/resource-library/category/4-secondary-curriculum-guides.html>.

# TL Module 2: Curriculum & Assessment

## Unit 2: Internet Search Engines – Advanced Searching



### Objectives:

Pre-service teachers should be able to use a search engine (UNESCO ICT-CFT, TL.4.f).



### Duration:

Total of 3 notional hours – 2 hours computer practical session, 1 hour self-study preferably at a computer.



## A] Computer Practical (Total 2 Hours)

### 51 Notes to Facilitator

Students will need to have access to a computer with Internet connectivity. The facilitator should be on hand to provide support as required and the students should be encouraged to liaise with their peers to solve problems, wherever possible. Students will build on the knowledge that they acquired in Module 1 in order to develop an understanding of Boolean Logic and the way in which it can be used to refine search skills and techniques.

In Module 1, Unit 1, you learnt the basics about the Internet and searching. You were given an opportunity to complete a basic activity on searching the WWW. In this unit you are going to build on this knowledge by developing an understanding of Boolean logic and the way in which it can be used to refine searching skills and techniques.

The best way to refine your searching skills and techniques is to ensure that you understand the basics of Boolean logic. Take some time to understand the basics by reading through the resources below.

52

### 53 Boolean Logic

The Internet is a vast computer database. As such, its contents must be searched according to the rules of computer database searching. Much database searching is based on the principles of Boolean logic. Boolean logic refers to the logical relationship among search terms, and is named for

the British-born Irish mathematician George Boole. On Internet search engines, the options for constructing logical relationships among search terms often modify the traditional practice of Boolean searching<sup>30</sup>.

## 54 Activity 1: Reading (30 Minutes)

Read through the resources below.

- [Boolean Searching on the Internet](#)
- [How Boolean Logic Works](#)
- [Basic Search Tips and Advanced Boolean Explained](#)
- [Boolean Search](#)

Now that you have an understanding of Boolean Logic, you need to know how it can be applied in order to generate successful search results.

## 55 Activity 2: Online Tutorial on 'Basic Search Techniques' (30Minutes)

The tutorial is a 'how to' guide for creating searches on Web search engines. Although the Google search engine is used as an example, keep in mind that the illustrated searches will work on most general search engines on the Web<sup>31</sup>.

- [Complete Tutorial](#) [CC BY-NC]

We've explored some basic search techniques and these should cover many of your search needs. Yet there is much more available. Many search engines offer a variety of other options to help you retrieve the results you want. Google, in particular, offers all kinds of specialty searches.

## 56 Activity 3: Online Interactive Tutorial 'Google Guide – Experienced Users' (1 Hour)

Google Guide is an online interactive tutorial and reference for users. The guide provides detailed information about Google's capabilities, features and services. The tutorial may appear to describe basic concepts, but if you read and work through it carefully, you'll discover helpful insights into how Google works and how to use it more effectively<sup>32</sup>.

Complete the following sections of the Google Guide interactive tutorial 'Part I: Query Input':

- [Interpreting Your Query](#) [CC BY-NC]
- [Crafting Your Query](#) [CC BY-NC]
- [Google's Advanced Search Form](#) [CC BY-NC]

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<sup>30</sup>Cohen, L. (2011). *Internet tutorials – your basic guide to the internet*. Retrieved from <http://www.internettutorials.net/>.

<sup>31</sup>Cohen, L. (2011). *Internet Tutorials – Your Basic Guide to the Internet*. Retrieved from <http://www.internettutorials.net/>.

<sup>32</sup>Blachman, N, & Peek, J. (2008). *Google guide - experienced users*. Retrieved from [http://www.googleguide.com/experienced\\_users.html](http://www.googleguide.com/experienced_users.html).

- [Using Search Operators](#) [CC BY-NC]



## B] Self-Study (Total 1 Hour)

The following self-study activity will provide you with an opportunity to experiment with Boolean searching. You will begin to identify the way in which the search results returned differ as a result of the key word or words used. You will need access to a computer with Internet connectivity in order to complete the activities.

### 57 Task 1: Understanding and Using Boolean Operators<sup>33</sup> [CC BY-NC]

Complete the activities below.

1. Visit [www.google.com](http://www.google.com) and type in the following search terms. In the results column, list the title of the first three results that come up.

#### AND logic

Search Terms	Results
Poverty	1. 2. 3.
Crime	1. 2. 3.
poverty AND crime	1. 2. 3.

2. Visit [www.google.com](http://www.google.com) and type in the following search terms. In the results column, list the title of the first three results that come up.

#### OR logic

58 Search Terms	59 Results
College	1. 2. 3.
University	1. 2. 3.
college OR university	1. 2.

<sup>33</sup>Alabama Dept. of Education.(2011). *Alabama learning exchange*. Retrieved from [http://alex.state.al.us/lesson\\_view.php?id=11203](http://alex.state.al.us/lesson_view.php?id=11203).

	3.
college OR university OR campus	1. 2. 3.

3. Visit [www.google.com](http://www.google.com) and type in the following search terms. In the results column, list the title of the first three results that come up.

*NOT logic*

<b>60 Search Terms</b>	<b>61 Results</b>
Cats	1. 2. 3.
Dogs	1. 2. 3.
cats NOT dogs	1. 2. 3.

4. Go to [www.google.com](http://www.google.com) and type in the following search terms. In the results column, list the title of the first three results that come up.

<b>Search Terms</b>	<b>Results</b>
(cats OR dogs) AND rabies	1. 2. 3.
cats OR dogs AND rabies	1. 2. 3.

5. Go to [www.google.com](http://www.google.com) and type in the following search terms. In the results column, list the title of the first three results that come up.

<b>Search Terms</b>	<b>Results</b>
gray NEAR cats	1. 2. 3.
gray AND cats	1. 2. 3.

6. Go to [www.google.com](http://www.google.com) and navigate to the [advanced search](#) section. Type 'apple' in the 'all these words:' search field and 'mac' into the 'any of these unwanted words:' search field.

The screenshot shows the Google Advanced Search interface. At the top, the search query is 'apple -mac'. Below this, there are several sections:

- Find web pages that have...**
  - all these words:
  - this exact wording or phrase:
  - one or more of these words:  OR  OR
- But don't show pages that have...**
  - any of these unwanted words:
- Need more tools?**
  - Reading level:
  - Results per page:
  - Language:
  - File type:
  - Search within a site or domain:

At the bottom left, there is a link: [+ Date, usage rights, region, and more](#). At the bottom right, there is a button: **Advanced Search**.

- 6.1 Which operator do you think the Google Advanced Search is making use of?

- A: AND
- B: OR
- C: NOT
- D: NEAR

7. Go to [www.google.com](http://www.google.com) and navigate to the [advanced search](#) section. Type 'Policy Document' into the 'Search within a site or domain' search field.

- 7.1 Consider when it would be useful to search within a site or domain.



## Resources Used in this Lesson Unit

Cohen, L. (2011). *Internet Tutorials – Your Basic Guide to the Internet*. Retrieved from <http://www.internettutorials.net/>.

Blachman, N, & Peek, J. (2008). *Google Guide – Experienced Users*. Retrieved from [http://www.googleguide.com/experienced\\_users.html](http://www.googleguide.com/experienced_users.html).

Alabama Dept. of Education. (2011). *Alabama Learning Exchange (ALEX)*. Retrieved from [http://alex.state.al.us/lesson\\_view.php?id=11203](http://alex.state.al.us/lesson_view.php?id=11203).

# TL Module 2: Curriculum & Assessment

## Unit 4: School Records



### Objectives:

Pre-service teachers can set up a record keeping system using a school-wide system (UNESCO ICT-CFT 2.3).



### Duration:

Total of 2 notional hours – 2 hour computer practical session.



### A] Computer Practical (2 hours)

## 62 Notes to Facilitator

This session's aim is to introduce students to the idea of collaborative databases containing school and class data. For the purposes of this practical, two free simple school administration packages have been identified:

**SchoolTool** (<http://schooltool.org/>)

which runs off Ubuntu or Fedora Linux v9 operating systems

**TS School** (Std. Ed.) (<http://ts-school.com>)

which runs off a Microsoft Windows OS.

However, these should be replaced if there is a standardised package that is a requirement of the education ministry. It is best that the facilitator has installed one of these packages on the server and loaded some test data onto the database. Allow students to access the database for the tasks identified below.

Use an introduction like the one below to provide the students with an understanding of what they will experience:

“We have spent considerable time looking at how ICT can enhance teaching and learning. But another area where ICT can bring value to education is in school administration – that is, the collection, storage and reporting of school information. For example, computers are being used for enrolments, class allocation, attendance and timetable generation. The generation of student grades and their reports is another major advantage for educators. Using a database of students generated at the time of enrolment and drawing on the marks and comments loaded onto the system by students' various teachers, a school administration program can generate professional-looking school reports for each student in the school. Besides report generation, the systems can also be

used to send district, provincial and national education authorities summaries of the schools' statistics to help with education planning. The tools are, however, only as good as the teachers who provide the data. In this practical we will introduce you to such a system and provide you with some experience of the different modules that make up the system."

### **63 Task 1: Accessing a School Administration Package (5 Minutes)**

The facilitator will take you through the steps required to open the school administration program.

**64**

### **65 Task 2: Initial Evaluation of the Program(25 Minutes)**

Explore the program and, using MS Word, list as many different program functions as you can determine. Be ready to offer items from your list at the end of the task. The facilitator will develop a comprehensive list from the class input.

Struggling? Look at these program manuals to guide you:

SkoolTool: <http://book.schooltool.org/>

TS School: <http://www.ts-school.com/tutorials.php>

### **66 Task 3: Report Creation – Setting up a Subject Class(30 Minutes)**

We are going to demonstrate the 'power' of working collaboratively with other members of staff to develop professional-looking term reports. In this task you will be required to set up a new subject and select students for your class. The facilitator will guide you through the process.

Need Help? Here are the steps for TS School:

[http://www.ts-school.com/manuals/subject\\_class.php#setup](http://www.ts-school.com/manuals/subject_class.php#setup)

### **67 Task 4: Report Creation – Setting up Grades(20 Minutes)**

In this task you will be required to set up the grade system for your subject. The facilitator will guide you through the process.

**68**

Need Help? Here are the steps for TS School:

<http://www.ts-school.com/manuals/subjects.php>

## **69 Task 5: Report Creation – Loading Information(25 Minutes)**

In this task you will be required to load some test data, specifically some examination marks for your 'test' class and supporting comments. Again, the facilitator will take you through the steps.

Need Help? Here are the steps for TS School:

<http://www.ts-school.com/manuals/examination.php>

## **70 Task 6: Report Creation – Report Printing (15 Minutes)**

This section will be demonstrated by the facilitator. He will show how the school administration program coordinator (...most likely you!) will set out the report template and then draw on the information the class has loaded to develop a single report. Remember that this only has to be done once per grade and then all the reports can be generated by the computer.



## **Resources Used in this Lesson Unit**

SchoolTool(<http://schooltool.org/>)(© Free Software)

TS School (Std. Ed.) (<http://ts-school.com>) (© Free Software)

# TL Module 2: Curriculum & Assessment

## Unit 5: Classroom Records



### Objectives:

Pre-service teachers should be able to use networked record keeping software to take attendance, submit grades, and maintain student records. (UNESCO ICT-CFT, TL.4.)



### Duration:

Total of 4 notional hours – 2 hour computer practical session, 2 hour self-study on a computer.



### A] Computer Practical (2 Hours)

#### 71 Notes to Facilitator

This session's aim is to introduce students to the use of a spreadsheet for record-keeping purposes, namely a class mark book. There are two tutorials offered here, both aimed at achieving the creation of a mark book in Excel. The first is for new users (beginners) and will guide them through the steps required to develop a simple mark book. Skills that will be taught include basic formatting, creating totals and averages, and creating formulas. The second is for intermediate users that have already had some experience using Excel. The skills covered include Autofill, AutoFilters, Conditional Formatting, Customising Toolbars and the VLOOKUP function. The facilitator will need to support the student teachers on both sets of tutorials.



72 We begin this unit with a record keeping task. Please note that you should choose the task below based on your experience with spreadsheets. Also note that this task is a recommended **Portfolio Task** and should be prepared for submission.

73

### 74 Task 1a: Creating a Class Mark Book in Excel [Beginners] (2 Hours)

Work through [this](#) MS Excel tutorial, which introduces new users to a spreadsheet program and helps them create a simple mark book to record and store student marks. It looks at basic formatting, calculating the sum and average of a set of numbers, and writing formulas to determine term marks.

75

### 76 Task 1b: Creating a Class Mark Book in Excel [Intermediate] (2 Hours)

Work through [this](#) MS Excel tutorial, which introduces intermediate users of MS Excel to some cool, advanced features to improve your mark book. It includes training in Autofill, AutoFilters, Conditional Formatting, Customising Toolbars and the VLOOKUP function.



## B] Self-Study (Total 2 Hours)

You will first need to complete the task outlined in the Computer Practical above.

### 77 Assignment 1 (40 Minutes)

Watch the video entitled *Formating an Excel Markbook* and replicate the following formatting skills outlined in this TeacherTube video.

[http://www.teachertube.com/viewVideo.php?video\\_id=80932&title=Formating\\_an\\_Excel\\_markbook](http://www.teachertube.com/viewVideo.php?video_id=80932&title=Formating_an_Excel_markbook)

### 78 Assignment 2 (40 Minutes)

Watch the video entitled *01 Excel Spreadsheet Functions: Basic Gradebook* and replicate the following Percentage calculations outlined in this YouTube video.

<http://www.youtube.com/watch?v=WE2x79BGEW8&feature=related>

79

### 80 Assignment 3 (40 Minutes)

Complete the following online tutorial at Educator Learning Journeys.

Selecting ICT Resources to Support Curriculum Outcomes?

Unit 3: Evaluating ICT Assessment Resources – Part 3: **Optimising Assessment Tools**

“Information Communication Technology (ICT) offers many tools that can enhance the assessment approach and experience for both educators and learners. This topic identifies ICT tools that match assessment aims at various stages of assessment. It also shows how to analyse assessment data to provide meaningful information.”

Access at <https://eljmicrosoft.intuition.com>.



## Resources Used in This Lesson Unit

Cahdsu. (2009). *01 Excel Spreadsheet Functions: Basic Gradebook*. Available on Youtube at <http://www.youtube.com/watch?v=WE2x79BGEW8&feature=related> Accessed 16/08/2011. (

Moore, A. (2011). *How to make a Class Mark Book in Excel 2010 – The ‘From Scratch’ Guide*. [CC: BY]

Russell, R. (2004). *Excel MarkBook*. Available online at <http://www.rupert.id.au/tutorials/markbook/markbook.pdf>. Accessed 09/08/11 [GNU Free Documentation License v1.2].

Warnantp. (2009). Formating an Excel Markbook. Available on TeacherTube [http://www.teachertube.com/viewVideo.php?video\\_id=80932&title=Formating\\_an\\_Excel\\_markbook](http://www.teachertube.com/viewVideo.php?video_id=80932&title=Formating_an_Excel_markbook) Accessed 16/08/2011.

# TL Module 3: Pedagogy

## Unit 1: Integrating ICT to Support Didactic Teaching Methodologies



### Objectives:

Pre-service teachers should be able to describe how didactic teaching and ICT can be used to support students' acquisition of school subject matter knowledge. (UNESCO ICT-CFT TL.3.a)



### Duration:

Total of 5 notional hours – 1.5 hour lecture, 2 hour computer practical session, 1 hour group tutorial, 30 minutes' self-study at a computer.



### A] Lecture Content (1.5 hour)

#### 81 Notes to Lecturer

The purpose of this lecture is to provide an overview and position Didactic teaching methods in contrast to other methodologies. Didactic teaching, however, needs to be the focus as Constructivist and other methods will be covered in detail later in Knowledge Deepening. Learners need to be aware that they will in all likelihood use multiple methods in their teaching and ICT can be employed to support each method.

#### Preparatory Readings:

Anderson, T. (2008). [The Theory and Practice of Online Learning](#). p14-44. (CC: BY NC)

Wikibooks. (2006). [Learning Theories](#). p4-15 (GNU Free Documentation License)

Open University. (2011). [The Constructivist Model of Learning](#). Unit 3.2. (CC: BY NC SA)

#### 82 Introduction

Your current studies will have introduced you to a number of different teaching methodologies to support the teaching of your subject. Two popular methodologies often used by teachers include Constructivism and Didacticism. You might want to revise these two methods by reviewing the following two Wikipedia articles:

**“Constructivist teaching** is based on [constructivist learning theory](#). This theoretical framework holds that learning always builds upon knowledge that a student already knows. Because all learning is filtered through pre-existing knowledge, constructivists suggest that learning is more effective when a student is actively engaged in the learning process rather than attempting to receive knowledge passively. A wide variety of methods claim to be based on constructivist learning theory. Most of these methods rely on some form of guided discovery where the teacher avoids most direct instruction and attempts to lead the student through questions and activities to discover, discuss, appreciate and verbalize the new knowledge.” [Read more... [Constructivist Teaching Methods](#) (Wikipedia CC: BY SA)]

**“Didacticism** is an artistic philosophy that emphasizes **instructional** and **informative** qualities in literature and other types of art. The word "Didacticism" finds its origin in the Greek "didaktikos" or "διδακτικός"; the meaning of the Greek word is 'related to education/teaching'. The primary intention of didactic art is not to entertain, but to teach. Didactic plays, for instance, teach the audience through the use of a moral or a theme. ... The term "didactic" is also used as a criticism for work that appears to be overly burdened with instructive, factual, or otherwise educational information, to the detriment of the enjoyment of the reader. Edgar Allan Poe called didacticism the worst of "heresies" in his essay The Poetic Principle.” [Read more... [Didacticism](#) (Wikipedia CC: BY SA)]

Information & Communication Technology (ICT) can support either methodology but in different ways. The purpose of this lesson is to investigate specifically how ICT can support a teacher-led instructional approach to teaching and learning, namely, the Didactic approach. In the next section, Knowledge Deepening, we will investigate how ICT supports other methodologies. However, it needs to be acknowledged at this point that a typical teacher will ‘mix and match’ methodologies and is rarely an advocate of one method exclusively. Issues of time, complexity of the subject matter, objectives, assessment requirements and student preparedness will all impact on a teacher’s decision to adopt a particular method for a section of work.

## 83 Characteristics of Didactic Teaching

The Didactic teaching method can be characterised by noting the roles both teachers and students play in the teaching and learning relationship. Study this table:

### 84 The Didactic Classroom

What the Teacher Does	What the Students Do
Identifies desired learning outcomes and selects tasks accordingly	Follow the teacher's plan and do pre-selected tasks as required
Presents information (for example, how osmosis works in plant cells or why smoking is bad for you)	Read, watch or listen to new learning content
Models procedures or techniques (for example, how to conduct an experiment or calculate a percentage)	Observe and then copy or imitate

Orchestrates activities and manages behaviour	Do as told (or not)
Asks questions to check understanding and recall of information	Try to recall the information they received to answer questions
Selects assessment foci and creates assessments to check understanding and recall	Prepare for assessment by revising previously learned, pre-selected information
Feeds results and comments on performance back to students (through marking or verbal comments)	Listen to or read feedback and (possibly) try again

(From Microsoft Educator Learning Journeys)

If you think about this lecture, for example, the roles we are assuming as teacher and student fit perfectly with the didactic method!

## 85 Typical Structure of a Didactic Lesson

Obviously, lesson structure is shaped by your teaching preferences, the requirements of the objectives and time available, among others. Below is a typical example of the structure of a didactic lesson:

### **Step 1: The 'Hook'.**

The teacher evokes a stimulus of some type such as a story, an activity or a question designed to engage the students' attention and interest.

### **Step 2: Lesson Objectives Shared**

The teacher identifies the lesson objectives or outcomes and shows how these fit into the overall learning plan.

### **Step 3: Teacher Input**

The teacher provides necessary information, skills, procedures, etc.

### **Step 4: Student Activities**

Students are given an opportunity to engage with the content/skills, usually through a set of activities in order to internalise the information or behaviours.

### **Step 5: Learning Check**

Actual learning against the objectives is checked through a series of formative assessment opportunities. Teacher ascertains needs for both support interventions and/or extension work.

### **Step 6: Review**

Students and teacher interact to summarise important points of the lesson.

## 86 Typical Activities in a Didactic Lesson

It is clear that the teacher's role above is pivotal. The teacher needs to have designed the lesson and leads the students through Steps 1-3. The students engage with teacher-designed activities and complete any assessment tasks set by the teacher. Finally, the teacher leads a summing-up activity. We can divide these activities into 3 categories:

- Teacher exposition (Steps 1-3)

- Student processing (Step 4)
- Teacher and students monitor progress (Steps 5-6).

**87**

## **88 The Didactic Method Supports Specific Objective Types**

If a Didactic method is to be used for a section of work, it must suit the objectives you have selected for that particular section of work. The Didactic method supports learning where the students are supposed to know the content and information, understand issues and concepts, and perform a skill.

We could say the Didactic approach supports:

- Knowledge-based objectives or outcomes
- Understanding-based objectives or outcomes
- Application-based objectives.

So how can ICT support Didactic teaching activities in order to achieve these types of objectives?

## **89 Tools to Enhance Teacher Exposition**

Research suggests that learning retention rates are low if we rely largely on our students' ability to listen. A lecture mode of exposition, or talking to the students like I am doing now, is considered an inefficient way to get information across to students. Research suggests that the more senses we can engage the better the retention of a lesson's content. Research also suggests that the best way to learn something is to teach it to someone else! It is in light of these findings that ICT can offer a teacher a number of tools to enrich the lesson's content or provide ways to make the transfer of knowledge more palatable to the students.

There are numerous technology/software combinations on hand when it comes to presenting or the distribution of information. A typical but not comprehensive list could include the following tools:

- A presentation package (e.g. MS PowerPoint, OpenOffice Impress)
- A word processor (e.g. MS Word, OpenOffice Writer)
- Movie and/or photo editing software (e.g. Adobe Photoshop, MS Windows Live Movie Maker, [GIMP](#))
- An audio file or podcast creator tool (e.g. [Audacity](#))
- An online distribution platform for media like [Slideshare.net](#) for presentations, [Flickr.com](#) for photos, or [YouTube.com](#) for video streaming, etc.

In the rest of this module we will investigate a number of these packages with an eye to integrating them into your Didactic lessons.



## **B] Tutorial (1 hour)**

## 90 Notes to Tutor

The purpose of this tutorial is to provide students with a deeper appreciation of the tools available to enhance teacher exposition. Use an empty version of the grid below and encourage students to brainstorm and discuss what 'value added' characteristics the tools offer teachers in getting the lesson's message across.

### Preparatory Reading

## 91 Tutorial Introduction

As a group, using the empty form below, brainstorm what enhancements the technology tools identified in this table can bring to the teaching process:

Technology Tool	Suggested Feedback
<b>Hardware</b>	
Data Projector/ SmartBoard	
MP3 Player/iPod	
Smartphone	
<b>Software</b>	
Presentation Package (PowerPoint)	
Graphic Package (Photoshop or Paint)	
Word Processor (MS Word, Open Office Writer)	
Video Editor (Movie Maker)	

*Tutor's version of the form*

Technology Tool	Suggested Feedback
<b>Hardware</b>	
Data Projector/ SmartBoard	Allows not only lesson notes projected large onto the wall but also web content directly from the Internet. This will allow the teacher to show concrete, real world examples of the conceptual work being covered. For example, a geometry lesson on triangles could use imagery of the construction of bridges, where this shape is being employed, etc. Sharing of supplementary material is easy when projected large for all to see. Could also be used to project the teacher's pre-prepared PowerPoint slides (text, visuals and sound) to the class.
MP3 Player/iPod	Audio players could be used to first capture a lesson and then allow it to be

	played back as revision, either at school or later on the bus or at home. The teacher could also use the device to bring external expert voices into the lesson.
Smartphone	Sophisticated cell phones come with a number of tools that could be employed: text messaging, camera and video, not to mention numerous apps, some that have an educational focus. The teacher SMSes the main points or a summary of the lesson to the class members, or uses a camera to record local examples of the lesson's focus for inclusion in PowerPoint.
<b>Software</b>	
Presentation Package (PowerPoint)	Excellent tool to present text, images, video and audio clips to class in a structured, linear manner. Also an easy way to develop graphs and charts.
Graphic Package (Photoshop or Paint)	A tool to help teachers develop graphical material to illustrate their lesson content.
Word Processor (MS Word, Open Office Writer)	Essential tool to develop lesson plans, class notes and worksheets in a clear and professional manner. Eliminates the problem of handwriting legibility. Spelling and grammar is checked, and it's very easy to revise the master document year in, year out. Can be printed out or distributed electronically, which is more cost effective. Allows the incorporation of images and clip art.
Video Editor (Movie Maker)	Tool to help teachers develop video content to support their lesson. Videos can be captured using cell phone video cameras and then edited into a usable form for the lesson.



## C] Computer Practical (Total 2 hours)

### 92 Notes to Facilitator

Set up the venue so that the students can access the computers. They will need to cover 'Computers and Peripherals', 'Operating Systems and Controls', 'the Desktop' and 'File Systems'. Ideally you can take them through a tour of the content making it fun and asking them to engage with the components. If however you would prefer the students to consult a text then use the attached textbook. They should use the online version but if bandwidth is limited they can access the version on the CD.

You have already been exposed to a number of ICT tools in previous modules such as the Internet browser and you have also begun to master MS Word. In this practical we will start to have a look at some additional tools but also spend some time explaining the computer set up. While the jargon we use might sound sophisticated you will find that once you start using the correct terminology using a computer is easy enough! Access the textbook called 'Basic Computing Using Windows' and study pages that cover these topics:

1. Computers and Peripherals
2. Operating Systems and Controls
3. the Desktop and
4. File Systems

Online version of Basic Computing Using Windows:

[http://en.wikibooks.org/wiki/Basic\\_Computing\\_Using\\_Windows](http://en.wikibooks.org/wiki/Basic_Computing_Using_Windows) or use the CD Rom version [here](#)

Then see if you can answer the following questions on this [Worksheet](#).

Compare your answers with your neighbor.

### **93 Extension Task 1: Educator Learning Journeys Tutorial Part I (45 minutes)**

Complete the following online tutorial at Educator Learning Journeys. Your facilitator will need to explain how to access and log into the ELJ

How do Technology and Pedagogy Mix?

Unit 1 – Selecting the Right ICT Resources to Support Didactic Teaching Practices

“Information Communication Technology (ICT) can support and enhance Didactic teaching methods and diverse learning styles. The key is to use the tools effectively and appropriately. This topic identifies and analyses the effectiveness of different ICT tools to support key learning objectives, and proposes ways to use ICT to cater to different learning styles.”

Access at <https://eljmicrosoft.intuition.com>

### **94 Extension Task 2: Educator Learning Journeys Tutorial Part II (45minutes)**

Complete the follow online tutorial at Educator Learning Journeys.

How do Technology and Pedagogy Mix?

Unit 1–Keys to Successful Integration of ICT with Teaching and Learning

“When using technology for teaching and learning, we need to anticipate and plan for any problems that could arise, and ensure that everyone has the required set of competencies. This topic explores some problems that could arise in an ICT-based lesson and presents possible solutions.”

Access at <https://eljmicrosoft.intuition.com>



## **D] Self-Study (Total 30 minutes)**

## 95 Reading Assignment 1 (30 minutes)

Read the following article.

Wikibooks: The Uses of ICTs in Education?

“Each of the different ICTs—print, audio/video cassettes, radio and TV broadcasts, computers or the Internet—may be used for presentation and demonstration, the most basic of the five levels. Except for video technologies, drill and practice may likewise be performed using the whole range of technologies. On the other hand, networked computers and the Internet are the ICTs that enable interactive and collaborative learning best; their full potential as educational tools will remain unrealized if they are used merely for presentation or demonstration. ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.” These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony.”

Access at [http://en.wikibooks.org/wiki/ICT\\_in\\_Education/The\\_Uses\\_of\\_ICTs\\_in\\_Education](http://en.wikibooks.org/wiki/ICT_in_Education/The_Uses_of_ICTs_in_Education) or use the print version on the [CD here](#).



## Resources Used in this Lesson Unit

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – How do Technology and Pedagogy Mix?* Available online at <https://eljmicrosoft.intuition.com/Rubicon.aspx>. Accessed 08/07/11 (All Rights Reserved).

Wikibooks. (2006). *Basic Computing Using Windows*. Available online at [http://en.wikibooks.org/wiki/ICT\\_in\\_Education/The\\_Uses\\_of\\_ICTs\\_in\\_Education](http://en.wikibooks.org/wiki/ICT_in_Education/The_Uses_of_ICTs_in_Education) Accessed 11/11/11 (CC: BY SA)

Skills for a Changing World. (2009). *Basic Computer Terminology Worksheet*. (CC: BY)

Wikibooks. (2006). *Learning Theories*. Available online at [http://en.wikibooks.org/wiki/Learning\\_Theories](http://en.wikibooks.org/wiki/Learning_Theories) Accessed 5/10/11. (GNU Free Documentation License)

Wikibooks. (2011). ICT in Education. Chapter on The Uses of ICTs in Education. Available online at [http://en.wikibooks.org/wiki/ICT\\_in\\_Education](http://en.wikibooks.org/wiki/ICT_in_Education) Accessed on 03/11/11 (CC: BY)

Wikipedia. (2011). *Constructivist Teaching Methods*. Available online at [http://en.wikipedia.org/wiki/Constructivist\\_teaching\\_methods](http://en.wikipedia.org/wiki/Constructivist_teaching_methods) Accessed 08/07/11 (CC: BY SA).

Wikipedia. (2011). *Didacticism*. Available online at <http://en.wikipedia.org/wiki/Didactic>. Accessed 08/07/11 (CC: BY SA).

# TL Module 3: Pedagogy

## Unit 2: PowerPoint for Pedagogues



### Objectives:

Pre-service teachers should be able to describe and demonstrate the purpose and basic features of presentation software and other digital resources. (UNESCO ICT-CFT TL.4.c)



### Duration:

Total of 4.5 notional hours – 2 hour computer practical session and 2.5 hour self-study, preferably at a computer.



### A] Computer Practical (2 hours)

#### 96 Notes to Facilitator

Set up the venue so that *Microsoft PowerPoint* can be accessed from the computers. Ensure that the venue has good connectivity if you use the tutorial in Activity 1. Provide guidance and assistance so that students can access both the program and the online tutorial. The purpose of this session is to introduce the student teachers to a presentation program and also seed some ideas about when it would support Didactic teaching. If you are comfortable with PowerPoint, facilitate an orientation and teach some basic operations to the students. If not, ask the students to complete Task 1a and use the online tutorial below. If you have students who are already familiar with PowerPoint, ask them to do Task 1b on *Designing Effective Presentations*. However, reserve time during the session to look at Activity 2, where a link is created between program skills and good teaching practice.

#### 97 Task 1a for Beginners: Create Your First Presentation Tutorial (1 hour)

Navigate to the Microsoft Office 2010 website using this link:

<http://office.microsoft.com/en-us/powerpoint-help/create-your-first-presentation-RZ001129842.aspx>

Or use the CD ROM version: [Create Your 1<sup>st</sup> PowerPoint Presentation](#).

Complete the online tutorial (27 slides), trying out the steps on your computer and making sure you are familiar with the following:

- Creating a presentation
- Inserting new slides

- Inserting shapes
- Choosing a design
- Viewing a slide show
- Printing and packaging your presentation
- Saving your presentation.

## 98 Task 1b for Intermediate Users: Tips for Creating an Effective Presentation (1 hour)

Navigate to the Microsoft Office 2010 website using this link:

<http://office.microsoft.com/en-us/powerpoint-help/tips-for-creating-and-delivering-an-effective-presentation-HA010207864.aspx> or use the CD version: [Tips for Creating an Effective presentation](#)

Scroll to the bottom of the screen and work through the section entitled '*Tips for Creating an Effective Presentation*'. Make sure you follow the 'how to' links in each tip so that you know how you can incorporate the design tips in the activity that follows.

## 99 Task 2: PowerPoint for Pedagogues (1 hour)

### 100 Notes to Facilitator

If you are going to use PowerPoint in a Didactic manner to get your 'message' across to the students then a number of issues need to be considered. The table below summarises the main considerations, both good and bad, when using PowerPoint.

**Table 1: Considerations when using PowerPoint to teach content**

<b>Advantages to Exploit in PPT</b>	<b>Disadvantages to Avoid in PPT</b>
Laying out content in PowerPoint helps facilitate structure in a presentation.	PowerPoint's linear structure forces a sequence to materials even if it is not necessary.
Laying out content using a template or slide place holders helps to avoid excessive use of text (a common problem when using transparencies).	If excessive detail is incorporated in the slides, this can mean that students do not need to be present for the lesson and/or that text is too small to read legibly. Too many text-heavy slides.
Inserting a careful mix of multimedia (images, animations, video, sound, etc.) can support different learning preferences.	Non-essential multimedia can act as 'noise' or as a distraction to your main message.
The electronic file format allows easy distribution to, and manipulation by, students.	If converting old class notes to PowerPoint, many teachers create too many text-heavy slides.
Revisions can easily be performed and are cost effective to distribute (unlike paper handouts).	Equipment can fail, leaving teachers without a lesson, files can become corrupted or media can be incompatible.

Additional information can be hidden in the presentation, useful in providing colleagues with background information or explaining more fully cryptic notes to students for revision.

Ease of delivery often results in the presenter going too quickly through the materials.

101 Now consider how you can achieve the design advantages mentioned in the table above.

102

### 103 Activity

1] Open and study the following PowerPoint Design Tips document from Read Write Think: [http://www.readwritethink.org/files/resources/lesson\\_images/lesson787/PPDesignTips.pdf](http://www.readwritethink.org/files/resources/lesson_images/lesson787/PPDesignTips.pdf) for use the CD version: [Design Tips](#)

2] Practice the skills you learnt in Task 1 above and create a PowerPoint presentation of no less than 6 slides that illustrates the tips in the above document. You need to create pages that not only include the text but also provide examples of both good and poor practice.



### B] Self-Study (Total 2.5 hours)

You will need to complete the following task

### 104 Assignment 1 (2.5 hours)

Complete the presentation you started in the Computer Practical.

1] Open and study the following PowerPoint Design Tips document from Read Write Think: [http://www.readwritethink.org/files/resources/lesson\\_images/lesson787/PPDesignTips.pdf](http://www.readwritethink.org/files/resources/lesson_images/lesson787/PPDesignTips.pdf) for use the CD version: [Design Tips](#)

2] Create a PowerPoint presentation of no less than 6 slides that illustrates the tips in the above document. The PowerPoint is about *Good Presentation Practice*. You need to create pages that not only include the text but also provide examples of both good and poor practice.

### 105 Extension Assignment 2 (30 minutes)

Complete the follow online tutorial at Educator Learning Journeys.

How do Technology and Pedagogy Mix?  
Unit 4: Using ICT for Presentations

“The educational paradigm has shifted, and learning is no longer perceived as the process of receiving information; it is now the process of constructing knowledge. This topic establishes the difference between an effective presentation and a lecture, identifies a range of digital tools and resources that can support effective presentations, and lists the benefits of different presentation tools, resources and software.”

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

ReadWriteThink. (2004). *PowerPoint Design Tips*. Available online at [http://www.readwritethink.org/files/resources/lesson\\_images/lesson787/PPDesignTips.pdf](http://www.readwritethink.org/files/resources/lesson_images/lesson787/PPDesignTips.pdf). Accessed 04/08/2011. (©: Materials may be reproduced for educational purposes.)

Microsoft. (2011). *Create your first presentation*. Available online at <http://office.microsoft.com/en-us/powerpoint-help/create-your-first-presentation-RZ001129842.aspx>. Accessed 04/08/2011. (© All Rights Reserved. Free to use online)

Microsoft. (2011). *Tips for Creating and Delivering an Effective Presentation*. Available online at <http://office.microsoft.com/en-us/powerpoint-help/tips-for-creating-and-delivering-an-effective-presentation-HA010207864.aspx>. Accessed 04/08/2011. (© All Rights Reserved. Free to use online)

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – How do Technology and Pedagogy Mix?* Available on line at <https://eljmicrosoft.intuition.com/Rubicon.aspx> Accessed 08/07/2011 (© All Rights Reserved)

# TL Module 3: Pedagogy

## Unit 3: Strategies for Integrating ICT into Learning



### Objectives:

Pre-service teachers should be able to incorporate appropriate ICT activities into lesson plans so as to support students' acquisition of school subject matter knowledge. (UNESCO ICT-CFT, TL.3.)



### Duration:

Total of 4.5 notional hours – 1 hour lecture, 2 hour computer practical session, 1.5 hour group tutorial.



### A] Lecture Content (1 hour)

#### 106 Notes to Lecturer

The purpose of this lecture is to build on from Unit 1 which focused on teaching. This unit should provide an overview of how ICT can support the *learning* process. Ideally, the learning envisaged here emanates from Didactic teaching, i.e. processing and monitoring. There should, therefore, be an emphasis on students demonstrating that they have learned something from the teacher's initial stimulus. An accessible way to achieve this is to look at ways of using the tools in Office Suite software. This lecture looks at a set of strategies the students could be encouraged to use in order to exploit ICT to enhance the learning process. Gardner's Multiple Intelligences theory is used here to provide an opportunity for both teacher and students to use different tools to present and demonstrate content and learning in a Didactic manner.

#### 107 Introduction

In Unit 1 we looked at how ICT can support Didactic teaching methods. We also looked at a number of different ways a teacher could present information and data to the students. The aim here is to put ICT tools in the hands of the students. How might these tools be used for them to learn and/or demonstrate that they have learnt something?

## 108 Recap: Didactic structure and activities

In Unit 1 we looked at how a typical Didactic lesson might be structured. We'll review this here:

**Step 1:** The 'Hook', provided by the teacher, is designed to engage interest.

**Step 2:** The lesson's objectives are shared with the students.

**Step 3:** The teacher input is usually as exposition on content or a demonstration of skills.

**Step 4:** Students engage with the content/skills, through a set of activities.

**Step 5:** Learning against the objectives is checked through a series of formative assessments

**Step 6:** Students and the teacher interact to summarise the important points of the lesson.

The students play a more active role in the last three steps. Opportunities to internalise information, values and skills take place and they are involved with assessing learning. It is in these areas that we can look at how ICTs could enhance their learning. However, before we look at technology, another piece of education theory that is often used as justification for the introduction of technology in the learning process needs to be introduced: Gardner's Theory of Multiple Intelligences.

## 109 Multiple Intelligences

Traditionally, the lecture has been the typical Didactic method of instruction, strongly reliant on listening and language skills, but recent developments in ICT have made it easier to create and use multimedia, providing instructors with novel ways to instruct students. This is significant because it has made it easier for lecturers and teachers to exploit Howard Gardner's theory of *Multiple Intelligences* (1983). This passage outlines his theory.

"The concept of Multiple Intelligences was first formulated by Howard Gardner in his 1983 book, *Frames of Mind: The Theory of Multiple Intelligences*. Whereas linguistic and logical-mathematical intelligences are centrally addressed and nurtured by the three 'R's of traditional education, other forms of intelligence, including musical, bodily-kinesthetic and spatial forms, provide alternative means of accessing knowledge, according to Gardner's scheme. Gardner's theory catalogues the different styles of learning that students bring to the classroom.

<b>Linguistic</b>	Verbal communication abilities
<b>Logical-mathematical</b>	Mathematical and logical skills
<b>Musical</b>	Performance, composition and appreciation of musical patterns
<b>Bodily-kinesthetic</b>	Using the body and bodily to solve problems or understand the environment
<b>Spatial</b>	Ability to navigate space, understand, map and apply spatial patterns
<b>Interpersonal</b>	Using an understanding of human motivation/behaviour to further personal goals
<b>Intrapersonal</b>	Using self-knowledge to organise their life

Other candidates for multiple intelligences include 'naturalist', 'spiritual', 'existential' and 'moral' but these have not been formally included in Gardner's template." [Read more... [Multiple Intelligences](#) at Interaction-Design (CC: BY ND) or access the cd version [here](#)]

The matrix below is not comprehensive but it does illustrate that there are numerous ICT tools available for students to use that suit specific learning preferences. As teachers we need to look for ways to incorporate these tools in student activities and/or assessment tasks.

	Presentation Program (e.g. PowerPoint)	Word Processor (Open Office Writer)	Spreadsheet (MS Excel)	Video Editor (Movie Maker)	Graphics Package (Photoshop or Paint)	Podcast Editor (Audacity)	Social Networks (Facebook)	Music Programs (Bandstand or Songsmith)	Blogs (Word Press)
Linguistic	✓					✓			
Logical-mathematical	✓	✓							
Musical	✓							✓	
Bodily-kinesthetic				✓					
Spatial				✓	✓		✓		
Interpersonal									
Intrapersonal									✓

In the tutorial, later, you will have an opportunity to identify your own learning preference but for now it is important that you understand that your class will have multiple preferences. It's often impossible to organise your lesson to cater for all but it is possible to offer them opportunities to exploit their strengths in the way they report back to you in the lesson activities, assignments and lesson assessment tasks. Then in the Computer Practical we will have an opportunity to do some online tutorials that will attempt to link students' processing needs with various ICT tools.



## B] Computer Practical (2 hours)

### 110 Notes to Facilitator

The purpose of this practical is to provide students with a deeper knowledge of both Gardner's Multiple Intelligences theory as well as consider how ICT can support Didactic practices. The interactive website allows students to discover their own learning preferences. Connectivity is therefore preferable as the paper based version is static.

### 111 Facilitator Introduction

"If you are going to provide students with the opportunity to choose ICT tools that exploit their learning style preferences it's a good idea to identify your own learning preference. Which of the

eight areas of intelligence is your preference and what does this mean in terms of how ICT might support your lesson design?"

1. Navigate to *Multiple Intelligences for Adult Literacy and Education* at <http://literacyworks.org/mi/home.html> or use the non-interactive CD version [here](#).
2. The class should review the *Introduction* section and specifically, the "We Have Many Intelligences" page which outlines the areas of intelligence and discusses each area in turn. Ensure that everyone is clear about how each area emphasizes a different trait.
3. With practical participants working in pairs, navigate to the *Assessment* page and, first one member and then the other, complete the online questionnaire.
4. As a group, discuss how different technologies and/or software might support each of the different learning preferences. Remember, however, that the technology must also support the achievement of knowledge, understanding and application objectives/outcomes.
5. Record the group's observations in your Word Processor Journal.



## C] Tutorial (Total 1.5 hours)

### 112 Notes to Tutor

Provide students with access to the reading below either make the students read it before the tutorial or provide a group reading. Students will need to link Gardener's theories covered in the practical with this more practical tool orientated text.

Click [here](#) to access the CCTI reading on *Uses of ICT in Schools*

#### Tasks

- 1] As a group identify specific hardware & software tools might support:
  - Gathering information
  - Facilitating communication
  - Demonstrating learning
  - Familiarization of ICTs
- 2] Keeping in mind Gardiner's multiple intelligences theory which ICT tools could be used to encourage children who prefer particular learning preferences:
  - Language (Linguistic)
  - Spatial
  - Logic/Math
  - Body Movement (Kinesthetic)
  - Musical
  - Social (Interpersonal)
  - Self (Intrapersonal)
  - Nature (Naturalist)

## 113 Extension Tasks Notes to Facilitator

Set up the venue so that the *Microsoft Educator Learning Journeys* can be accessed from the computers. Provide guidance and assistance so that students can access and do the tutorial described below.

## 114

### 115 1: Educator Learning Journeys Tutorial Part I (45 minutes)

Complete the follow online tutorial at Educator Learning Journeys.

How do Technology and Pedagogy Mix?

Unit 2: Creating Learning Activities that Support Students' Learning

“Technology tools can overcome many of the limitations educators face when creating learning activities in a traditional classroom setting. This topic will explore some key learning activities within a lesson, and the role ICT can play within these activities.”

Access at <https://eljmicrosoft.intuition.com>

### 116 2: Educator Learning Journeys Tutorial Part II (45 minutes)

Complete the follow online tutorial at Educator Learning Journeys.

How do Technology and Pedagogy Mix?

Unit 3: Encouraging Students to Use ICT In and Outside the Classroom

“It is important for students to become independent, self-directed, versatile learners, who can find what they need to know, and develop the skills they need to do a new task or job. In this topic, we will look at how Information and Communication Technology (ICT) can play a major role in achieving these goals.”

Access at <https://eljmicrosoft.intuition.com>

### 3: Educator Learning Journeys Tutorial Part III (45 minutes)

Complete the following online tutorial at Educator Learning Journeys.

How do Technology and Pedagogy Mix?

Unit 3: Using ICT to Manage Spontaneous Learning Interactions

“During classroom sessions, students are likely to come up with unanticipated queries. By using appropriate strategies, you can turn these queries into opportunities to enhance the students' learning and their skills for finding information. Information and Communication Technology (ICT) tools can enhance the effectiveness of these strategies. In this topic, we will explore some of the strategies and ICT tools that can be used to manage unplanned learning interactions.”

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

CCTI. (2011). *Uses of ICT in Schools*. (Prepared for SchoolNet SA by GEID). Available online at [http://ace.schoolnet.org.za/cd/ukzncore1b/activities/core1b\\_activity1.htm](http://ace.schoolnet.org.za/cd/ukzncore1b/activities/core1b_activity1.htm) Accessed 03/11/11. (© Free to use for educational purposes)

Reinhard, Julia. (2006). *Multiple intelligences*. Available online at Interaction-Design.org. Available online at [http://www.interaction-design.org/encyclopedia/multiple\\_intelligences.html](http://www.interaction-design.org/encyclopedia/multiple_intelligences.html). Accessed 08/07/2011 (CC: BY ND).

Literacyworks. (ND). *Multiple Intelligences for Adult Literacy and Education*. Available online: <http://literacyworks.org/mi/home.html> Accessed 08/08/2011. (No Copyright Information, Free use online).

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – How do Technology and Pedagogy Mix?* Available online at <https://eljmicrosoft.intuition.com/Rubicon.aspx>. Accessed 08/07/2011 (© All Rights Reserved).

## TL Module 3: Pedagogy

### Unit 4: Graphic Tools to Enhance Teaching and Learning



#### Objectives:

Pre-service teachers should be able to use presentation software and digital resources to support instruction. (UNESCO ICT-CFT, TL.3.c)



#### Duration:

Total of 3 notional hours – 2 hour computer practical session and 1 hour self-study at a computer.



#### A] Computer Practical (Total 2 hours)

#### 117 Notes to Facilitator

Set up the venue specifically so that the students can access the MS Office 2010 suite and PowerPoint. Also ensure there is Internet connectivity so that the online tutorials at [www.gcflearnfree.org](http://www.gcflearnfree.org) can be accessed. If you cannot guarantee connectivity during the practical session, download the 'Printable Version' of the tutorials that can be accessed from the GCFLearnFree.org website and hand these out as hardcopies. They will also need connectivity to do Google image searches: <http://images.google.com>

The intention of the practical is threefold: firstly, to allow the students additional time to consolidate their PowerPoint skills from unit 2 and secondly, to provide them opportunities to learn how to insert graphic elements into their presentations. In this practical, we will investigate inserting images, videos and audio clips. Thirdly, they will need to transfer their new skills by building a curriculum resource using PowerPoint. It is very possible that some students will be familiar with PowerPoint and potentially bored by the introductory activities described here. Engage them by asking them to try the intermediate tutorials on allied subjects. These more challenging topics are identified as the 'b' tasks.

The tutorials are important but it is essential that the student teachers have an opportunity to transfer the skills learnt here. Task 5, designing and creating a curriculum resource, is designed to do this, so ensure enough time is spent on this last activity. In this task, the student teachers are also introduced to a new service that is potentially useful in the identification of images for teaching: Google image search. Make sure you are familiar with this tool so that you can offer your support.

Should you feel you would like a textbook for either your own background reading or to distribute to the students free of charge we recommend, Moffat, S. (2011). *PowerPoint 2010 Advanced*. Bookboon. Available online <http://bookboon.com/en/textbooks/it-programming/powerpoint-2010-advanced> or access the PDF CD version [here](#). (A Bookboon text also exists for PowerPoint 2007 [here](#))

**118**

**119**

**120**

## **121 Task 1a (New Users): PowerPoint 2010: Inserting Images Tutorial (20 Minutes)**

Complete the follow online tutorial and practise the relevant skills at GCFLearnFree.org.

PowerPoint 2010 Lesson 5: Inserting Images

“Adding images to your presentations makes them more interesting and engaging. Pictures, clip art and screenshots can be inserted into PowerPoint to help you communicate your ideas effectively to your audience. In this lesson, you will learn how to insert and manipulate pictures, clip art and screenshots into your slides.”

Access at <http://www.gcflearnfree.org/powerpoint2010/5> or CD version [here](#)

## **122 Task 1b (Intermediate Level): PowerPoint 2010, SmartArt Illustrations (20 Minutes)**

Complete the follow online tutorial and practise the relevant skill at GCFLearnFree.org.

PowerPoint 2010 Lesson 19: SmartArt Illustrations

“SmartArt allows you to visually communicate information rather than simply using text. Illustrations can really enhance your presentation, and SmartArt makes using graphics especially easy. In this lesson, you will learn how to insert a SmartArt graphic, modify the colour and effects, and change the organisation of the graphic.”

Access at <http://www.gcflearnfree.org/powerpoint2010/19> or CD version [here](#)

## **123 Task 2a (New users): PowerPoint 2010: Formatting Pictures Tutorial (20 Minutes)**

Complete the follow online tutorial and practise the relevant skill at [GCFLearnFree.org](http://www.gcflearnfree.org).

PowerPoint 2010 Lesson 13: Formatting Pictures

“Once you've added pictures to your presentations, you can format them in various ways. The picture tools in PowerPoint 2010 make it easy to incorporate images into your presentations and modify those images to make them look even better. In this lesson, you will learn how to change the picture style and shape, add a border, crop and compress pictures, add artistic effects, and more.”

Access at <http://www.gcflearnfree.org/powerpoint2010/13> or CD version here

## **124 Task 2b (Intermediate level): PowerPoint 2010, Hyperlinks and Action Buttons (20 Minutes)**

Complete the follow online tutorial and practise the relevant skill at [GCFLearnFree.org](http://www.gcflearnfree.org).

PowerPoint 2010 Lesson 20: Hyperlinks and Action Buttons

“Whenever you use the Web, you are using hyperlinks to navigate from one webpage to another. If you want to include a web address or email address in your PowerPoint presentation, you can choose to format them as hyperlinks that a person can click on. It's also possible to link to files and other slides within a presentation. It's easy to do all this using two tools: hyperlinks and action buttons. In this lesson, you will learn how to insert hyperlinks using text and objects, as well as how to insert action buttons.”

Access at <http://www.gcflearnfree.org/powerpoint2010/20> or CD version [here](#)

## **125 Tasks 3a & b: PowerPoint 2010: Inserting Video (20 Minutes)**

Complete the follow online tutorial and practise the relevant skill at [GCFLearnFree.org](http://www.gcflearnfree.org).

PowerPoint 2010 Lesson 17: Inserting Video

“Videos are a great way to make your presentations more engaging for your audience. PowerPoint allows you to insert a video from a file on your computer or from a website such as YouTube. You can even edit the video within PowerPoint and customise its appearance with a Video Style. In this lesson, you will learn how to insert a video, edit it and format its appearance.”

Access at <http://www.gcflearnfree.org/powerpoint2010/17> or CD version [here](#)

## 126 Tasks 4a & b: PowerPoint 2010: Inserting Audio (20 Minutes)

Complete the follow online tutorial and practise the relevant skill at GCFLearnFree.org.

PowerPoint 2010 Lesson 18: Inserting Audio

“PowerPoint allows you to add sound to your presentation, which opens up a lot of possibilities. Perhaps you want to add background music to one slide, a sound effect to another, and maybe even add some narration or commentary to a few slides. You can either add an audio file from your computer, or you can browse PowerPoint's collection of Clip Art Audio. You can then edit the sounds within PowerPoint so that they are tailored to your presentation. In this lesson, you will learn how to insert sounds into a presentation and edit them.”

Access at: <http://www.gcflearnfree.org/powerpoint2010/18> or CD version [here](#)

## 127 Task 5: Multimedia Presentation (40 minutes)



Portfolio Task

You have spent some time working through the tutorials above but now we need to pull these new skills together into something we could use in the classroom. It's time to design and create a teaching resource. Remember to use the design issues we studied in Unit 2.

1. Select a section of curriculum in your subject or learning area that lends itself to the use of multimedia (images, video, audio).
2. Use the <http://images.google.com> search tool to identify graphics you could use in your presentation. Save any useful images you find on your computer.
3. Create a presentation of no fewer than 6 slides that combines text and multimedia elements to enhance understanding of your subject topic/learning area.

Please note that this is a recommended **Portfolio Task** and should be prepared for submission.



## Self-Study (Total 1 hour)

## 128 Assignment 1 (20 Minutes)

Access and complete the tutorial below. Ensure that you practice the skills being covered.

*Skills for a Changing World: ICT*

ICT Tutorial, Part 2: [Using PowerPoint to Present](#)

## 129 Assignment 2 (40 Minutes)

Watch the online video “Inserting Charts in PowerPoint 2010”, then complete the follow online tutorial and practise the skills at Microsoft Office website.

### Step 1

If you have access to the Internet view the video: Inserting Charts in PowerPoint 2010 at blip.tv <http://blip.tv/systems-consulting-ltd/inserting-chart-in-powerpoint-2010-5146354> otherwise skip to Step 2.

### **Step 2**

Complete the tutorial: PowerPoint 2010 – Add a chart to a presentation

“In Microsoft PowerPoint 2010, you can insert many kinds of data charts and graphs, such as column charts, line graphs, pie charts, bar charts, area graphs, scatter graphs, stock charts, surface charts, doughnut charts, bubble graphs, and radar graphs.”

Access at: <http://office.microsoft.com/en-us/powerpoint-help/add-a-chart-to-a-presentation-HA010370246.aspx> or use the CD version [here](#).

Make sure you can create charts by practicing in an empty presentation.

## **130 Extension Assignment 1 (20 Minutes)**

Complete the follow online tutorial and practice the skills at GFCLearnFree.org.

PowerPoint 2010 Lesson 22: Working with Charts

“A chart is a tool you can use to communicate your data graphically. Displaying charts in PowerPoint allows your audience to see the meaning behind the numbers, and they make showing comparisons and trends a lot easier. In this lesson, you will learn how to insert charts and modify them so that they communicate information effectively.”

Access at: <http://www.gcflearnfree.org/powerpoint2010/22> or CD version here



## Resources Used in this Lesson Unit

Goodwill Community Foundation.(2011). *PowerPoint 2010*. Available online at <http://www.gcflearnfree.org/powerpoint2010> Accessed 08/08/2011. (© All Rights Reserved. Materials can be used free online, printed and downloaded for educational purposes. Attribution, Noncommercial and No Derivative rights are reserved.)

Microsoft. (2011). *Microsoft PowerPoint 2010: Add a Chart to a Presentation*. Available online at <http://office.microsoft.com/en-us/powerpoint-help/add-a-chart-to-a-presentation-HA010370246.aspx>. Accessed 08/08/2011. (All Rights Reserved. Free to use online.)

Moffat, S. (2011). *PowerPoint 2010 Advanced*. Bookboon. Available online <http://bookboon.com/en/textbooks/it-programming/powerpoint-2010-advanced> Accessed 03/11/11. (© Free to distribute)

Skills for a Changing World. (2010). *Part 2: Using PowerPoint to Present*. (CC: BY)

Systems Consulting Ltd. (2011). *Inserting Chart in PowerPoint 2010*. Available online at Blip.tv <http://blip.tv/systems-consulting-ltd/inserting-chart-in-powerpoint-2010-5146354>. Accessed 08/08/2011. (© All Rights Reserved. Free to use online.)

# TL Module 4: Organisation and Administration

## Unit 1: Learning Activities for a Computer Laboratory Environment



### Objectives:

Pre-service teachers should be able to integrate the use of a computer laboratory into ongoing teaching activities.(UNESCO ICT-CFT,TL.5.a)



### Duration:

Total of 3.5 notional hours – 30 minute lecture, 1 hour computer practical session, 1 hour tutorial, and 1 hour self-study, preferably at a computer.



### A] Lecture Content (30 minutes)

131

### 132 Notes to the Lecturer

Introduce the idea that the location or positioning of computers impacts on the way we utilise the technology for teaching and learning as it will impact on the lesson methodology. So what issues need to be considered? You can use the introductory passage below to set the scene, but you should introduce the following arrangements: Laboratory (20 or more computers), Clusters (small venues with approx. 10 machines) or Classroom (1 or 2 computers, often with a data projector). Then for this lecture, focus specifically on issues around setting up and teaching in a laboratory environment.

**Background Reading:**(Internet access required)

1. Computer Room/Lab Planning: <http://www.kieducation.com/issues.aspx?ar=104>
2. The Four Best Computer Laboratory Layouts for Schools:  
<http://www.brighthub.com/computing/hardware/articles/52714.aspx>
3. Computer Lab Setup: <http://www.webjunction.org/training-delivery/-/articles/content/432941>

## 133 Introduction

When properly used, a networked computer lab can provide an effective foundation for developing Information and Communication Technology (ICT) capabilities. It is cost effective and offers learning opportunities that cannot be mirrored by a less well-equipped space. But is a computer lab the best environment? Do we really need a computer lab to impart ICT knowledge? Should we rather not question as to where available computers would be put to *best* use – in individual classrooms or in a computer lab?

This issue has become a source of controversy given equipment limitations, the need for schools to maximise computer effectiveness in promoting academic achievement, and accommodation of varied skills among teachers and students. As schools obtain more technology, the question about how to use computers effectively rarely precedes the question of where to locate them: in the classroom or in the computer lab. The two questions are essential to each other.

In this lecture we will focus specifically on the advantages and disadvantages of using a laboratory. This table identifies the pros and cons of this setting.

### Use of Computers in a Computer Lab Setting

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• <i>A computer lab provides a good environment for developing e-confidence in the initial stage.</i></li> <li>• <i>It is the most economical solution for providing ICT access through a computer network.</i></li> <li>• <i>As equipment is concentrated in one location, technical support and management is easier than if the equipment is dispersed.</i></li> <li>• <i>A computer lab provides a robust network infrastructure.</i></li> <li>• <i>Learners can simultaneously access their own workstations.</i></li> <li>• <i>Large groups can be trained and/or assessed simultaneously.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>In a lab, it is difficult to integrate ICT into everyday learning, teaching and thinking.</i></li> <li>• <i>The layout of most computer labs makes group work and collaboration difficult.</i></li> <li>• <i>The focus can end up being on learning by rote and performing practical tasks rather than developing higher order skills.</i></li> <li>• <i>ICT resources are concentrated in a single location, when they would be better used if widely deployed.</i></li> <li>• <i>The need to book the lab can result in poor or unequal use.</i></li> </ul>

(Taken from Microsoft Educator Learning Journeys)

## 134 B] Computer Practical (1 hour)

## 135 Notes to the Facilitator

In this practical the learners will familiarise themselves with the different computer access models. Divide the class into several groups and initiate a debate on the use of computers in a lab setting versus the use of computers in clusters or a classroom setting. Each group should be randomly allocated a topic of a particular focus, i.e. "A computers in a lab setting is best for imparting knowledge" or "A computer in a classroom or cluster setting is the ideal approach to imparting knowledge". Each group should be given the opportunity to come forward and debate with another group that has been allocated an opposing viewpoint. They can draw on the resources and information below. If internet access is available, students may conduct research to help inform them further. As facilitator, you will be required to summarise the main points of the discussion.

In this session you will read more about the different computer access models that are available. In groups, you will debate an allocated topic focus against an opposing team.

### Focus topics:

1. A computer in a lab setting is best for imparting knowledge.
2. A computer in a classroom or cluster setting is the ideal approach to imparting knowledge.

### Activity:

1. In light of the topic focus your specific group has been allocated, review the resources provided below and then develop an argument for your allocated focus based on the knowledge you have gained in reviewing and researching the topic.

- [Computer Labs versus Classroom Integration of Computers](#)
- [Uses of Labs and Learning Spaces](#)
- [Miracle or Menace: Teaching and Learning with Laptop Computers in the Classroom](#)
- [Ed Tech: Computer Labs versus Classroom Computers](#)

2. As a group, present your findings on the advantages of your approach. Remember that your opposing team will be armed with disadvantages to your allocated focus topic, so make sure you are prepared to enter a lively debate.
3. The facilitator will summarise the main points of the discussion and conclude.

### Notes to Facilitator:

Facilitator's concluding remarks: "Most educators seem to think that technology must be deployed in one or the other model. In most cases, the logistics and financial resources available to a school will dictate which model the school will follow. Some schools might only be able to afford a small number of computers and so choose to concentrate them in a single room to ensure fair access to all students. Other schools might have more finances available and can afford to set up two or three laboratories and several classrooms with computer access."

Perhaps it would be best to iterate that the classroom computer model AND the lab model are instructionally sound ways to deploy computer equipment. Having both models is clearly the desired option. The real question is not should you have both, but does your school have the available funds (and space) to deploy both options?



## C] Tutorial (1 hour)

### 136 Notes to the Tutor

Introduce the session. “Despite having some limitations, a computer lab can be an effective interim solution until computers become an integral part of classrooms. But how could ICT lab activities be integrated into lesson plans?” The purpose of the tutorial is to get students to brainstorm some lesson plan ideas that would effectively exploit the laboratory setting.

Despite having some limitations, a computer lab can be an effective interim solution until computers become an integral part of classrooms. But how could ICT lab activities be integrated into lesson plans?”

**Activity:**

1. Working in pairs, review the lecture resource supplied below.

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• A computer lab provides a good environment for developing e-confidence in the initial stage.</li> <li>• It is the most economical solution for providing ICT access through a computer network.</li> <li>• As equipment is concentrated in one location, technical support and management is easier than if the equipment is dispersed.</li> <li>• A computer lab provides a robust network infrastructure.</li> <li>• Learners can simultaneously access their own workstations.</li> <li>• Large groups can be simultaneously trained and/or assessed.</li> </ul>	<ul style="list-style-type: none"> <li>• In a lab, it is difficult to integrate ICT into everyday learning, teaching and thinking.</li> <li>• The layout of most computer labs makes group work and collaboration difficult.</li> <li>• The focus can end up being on learning by rote and performing practical tasks rather than developing higher order skills.</li> <li>• ICT resources are concentrated in a single location, when they would be better used if widely deployed.</li> <li>• The need to book the lab can result in poor or unequal use.</li> </ul>

(Taken from Microsoft Educator Learning Journeys)

2. Integrating computer lab use into learning requires thought and planning. In pairs, brainstorm ideas of which sections of the curricula would benefit from an ICT lab environment and develop a lesson plan that illustrates this good practice. Use the table above to spark ideas.
3. Now do the counter activity for identifying sections of the curricula that would NOT be suited to working in an ICT lab. As a pair, remember to explain your answer.
4. The tutor will summarise the main points of the discussion and conclude.



## **D] Self-Study (1 hour)**

### **137 Assignment 1 (30 minutes)**

Complete the follow online tutorial at Educator Learning Journeys.

Organise and Manage the Use of ICT in Your Classroom

Unit 1: Topic 2: Learning Activities for a Computer Lab Environment – *Adapting Activities for a Computer Environment*

“Time spent in the computer lab needs to be planned carefully to ensure that it is a productive and valuable experience for all learners. This topic explores how lesson planning and collaborative working can help ensure that lessons in the computer lab meet these requirements.”

Access at <https://eljmicrosoft.intuition.com>

## 138 Assignment 2 (30 minutes)

Organise and Manage the Use of ICT in Your Classroom

Unit 1: Topic 3: Learning Activities for a Computer Lab Environment – *Preparing for Lab-based Teaching and Learning*

“What do you do when things go wrong in the lab? Do you plan for disruptions or problems in advance? This topic will help you do just that. It will also enable you to organise seating and create an environment in the lab to support learning.”

Access at <https://eljmicrosoft.intuition.com>



### Resources Used in this Lesson Unit

*Computer Room/Lab Planning*. Available online from KI Education at:

<http://www.kieducation.com/issues.aspx?ar=104> (Accessed 6/10/2011) (All Rights Reserved).

*The Four Best Computer Laboratory Layouts for Schools*. Available online at :

<http://www.brighthub.com/computing/hardware/articles/52714.aspx> (Accessed 6/10/2011) (All Rights Reserved).

*Computer Lab Setup*. Available online at <http://www.webjunction.org/training-delivery/-/articles/content/432941>(Accessed 6/10/2011) (All Rights Reserved).

Culbertson, Diane.(n.d.).*Computer Labs versus Classroom Integration of Computers*. Available online at

<http://distributedresearch.net/ultrastudents/andyroberts/term2/actionresearch/Files/labvsclass.pdf> (All Rights Reserved).

van den Blink, Clare (2009). *Uses of Labs and Learning Spaces*. Available online at

<http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/UsesofLabsandLearningSpaces/163858> (CC:BY:NC:SA)

Efaw, Hampton et al. *Miracle or Menace: Teaching and Learning with Laptop Computers in the Classroom*. Available online at:

<http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/MiracleorMenaceTeachingandLear/157299>(CC:BY:NC:SA)

Bustillos, J. *Ed Tech: Computer Labs versus Classroom Computers*(2005). Available online at:

<http://joebustillos.com/2005/05/11/ed-tech-computer-labs-versus-classroom-computers/>(CC:BY:NC:SA)

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – Organise and Manage the Use of Technology in your Classroom*. Available online at

<https://eljmicrosoft.intuition.com/Rubicon.aspx>. Accessed 25/07/2011 (All Rights Reserved).

# TL Module 4: Organisation and Administration

## Unit 2: Management of the Use of ICT in a Classroom Environment



### Objectives:

Pre-service teachers should be able to manage the use of supplemental ICT resources with individuals and small groups of students in the regular classroom so as not to disrupt other instructional activities in the class. (UNESCO ICT-CFT, TL.5.b)



### Duration:

Total of 3 notional hours – 1 hour tutorial, 1 hour computer practical session and 1 hour self-study, preferably at a computer.



### A] Tutorial (1 hour)

## 139 Notes to Tutor

Introduce students to the concept that ICT is a great supplement to classroom teaching. You can use the introductory passage below to set the scene. Then for this tutorial focus specifically on issues around the use of one computer in a classroom setting, be it for individual learning, small groups or whole-class learning. In pairs, students will be required to brainstorm ideas for the effective use of one computer in a classroom. They will then be required to brainstorm ideas for teacher use and student use of the single computer and formulate a range of specific activities that can be used for each. As the tutor, you will be required to guide a group discussion and summarise the main points.

The following resources have been provided to guide the discussion and help you as the tutor capture any salient points that may have been missed during the group discussion.

- [The One Computer Classroom](#)
- [One Computer Classroom: The Possibilities](#)
- [One Computer Classroom: Across the Curriculum](#)
- [Classroom Management of ICT](#)

### Introduction:

ICT can offer a quality supplement to classroom teaching. Integrating ICT into daily learning activities can assist students learning individually or in groups. Not only does the use of ICT enhance the learning experience and allow learners to make connections to the outside world, but it also gives learners a place to find resources and to create work products. One of the biggest challenges many

teachers face is a lack of computers. Yet even with only one computer in the classroom, there are many ways to use ICT effectively to improve learning.

**Activity:**

1. Working in pairs, think about how one computer can be best used in each of the following situations:
  - Individual learning
  - Small groups
  - Whole-class learning.
2. Next, brainstorm several teacher uses and student uses for the single computer and identify specific activities that can be used for each.
3. Discuss your ideas as a group as part of a tutor-led discussion.



## B] Computer Practical (1 hour)

### 140 Notes to Facilitator

Introduce students to the concept that ICT in the classroom can be both frustrating and fun and brings with it a number of challenges. The passage below has been provided as a sample text. Research the topic ahead of time in preparation for the session. You may review the resources provided in the activity below as a starting point.

Using one computer in the classroom can be both frustrating and fun. There are issues related to using the computer as part of large group activities and small group activities. There are also some general management concerns.

The general area of ICT classroom management includes a number of elements. These may relate to hardware and software management, but have a real influence on the actual success or failure of managing ICT. These include:

- **Time Management:** among the attributes of effective teachers is that of effective time management. Educators need to become adept at restructuring timetables to incorporate new ideas and procedures. The use of computers is a cross-curricular activity, thus they should fit into an existing structure or be part of as many activities as possible.
- **Planning:** like any other part of the curriculum, ICT work must be structured and planned. This should be done in conjunction with the school policy, the skills level of the teacher, and the availability of suitable software, as well as taking note of learner:computer ratios.
- **Integration:** ICT is a new tool for education and by integrating the technology across as broad a range of areas in the curriculum as possible, we as educators are broadening the horizons of possibility for our learners. Integration involves using the software at our disposal to impart a broad range of skills to our learners.

**Activity: Computer Classrooms**

Please note that this activity is a recommended **Portfolio Task** and should be prepared for submission.



**Portfolio Task**

1. In a computer lab, review the following set of online resources relating to the management of computers in a classroom setting:
  - [One Computer Classroom: The Issues](#)
  - [Classroom Management of ICT](#)
  - [ICT in the classroom](#)
  - Classroom Management & ICT: [http://www.ise.ee/kronoloogia/murphy/classroom\\_management.html](http://www.ise.ee/kronoloogia/murphy/classroom_management.html). (Internet access required)
2. Using a word processing program on a computer, construct a matrix of possibilities/uses for a single computer in the classroom.
3. Identify 5 challenges you might encounter in the use of a single computer in a classroom situation. Think specifically around timing, the rate at which learners learn and their particular skills level).
4. A number of practical considerations should be observed when planning for the integration of ICT in the classroom. Refer to the list of ideas below with regards to Planning for ICT Integration and in your word processor document, think of and capture an additional 5 factors to consider when planning for ICT use in the classroom. Provide an explanation for each.

**Planning for ICT Integration**

- Children often work better in groups of 2/3 rather than individually. There are occasions where one computer per child works best but be open to varying the situation.
- Position the computer in an area of the room that is visible to the teacher but with least class visibility. This cuts down on the distraction value of work in progress.
- Have a cross section of software models available.
- There are times when it is not a good idea to use the computer.
- Limit the software base available to the children at any one time. Choice is fine but channel hopping with software will happen just as on television. This often means that software packages are not given sufficient time to be useful educationally.
- Develop rota systems for access and/or 'free time' access to the computer. You should log the people accessing the computer and monitor those who are either overusing or under-utilising the facility.
- Have a clock near the computer so that children can monitor their own time at the equipment. This helps maintain the 'fair play' syndrome of 'I didn't get my turn yet, Miss.'
- Have a 2- to 4-piece headphone block available beside the computer to allow individuals or small groups to operate in silence while the class may be engaged in other activities.
- Engage the skills of the many children with computer experience to help teach other children about various applications.
- Have prepared instruction sheets for various lessons or activities.
- As the teacher, you should have experienced or simulated the exercises the children are being encouraged to undertake.
- Take class lessons to initiate the use of various software packages.
- Alternatively, take the children in small groups until you have gone through the class.
- Perhaps just teach a small group and ask them to spread the message down through the class.
- Peer-to-peer learning can be very effective.
- Despite the considerable outlay, would a digital projector be a good investment for the school?
- Develop away from computer activities related to a particular project.

- Set up scoring charts for drill-type software. This will help to monitor the progress of the children through an information retention exercise. More importantly it will help to monitor usage (e.g. gender issues and overuse by children who are more able).
- Order relevant computer magazines for the school – *PC Live*, *Irish Computer*, *Computer Active*, *Technology in Education* might be a few useful ones to start with.
- Meet with colleagues using the same software. Support networks within the school, inter school and within education centres. Professional peer support is one of the most important aspects of this new technology.
- Be fully conversant with a software package before introducing it to the class. This runs from the very simple junior drill software (play with it yourself beforehand to hand it over to the children), to the more complex packages that may be used especially at the senior end of the school.
- Allow projects to be completed over a specified timeframe but be flexible.
- Buy a paper-binding machine for the school. Printed projects, books, leaflets, poems and e-mails can then be presented in a professional way and retained in the school or elsewhere as a shared data resource.

(Taken from: [http://www.ise.ee/kronologgia/murphy/classroom\\_management.html](http://www.ise.ee/kronologgia/murphy/classroom_management.html) )



## C] Self-Study (1 hour)

### 141 Assignment 1 (30 minutes)

Complete the follow online tutorial at Educator Learning Journeys.

#### **Organise and Manage the Use of ICT in Your Classroom**

Unit 3: Topic 2: Managing Logistics and Social Interactions around ICT resources – *Managing Groups when Using ICT Resources*

“Did you know that Information and Communication Technology (ICT) can encourage your learners to contribute, collaborate and be creative? In this topic, we look at scenarios where teachers have used ICT tools for group work and helped their learners develop these skills. We’ll also find out how to manage learner groups using ICT support.”

Access at <https://eljmicrosoft.intuition.com>

### 142 Assignment 2 (30 minutes)

Complete the follow online tutorial at Educator Learning Journeys.

#### **Organise and Manage the Use of ICT in Your Classroom**

Unit 3: Topic 3: Managing Logistics and Social Interactions around ICT resources – *Key Considerations for Different Social Arrangements*

“In this topic, we will look at the key aspects to consider while using different social arrangements in the classroom.”

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

*The One Computer Classroom*. Website available online at:

<http://eduscapes.com/tap/topic84.htm#1> (CC: BY SA).

Lamb, Annette. (n.d.). *One Computer Classroom: The Possibilities*. Available online

at <http://eduscapes.com/tap/occ1.pdf> (CC: BY SA).

Lamb, Annette. (n.d.). *One Computer Classroom: Across the Curriculum*. Available online at:

<http://eduscapes.com/tap/occ3.pdf> (CC: BY SA).

Lamb, Annette. (n.d.). *One Computer Classroom: The Issues*. Available online

at <http://eduscapes.com/tap/occ2.pdf> (CC: BY SA).

Intel Teach to the Future. (n.d.). *Classroom Management of ICT*. Available online

at [http://schoolnet.org.za/teach10/resources/dep/managing\\_ict/index.htm](http://schoolnet.org.za/teach10/resources/dep/managing_ict/index.htm) (All Rights Reserved).

*ICT in the classroom*. Available online at:

[http://www.new2teaching.org.uk/about/about\\_ATL/contacts.asp](http://www.new2teaching.org.uk/about/about_ATL/contacts.asp)

Classroom Management & ICT. (n.d.). Available online

at [http://www.ise.ee/kronologia/murphy/classroom\\_management.html](http://www.ise.ee/kronologia/murphy/classroom_management.html) (All Rights Reserved).

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – Organise and Manage the Use of Technology in your Classroom*. Available online at

<https://eljmicrosoft.intuition.com/Rubicon.aspx>. Accessed 25/07/2011 (All Rights Reserved).

# TL Module 5: Teacher Professional Development

## Unit 1: Teacher Productivity Strategies



### Objectives:

Pre-service teachers should be able to use ICT to enhance their own productivity. (UNESCO ICT-CFT, TL.6.a)



### Duration:

Total of 3.5 notional hours – 1.5 hour tutorial, 1.5 hour computer practical session and 30 minute self-study session, preferably at a computer.



### A] Tutorial (1.5 hours)

#### Notes to Tutor

Here you will introduce students to the topic of teacher productivity. Distribute copies of the table below to the students, who should be grouped in pairs. This table clearly identifies activities and how they are currently performed by teachers, using traditional approaches. The students should discuss in pairs how each of the activities can be handled more efficiently using ICT tools and then brainstorm ideas for sharing with the entire class. Although ICT enables us to perform a wide variety of tasks with great speed and efficiency, it also poses some challenges. Instruct the students to also discuss amongst themselves examples of what some of the challenges might be. Then facilitate a group discussion sharing the ideas amongst the entire class. A completed version of the table with sample answers can be accessed [here](#). Please note that this text has only been provided as a guide.

#### Background Reading:

- [The question is not whether, but how ICT can be useful in education](#)
- [Literature Review: The Impact of ICT on Learning and Teaching](#) (requires internet access)
- [The ICT Impact Report: A review of studies of ICT impact on schools in Europe](#)(requires internet access).

## Introduction

The 2005 UNESCO study, *'Information and Communication Technologies in Schools: A Handbook for Teachers on How ICT Can Create New, Open Learning Environments'*, describes how ICT is said to enable teachers to save time and to increase productivity in such activities as<sup>34</sup>:

- preparing and updating daily lessons;
- planning, making hard copy visualisations and handouts for classes, as well as individualised educational plans for slower students and students with disabilities or with special problems;
- presenting visual/oral content materials, tasks and questions to the audience;
- maintaining grade books;
- compiling a data bank of exam questions;
- online inspection and correction of students' work on their computers;
- keeping records, chronicles and archives of all the above-mentioned events and proceedings with fast retrieval and easy access to any entry.

## Harnessing ICT for Routine Tasks

As a teacher you will do more than just teach your students. You will also have various planning, coordination and administrative tasks to attend to. Can you complete these tasks more efficiently by using Information and Communication Technology (ICT) tools?

Broadly speaking, the tasks (other than teaching) that you will need to perform on a daily basis include one or more of the following activities:

- Planning
- Keeping records
- Assessing
- Coordinating and communicating
- Collaborating.

This table shows how these activities are currently performed by many teachers.

Activity	The Traditional Approach
Planning	Printed forms or specially designed books provide templates that teachers can fill out for planning their lessons.
Assessing	Paper-based assessments are taken by students in the classroom and teachers physically mark these.
Keeping Records	Files and specially designed books are used to keep a record of documents, such as lesson plans, marks and syllabi.
Coordinating and Communicating	Exchanging notes and using paper diaries are common ways in which teachers coordinate meetings and other events. Several teachers also rely on notice boards or word of mouth to pass on information.

<sup>34</sup>The ICT Impact Report: A review of studies of ICT impact on schools in Europe. (2006). Available online at [http://ec.europa.eu/education/pdf/doc254\\_en.pdf](http://ec.europa.eu/education/pdf/doc254_en.pdf).

Collaborating	Teachers physically meet to discuss and brainstorm their ideas.
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(From Microsoft Educator Learning Journeys)

**Activity:**

1. In pairs, discuss how each of these activities can be handled more efficiently using ICT tools.
2. Discuss and also list some of the challenges that might be encountered in the use of ICT across these situations.
3. Share your ideas with the entire class in a tutor-led discussion.

Activity	The Traditional Approach	The ICT Approach
Planning	Printed forms or specially designed books provide templates that teachers can fill out for planning their lessons.	
Assessing	Paper-based assessments are taken by students in the classroom and teachers physically mark these.	
Keeping Records	Files and specially designed books are used to keep a record of documents, such as lesson plans, marks and syllabi.	
Coordinating and Communicating	Exchanging notes and using paper diaries are common ways in which teachers coordinate meetings and other events. Several teachers also rely on notice boards or word of mouth to pass on information.	
Collaborating	Teachers physically meet to discuss and brainstorm their ideas.	
Challenges:		



## B] Computer Practical Session (1.5 hours)

### Notes to Facilitator

Here you will introduce the students to the topic. You should have prior knowledge of a range of tools available to assist the teachers in enhancing their own productivity. The introductory text below has been provided as a guide only. Once the session has been introduced, students should be supported in the completion of the activity.

#### Background Reading:

- [What every teacher should know about technology](#) (requires internet access).
- [What are online productivity tools?](#)

The competent teacher will integrate advanced features of technology-based productivity tools to support instruction, extend communication outside the classroom, enhance classroom management, perform administrative routines more effectively, and become more productive in daily tasks.

But, as a novice, how exactly do you begin to use Information and Communication Technology (ICT) tools to enhance productivity?

It's important to reflect on the following:

- *What skills and knowledge would you need to begin using ICT tools?*
  - *What steps would you take to develop these skills?*
1. Firstly, make a plan. Identify steps that you will need to take for each skill you want to improve or knowledge you want to gain. When conceiving your plan, try and keep goals smart, measurable, accurate, realistic and time bound.
  2. Identify any changes to the traditional way the task is performed to gain additional benefit.
  3. Identify peers, support staff and others who could serve as resources, mentors or collaborators in the use of ICT.
  4. Identify the most appropriate ICT tool for the task. Do not make the mistake of using ALL the available tools just for the sake of it. Make sure you are aware of the capabilities, strengths and weaknesses of the ICT tool you have chosen.

#### Activity: Teacher Productivity

This activity is a recommended **Portfolio Task** and the answers to question 1-4 should be prepared for submission.



Portfolio Task

Lucy is a mathematics teacher at a primary school. She is not at all confident in her use of ICT and will often sketch out her lesson ideas using a pen and paper. She is located in a region where children are prone to sickness and she struggles to capture all the absentees daily on her printed form, which often goes missing. She also spends a huge amount of time writing out test questions and exam papers and would love to be able to re-use some of her ideas for future classes, but never remembers what she asked. She will often send out hand-written notes to parents which are attached to her learner's homework books. Lucy is extremely busy and helps out with many of the school's extra-curricular activities. In addition to the school monthly newsletter (which is handwritten and passed onto the secretary for typing), she coaches the girls' netball team.

Refer to the case study above in order to answer the following questions. Use the computers at your disposal to conduct any research you might need to further your understanding and aid you in completing this activity. Remember, there are a variety of templates available on the Web to assist you. You can also refer to some of these tools provided to you [here](#).

1. Identify three opportunities from the case study above in which Lucy might increase her productivity through the explicit use of a Word Processing Tool, such as MS Word.

2. Select one of the above opportunities you have identified and create a sample document using a word processor program.
3. What is the biggest problem that could arise in Lucy's current method of communicating with parents? How might she improve this process with ICT? Provide an example and a justification for your answer.
4. What skills and knowledge would Lucy need to begin using ICT tools? Can you suggest steps that she could take to develop these skills? Develop the outline of a plan Lucy could follow to increase her confidence, knowledge and skills set in using ICT.



## C] Self-Study (Total 30 Minutes)

### 143 Assignment 1 (30 Minutes)

Complete the follow online tutorial at Educator Learning Journeys.

#### **Technology Literacy and Your Professional Development**

Unit 1: Topic 3: Using ICT to Work Smart –*Step by Step with ICT*

“Many teachers want to use Information Communication Technology (ICT) to help with routine tasks like lesson planning or administration, but they’re not sure where to start. This topic will help you identify some goals and some practical first steps in building ICT into your daily routine to help you become more efficient and productive in your work.”

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

Van Son, R. *The question is not whether, but how ICT can be useful in education*. Available online at: <https://edutechdebate.org/ict-in-schools/the-question-is-not-whether-but-how-ict-can-be-useful-in-education/> (CC: BY: NC: SA)

Newhouse, Dr. C. Paul. *Literature Review: The Impact of ICT on Learning and Teaching*. Available online at: <http://www.det.wa.edu.au/education/cmisis/eval/downloads/pd/impactreview.pdf> (All Rights Reserved).

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*What are online productivity tools?* Available online from WebTools4u2Use website at: <http://webtools4u2use.wikispaces.com/Word+Processing+%26+Productivity+Tools> (CC: BY: NC: SA)

Microsoft. (n.d.). *Microsoft Partners in Learning: ICT Skills for Teachers*. Available online at <http://schoolnet.org.za/PILP/scenarios/index.htm>.

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – Technology Literacy and Your Professional Development*. Available online at <https://elj.microsoft.intuition.com/Rubicon.aspx>. Accessed 25/07/2011 (All Rights Reserved).

Balanskat, Anja; Blamire, Roger; Kefala, Stella. (2006). *The ICT Impact Report: A review of studies of ICT impact on schools in Europe*. Available online at [http://ec.europa.eu/education/pdf/doc254\\_en.pdf](http://ec.europa.eu/education/pdf/doc254_en.pdf). Accessed 04/08/2011. (All Rights Reserved).

# TL Module 5: Teacher Professional Development

## Unit 1: Teacher Productivity Strategies



### Objectives:

Pre-service teachers should be able to use ICT to enhance their own productivity. (UNESCO ICT-CFT, TL.6.a)



### Duration:

Total of 3.5 notional hours – 1.5 hour tutorial, 1.5 hour computer practical session and 30 minute self-study session, preferably at a computer.



### A] Tutorial (1.5 hours)

#### Notes to Tutor

Here you will introduce students to the topic of teacher productivity. Distribute copies of the table below to the students, who should be grouped in pairs. This table clearly identifies activities and how they are currently performed by teachers, using traditional approaches. The students should discuss in pairs how each of the activities can be handled more efficiently using ICT tools and then brainstorm ideas for sharing with the entire class. Although ICT enables us to perform a wide variety of tasks with great speed and efficiency, it also poses some challenges. Instruct the students to also discuss amongst themselves examples of what some of the challenges might be. Then facilitate a group discussion sharing the ideas amongst the entire class. A completed version of the table with sample answers can be accessed [here](#). Please note that this text has only been provided as a guide.

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Collaborating	Teachers physically meet to discuss and brainstorm their ideas.
---------------	---

(From Microsoft Educator Learning Journeys)

**Activity:**

4. In pairs, discuss how each of these activities can be handled more efficiently using ICT tools.
5. Discuss and also list some of the challenges that might be encountered in the use of ICT across these situations.
6. Share your ideas with the entire class in a tutor-led discussion.

Activity	The Traditional Approach	The ICT Approach
Planning	Printed forms or specially designed books provide templates that teachers can fill out for planning their lessons.	
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Challenges:		



## B] Computer Practical Session (1.5 hours)

### Notes to Facilitator

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It's important to reflect on the following:

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  - *What steps would you take to develop these skills?*
5. Firstly, make a plan. Identify steps that you will need to take for each skill you want to improve or knowledge you want to gain. When conceiving your plan, try and keep goals smart, measurable, accurate, realistic and time bound.
  6. Identify any changes to the traditional way the task is performed to gain additional benefit.
  7. Identify peers, support staff and others who could serve as resources, mentors or collaborators in the use of ICT.
  8. Identify the most appropriate ICT tool for the task. Do not make the mistake of using ALL the available tools just for the sake of it. Make sure you are aware of the capabilities, strengths and weaknesses of the ICT tool you have chosen.

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6. Select one of the above opportunities you have identified and create a sample document using a word processor program.
7. What is the biggest problem that could arise in Lucy's current method of communicating with parents? How might she improve this process with ICT? Provide an example and a justification for your answer.
8. What skills and knowledge would Lucy need to begin using ICT tools? Can you suggest steps that she could take to develop these skills? Develop the outline of a plan Lucy could follow to increase her confidence, knowledge and skills set in using ICT.



## C] Self-Study (Total 30 Minutes)

### 144 Assignment 1 (30 Minutes)

Complete the follow online tutorial at Educator Learning Journeys.

#### **Technology Literacy and Your Professional Development**

Unit 1: Topic 3: Using ICT to Work Smart –*Step by Step with ICT*

“Many teachers want to use Information Communication Technology (ICT) to help with routine tasks like lesson planning or administration, but they’re not sure where to start. This topic will help you identify some goals and some practical first steps in building ICT into your daily routine to help you become more efficient and productive in your work.”

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

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Newhouse, Dr. C. Paul. *Literature Review: The Impact of ICT on Learning and Teaching*. Available online at: <http://www.det.wa.edu.au/education/cmisis/eval/downloads/pd/impactreview.pdf> (All Rights Reserved).

Poole, B. *What every teacher should know about technology*. Available online at: [http://www.educationworld.com/a\\_tech/tech/tech227.shtml](http://www.educationworld.com/a_tech/tech/tech227.shtml) (All Rights Reserved).  
*What are online productivity tools?* Available online from WebTools4u2Use website at: <http://webtools4u2use.wikispaces.com/Word+Processing+%26+Productivity+Tools> (CC: BY: NC: SA)

Microsoft. (n.d.). *Microsoft Partners in Learning: ICT Skills for Teachers*. Available online at <http://schoolnet.org.za/PILP/scenarios/index.htm>.

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – Technology Literacy and Your Professional Development*. Available online at <https://elj.microsoft.intuition.com/Rubicon.aspx>. Accessed 25/07/2011 (All Rights Reserved).

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# TL Module 5: Teacher Professional Development

## Unit 2: Use of ICT to Support Lifelong Learning



### Objectives:

Use of ICT to enhance teacher professional learning (UNESCO ICT-CFT 6.2).



### Duration:

Total of 3 notional hours – 1.5 hour tutorial, 1 hour computer practical session and 30 minute self-study session, preferably at a computer.



### A] Tutorial (1.5 hours)

#### Notes to Tutor

Alert your students to the idea that Information and Communication Technology (ICT) can be used to support professional development and learning in a number of ways. Technology can be used to learn more about the subjects they will teach and to provide ideas and new ways to teach them. It can also be used to expand career opportunities and it allows opportunities to network with other educators. The two main approaches to improve your current knowledge include that of formal and informal learning opportunities. The following introductory tutorial has been provided as a guide only. The tutor should research this topic ahead of the tutorial and be well versed and familiar with examples of formal and informal learning approaches as well as some of the advantages and disadvantages of each. In pairs, students will complete the activity below and the tutor will be required to summarise the main points at the end of the discussion. For the activity in this tutorial, you will be required to navigate to the Web on your computer/laptop and demonstrate to students some examples of formal and informal learning approaches. Several examples have been provided in the text below as a starting point, but you may substitute these with any examples you feel are more appropriate.

#### Introduction

"Professional development goes beyond the term 'training' with its implications of learning skills, and encompasses a definition that includes formal and informal means of helping teachers not only learn new skills but also develop new insights into pedagogy and their own practice, and explore new or advanced understandings of content and resources. [This] definition of professional development includes support for teachers as they encounter the challenges that come with putting

into practice their evolving understandings about the use of technology to support inquiry-based learning. Current technologies offer resources to meet these challenges and provide teachers with a cluster of supports that help them continue to grow in their professional skills, understandings, and interests."<sup>36</sup>

As you embark on your journey into a teaching career, you will no doubt wish at some point to enhance or improve your current skills or knowledge set. You may wish to do this for a number of reasons, for instance to:

- Gain knowledge about a particular subject or topic;
- Gain knowledge about pedagogy;
- Improve your employment opportunities;
- Find out information about changes to the curriculum structure;
- Improve your technology skills;
- Network with like-minded individuals.

(Adapted from Microsoft Educator Learning Journeys)

Fortunately, there are a number of courses and training opportunities available to those wishing to foster further professional growth. These include formal and informal learning opportunities.

- Formal learning opportunities may include courses offered physically at an institution or even online and distance learning opportunities. These range from short courses to higher degree programmes and may be in different areas, including subject knowledge, teaching skills, or wider educational issues like management. Usually, these courses are well structured and offer facilitator support. Courses offered by universities or other educational organisations may provide accreditation which could enhance your career prospects. Unfortunately, formal learning opportunities are often expensive.
- Informal learning opportunities often allow you the opportunity to tailor the resources to your own needs and learn at your own pace as there is no set curriculum or timeframe. And there is usually no associated cost. You could access a variety of teacher networks, websites, associations or forums online to find out more about the latest teaching ideas or you could start your own blog with several of your colleagues and invite them to collaborate with you on a number of topics.

[View Examples of Formal and Informal Learning Approaches](#)

In choosing your professional development path, you should take the following points into consideration:

- Identify your personal professional development goals and create a plan to assist you in achieving those goals.
- The Internet is the best starting point in terms of researching which option will be most suitable for you. It will assist you in learning about the various ICT resources available that can be used to increase your knowledge of subjects taught as well as pedagogy.
- Make sure you verify the quality and credibility of the the course/resource/programme you have identified. Ask these questions as a starting point:
  - Whose website/course/resource/programme is this?
  - Why have they made it available?
  - Is the information actual, relevant and appropriate to me?

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<sup>36</sup><http://www.ncrel.org/sdrs/areas/issues/educatrs/profdevl/pd2prof.htm>

- Is this the best option or my only option?
- Make sure you are aware of the cost factors involved in the approach you have chosen and are confident you have the required ICT skills to complete it. If not, draw on your peers and support staff who can assist you in the process.
- Be realistic about what you can achieve. Start with simple tasks and work up from there.
- Stick to the plan you have created.
- Make sure you set aside sufficient time to complete the planned professional development. Never underestimate the time it requires as more often than not it will take longer than you anticipated.
- Remember to persevere, even if you don't have success in achieving your goals initially!

**Activity:**

1. The tutor will access the Internet and show some examples of formal and informal learning approaches drawn from the hyperlinks above.
2. In pairs, identify several factors which should be taken into account when researching and identifying a suitable learning approach to further professional development.
3. In pairs, discuss and then summarise in a table the advantages and disadvantages of formal and informal learning approaches.
4. Share your ideas with the entire class in a tutor-led class discussion.



## B] Computer Practical Session (1.5 hours)

**Notes to Facilitator**

Students will require access to an Internet-connected computer. The facilitator should be on hand to provide support as required. The facilitator will require knowledge of Web evaluation tools and understand how one would evaluate and verify a resources' credibility prior to the session.

**Activity:**

Samuel is a high school science teacher. He is in his second year of teaching and wants to gain more knowledge about his subject, particularly innovative ways to use technology in his teaching. Samuel is a very confident and capable ICT user and has extensive ICT skills. He is extremely busy in the afternoons coaching extra-curricular activities so would prefer to choose a learning path that provides more flexibility. The school has offered to pay for the course he selects so cost is not really a factor.

Refer to the case study above in order to answer the following questions. Use the computers at your disposal to conduct any research you might need to further your understanding and aid you in completing this activity. You may use the examples attached [here](#) as a starting point.

1. How can Samuel use ICT to achieve his professional development goals? Using a word processor program, create a sample professional development plan which will assist Samuel on his path.
2. Conduct an Internet web search and identify three different learning opportunities that Samuel might explore. In your word processor document, create a matrix and supply the advantages and disadvantages of each option you have identified. Remember to base this on the knowledge you have of Samuel's situation.

3. Next, identify one option from the three options you selected as your final recommendation. Identify in detail what is covered by this option in terms of costs, accreditation (if any), required knowledge level and access to ICT and capture this in your word document.
4. Verifying the quality of the resource is a vital step in embarking on one's professional development learning path. Review the following learning options and determine if the resource can be deemed credible. Justify each answer with an explanation.
  - ECDL/ICDL For Teachers & Students: <http://www.ecdl.org/index.jsp?p=93&n=100>.
  - Intel Teach® Elements: Assessment in 21st Century Classrooms: <http://www.intel.com/education/video/assess/content.htm>.

You may draw on the following tools to assist you in your evaluation:

- Website Evaluation Wizard: <http://21cif.com/tools/evaluate/>.
- Critical Evaluation Information: <http://school.discoveryeducation.com/schrockguide/eval.html>.



## C] Self-Study (Total 30 Minutes)

### 145 Assignment 1 (30 Minutes)

Complete the following online tutorial at Educator Learning Journeys.

#### Technology Literacy and Your Professional Development

Unit 2: Topic 2: Supporting Teacher Professional Development –*Success Stories with ICT*

“This topic provides some examples of the different ways that teachers can use Information Communication Technology (ICT) to support their professional learning. This is to support you in identifying how ICT may be able to support your own professional development goals and inspire you to create a plan of your own to get you to where you really need to be with the help of technology.”

Access at <https://eljmicrosoft.intuition.com>



## Resources Used in this Lesson Unit

Microsoft. (2011). *Educator Learning Journeys: Technology Literacy Curriculum – Technology Literacy and Your Professional Development*. Available online at <https://eljmicrosoft.intuition.com/Rubicon.aspx>. Accessed 25/07/2011 (All Rights Reserved).

Balanskat, Anja; Blamire, Roger; Kefala, Stella. (2006). *The ICT Impact Report: A review of studies of ICT impact on schools in Europe*. Available online at [http://ec.europa.eu/education/pdf/doc254\\_en.pdf](http://ec.europa.eu/education/pdf/doc254_en.pdf). Accessed 04/08/2011.

# TL Module 5: Teacher Professional Development

## Unit 3: Safety Issues in Digital Environments



### Objectives:

Pre-service teachers should be able to identify and manage internet safety issues (UNESCO ICT-CFT, TL.6.c)



### Duration:

Total of 4 notional hours – 1 hour lecture, 1 hour self-study session (preferably at a computer), 1 hour tutorial and 1 hour computer practical session.



### A] Lecture Content (1 hour)

## 146 Notes to Lecturer

The purpose of this lecture is to provide an overview of some of the common threats that students are exposed to while navigating the Web, interacting on social networks and accessing digital resources. Learners need to be made aware of these threats and be provided with guidance as to how to safely navigate away from harmful digital environments and situations. The introductory passage below has been provided as a guide to set the scene and may be adapted as necessary. The lecturer may also draw on the following resources for additional information:

- Google Digital Literacy Tour: <http://www.google.com/educators/digitalliteracy.html>
- Digital Citizenship: <http://ictpd-digital-citizenship.wikispaces.com/Digital+Citizenship+in+the+classroom>
- Thinkuknow: <http://www.thinkuknow.co.uk/teachers/>
- Power to Learn: [http://powertolearn.com/internet\\_smarts/index.shtml](http://powertolearn.com/internet_smarts/index.shtml)
- CommonSenseMedia: <http://www.commonsensemedia.org/educators>
- Cyberbullying: [http://www.criminaljustice.state.ny.us/missing/i\\_safety/cyberbullying.htm](http://www.criminaljustice.state.ny.us/missing/i_safety/cyberbullying.htm)
- Digital Citizenship: Using Technology Appropriately: <http://www.scribd.com/doc/13170472/Digital-Citizenship>
- Journey Towards Appropriate technology Use: <http://www.youblisher.com/p/17496-Journey-Toward-Appropriate-Technology-Use-at-School-and-at-Home/>

## Introduction

The World Wide Web (WWW) and Internet-enabled technologies continue to develop at an alarmingly fast rate. This has created many benefits, as well as changes to the way in which students learn, communicate and interact.

These days, students are keen and avid users of Information and Communication Technologies (ICTs), particularly the Internet and mobile technologies. They are seen as 'digital natives', always surrounded by technologies and using them from an increasingly early age. There are many social, educational and economic benefits for students in using ICTs.

Not only are students exposed to increased connectedness, have access to large amounts of information and are part of a global community, but they are also able to study or communicate anywhere and anytime.

However, there are a number of associated risks.

Some of these risks may include safety and security issues, exposure to inappropriate content and cyberbullying. For example, students may place themselves in risky situations by:

- giving out personal information about themselves to people they do not know
- posting unsuitable information online
- agreeing to meet people they have met only online, without speaking with a parent or carer first
- using provocative pseudonyms
- sharing passwords
- posting public profiles about themselves
- browsing or searching unsafe websites
- responding to unpleasant or suggestive messages, or messages from people they do not know
- accessing inappropriate or illegal material.

Other risks include Internet security, such as computer viruses, trojans and worms; identity and data theft; online scams and phishing. Students may be avid users of technology but they are not always aware of the security risks and can be overconfident in their ability to avoid them.

Cyberbullying is increasing and is a growing concern in countries around the world. Studies have shown that young people are increasingly using short message service (SMS), instant messaging (IM), chat rooms, mobile phone cameras, email and websites to bully their peers. The increased use of mobile and Internet-enabled technologies has also led to personal safety risks.

(Adapted from Cybernetrix: Internet Safety Education for Secondary School Students)

## 147 Notes to Lecturer

The lecturer is to supply students with a case study for discussion. This can be presented on an overhead projector or distributed to students in print format. The following case studies have been provided as examples.

[Case Study 1](#)

[Case Study 2](#)

[Case Study 3](#)

These case studies are available online and have been extracted from:

[http://www.criminaljustice.state.ny.us/missing/i\\_safety/mediafiles/mshs\\_v5-7-10-notes.pdf](http://www.criminaljustice.state.ny.us/missing/i_safety/mediafiles/mshs_v5-7-10-notes.pdf). The lecturer may wish to supply alternative case studies.

### Activity:

1. Review the case study supplied to you by your lecturer.
2. Your lecturer will then lead the class in an in-depth discussion regarding the specific threats posed to students in the case study.



## B] Self-Study (1 hour)

According to DigitalCitizenship.net, there are 9 themes of digital citizenship. The following are norms of appropriate responsible behaviour with regard to technology:

- Digital Access: full electronic participation in society
- Digital Commerce: electronic buying and selling of goods
- Digital Communication: electronic exchange of information
- Digital Literacy: process of teaching and learning about technology and the use of technology
- Digital Etiquette: electronic standards of conduct or procedure
- Digital Law: electronic responsibility for actions and deeds
- Digital Rights and Responsibilities: those freedoms
- Digital Health and Wellness: physical and psychological well-being in a digital technology world
- Digital Security (self-protection): electronic precautions to guarantee safety.

But what does this actually mean?

### Assignment:

1. Read the information on the [Nine Themes of Digital Citizenship](#).
2. Imagine you are trying to coach your class to be good cyber citizens and create a 9-slide presentation that summarises the information for consumption by a younger audience. Include images or video in your presentation to make it easier to understand. You will need to bring your presentation to the practical session.

**148 C] Tutorial (1 hour)****149 Notes to the Tutor**

The purpose of this tutorial is to get the students to engage with the issues raised in the lecture and devise strategies to inform and safeguard students. It is important that as future advocates of ICT in their schools, the student teachers need to encourage staff to form online security structures and support mechanisms based on 'knowledge' rather than 'fear'. For this activity, students will need to construct a concept/mind map. Further information can be accessed online at:

- <http://www.udel.edu/chem/white/teaching/ConceptMap.html>
- <http://www.graphic.org/concept.html>
- <http://cmap.ihmc.us/publications/researchpapers/theorycmeps/theoryunderlyingconceptmaps.htm>

**Introduction**

At this juncture of the course it is clear that there are great benefits to be derived from using ICTs but also some potential hazards. What we need to do is to look for ways to safeguard our students from potential harm but also to instil in them responsible behaviour. The following activity is designed to help us start strategising to this effect.

**Activity:**

4. Working as a group, spend some time brainstorming the positive and negative aspects of students using and accessing ICTs.
5. Create a concept map/mind map which summarises the benefits and risks of ICTs for students.
6. Add to your concept map a set of 'actions' or 'safety hints' which link to the risks you have identified.
7. Discuss your ideas as a class in a tutor-led discussion.
8. Make sure you have a copy of the group's concept map to bring to the practical session.

**D] Computer Practical Session (1 hour)****150 Notes to Facilitator**

The facilitator should introduce students to the topic of Digital Citizenship and its importance. The facilitator should focus on making students aware of the importance of preparing learners to use technology safely, legally and ethically. There are a number of resources accessible on the Internet to aid the facilitator in preparing for this session. The following passage has been provided as an introductory example only. For this session, the students will require access to an Internet-

connected computer with high speed connectivity. Students should be placed in groups to complete the activity. Students will need to bring to the practical evidence of the work they did during the Self-Study and Tutorial sessions. Please advise them of this ahead of time.

### **Introduction**

Access to technology in the 21st Century has created an increasing demand for our students to be prepared to use that technology safely, legally and ethically in our school systems as well as socially and eventually, professionally. It looks like an obvious strategy to protect our students is to make them more responsible, in order to make them digital citizens.

**What is Digital Citizenship?**<sup>37</sup>

"Digital citizenship can be defined as the norms of appropriate, responsible behaviour with regard to technology use."

**Who is a Digital Citizen?**

A digital citizen is anyone who uses digital tools such as computers, cell phones, or the Internet in their work or school environment or for recreation purposes. Just like citizens of a city have to adopt rules and standards of behaviour in order to live together, those of us in the digital world should do the same.

But what do our students need to know to be safe, discerning users of technology? What resources can we use to support them? According to Andrew Churches there are six tenets of citizenship:<sup>38</sup>

1. Respect yourself
2. Protect yourself
3. Respect others
4. Protect others
5. Respect Intellectual property
6. Protect Intellectual property.

**Activity:**

1. In groups of two or three, visit the URL <http://ictpd-digital-citizenship-and-copyright.wikispaces.com/Digital+Citizenship+definition> and watch the three videos from Stephen Balkham, Andrew Churches and Derek Wenmoth on their views of Digital Citizenship and why it is important for teachers to address this issue.
2. Next, in your groups come up with a précis of the main points identified by the three speakers.
3. Take the presentation you created during the self-study session and the concept map developed in the tutorial and incorporate this additional information. You should now have a presentation aimed at young students on Online Safety issues which you can use for future classes:
  - The 9 Themes of Digital Citizenship
  - ICT: Benefits and Risks (Concept Map)
  - School Strategies
  - Expert Perspectives

**Resources Used in this Lesson Unit**

*Case 5: Cyber Bullying.* Available online at <http://www.bamaed.ua.edu/edtechcases/case5.html>

*Cybernetrix: Internet Safety Education for Secondary School Students.* Available online at [http://www.cybersmart.gov.au/cybernetrix/resources/teacher/teacher\\_guide.pdf](http://www.cybersmart.gov.au/cybernetrix/resources/teacher/teacher_guide.pdf)

Mike Ribble. (n.d.). *Raising a Digital Child.* Available online at

[http://www.digitalcitizenship.net/uploads/09-0489\\_AWAY\\_26\\_DIGKIDS\\_.pdf](http://www.digitalcitizenship.net/uploads/09-0489_AWAY_26_DIGKIDS_.pdf)

<sup>37</sup> [http://learntech.ties.k12.mn.us/Digital\\_Citizenship.html](http://learntech.ties.k12.mn.us/Digital_Citizenship.html).

<sup>38</sup> <http://ictpd-digital-citizenship.wikispaces.com/Digital+Citizenship+in+the+classroom>.

*Digital Citizenship and Copyright: What is Digital Citizenship.* Available online at <http://ictpd-digital-citizenship-and-copyright.wikispaces.com/Digital+Citizenship+definition> (CC: BY SA).

*Internet Smarts Guide.* Available online at [http://powertolearn.com/internet\\_smarts/the\\_guide.shtml](http://powertolearn.com/internet_smarts/the_guide.shtml).

Ribble, M., et al. (2004). Digital Citizenship: Addressing Appropriate Technology Behaviour. In *Learning & Leading with Technology*, V32, No. 1. International Society for Technology in Education. Available online at <http://www.youblisher.com/p/17496-Journey-Toward-Appropriate-Technology-Use-at-School-and-at-Home/>. Accessed 15/08/2011 (© All Rights Reserved. Free to use Web supplement).

*How to construct a concept map.* Available online at <http://www.udel.edu/chem/white/teaching/ConceptMap.html>.

*Concept map.* Available online at <http://www.graphic.org/concept.html>.

*The Theory Underlying Concept Maps and How to Construct and Use Them.* Available online at <http://cmap.ihmc.us/publications/researchpapers/theorycmaps/theoryunderlyingconceptmaps.htm>.

*Online Safety: A Parent's Guide.* Available online at [http://www.criminaljustice.state.ny.us/missing/i\\_safety/mediafiles/isafety\\_parents-v6-072210.pdf](http://www.criminaljustice.state.ny.us/missing/i_safety/mediafiles/isafety_parents-v6-072210.pdf).