Embedding 21st Century Skills in Pre-service Teacher Training: A Case Study from the Maldives

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Abstract

The new curriculum framework of the Maldives attempts to incorporate competencies that are closely linked with 21st century skills. However, one of the major challenges is training teachers who will deliver the new curricula. This case study describes how the Faculty of Educational Studies of Villa College designed its pre-service teacher training programme in primary teaching to incorporate 21st century skills and outlines the challenges that are being faced by the faculty during its implementation. One of the major challenges identified was the difficulty student-teachers had in applying the newly learnt skills to varying school cultures during their teaching practicum. Focus group interviews involving faculty staff suggests that organizational cultures within attached schools play a critical role in the process and that training providers need to focus on this in developing the training framework. In addition, the study finds that lecturers' awareness of 21st century skills, especially the knowledge and skills in the integration of ICT, is a constraint in the training process and therefore, requires special attention. Furthermore, shortcomings in programme orientation for staff are raised and the challenge of meeting the requirements of the diploma exit is noted.

Key words: 21st Century Skills, Teacher Training, Primary Teaching, Pre-service, School Culture, Maldives, TPACK

Introduction

This case study aims to describe how we, at the Faculty of Education of Villa College,set out to incorporate 21st century skills in our pre-service teacher training programme for primary teachers in the Maldives and identify the challenges that are faced in implementing the programme to meet the demands of the new curriculum framework of the Maldives.
Thus, the article attempts to answer the following three questions.

Question 1: What is the rationale for incorporating 21st century skills in the new pre-service teacher training programme for primary teachers?

Question 2: How does the training framework of Villa College incorporate 21st century skills in the new pre-service teacher training programme for primary teachers?

Question 3: What are the main challenges that are faced by Villa College in implementing the new programme?

Background

There is a growing body of literature on 21st century skills. Though diverse arguments surround the debate whether this refers to a new set of skills, there is general concensus on the categories of the skills and on the newly placed emphasis on some of these skills (Suto, 2013). Partnership for 21st Century Skills (2009, p.1) refers to 21st century skills as "the skills, knowledge and expertise students must master to succeed in work and life; it is a blend of content knowledge, specific skills, expertise and literacies."
Teacher training programmes around the world are increasingly concentrating on finding effective ways of embedding or integrating these skills in their programmes so that these skills are transferredto the students (Schleicher, 2012). This reprents a challenging task, as many programmes are faced with unique situations which require unique approaches.

Villa College designed its pre-service training programme for primary teachers in 2012 and the first batch of students enrolled in the programme in January 2013. The programme constitutes three years of full time study and student-teachers are provided with a diploma at MNQF level 5 at the completion of the first year. The entrants are mainly Advanced Level graduates or students who have completed one-year foundation studies at Villa College.

Methodology

This study adopted a case study approach through document analysis and a focus group interview conducted with faculty staff in May 2014. The interview was semi-structured and accommodatedquestions and responses amongst the participants. Four faculty staff, who are closelyinvolved in programme development and implementation, participated in the interview:one male and three females.

Three researchers facilitated the interview. All researchers had varying degrees of involvement in the design and implementation of the programme.

Rationale forincorporating 21st century skills in the new pre-service teacher training programme for primary teachers

> "The goal of teacher education is not to indoctrinate or train teachers to behave in prescribed ways, but to educate teachers to reason soundly about their teaching as well as to perform skillfully." (Shulman, 1987, p.13).

The new National Curriculum Framework of the Maldives is designed towards achieving a broader set of knowledge, skills, common values and attitudes (National Institute of Education, 2014c). Though these competencies are not specifically referred to as 21st century skills within the framework, a close examination reveals that there is a close association between these competencies and what is generally referred as 21st century skills within the literature (Suto, 2014) as illustrated in Table 1.

One of the most challenging tasks in implementing the new curriculum framework is the challenge it imposes on teachers. The new framework requires students to acquire enduring skills which are dynamic and proposes a student-centred learning approach focused on diversity and a personalized educational experience. It moves away from the traditional prescriptive curricula that depended heavily on textbooks, towards a more flexible approach tolearning where teaching is informed by reflective practice. The focus is on developing individuals who can apply their skills to new situations and experiences, and gain new competencies in order to assume new roles in a global village. This in turn required a new way of thinking and practice by teachers. The deficiencies are vivid in classroom practice and assessments. Despite the availability of ICT in the Maldives, teachers are still finding it hard to integrate technology in classroom practice(Enamul Hoque, Sukor Ab.Samad, Siraj, & Ziyadh, 2012). Many are grappling with pedagogical content knowledge. Fittell (2014)observed that teaching in the Maldives is almost always didactic,and focused on one-way transfer of facts from the teacher or textbook. Even though the syllabus encouraged active, enquiry-based modes of learning, this is not evidenced in classroom teaching. Teachers mostly teach to the test and hardly move beyond understanding in Bloom's taxonomy. Meantime, the Longitudinal Study on the Impact of Curriculum Reform 2012-13 (National Institute of Education, 2014a)shows that students are struggling in the area of problem-solving and are still naïve aboutsome of the fundamental values being instilled. There is a general understanding among the academic community that teacher training needs to be changed to meet the new demands.

Strategy for incorporating 21st century skills in the pre-service teacher training framework for primary teachers

In the wake of the changes to the national curriculum framework, Villa College initiated thedesign of the new pre-service teacher training programme for primary teachers. From the initial conception, the programme focused on the new curriculum framework and attempted to facilitate the development of 21st century teachers as viewed in emerging literatures. The institution saw pre-service teacher training as a starting point and the first step ina long journey. Continued professional development and research-based reflective practice are to be intertwined. The resulting outcome is a teacher training programme different in many ways from the earlier models of teacher training, as illustrated in Table 2. Though not ground breaking, it attempts to cater for the deficiencies in existing programmes through a "fundamental re-orientation in pedagogical approach" (Suoto, 2014, p.7). The progrmme aimed to develop teachers as practitioners for the primary grades with specific pedagogical content knowledge, while being able to facilitate problem-solving, intellectual discovery and creativity in diverse student communities.

The challenge was in developing student-teachers' pedagogical content knowledge (which many recent programmes neglected) without compromising the flexibility and dynamics required for developing newly emphasized skills. Re-orientation of pedagogical approach enabled this with minimal credit points being set aside for single courses on emerging areas. Fundamentals of ICT, Inclusivity, Art & Craft, Health & Physical Education and Maldivian Studies still appeared in the structure to provide fundamental background into these areas which werelater to be developed through modeling and clinical components. Thus, it was a combination of strategies centred around reflective practice that defined the new model.
One of the striking features of the programme is its attempt towards integration of technology. Villa College is adopting the TPACK framework developed by Koehler & Mishra (2008) guided by Shulman (1986). The framework argues that "developing good content requires a thoughtful interveawing of all three key sources of knowledge: technology, pedagogy and content" (Koehler & Mishra, 2008, p.1029). While the college derived the attributes of the components from the national curriculum framework (Figure 1 and Table 3), the TPACK framework enables the examination ofthe inter-relations between these components to design pedagogical strategies that link the new curriculum framework to Villa College's model of teacher training. Though the framework has some limitations (Cavanagh & Koehler, 2013; Brantley-Dias & Ertmer, 2013), many literatures support the use of it in teacher education (Ching Sing Chai, Joyce Hwee Ling Koh, & Chin-Chung Tsai, 2010;Graham, Borup, & Smith, 2012). It enables the college to use technologies in more relevant and constructive ways.

Another important feature of the model is its emphasis on clinical components. There are three major clinical components in the programme, as shown in Table 4. Each component requires student-teachers to meet rigorous standards in terms of professional practice or skills and pedagogical content knowledge. New student-teachers without any prior experience in teaching are required to spend at least 16 weeks of attachment with a school on top of the three components. This enables student-teachers to understand the school cultures and apply and re-think their approaches. In addition, pedagogical modules have classroom practice components embedded within them. The purpose is not to train teachers to deliver in prescribed ways but rather to engage them in reflective practice as required by the new demands.

Challenges that are faced in implementing the new programme

Through the focus group interview, we were able to identify a number of challenges that are faced in implementing the new programme.

1. Lack ofclear understanding of the overall aim of the programme

The participants stated that they had a clear understanding of the objectives and learning outcomes of the individual modules they teach. However, it was evident that participants lacked a clear understanding of the overall aim and objectives of the training programme.It was noted that the staff members themselves would prefer additional support in understanding the concept of 21st century skills, what it entails and its application to our context. A rigorous orientation to the programme would be useful for this purpose.

2. Lack of current knowledge and skills in integrating ICT in the teaching process

Participants noted that they had difficulty in integrating ICTin their teaching. Even though almost all the lecturers attempt to integrate technology to the best of their ability, participants felt that they do not have the most up-to-date knowledge and skills inthe use of ICT and therefore, identified this as one of the major challenges. However, it was noted that the lecturers are co-operating with the Center for Information and Communication Technology (CICT) of Villa College to improve inthis area, and substantial gains have been made.

3. Challenges of meeting the requirements for the diploma exit

A one-year diploma exit path is provided in the Bachelor of Primary Teaching programme. This one-year diploma exit for the student-teachersis a huge challenge for the Faculty. Participants noted that in order to meet the expectations and the demanding requirements of the programme, considerable additional support activities for students have to be incorporated into the existing programme. These include sessions on language development, focusing on oral communication as well as questioning skills. Additionally, science and mathematicsworkshops are held for participants to develop age-appropriate activities to introduce important concepts for both subjects. Special sessions for material development for the teaching practicum are also carried out. Apart from this, peer teaching andclinical experience are also provided for the students. During the practicum, all the lesson plans and activities are monitored by a supervisor allocated from the Faculty. This is to ensure that students exiting the diploma path are well-equipped with the necessary skill to be a teacher in the 21st Century. However, while it was noted that students responded positively to the challenge and can see a marked improvement in their motivation and performance can be seen, the faculty still debated on the continuity of the diploma exit path.

4. Adaptation to different school cultures

Participants noted that one of the major issues in the implementation process was in the teaching practicum. The teaching practicum provides student-teachers the platform to apply the different theories and pedagogical knowledge they have gained during their training. However, during the teaching practicum student-teachers discover that the participating schools have their own culture and therefore set ways to plan and engage students in the teaching and learning process. Therefore, student-teachers find it challenging to employ the models and methodologies they have learnt.
Numerous instances were related by the participants, where student-teachers' lack of experience as a teacher is mistaken for poor classroom managementby the co-teacher. Apart from that the classroom settings often did not facilitate group tasks and student-teachers reportedly had difficulty in changing the settings as well.

Almost all the schools had coordinators allocated for subject coordination. The topics to be covered during the week, activities including worksheets are allocated by the subject coordinator. This limited the capacity of the student-teacher to use his/her creativity in the delivery of the lesson. Some schools did not welcome any material other than the materials provided during the coordination meetings. Student-teachers are judged more often than guided and supported by their co-teachers. This is seen as the prevailing culture of schools as there is no clear understanding of the role of the co-teacher in the process of teacher development. Most co-teachers view their role as an assessor than a facilitator.

This disconnection between the training and actual workplace resulted in alienation and lack of confidence. Ultimately, many student-teachers find enculturation to the existing school cultures easier rather than facingthe challenge of change.

5. Entry requirements for admission to the teacher training programme

The qualification of students joining the teacher training program was also raised as a concern by the participants. It can be observed that students who normally chose teaching meet only the minimum entry requirements of the Maldives Qualifications Authority (MQA) for an undergraduate degree . This puts a lot of strain on the faculty, as additional support to upgrade the content of the students in major subjects such as Mathematics, English and Science have to be incorporated into the programme. As such, during the first semester of the programme, a zero credit module in Mathematics content is offered to students who do not pass a Mathematics content test. In both Science and English, up to six weeks are spent on brushing up on basic content, in addition to the content materials covered in first year Science and English modules.

There is a significant difference in terms of knowledge between students who join with better results and especially a pass in both English and Mathematics at which level?.

Conclusions

The rationale for Villa College for adopting 21st century skills as the basis for the new teacher training programme lies with its attempt to bridge the disconnect between the competencies demanded by the new curriculum framework and what is actually being delivered by the school system. The resulting training model attempts to overcome the deficiencies in existing models through fundamental re-orientation in pedagogical approach. The TPACK framework, strong clinical components and continued focus on reflective practice are integral parts of the new model.

The study finds that the faculty is facing a number of challenges in delivering the new programme. These challenges include shortcomings in programme orientation for the faculty staff, lack of up-to-date knowledge and skills in the use of ICT, the challenge of meeting the requirements of the diploma exit and the difficulty imposed by varying school cultures. Careful measures and planning arerequired to overcome these challenges. Notably, the desired changes in the cultural elements require a combined effort by all the institutions in the sector. Thus, it calls for closer partnership between training providers, schools, National Institute of Education and Ministry of Education.

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Appendices

Table 1: Alignment of key competencies of the Maldives National Curriculum Framework and 21st century skills

21st Century Skills (Suto, 2014)		Eight Key Competencies of the Maldives National Curriculum Framework
Categories	**Skills**	
Ways of thinking	• Creativity and innovation • Critical thinking, problem solving, decision making • Learning to learn, metacognition	• Making Meaning • Thinking Critically and Creatively
Ways of working	• Communication • Collaboration (teamwork)	• Relating to People
Tools for working	• Information literacy (includes research on sources, evidence, biases, etc.) • ICT literacy	• Using Technology and the Media
Living in the world	• Citizenship – local and global • Life and career • Personal and social responsibility – includes cultural awareness and competence	• Living a Healthy Life Understanding and Managing Self • Practicing Islam • Learning for Sustainable Development

Table 2: Distinguishing features of the new pre-service programme as opposed to earlier models

Features of Earlier Models in the Maldives	Features of the New In-service Programme
▪ Prepared for teaching a fixed syllabus of content (mainly based on textbooks)	▪ Focused on lifelong learning (importance given toinformation literacy) and enduring skills
▪ Prepared for teacher-centred instruction; one standardized way to teach all students	▪ Student-centred; focused on diversity and personalising educational experience
▪ Prescriptive	▪ Focused on developing reflective practitioners
▪ Detached use of standard technologies	▪ Focused on integration of technology through the development of technological pedagogical content knowledge

Figure 1: Villa College's adoption of the TPACK framework for technology integration

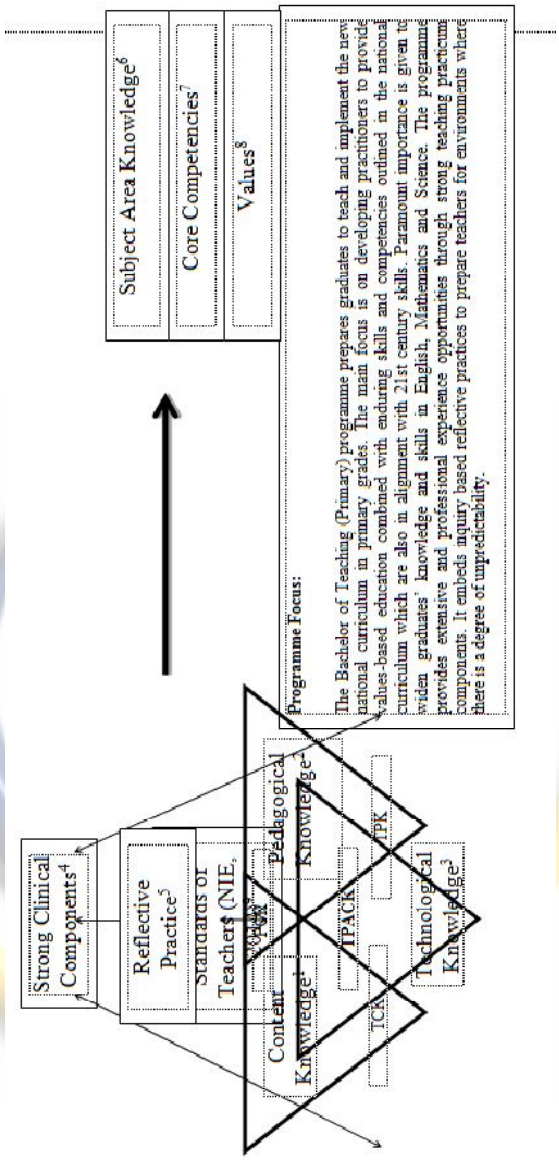

Table 3: Description of the components of TPACK framework adopted by Villa College for technology integration

Components	Attributes of Villa College In-Service Programme informed by the National Curriculum Framework
Content Knowledge[1]	Three subject areas given most weightage: Language, Mathematics and Science. Other subject areas include: Maldivian Studies, Islamic Studies, Art and Craft, Health and Physical Education.
Pedagogical Knowledge[2]	Main focus on subject-specific pedagogy. Other focus areas of pedagogy (derived from the National Curriculum Framework) include: ▪ Creating a positive learning environment ▪ Connecting prior learning to new learning ▪ Making learning meaningful ▪ Catering to individual differences (inclusivity included as a module)
Technological Knowledge[3]	One ICT module to provide fundamentals. Main focus on embedding ICT as a tool for information literacy and pedagogy.
Strong Clinical Components[4]	Two major teaching practicum (1st year and 3rd year) 15 week school attachment for student-teachers without teaching experience (on top of teaching practicum) An additional Teaching Clinics component of 12 credits
ReflectivePractice[5]	Reflective practice components are embedded throughout the programme. In particular, student-teachers are required to keep a daily log of reflection on teaching practical sessions.
Subject Area Knowledge[6]	Subject areas as outlined by the Maldives Curriculum Framework: ▪ Creative Arts ▪ Entrepreneurship ▪ Environment, Science and Technology ▪ Health and Wellbeing ▪ Islam and Spirituality ▪ Language and Communication ▪ Mathematics ▪ Social Sciences
Core Competencies[7]	Core competencies as outlined by the Maldives Curriculum Framework: ▪ Practicing Islam ▪ Understanding and Managing Self ▪ Thinking Critically and Creatively ▪ Relating to People ▪ Making Meaning ▪ Living a Healthy Life ▪ Learning for Sustainable Development ▪ Using Technology and the Media

Values[8]	Core values as outlined by the Maldives Curriculum Framework: ▪ Values relating to Self ▪ Values relating to Family and Others ▪ Values relating to Local and Global Community ▪ Values relating to Environment
Professional Standards of Teachers (NIE, 2014b)[9]	National Institute of Education. (2014b).*Professional Standards of Teachers*. Retrieved from http://nie.edu.mv/sites/default/files/Fannee%20Onigandu.pdf

Table 4: Clinical components of Villa College teaching model

Components	**Timing**	**Duration**
School Attachment for Student-Teachers without any School Experience	During the first year	16 weeks
Teaching Practicum 1	At the end of the first year	Mode 1 – 4 weeks Mode 2 – 8 weeks Mode 3 – 12 weeks
Teaching Clinics	During the second year	15 weeks
Teaching Practicum 2	At the end of the third year	Mode 1 – 4 weeks Mode 2 – 8 weeks Mode 3 – 12 weeks