

Learning Portfolio: An Effective Tool to Enhance Higher Order Cognitive Skills among the Teacher Educators through Reflective Practices

S. Kugamoorthy <skugamoorthy@gmail.com>,
S. P. Karunanayaka<spkar@ou.ac.lk>, A. Ariyaratne <aariy@ou.ac.lk>,
T. Thanaraj <tthan@ou.ac.lk> & S. Jayasinghe <sjsinghe@yahoo.com>
Faculty of Education, The Open University of Sri Lanka

ABSTRACT

Learning portfolio is relatively a new approach in Sri Lanka used by educational institutions to develop higher order cognitive skills among the learners. The Faculty of Education of Open University of Sri Lanka introduced compiling of a learning portfolio in its Master of Arts in Teacher Education programme with the intention of enhancing reflective practices and developing higher order cognitive skills among teacher educators. The key aim of compiling a learning portfolio is that students are expected to develop higher order cognitive skills such as critical thinking, reflective thinking, self-evaluation, and decision making and transferring the present knowledge and skills for future development of them and their students. This study examined to what extent higher order cognitive skill development could be enhanced among teacher educators through compiling learning portfolios. A qualitative research approach was used in this study within a framework of an evaluation research design. Content analysis of 40 learning portfolios of a randomly selected sample was done using a checklist developed under six main criteria on organizing skills, presentation skills, reflective skills, capability of self-evaluation, higher cognitive skills and transferring knowledge and skills for future development. Data were analyzed qualitatively using codes and categories supplemented with elementary quantitative techniques such as percentages. Results revealed that engagement in this novel process of developing a learning portfolio has encouraged all teacher educators to reflect on their learning experiences in an organized manner. However, it was evident that their main focus was more on lower order cognitive skills such as describing, explaining and understanding, whereas a very limited focus was observed on higher order cognitive skills such as analysing, evaluating and creating. Teacher educators need more guidance, support, time and opportunity to further enhance their higher order cognitive skills by effectively engaging in the learning portfolio development process.

INTRODUCTION

The labour market requires professionals with high-level cognitive skills, which means professionals who know how to think in analytical, critical and reflective ways, how to ask questions, make decisions, solve problems, and know how to learn independently (Zoller & Pushkin, 2007). They are also skills for lifelong learning. In order to meet the market demand, the focus of education should target the development of skills of critical thinking and of autonomous and organized study. These skills will be useful to individuals because success in university courses and in also most professions require such skills (Cottrell, 2005; Garrison & Anderson, 2003). Although there is consensus on the need to develop these skills, what is not so clear is how they can be developed in students in university courses (McLoughlin & Luca, 2003) and this is much more difficult in the Open and Distance Learning (ODL) system of learning. Saba (2003) suggests that one of the main characteristics that differentiate distance education from other forms of education is the central focus on the student and on their independence in the learning process. He further argues whether distance learning successfully helps to develop autonomous and organized study skills and other high-level cognitive skills learning at distance.

In order to enhance development of higher order cognitive skills among educators, many higher education institutions which deliver their programmes in distance mode introduce learning portfolio in their study programmes. But in Sri Lanka learning portfolio is relatively a new approach used by educational institutions to develop higher order cognitive skills among the learners. The Faculty of Education of Open University of Sri Lanka introduced compiling of a learning portfolio as a compulsory course in its Master of

Arts in Teacher Education programme (MATE) with the intention of enhancing higher order cognitive skills through reflective practices. Through reflective practices teacher educators are expected to develop higher order cognitive skills such as critical thinking, reflective thinking, self evaluation and decision making, creative thinking, and transferring present knowledge and skills for future development of themselves as well as their students.

The MATE programme commenced in the year 2000, and up to now seven batches of students have followed the programme. The curriculum for the first five batches comprised Professional Courses, Support Courses, Continuing Education Courses and Discipline Based Courses. In the programme evaluation study conducted by the Department of Secondary and Tertiary Education (STE) in collaboration with Commonwealth of Learning (COL) in 2004, it was revealed that the Discipline Based Courses and some of the Support Courses were not fulfilling the objectives of the programme and needed significant modification (Fernando & Jayasinghe, 2004). Therefore two new courses were introduced to the programme under professional courses titled Contemporary Issues in Education and the Learning Portfolio.

The main aim of introducing a course on learning portfolio was to encourage students to critically reflect on the achievement of intended learning outcomes of each course in the MATE study programme. Compilation of a Learning Portfolio promotes reflective learning of students. Its goal is to build and nurture a culture of critical reflection on the work that teacher educators do on a regular basis, in order to be able to learn from challenges met, successes achieved and mistakes made. It has been revealed that the introduction of learning portfolio component to a professional development programme for teacher educators has made a great impact on their learning as well as their professional activities (Lekamge & Karunanayaka, 2007). This study attempted to examine to what extent learning portfolio enable students to develop higher order cognitive skills.

REVIEW OF LITERATURE

Learning portfolio is an organized collection of past and current accomplishments of students, and can be a valuable tool for assessing student capabilities. It is a rich, flexible document that engages students in continuous, thoughtful analysis of their learning. The learning portfolio stresses the interplay among the three vital elements of reflection, evidence, and collaboration or mentoring. Sustaining the process of developing and revising the portfolio is the power of writing as an outcome of thinking and learning, as well as a creative and facilitative activity for recording, assessing, improving and evaluating learning (Zubizarreta, 2004).

Portfolio development has become a favourite tool to encourage reflective practice in teacher education programmes (Feraro, 2000). As defined by Schon in 1996, reflective practice involves thoughtfully considering one's own experiences in applying knowledge into practice, while being coached by professionals in the discipline. Thus, integration of learning portfolio development in teacher education programmes for teacher educators would provide them with an opportunity to engage in reflective practices and develop their higher order cognitive skills.

Jennifer Moon has defined reflection is a form of mental processing – a form of thinking that we use to fulfil a purpose or to achieve some anticipated outcome. It is applied to relatively complicated or unstructured ideas for which there is no obvious solution (Moon, 1999a; Moon, 1999b). The ability to reflect has been associated with the higher levels of learning in a number of taxonomies of learning objectives. Reflection is defined by McLoughlin and Luca (2003) as the process that enables connections between various elements of some experience. According to Schon (1999), learning occurs only when the individual reflects on his personal experience. Corroborating, Socha, Razmov and Davis (2003) comment that one of the most effective tools to facilitate lifelong learning is the ability to reflect and learn from experiences.

Development of higher order cognitive skill is a component of education reforms based on the learning taxonomies of Bloom's Taxonomy. This includes critical, logical, reflective, metacognitive, and creative thinking etc. A dominant component in current reforms in education is the effort to train students to

develop higher order cognitive skills. This requires changes in teaching-learning processes, encouraging students to acquire analytical, critical and reflective thinking, learning how to make decisions, solve problems, learning to learn independently and to ask questions, combating the notion that every problem has a unique and correct solution (Zoller & Pushkin, 2007). According to VanLehn (1995), the acquisition of cognitive skills means to develop the ability to solve problems in intellectual tasks, where success is determined more by knowledge and by knowledge processing than by the physical fitness of the individual.

METHODOLOGY

The current study aimed at examining how reflective practice could enhance higher order cognitive skills among teacher educators through compiling learning portfolios.

The objectives of the study were to:

1. identify to what extent the learning portfolio development process had contributed in developing higher order cognitive skills among teacher educators
2. identify factors that facilitate / hinder development of higher order cognitive skills among teacher educators in the portfolio development process
3. To make suggestions to improve the learning portfolio development as a higher order cognitive process for teacher educators

A qualitative research approach was used in this study within a framework of an evaluation research design. From among sixty eight students of MATE programme in 2010/2011, who have compiled and submitted learning portfolios, forty were randomly selected as a sample of this study to analyse the reflective skills of the students. Content analysis of the 40 learning portfolios of the sample was done using a checklist developed under six main criteria on organizing skills, presentation skills, reflective skills, capability of self evaluation, higher cognitive skills and transferring knowledge and skills for future development. Under these six main criteria, forty four (44) items were developed, based on the expected outcomes of the course on learning portfolio. These forty four items were studied in the portfolios, and these data were analysed qualitatively using codes and categories, supplemented with elementary quantitative techniques such as percentages.

RESULTS AND DISCUSSION

Reflections written by the teacher educators in their portfolios during different stages of their learning process were analysed, to identify indications of higher order cognitive skills, and comparing for any changes. Table 1 shows some reflections of them, written at two different stages.

Table 1 Reflections of Teacher Educators

Higher Order Cognitive Skills	Reflections	
	Starting Stage	Reaching the final Stage
Critical thinking	".....today, the lecturer taught us a lesson on adult learning. He explained the differences between child learning and adult learning. He explained the characteristics of the adult learners. I understood the theory of adult learners which is explained by Malcom Knowles. It is good for me..."	"...I realized that the lecturer facilitated our learning by creating situations for us to find our own solutions. Further reading of handout explained that psychology does contribute to make us understand educational problems relating to the learner...At the end of the session I realized that this will assist me to make professional relationships with students and colleagues..."
Reflective thinking	"..... Today, I understand the differences between child learning and adult learning. I understood the theory of adult learners which is explained by Malcom Knowles. It is good for my career "	"...To understand the adult, Malcom Knowle's theory of adult learning is very important. To apply theoretical knowledge about andragogy in teaching-learning situations, the lesson "Adult Learning" is very important. As we are working with adult

		learners this theory is very important for us...”
Self evaluation	“...I felt shy about me when I realized that I was not aware of some of the most important issues with regard to education....”	“...content of the courses, learning activities assignment activities change me not only depending on course materials but also improve my self – learning and self decision ability. Now I can evaluate my self....”
Decision making	“.....as teacher educators we need to plan our teaching –learning processes in systematical way...”	“.....I think in future all teacher educators should give more attention on developing multiple intelligences among our students to cope with world of work....”
Transferring the present knowledge and skills for future development	“...what I learn from the theory I can apply in my teaching learning process...”	“.....as teacher educators we need to do more research work and apply innovative activities in the present educational system....”

It was evident that majority of the MATE students at the initial stages tended to provide descriptions or explanations on what they have done or learnt, instead of critically analysing their learning experiences. Even though all students have written reflections on each of the learning outcomes of each course as required, majority have not critically analysed, evaluated or reflected on their learning experiences, and the impact of the activity on them. It was thus obvious that in the initial stages the teacher educators were mainly involved in developing only lower order cognitive skills such as describing, explaining and understanding, whereas very little focus was observed on higher order skills such as analyzing, evaluating and creating, in their learning process. This has been a major barrier for the teacher educators to transform themselves from critical thinkers into reflective practitioners. However, most of them realized that they were lacking higher order thinking and the need to develop such thinking skills to bring innovativeness and creativity in their professional practice, due to feedback received from the instructors. Towards the final stages some of the teacher educators were able to develop their higher order cognitive skills in a positive manner, as indicated by the changes observed in their reflections. Therefore, it is recognized that through the portfolio development and reflective writing processes higher order cognitive skills could be developed among the teacher educators.

Skill development is one of the main objectives of the learning portfolio development process. It was observed that a majority of the students (67%) have developed their organizing skills in a satisfactory manner. Yet, only 40 % of the students have demonstrated developing their critical thinking, analytical skills, self evaluation, creativity, self regulated learning practices and skills in using new technology. Limitations in creativity and analytical skills have hindered the MATE students to write their reflections in a meaningful manner. At the same time, in the longer run, they are able to master higher order cognitive skills through their continuous active involvement in developing their learning portfolio, while receiving constant feedback from instructors. Further, they have attempted to compile and present their portfolios in a creative manner. It again proves that the learning portfolio has been instrumental to develop higher order cognitive skills among teacher educators.

Compiling appropriate and meaningful evidence to emphasize and demonstrate their effective learning was a requirement for students, which was another important strategy to identify their reflective practices. However, when analysing the evidence included by the students it was observed that only forty three percent (43%) could be considered appropriate. Majority have included copies of their assignments, copies of cover pages of books they have read, printouts of slides of presentations they have made, and photographs of day schools as evidence. Only sixteen percent (16%) of the students have incorporated a variety of evidences of reflective practice such as photographs of field experiences and extension work, creative displays, student work and critical essays...etc. Evidence for peer discussions and social interactions were very limited, which indicated that reflective practice with peer groups and the social agencies were insufficient. This could be due to lack of time for such activities as they have to carry out

their learning activities together with other family and professional responsibilities which would hinder their peer and social interactions. This study has found out that one of the major hindering factors to develop the teacher educators as reflective practitioners has been lack of time to spend on engaging in this activity, because in Sri Lankan context the teacher educators are used to spend more time in mundane and routine activities.

Through the development of the learning portfolio students are also encouraged to think and plan their future development, based on their reflections. It was observed that 51% of the students have reflected on their future plans like transferring knowledge/skills, career plans and preparation for changing current practices. Critical evaluation is a very important procedure for students' future development. However, it was observed that critical evaluations on their self development, achievement of the learning outcomes and impact of the programme, were not stated in a satisfactory manner by a majority of the teacher educators. Only forty percent (40%) of the students indicated their self responsibility on their own learning and development of their students and the institutions.

The following quotations emphasize some of their future plans and self responsibilities:

".... after following this programme I realized as a teacher educator I need to educate my student teachers in a fruitful way. Colleges of education also need to include developing portfolio procedures in their curriculum...."

"..... teachers and teacher educators need to be trained to prepare their students and student teachers to reflect on their learning experiences. Then only we can develop the needed competencies among the learners. This is the responsibility of the all teacher education institutions. I have a confident that I can produce a group of capable teachers to our nation education system....."

The majority of the teacher educators are satisfied with learning portfolio development processes. The following quotations emphasize their satisfaction;

".....writing reflections in learning experiences and compiling learning portfolio with evidence of learning activities really build satisfaction in my learning experiences....."

".....reflect on learning experiences and compiling learning portfolio fulfill myself and it help to develop skills and positive attitudes and encouraging me to continue my higher studies...."

CONCLUSIONS/RECOMMENDATIONS

Even though learning portfolio development is considered as an effective strategy to enhance higher order cognitive skills through reflective practices among educators, this study revealed that reflective skills of teacher educators were not at a very satisfactory level as expected. Several factors such as lack of understanding of basic principles, less focus on higher order cognitive skills, family responsibilities, work responsibilities and time limitations can hinder development of reflective skills, while critical self evaluation, application of theoretical knowledge and creativity can facilitate it.

It can be suggested that the course developers need to make available clear guidelines on portfolio development and continuous guidance and support for learners by providing constructive feedback on their reflective writing and learning portfolios. Further, strategies should be taken to encourage students to be responsible for their self learning and motivate them to be concerned about the following aspects:

1. Using different strategies to emphasize the important facts,
2. Collecting variety and appropriate evidences and incorporate them appropriately
3. Presenting evidence on peer discussion and social interactions,
4. Emphasize to keep a reflective journal to record the day to day learning experiences,
5. Guiding to write reflections in a critical manner,
6. Writing reflections on assessment activities, tutor feedback and peer feedback,
7. Critically evaluating the benefits of the learning activities, assessment procedures, learning approach, learning resources and strengths and weaknesses of the courses,
8. Developing higher order cognitive skills such as critical thinking, analytical skills and self regulated learning practices, and
9. Encouraging giving effective feedback for programme development.
10. Encouraging creativity in Portfolio presentation.

Overall, it can be concluded that it is the responsibility of the course developers and instructors to support students to minimize the effects of hindering factors and to maximise the use of facilitative factors to develop their reflective skills to enhance development of higher order cognitive skills. Close supervision and monitoring, providing constructive feedback and appreciating their efforts would motivate the teacher educators to engage in learning portfolio construction in a more meaningful manner. This will result in enhancing their higher order cognitive skills through reflective practices.

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