

# Developing a capacity-building Programme for training of Primary School Headmasters the use of ICT in Primary Schools in Mauritius

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## **Abstract**

*This paper presents a learning framework for the training of Headmasters, as adult learners, in the use of ICT as a tool in management in Primary Schools in Mauritius. The introduction of ICT in Management and Education is a new measure adopted by the Ministry of Education and Human Resources to ensure that Educational Institutions in Mauritius are not left behind in fostering a knowledge-facilitated society.*

## **The Context**

In this era of rapid technological change, schools need to adapt to new technologies if they are to keep pace with new methods of knowledge transmission. One of the key challenges in Education is currently the development of efficient training and capacity-building programmes which will make this digital revolution a reality, and also the determination as to how such training programmes will lead to the best impact on the successful and efficient introduction of these technologies into the classroom.

Public organisations also need to determine and plan the right kind of skills that educational managers need to acquire in order to be effective in an ICT based learning environment such that the organisation

benefits with the staff then emerging as a knowledgeable and proficient one in a society where ICT skills are a requirement for successful social, industrial and personal integration.

## The Issues

As we live in an increasingly technological environment and are harnessing the power of ICT and emerging technologies to enhance teaching and learning, the Ministry recognizes the key need to turn the digital divide into digital dividends and pays special attention to the issues of training in Educational Management in the use of ICT. It is the intention of the organisation comes up with implementable training programmes to expand opportunities for lifelong learning for all Headmasters, anytime and anywhere.<sup>1</sup>

It is important that Headmasters are provided with learning programmes in the field of ICT in Education, as such a training will contribute in the creation of managing a competent workforce for the country to emerge as a knowledge society with a IT literate population. This is illustrated in the Government Programme 2012-2015 where it is stated that : *Government will upgrade human capital in the ICT sector, so as to generate more value-added per worker. Government will train and supply global talents in various streams of the ICT industry.*<sup>1</sup>

It is also a necessity that Headmasters will need to be trained in the conversion of existing curricular material into ICT-ready material context in order to ensure an effective cross linking of the teaching and learning process between what the student will be learning in books and what the student will experience at the same time through ICT. The learning process through ICT will become relevant only when there is a direct link to the formal curriculum – It is not enough to ensure access to information. This access has to be relevant and contextualized. One important aspect of training of Headmasters in the use of ICT in schools is therefore that teachers and curriculum developers must be sensitized in not only the use of already available material on the web but, equally importantly, also how to ensure that teachers under their supervision re-contextualize the material.

A critical component in teaching of Headmasters in the use of ICT is that there cannot be a one size fits all strategy in ICT that will suit all Educational managers, because Headmasters, as adult and experienced learners, are different. What is crucial is that each Headmaster becomes familiar with the existing tools available to him/her, adapts existing downloadable material available on the web to suit his or her own class style and constraints, and generates new material there from. In short, ICTs can be used differently by each Educational manager by giving freedom of choice by education to choose their context and style.

ICT can also potentially enhance the learner's autonomy, provide the teacher has access to resources at work or at home. There are already several produced websites giving major resources in Educational Management.

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<sup>1</sup> *Government Programme 2012- 2015, Republic of Mauritius*

## **Training Needs Analysis for ICT in Education for Primary School Headmasters in Mauritius.**

Information and Communication Technology (ICTs) has now become a key transformational tool in societies around the world, and the field of education is not left behind in this wave. With the pace of development of technology and its integration in all aspects of daily life, it is essential that teachers have a thorough skill and working knowledge of these media, along with adopting these technologies to enhance the performance and engagement of their students.

The introduction of ICT in schools and the training of educators in ICT includes training in platforms as diverse as, inter-alia, personal computers, laptops, tablets, printers, LCD projectors including interactive projectors, palm devices, iPods, fax machines, cell phones, Internet, and Intranet.

It is therefore clear that training in ICT not only involves training in the technology, but also an understanding of the cognitive, technical, and social aspects of the use of ICT as a tool. It recognizes that in the technologically connected world, one does not live in isolation and therefore needs 'soft' as well as 'hard' skills to confidently, reliably, and responsibly use ICT.

The analysis of the training requirements in Information and Communication Technologies (ICT) for Headmasters of Primary schools in Mauritius is therefore a key aspect to determine the requirements of Headmasters through ICT and integrating ICT into their practice and future school management.

This training need analysis needed to be evidenced-based, and has required the coming up with a TNA survey with a collection process through multiple channels including an online survey, semi-structured focus group meetings and review of course documents. The target groups for such training would include Headmasters at Primary school level and the subsequent training would involve capacity-building in the curricula related to the use of ICT as a support tool in Educational management programs.

A key objective of the determination of the training need has been to ascertain the level at which Educational Managers at Primary School level possess basic ICT skills on a personal and a professional level through with a focus on how they are using those skills in the integration of ICT in managerial practice.

# A Review of learning theories

## 1. A discussion of three learning theories : Behaviourist, Constructivist and Andragogical theories

### Introductory remarks

It is important that any training programme takes into consideration current learning theories so that trainers are better equipped to adjust their teaching styles to the needs of learners. Smith and Dalton<sup>2</sup> thus assert rightly that Knowledge of learning styles has become more important as learning frameworks change and expand, and as the options we have to learners also expand with new technologies and contexts of delivery.

### Behaviourist

The learning theory of Behaviourism puts emphasis on the element of learning as due to acquisition of knowledge achieved through the influence of external action acting as a stimulus leading to a change of behaviour and hence learning. In this learning theory, a repetition of desired actions leads to the accompanying reward of good habits, resulting subsequently in a positive change in behaviour and learning due to elimination of bad habits. A characteristic perception in the behaviourist view of learning is that the teacher is the dominant person in the classroom and takes complete control of the learning process.<sup>3</sup>

Distinct from other theories of learning such as constructivism described below, the behaviourist learner does not have any opportunity for evaluation or reflection within the learning process and is simply told what is right or wrong. In behaviourism, the focus is on external changes in behaviour and not in the internal processes of learning leading to behaviour change.

B.F. Skinner was one of the leading proponents of the behaviourist theory in his research, in particular highlighting the following characteristic factors influencing learning:

- Pleasant experiences (such as rewards or praise) are positive reinforcers in learning. Unpleasant experiences (such as punishment) are negative reinforcers in learning. Continuous reinforcement increases the rate of learning.
- Intermittent reinforcement contributes to longer retention of what is learned.
- A lack of any reinforcement can also shape learning and behaviour. If people receive no acknowledgement of their behaviour, they will learn from that absence of reinforcement and likely change that behaviour until they receive some kind of reinforcement.

### Constructivist Theory

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<sup>2</sup> Smith and Dalton in *Getting to Grips with Learning Styles*, Deakin University, NCVET Report (2005), 4

<sup>3</sup> *A Comparison of Two Theories of Learning -- Behaviorism and Constructivism as applied to Face-to-Face and Online Learning*, E-Leader 2012 Conference Paper, Manila)

Constructivism is a theory of learning and an approach to education that lays emphasis on the ways that people create meaning of the world through a series of individual constructs.

Constructivism is characteristic of self-directed learning in the sense that the constructivist learning theory perceives learners as agents who can on their own be active in the generation and transformation of learning models such that they can then construct a reality of learning which best fits what they have built on their own. Constructivists such as Vygotsky thus assert that all reality is a narrative construction in the imagination of individuals.

In the constructivist theory, learning is essentially seen as self-directed and geared towards creativity and innovation. The model considers that education is a growing process based on the sequence of analysis, understanding and combination of prior experience to generate fresh knowledge. In the constructivist theory, teachers have the purpose of guiding students in a heuristic process of self-discovery and problem solving through experimentation with existing learning and its modification to result in the creation of new knowledge.

A characteristic of the constructivist theory of teaching is that educators in this model are essentially facilitators and is not just engaged in bluntly transmitting content. Thus, in the constructivist model, the teacher is first and foremost a facilitator to assist the learner in getting his or her own understanding of the content, while a non-constructivist teacher gives a didactic lecture which covers the subject matter will little concern as to whether the learner has understood better through a self-construction and self-learning process. A non-constructivist learner plays a passive role in the learning process, while the constructivist learner actively participates in the learning pattern by being given the opportunity to experiment with learning and develop a participative role in the learning process. A critical distinction of constructivism from other learning models and theories is that the theory gives low emphasis on content and puts stronger focus on the learner. Thus, while a teacher mostly gives a monologue, a facilitator is in continuous dialogue with the learners<sup>4</sup>.

### **Andragogical Theory of Learning**

The andragogical learning theory was first theorized by Malcolm Knowles in 1990<sup>5</sup>, and, in contrast with behaviourism and constructivism which relate to learners in general, andragogy as a learning theory puts emphasis on the adult learner. This is particularly relevant in the model of learning for TVET because this sector of education and training focuses on learners from various backgrounds and origins. Adults learn differently, and for different reasons, than do children and young adults, and trainers in TVET have to be aware of its implications and not assume the same learning models to be functional as in the case of pedagogical learners.

While children and younger students do not generally take the initiative to acquire new knowledge and wait until the educator comes to them with new concepts, the andragogical theory considers that adult learners investigate learning tasks, assess the products associated with learning this body of knowledge and focus efforts into obtaining new knowledge. Andragogy, in contrast with classical pedagogical learning theories, consider that adults are responsible for their own decisions with regards to new

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<sup>4</sup> Rhodes, L. K., and Bellamy, T. 1999. *Choices and consequences in the reform of teacher education*. *Journal of Teacher Education* 50:17-26

<sup>5</sup> *The adult learner: a neglected species*, Malcolm Shepherd Knowles, Gulf Pub. Co, 1990

knowledge. Adults possess a deep desire to be recognized as self-disciplined, self-motivated, and independent self-helping individuals.

In Adult education and in TVET, it is particularly apparent that learners are psychologically conflicted if presented with new knowledge in a pedagogical approach since adult learners have to be independent and self-developing in contrast to a culture of behaviourist dependency to external factors and teachers which was characteristic of their early education.

## **2. Relevance to the teaching and training of Headmasters of Primary Schools in Mauritius**

The challenges that are facing headmasters in Education in the 21<sup>st</sup> Century are many and complex, and for Headmasters in Mauritius, they find themselves at crossroads with several changes that are rapidly taking place both inside and outside their own educational institutions. Among these changes has been the introduction of technology in schools, and just like any other reform that takes place in education; headmasters play a key role in its development. Schools in Mauritius are progressively being equipped with computers to be used in the teaching/learning process and there is a need for Headmasters to learn and use technology within their educational environments. Practicing headmasters are faced with a challenge to learn technology so that they can function in technology-based environments that are increasingly being implemented in schools.

This is why it is important to mount an in-service training programme for Primary Headmasters in Mauritius, but it is also important to realise that such an in-service training programme for headmasters can take different forms in different schools depending on the learning styles in the various institutions. The study of learning theories indicated clearly that a systematic approach to training of headmasters is important so that the headmasters can be more involved and focussed in the capacity-building process, and also benefit from the training.

First, the constructivist model is of particular relevance to the newly appointed headmaster who has little experience in leading an educational institution albeit at Deputy Head Master level, and hence has to adopt a learning attitude and model which is characteristic of a constructivist learner. A training course for such new Headmasters has to be basically geared towards the setting up of a self-learning and self-directing programme since the Headmasters are from varied backgrounds and will require a training which is customised to their own contexts.

While the behaviourist model is not so adapted in a training programme for adults such as Headmasters, there is still relevance in adopting a behaviourist approach in particular through a peer-to-peer learning strategy with experienced retired Headmasters being eventually called in as resource persons to share experiences in their past managerial styles in schools. While not necessarily being resource persons as dominant person in a classroom and taking complete control of the learning process, such experienced and past Headmasters would benefit in adopting a behaviourist approach in securing new information to new Headmasters in do's and don'ts in the trade.

The Andragogical model suits well the concept of training of experienced adults such as headmasters, with Knowles highlighting that basic principles of andragogy can increase efficiency of training, save time, and become more focussed. The Andragogical can be particularly highlighted for headmasters in the following aspects:

1. Self-concept and motivation to learn- Headmasters need to know why they are being trained, and must be involved in the planning of their instruction.
2. Experience- Personal experience, especially from experienced Headmasters, (including their mistakes) provides the basis for learning activities.
3. Readiness to learn - Headmasters are most interested in learning tasks that have immediate relevance to their job as heads of Primary institutions.
4. Orientation to learning- The process of training of Headmasters must be a problem-centered approach in real-life school examples, rather than subject-oriented.

### **3. Beyond Andragogy : Implications of learning theories on incorporation of technology within a training of Primary School Headmasters program in Mauritius**

The emergence of the Internet and expansion of online courses on the net targeting a wider adult audience and the possibility of learning literally at one's fingertips is changing the current landscape in human resource development across the world and Mauritius is not left behind in this respect.

As the cost of connectivity is falling down, there are currently increasing opportunities and possibilities that are evolving in the field of open and online training for Primary School Headmasters. Training through technology is progressively becoming an accepted model of capacity-building in the local educational landscape.

Yet, there are specificities in such a new training framework. In a technologically-driven course through the internet, Headmasters can make their own sense of school management from their own particular perceptions, can conceptualise their own environment and have the potential to learn continuously and in real time by interacting virtually with their other colleague Headmasters. The advent of the internet provides a new framework for facilitation of learning through a new structure of learning community and workplace. Technology links up through hyperlinks, through use of new community tools such as blogging and chatting, or through enriching instructional designing by video streaming and flash animations. Such technological tools make Headmasters move out of their limited school environment, learn at their own pace from homes, seek on their own when and what they wish to learn and in which order, create a sense of self-efficacy and apply competencies in novel and unfamiliar situations. Such a new learning process goes beyond Andragogy and creates a whole new paradigm in learning.

This new potential of education through self-edification and self-determined learning, which is particularly emphasised in a connected and technologically-oriented environment in education, is particularly highlighted in the new learning theory of Heutagogy, a concept coined by Stewart Hase of Southern Cross University and Chris Kenyon in Australia.<sup>6</sup>

Heutagogy places specific emphasis on learning how to learn, double loop learning, universal learning opportunities, a non-linear process, and true learner self-direction. So, for example, whereas andragogy focuses on the best ways for adult people to learn, heutagogy also requires that educational initiatives include the improvement of people's actual learning skills themselves, learning how to learn, as well as going through a given subject itself. This is a characteristic of open and distance learning, and will suit well the development of learning programmes for adult and experienced learners such as Headmasters.

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<sup>6</sup> (Hase, S & Kenyon, C (2000), 'From Andragogy to Heutagogy', *Uti-BASE In-Site*, December, Published version accessed from: <http://pandora.nla.gov.au/nph-wb/20010220130000/http://ultibase.rmit.edu.au/New/newdec00.html>)

Kenyon and Hase thus argue that the rapid rate of change in society and the explosion of information through technology must lead trainers to look at Educational approaches where learners determine by themselves what they need to learn.

Tanaka and Evers<sup>7</sup> on the other hand, have also coined the concept of Ergonagy, which is the notion of preparing people for, and performance of, work. This notion of Ergonagy particularly relevant to the training of teachers sector as it supports a continual blending of academic and vocational education for enhanced work opportunities throughout lives and careers, whether in one or several careers. The coming in of technology and globalisation of learning through the internet makes international dialogue and sharing of experiences in learning skills in management therefore relevant for Primary School Headmasters, and particularly in a context of a small island state such as Mauritius where local experience is limited and Headmasters would gain in getting skilled experienced from peers overseas through online dialogue and sharing of good practices over the internet.

The incorporation of technology in the training of Primary School Headmasters in Mauritius will therefore benefit the efficiency of capacity-building, and care will have to be exercised in the setting up of the right blend of instructional design tools, evaluation and assessment strategies (such as the potential provided by plug-ins such as online quiz and online assessments on the Moodle online training platform). By coming up with the right technological blend and platform for Training of Headmasters of Primary school, there is an unprecedented scope for trainers to come up with a large scale training programme with enhanced efficiency which was hitherto simply not possible through face to face training courses.

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<sup>7</sup> Tanaka and Evers, (*Ergonagy : A New Concept in the Integration of "Kyo-Iky" and "Education."* / Kazutoshi Tanaka and Michael B. Evers , Accessed from <http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED438465> on 1 December (2012 )

## Implications for Future Training by Ministry

The Training Needs Analysis has enabled the Ministry to improve on the setting up of enhanced training programmes for all stakeholders in ICT in Education. The mounting and monitoring of the training programmes have been of a particular challenge bearing in mind that many of the concerned educators have had little or no earlier coverage of ICT in Education, and thus the culture shock of use of ICT in pedagogy had to be overcome through focussed and customised training as per the backgrounds, needs and aspirations of Headmasters.

## Recommendations for improvement of training programmes

Putting in place such a framework has been a very constructive experience, and has led to positive proposals for improvement of such capacity-building initiatives under the aegis of the Ministry.

Recommendations regarding the expansion of such training programmes include :

- (i) use of enhanced and customised online learning strategies for the training
- (ii) implementation of a continuous feedback mechanism for Headmasters to report to inspectorate on the use of ICT
- (iii) ensuring by headmasters to monitor the maintenance of the ICT equipment with regional technical teams of the Ministry
- (iv) Setting up of refresher training programmes after one year of first training
- (v) Setting up of a help desk at the Ministry for headmasters to contact in case of difficulties in use of ICT
- (vi) Creation of a post of ICT Support Officer posted in schools to assist headmasters in the use of ICT at school
- (vii) Division of Headmasters into small groups for more personalised learning
- (viii) Introduction of hands-on ICT practice component in training to promote learning by doing

## References

1. Government Programme 2012- 2015, Republic of Mauritius
2. Smith P. and Dalton J. in Getting to Grips with Learning Styles, Deakin University, NCVER Report (2005)
3. A Comparison of Two Theories of Learning -- Behaviorism and Constructivism as applied to Face-to-Face and Online Learning, E-Leader 2012 Conference Paper, Manila)
4. Strategy Plan 2008-2020, Ministry of Education and Human Resources, Mauritius
5. Rhodes, L. K., and Bellamy, T. 1999. Choices and consequences in the reform of teacher education. *Journal of Teacher Education*
6. The adult learner: a neglected species, ,Malcolm Shepherd Knowles, Gulf Pub. Co, 1990

7. Hase, S & Kenyon, C 2000, 'From Andragogy to Heutagogy', Ulti-BASE In-Site, December, Published version accessed from: <http://pandora.nla.gov.au/nph-wb/20010220130000/http://ultibase.rmit.edu.au/New/newdec00.html>)
8. Tanaka and Evers,(Ergonagy : A New Concept in the Integration of "Kyo-Iky" and "Education." / Kazutoshi Tanaka and Michael B. Evers , Accessed from <http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED438465> on 1 December 2012 )

## Readings

Figgis, Jane, Regenerating the Australian landscape of professional VET practice: Practitioner-driven changes to teaching and learning, NCVET, (2009)

Smith P. and Dalton J. , Accommodating Learning Styles, Relevance and Good Practice in TVET, NCVET, Deakin University (2005)

National Quality Council Australia, Quality of Assessment Practice, Stage 1 Report, Part A, (2009)

Robertson I., VET Teachers' Knowledge and Expertise, International Journal of Training Research, Volume 6 Issue 1 (2008)

Cranton, Working with adult learners, Wall and Emerson (1992)