Chapter 8
Cultivating 21st Century Skills in Teachers through Project-Based Learning

Erkkie Haipinge
University of Namibia, Namibia

ABSTRACT
This chapter describes the implementation of a Project Based Learning (PBL) course in a Bachelor of Education at the University of Namibia, whose aim was to develop student teachers’ 21st century skills. The course further offered students a model for applying learner-centered education, which is the recommended pedagogical approach in Namibia. Challenges observed in the course, have been limited opportunities for students to share project products and learning experiences. Also, since students use PBL for learning and not as a pedagogical model, challenges are anticipated in using the approach in their own teaching. Using Communities of Practice, 21st Century Skills framework and Project Based Learning, this chapter proposes a framework for creating learning communities for teachers. Recommending the use of online tools to support mentoring, idea and resource sharing, the framework is envisioned to facilitate the pedagogical application of PBL and teachers’ modeling of 21st century skills in practice.

INTRODUCTION
Most countries in the world are in transition from the information to a knowledge era characterized by increased access to information. This has led to a transition from information societies to knowledge societies. Critically, this expanded access to information through the far-reaching Internet has presented societies with new challenges of assimilating large amounts of knowledge being produced, in the process redefining education as a social act of producing and transmitting knowledge (UNESCO, 2005). In line with that, Namibia, through its developmental plan called Vision 2030, is transforming into a knowledge based society. As such, the country has revised the role of its education from that of “impacting knowledge in the form of large quantities of information to imparting learning competencies that would enable learners to cope with and take advantage of the rapidly changing world” (GRN, 2004, p. 30).
Cultivating 21st Century Skills in Teachers through Project-Based Learning

These learning competencies are 21st century skills such as critical thinking, collaboration, communication, creativity and innovation, self-directional skills, global and local connections, and technology skills (Ravitz, Hixson, English & Mergendoller, 2012). With these skills learners would not only use information communication technologies but also critically evaluate information; develop the capacity to use these tools to create new knowledge and communicate it effectively; as well as work collaboratively with others to solve problems through the mediation of appropriate technologies. Since the challenge of harnessing these skills in learners fall on teachers, Project Based Learning, through its capacity to facilitate the development of these key 21st century skills, was introduced into the teacher education curriculum at the University of Namibia.

Project Based Learning is a course in the Bachelor of Education’s Pre- and Lower Primary and Upper Primary programmes at the University of Namibia. The course’s aim is to engage “students in learning important knowledge and 21st century skills through an extended student influenced inquiry process structures around authentic questions and carefully designed products and learning tasks” (Unam, 2013). Based on the principles of constructivism, PBL was expected to promote student teachers’ active participation in learning and to help them gain skills on how to apply learner-centered education principles in their future practice.

However, the course has so far been predominantly learning-focused rather than being pedagogy-focused. This means that student apply projects as a learning method where they learn by carrying out projects, but they do not apply it as a pedagogical approach – learning how to facilitate projects carried out by their learners. As such, there has been insufficient evidence to show that student teachers would be able apply the skills learned in the field in a pedagogical sense. Although experiences gained as a learner can be later shape the student teachers’ teaching practice, teacher education “often lacks close links between theory and practice, role models, sufficient time for reflection, and support beyond the qualification phase in order to ensure the sustainability of learning” (Schweisfurth, 2015, p. 261).

This weakness inherent in teacher education coupled with the challenges identified in the implementation of the PBL course have inspired this chapter. One of such challenges identified was that students generate a lot of project ideas and create useful products but they lack platforms to share either. Thus the chapter proposes a framework for helping teachers to apply the skills learned through PBL, including 21st century skills, in their practice in the field. The objectives of the chapter can be summarized as follows:

1. To create a theoretically informed framework that guides the creation of a teachers’ learning community within a community of practice;
2. To create a technical design for operationalizing teachers’ community of practice;
3. To recommend online tools for supporting teachers’ community creation, interaction and content sharing.

This framework does not only benefits teachers that have completed the course at the University of Namibia, it also benefits education students and teacher educators at other teacher education institutions in other countries, especially those with interest PBL and in developing 21st century skills and constructivist pedagogies. This chapter should be conceptualized within the larger context comprised of global education reforms aiming to achieve education quality and to prepare learners for the 21st century. Global education reforms have openly prescribed learner-centered education, which makes the needs and experiences of the learner as the focus of education, as a means of achieving education quality. The discourse of learner-centered education (LCE) has however ignored pedagogy by predominantly focusing on the learner while ignoring the teacher (Schweis-