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Developing Deep Learning Approach Through Assessment Within Trainees Education Context Scope: Latest Teaching and Learning Technology

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Abstract: Learning is a way to interact with the world. The deeper the student's approach to learning, the higher the quality of the learning outcome. In contrast to surface learning, deep learning promotes the advanced skills necessary to deal with the world and application for life. Due to its importance, Institut Pendidikan Guru Kampus Ipoh has introduced a new assessment approach that places more emphasis on deep learning. This research focuses on the unpacking of standards by deconstructing student learning outcomes into component parts and competencies as a new approach in doing the courseworks. This research involves 108 trainees under Bachelor of Education Programme (PISMP) from various schools. The findings show four dimensions to be analyzed in relation to this new pedagogy of deep learning (NPDL) pilot study project that are the issues/problems, benefits of NPDL project implementation, lecturers' support and suggestions for improvements. From the findings, it shows that interventions to promote the use of deep approaches under this technique have had its success. Trainees' perceptions of their competence in performing the coursework tasks are very good in response to improvements in quality learning. At the same time, trainees also suggest that they need to be given enough time, clear information and adequate guidance by the lecturers.

Key words: deep learning, assessment, unpacking, competencies, implementation

1. Introduction

The terms "deep learning" have evolved as scholars study student and teacher attitudes in education. According to experts, the general characteristics of deep learning are aligned with developing a growth mentality and learning for the right reason. Through deep learning, the students will be applied with deep understanding needed for their success and at the same time, preparing them to be curious, independent learners as well as thoughtful, productive, and active citizens in their society. However, there are many challenges to create good learning environments especially in pedagogy and assessment (Michael Fullan, 2013). The modifications to teaching methods, task requirements and assessment processes need to be done to improve the quality of teaching and learning especially in the teacher education programme. Michael Fullan (2013) stated that the students need six core skills (6c) to achieve deep learning: collaboration, creativity, critical thinking, citizenship, character, and communication. These skills prepare the students to be life-long creative, connected and collaborative problem solvers besides being healthy and happy individuals who contribute to the common good in today's globally

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interdependent world (Michael Fullan, 2013).

2. Background of Study

According to the Malaysia Education blueprint 2013–2025, transformation in education includes transforming Teacher Training Institution (IPG) into a world-class teacher training centre by 2025. Teacher Training Institutions should be held more accountable for the quality of teaching practice to prepare the trainees in their future works. Quality teaching practice should be assured by means of techniques, processes and workflow to ensure that a product or course meets prescribed standards of excellence. Trainee teachers who are enrolled in higher education institutions should be provided with an increasingly diverse range of training routes and programmes in order to achieve excellence in teaching. In accordance with the increasing requirements for the quality of education, training technologies should be changed and improved. Regardless of the teaching methods, in order to increase the effectiveness of the educational process, it is necessary to create such psychological and pedagogical conditions as well as assessment which is an essential portion of teaching and learning. As in IPGK Ipoh, teaching practice evaluation methods can be divided into two broad categories, coursework assessment (50%–70%) and examination (50%–30%). Besides 6c, other criterias needed for a good coursework assessment are 3E (engagement, enhancement and extension process), DTR (digital tool resources), learning partners and unpacking-repacking strategy. Learning partner facilitates and create good collaborations between the trainees and other organizations and unpacking-repacking strategy is a new method that can reduce the burdens trainees face in doing coursework assessments. In this process, the coursework assignments questions for several subjects which earlier are done separately, can be joint together with the use of one big idea and essential questions.

3. Problem Statement

International research shows that teacher's quality is the most significant school-based factor in determining student outcomes. While there are many excellent teachers in Malaysia education system, a 2011 research by AKEPT found that only 50% of lessons are being delivered in an effective manner. According to Coates and Thoresen (1976), excessive workload lead to the failure to teach well. Shouldering too heavy a load at work, make the teachers become exhausted, stressful and eventually suffer *burnout. Besides teachers,* students also suffer from the workloads. Based on the Princeton Review (2019), 'Students Life in America Survey', over 50% of students reported feeling stressed, 25% reported that homework was their biggest source of stress, and on average teens are spending one-third of their study time feeling exhausted and anxious with homework burden. According to Yusoff et al. (2010), assignment, tutorial, classes, test or examination, quizzes, report, and practical are under academic workloads where students especially university students need to fulfill in order to graduate. Heavy academic workloads can create a feeling of nervousness and anxiety that can cause stress and can affect students mental health if it lasts for a longer period of time (Kausar, 2010). Therefore, there is a need to reduce the workload among the students and the teachers, and one of them is by implementing unpacking-repacking strategy. The term unpack means a few tasks from different subjects can be carried out as a joint assessment as the rubric-based assessment involve analyzing the quality of learning as a whole. Repacking of standards when the verification of learning like summative assessment is a need so the lessons can be shared as a whole and not just the isolated skills that make up the standard.

4. Objectives

This research is done to see the effectiveness of unpack-repack strategy while the trainees do their coursework project.

4.1 Specific Objectives

- To determine the trainees' perceptions toward the implementation of unpack-repack method in doing the coursework project.
- To determine the effectiveness of unpack-repack towards deep learning.

4.2 Research Questions

- What are the trainees' perceptions towards the implementation of unpack-repack method in doing their coursework project?
- What are the effectiveness of unpack-repack method towards deep learning among the trainees?

4.3 Literature Review

A research project is done by Simon Modeste (2015) about the "Unpack and Repack methods of mathematical activity with pre-service teachers". Simon presents a research project that aims to build a model of mathematical activity that can be used in primary teacher education. He proposes the idea of unpacking and repacking mathematical activity to achieve this goal. The concept of unpacking is the work of separating and analyzing each part of the mathematical practice and its role in the global process of problem solving. Genres would be a first level of unpacking. Besides, repacking is the part of the work that permits to underline the links between different parts and levels unpacked and understand how they interplay. He claims that a teacher can unpack and repack the mathematical work to produce a better teaching and learning activities in the classroom.

According to Tom Schimmer (2016), in this era of standards-based instruction, unpacking standards to identify specific learning targets and underpinnings, then organizing those targets and underpinnings into a purposeful learning progression is almost ubiquitous. The goal is to create an intentional sequence through which learners advance from the simplest to the most sophisticated demonstrations of learning, with the most sophisticated typically being a demonstration of proficiency against the identified standards. The unpacking of standards fuels the process of formative assessment. By unpacking and identifying specific targets, skills, and underpinnings, teachers are able to pinpoint aspects of strength and aspects in need of improvement. Since most standards are robust, complex, and include the combination of several elements, the unpacking process allows for a level of specificity in determining which skills are strong and which require further strengthening. The combination of unpacking and creating purposeful learning progressions makes it easier for teachers to determine why the students currently do not success to perform at the expected level. Without this process, teachers cannot be sure why the students are underperforming, while the students themselves will never know. To accurately use assessment information formatively this process is essential.

5. Methodology

This is a qualitative research survey, where the findings are obtained through interviews between the researcher and the trainees from Institut Pendidikan Guru, Kampus Ipoh. Using purposive sampling, the

respondents are 156 PISMP trainees from T unit with different schools: TESL, Pengajian Melayu and Pengajian Cina. The qualitative data are gathered through face-to-face interviews with the trainees who are purposefully selected for the study. The interviews with the trainees range between 28 to 52 minutes. The findings of this research is based on the four coursework tasks, being joint to produce one coursework. The courseworks involved are Bahasa Melayu Komunikatif (MPU3012), English Language Proficiency MPU3022), Falsafah Pendidikan Malaysia (EDUP3013) and Perkembangan Kanak-Kanak (EDUP3023). For TESL trainees, 3 courseworks for 3 subjects like Falsafah Pendidikan Malaysia (EDUP3013), English Language Proficiency (EDUP3023), Bahasa Melayu Komunikatif (MPU3012) are combined into one task. For Pengajian Melayu and Pengajian Cina, 3 courseworks for 3 subjects that are Falsafah Pendidikan Malaysia (EDUP3013), Perkembangan Kanak-Kanak (EDUP3023) and English Language Proficiency (MPU3022) are also combined to become one task. Trainees perceptions after performing the coursework project using unpack-repack method will be then analysed and coded into categories as shown in the results.

6. Findings

6.1 Trainees Perceptions

The findings show that there are four dimensions that can be analyzed in relation to the NPDL pilot study project. An analysis of the findings is presented in the tables below.

Table 1 Issues/Problems Arised

Sub-Themes/ Category 1: Difficult to understand the questions	Sub-Themes /Category 2: Time constraints	Sub-Themes / Category 3: Rigid RMK	Sub-Themes/ Category 4: Difficulties in creating learning partners with outside parties	Sub-Themes/ Category 5: Limited financial resources	Sub-Themes /Category 6: Restricted Internet access and guideline
i. Different subject lecturers want the results of the assignment that meet different criterias	i. The project is a bit burden some.	i. Too much content to be parsed in an essay amounted to 1000pp.	i. Hard to collaborate with outsiders.	i. Constraints on buying materials for pilot projects.	Difficult access to the internet in the classroom
ii. Unclear guidance, difficult to understand the instructions as they are not well detailed	ii. Short time to complete the project.	ii. Difficult to answer the tasks with the total number of words allowed	ii. The outsider are not friendly and do not help much	ii. Lack of financial support.	No NPDL guidebook or sample project to guide doing the project.

Table 2 Benefits of NPDL Project Implementation

Sub-Themes /Category 1: Time allocation	Sub-Themes /Category 2: Can achieve meaningful learning	Sub-Themes /Category 3: Improve multiple skills	Sub-Themes /Category 4: Reducing course workload
i. Can save time because trainees only need to prepare one answer for two assignments.	i. Get to know ideas and cultivate communication skills, enhance self esteem, makes the students think out of the box and help them engaging with outside partnerships	iii. Can enhance critical thinking and creativity. Improve collaboration with influential parties in the country as well as overseas to ensure the project is done successfully.	i. Reducing course work faced by the students as lessons can be shared as a whole and not just the isolated skills.

Table 3 Lecturers' Support

Sub-Themes/Category 1: Helpful	Sub-Themes/Category 2: Providing motivation
i. The lecturer has given a good briefing, provide guidance as well as ideas to encourage trainees to create good products. The lecturers also give good explanation	i. Lecturers are very encouraging, strongly motivate and help trainees to complete the

on how to carry out the project, but the trainees are still new to this. This at first becomes problems but they have been solved by clearer instructions later.	projects. Their supports are very good and they inspire the trainees to produce good projects.

Table 4 Suggestions for Improvements

Sub-Themes/ Category 1: (Facilities)	Sub-Themes/ Category 2: (Process of delivery)	Sub-Themes/ Category 3: (Guidance by lecturers)	Sub-Themes/ Category 4: (Time allocation)	Sub-Themes/ Category 5: (Harmony)	Sub-Themes/ Category 6: (Financial)
i. ICT system need to be improved, need to create official website or blog for NPDL.	i. Delivery process of doing courseworks need to be enhanced.	i. Need to provide adequate guidance with clear instructions.	i. Provide longer time and greater disclosure so that trainees can carry out this project to fulfil the desired objective.	i. Lecturers must have the same understanding so that trainees do not make mistake in completing coursework project. the a	i. Provide adequate funds

Table 5 Weakness of NPDL Project Implementation

Sub-Themes/Category 1: Difficulties in meeting the needs of the RMK	Sub-Themes /Category 2: Time shortage
The assignment in MPU3022 is Essay Writing but in the npdl, assignment becomes Academic Writing. The number of words is limited to 1300 words to answer 2 tasks, Edu 3013 and Edu 3023 which limit trainees to express ideas.	Limited time to plan an affiliated assignment apart from ensuring that lecturers and trainees can apply the assignment.

Table 6 Proposed Improvements to Implementation of NPDL

Sub-Themes/Category 1: Summary of Course Information (RMK) not too rigid	Sub-Themes/Category 2: Preparation of questions is made earlier	Sub-Themes/Category 3: NPDL training for all lecturers	Sub-Themes/Category 4: Wifi facilities
Changes made to RMK especially in assessment which should be flexible, reduce the instructions in the RMK so trainees are more independent and creative, increase the number of words to answer the job assignment.	Assignment questions should be provided one semester in advance so that lecturers have enough time to understand it more fully.	More exposure to NPDL, increase efforts to enhance the understanding of lecturers, and project implementation time should be longer	Upgrade the wifi connection & facilities in the whole IPG.

6. Discussion

Deep learning in the form of unpack-repack method is still new to the trainees as well as to the lecturers in IPGK Ipoh. Therefore, many issues arise, like time constraint, lack of financial source, limited access to internet and unfriendly learning partners from outside IPGK Ipoh. Despite having problems while carrying out the coursework project using unpack-repack method, there are a few benefits gained by both lecturers and trainees. Unpacking entailed the adoption of pedagogical approaches: the lecturers are meant to facilitate learning rather than to merely disseminate information. The effect of this collaboration project are felt by all the lecturers and trainees personally, as they learn to work in a new collaborative role in order to make their beliefs and understandings of teaching and learning transparent to each other. At the same time, they need to share their expertise, and giving help for the success of the given tasks. Based from the findings through interviews with the trainees, unpack-repack method has reduced their workload by reducing the amount of coursework project that need to be done. This has answered research question I.

To answer research questions 2, the effectiveness of unpack-repack method towards deep learning can clearly be seen. Unpack-repack method prepares the trainees from the simplest to the most sophisticated demonstrations of learning. By unpacking and identifying specific targets, skills, and underpinnings, the trainees are able to pinpoint aspects of strength and aspects in need of improvement. The unpacking process allows for a level of

specificity in determining which skills are strong and which require further strengthening. Most of all this new method has successfully instill deep learning towards the trainees to prepare themselves for future challenges as professional and competent teachers.

7. Conclusion

Unpacking-repacking strategy as one alternative in deep learning has reduced the workload faced by the lecturers and the trainees, save time and money, and allow effective learning in the assessment process. This is a key strategy in a most innovative assessment tools by which students extract meaning and understanding from course materials and experiences through the shared big idea. Through this method, a wider variety of participants can involve in the assessment process, and at the same time can provide more complex assessment experiences and produce more complex learning products.

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