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Implementing Inquiry-Based Learning in Second Language Teacher Education (SLTE): A Case Study of Student Teachers' Experiences

Syarifah Nurulaini Bt Syed Abd Mutalib and Raja Nor SafinasBt Raja Harun

Faculty of Languages and Communication, Sultan Idris Education University (UPSI), Malaysia

Abstract: The aims of this study are to explore the learning experiences of student teachers (STs) in learning to teach and to examine how inquiry strategies help STs in learning. 32 STs in TESL (Teaching English as a Second Language) programme were selected as participants. A qualitative research design was utilized to analyse data from interview, observation and document analysis. Data were analysed using percentage, frequencies and analytical model by Powell et al. (2003). Inquiry-based learning (IBL) approach is chosen in this study due to the strong educational theoretical support and beneficial outcomes from research. The findings reveal strong influences of IBL in assisting STs in learning to teach especially in their pedagogical content knowledge courses. The results indicate that inquiry approach should be implemented in SLTE curriculum to produce reflective teachers and problem solvers.

Key words: Second Language Teacher Education · Constructivist Learning Theory · Learning experiences

INTRODUCTION

Education plays a vital role in order to pursue its economic growth and the development of the nation. In producing highly qualified teachers, teachers training institutes are responsible for training and producing dynamic and innovative teachers [1]. Nevertheless, teacher education in the millennium is being challenged by fundamental changes such as in the concepts about the knowledge nature, the shifts in the theories of learning, rapid development of information technology and globalization [2]. One crucial concern is to improve the quality of education and schooling experience for young citizens as all children need to access a high quality education system relevant to the 21st century [3]. To realize this vision, the focus on teacher education is important in preparing good quality prospective teachers. All the elements of schools and schooling, teacher and teaching and students and learning need to be ready to respond to these challenges in order to produce creative, inventive and innovative human capital [2].

Hence, a comprehensive and a robust model on second language teacher education (SLTE) is vital to prepare pre-service teachers in becoming professional teachers who are able to adapt and adopt suitable techniques and methodologies parallel to their classroom contexts. According to Wright [4], apart from changing methods or instructional materials, the central focus is to understand STs' cognitive and affective conditions to understand the real situations to these problems. Considering to these factors, this study is hoped to provide a model which incorporates inquiry approach to improve SLTE programmes.

Research Questions:

- What are the learning experiences which assist student teachers (STs) in translating their knowledge into practice? In the first research question, the researcher intends to explore what kinds of the learning experiences which assist student teachers to teach such as their practical experiences, the courses they had taken and the strategies used in the class.
- How can the inquiry strategies help STs to learn how to teach? In the second research question, the researcher will examine what kinds of inquiry strategies that the STs used and how can these strategies help them to learn how to teach.
- What are the essential elements required to adopt inquiry learning to help the students to teach? In this research question, the researcher identifies the elements of inquiry strategies, such as conducive environment and assessment, which can be implemented in the teacher education programme.

Corresponding Author: Syarifah Nurulaini Bt Syed Abd Mutalib, Faculty of Languages and Communication, Sultan Idris Education University (UPSI), Malaysia.

Inquiry-Based Learning (IBL) as an Approach: Inquiry-based learning (IBL) is a process in which students are involved in their learning by formulating questions, investigating widely and ultimately build new understandings, meaning and knowledge [5]. IBL provides opportunity for students to develop research skills and become life-long learners [6]. IBL also promotes cognitive and analytical thinking development and increase learning satisfaction of learners [7]. A study by Gormally, Brickman, Hallar, & Armstrong [8] indicates great improvements in students' self-confidence in scientific abilities using inquiry lab instruction. In a study comparing between project-based and IBL activities, the results show that both teaching methods were appropriately efficient and effective [9]. Another study of Problem-based Learning (PBL) implementation in teacher education programme implied that parts of the PBL process are valuable to promote critical thinking [10].

Constructivist Learning Theory as the Theoretical Framework: Constructivism is "a perspective of teaching and learning in which a learner constructs meaning from experience and interaction with others and the teacher's role is to provide meaningful experiences for students" [11]. 'Inquiry' is anchored on the constructivist theory which originated from the ideas of Piaget, Dewey and Bruner [12]. Inquiry learning has different forms compared to traditional classroom, which usually expects students to know a fixed body of knowledge and accept the information given without questioning the instructor. In inquiry learning approach, teacher or instructor provides input, along with procedures and materials for students to investigate. In order to teach a specific concept, fact or skill, students will be asked to formulate their own problem to investigate. Thus, constructivist activities should allow ample time for student reflection to fit with current understanding [6].

According to constructivist theory of learning, students are provided with authentic learning opportunities that are built on students' prior knowledge so that they can connect the learning experiences to existing knowledge structures [6]. The learning experiences will encourage and motivate students to become active and self-directed learners, by working in small groups.

Inductive approach is based on constructivist theory, which proposes learners to construct the knowled.ge in their own meaning in reality. Inquiry-based learning can be categorized under the realm of inductive approaches to teaching and learning. It comprises a range of teaching methods including "inquiry learning", problem-based learning, case-based teaching and discovery learning. Despite many different terms used for these methods, they share several common characteristics which mainly focus more on student learning instead of teaching the content or knowledge of the topics. These methods involve students in active learning and thus, they take more responsibility in learning.

Methodology: This article is a partial report from a larger study. Case study is used to explore STs' experiences in their study to analyse data from interview with STs and teacher educators. 32 participants of full-time STs in their final (eight) semester doing TESL (Teaching English as a Second Language) programme in one of the universities in Malaysia were selected. The observations and document analysis were carried out during the class sessions and the data were used for triangulation. These participants were chosen because they have undergone the experience in the process of learning to teach since the beginning of the programme and had completed the practical (practicum) in schools. For interview session, six STs and one teacher educator were selected for a semi-structured interview.

RESULTS AND DISCUSSIONS

Data from interviews were gathered, coded and tabulated. Then, the results are presented in narrative summary.

Research Question 1: After completing all courses for TESL (Teaching English as a Second Language) programme, most of the STs mentioned four courses which had really assisted them in learning to teach which are KPD3016/KPD3026 (Instruction, Technology and Assessment 1 & 2), BIP3023 (Materials Development for the Classroom), KPR3012 (Seminar on Reflection of Teaching Practice) and Practicum. Their descriptions of learning to teach by applying the knowledge from the courses in Micro- and Macro-teaching show that they need to construct their knowledge in doing the (inquiry) activities to be able to be skilful learners and improve themselves in teaching.

The courses mentioned by STs are categorized as pedagogical content knowledge. Most students viewed that these courses are the utmost important subjects for them in learning to teach. Other STs mentioned KPD3016/KPD3026 as the most important courses for them in learning to teach. These views are similar to Shulman's [13] emphasis that 'pedagogical content knowledge' is the most prominent among other categories. Subsequently, when the knowledge and skills were gained in these courses, these STs need to practice

to teach what they had learned in micro- and macro-teaching. At this stage, they would be able to identify their strengths and weaknesses and improve themselves before going for real situation in schools.

Research Question 2:

Results from Observations and Document Analysis: Data from observations reveal interactive activities in the classroom. The results revealed that the STs could produce remarkable products when they share they knowledge and experiences.

Table 1: Meaningful Inquiry-based Activities Mentioned by Student Teachers

Inquiry-based activities	Number of Sts
1. Discussions	5
2. Experiment	3
3. Problem-based Learning	3
4. Discovery Learning	2
5. Presentation	2
6. Investigation	1
7. Projects	1
8. Action Research	1

In Table 1, most STs found that discussion is the activity which could really assist them in learning to teach. Other meaningful inquiry activities for the STs are experiment problem-based learning, discovery-learning and presentation.

The data was viewed, described and identified for critical events and then transcribed and coded into themes. Discussion was rapidly mentioned by STs as a kind of activity which had really assisted them in learning to teach. Discussion is viewed by STs to enhance their learning capabilities, increase motivation and promote cognitive and analytical thinking development. A ST stated that it is a conducive activity as they share knowledge/opinions among peers. Another ST used to do discussion in his own class during practicum and noticed some positive changes in his students' confidence and behaviour in learning English.

The STs described these activities were conducted in the courses they had mentioned earlier which helped them in learning to teach. The results show that the STs had the same opinion that the inquiry activities used in the courses enhance learning and their capabilities. In addition, STs realized that they had gained advantages from these activities including increasing their motivation, satisfaction and self-confidence as well as promoting cognitive and analytical thinking development and critical thinking. Table 2 showed the result in detail.

Table 2: Beneficial Outcomes of Inquiry-based Activities Mentioned by Student Teachers.

Inquiry activities	Theme
Discussion, Discovery Learning, Presentation, Problem-based Learning	Enhance learning/capabilities
Experiment, Problem-based Learning, Projects	Promote critical thinking.
Discussion, Problem-based Learning, Presentation	Promote cognitive and analytical thinking development
Discussion	Learning is more conducive when sharing knowledge with friends)
Presentation	Increase self-confidence
Projects	Increase learning satisfaction

Table 2 reveals that inquiry strategies used in the courses can help to enhance STs' learning and capabilities. A ST expressed that discussions enhance her capability to overcome new possibilities of ideas while another ST stated that by learning from each other during discussion can enhance her understanding of the material. Further, they expressed that as they share experiences, change ideas and opinions through discussions, learning will occur rapidly.

For the second theme, majority of STs view that doing activities such as experiment, problem-based learning and projects promote critical thinking. A ST expressed that doing experiment allows him to challenge new ways for him to learn. Experiment and project can help them to apply knowledge and theories into practice and solve problems that occur in real life.

Next, inquiry activities such as discussion, problem-based learning and presentation promote cognitive and analytical thinking development. A ST contended that doing problem-based learning can make her see her capabilities in completing the task and understand certain topics. Another ST said that presentation make her understand the content better. The results in this research correlate with other research [7, 8, 9, 14, 15] that inquiry activities and strategies enhance learning, increase self-confidence and learning satisfaction. A ST added that doing projects brings great satisfaction as she can apply the theories that she had learnt into practice.

Research Question 3: Data were transcribed and coded into six themes. The themes are (1) inquiry activities should be based on students' prior knowledge, levels of proficiency and background', (2) review lesson plan for effective inquiry-based instruction, (3) conducive environment for inquiry-based learning, (4) time allocated,

(5) cooperation of the university, schools and society and (6) measure the assessment for inquiry-based learning appropriately and based on students' abilities.

In the first theme, four STs, including a teacher educator suggested that 'inquiry activities should be based on students' prior knowledge, levels of proficiency and background'. A ST stated that teacher educator needs to consider and accept students' ideas according to their knowledge, capabilities and levels. When conducting inquiry activities, it is best that teacher educators should guide and assist students in problem solving during the activities. The lesson activities should consider the content and types of activity to suit students' prior knowledge so that they would feel motivated and confident to carry out the tasks given.

For the second theme, Sts stated that lesson plan should be reviewed from time to time for effective inquiry-based instruction (especially during reflective practice) so that the activities will give benefits to every student without neglecting them (especially with diverse learners). A teacher educator stated that in order to do this, the content and the teaching and learning process should be identified first. Then, the learning objectives are clearly stated with well-prepared and adequate materials.

For the third theme, two STs mentioned that conducive environment for IBL is needed to boost students' motivation and confidence. Therefore, teacher educator should respond to students' ideas and not put any restriction on the ideas which can impact their motivation and confidence.

Two STs stated that ample time should be allocated to allow students to achieve the best outcomes in their learning process. This view coincides with constructivist that the activities should allow ample time so that students' reflection fit with their current understanding [6].

The cooperation of the university, schools and society is essential to plan and discuss current issues that occur in the education in order to design successful inquiry-learning activities. A ST expressed her opinions that all lecturers should build good rapport with schools and society to discuss issues that currently happen in our educational systems and students' conditions so that suitable courses will be conducted for STs. During practicum, they will be able to update themselves and be well-prepared like experienced teachers. The STs also should be allowed to conduct programmes and activities with the students. More outreach programmes should be done in a way to promote STs to the public. In addition, experienced teachers should share their experiences and thoughts in workshops on how to handle the students at school so that STs would be prepared to face the real world of teaching.

Lastly, the assessment for inquiry-based learning should be measured appropriately. Dobb [16] suggests that assessment should provide additional subject-specific information to determine accurate development of the academic progress so that reasonable judgements could be made. Assessments should be based on students' abilities and their progress and not only scoring guides alone. Dobb [16] insists that test-taking skills and strategies should be taught explicitly so that the students do not feel intimidated and can take advantage to use all available information. If these elements are considered, the inquiry-based learning would be more successful as every student has opportunity to develop in the process of learning. These views coincide with Dobb (2005) in ten essential elements that need to be considered before implementing IBL in the curriculum.

CONCLUSION

The information obtained from this study correlates with existing literature and addresses new issues as well. The themes which emerged from the STs' lived experiences are useful as guidance for teacher educators and administrators to implement successful inquiry-based learning in teacher education curriculum. Although IBL offers several beneficial outcomes, there are certain elements that should be considered. Findings from this study show valuable information about the importance of conducive environment, appropriate and adequate assessment to determine the learners' progress development before IBL can be implemented successfully in educational system. Co-operation among schools, universities and society as a whole is crucial in order to produce high quality educational system. A learner needs to learn from other sources, sharing their ideas and opinions and apply the knowledge to become skilful and better learner. IBL activities which lead to experiential learning are strategies to produce learners with high-order thinking skills, more experienced and able to construct their own learning independently. This empirical study reveals the implementation of IBL in teacher education programme is fundamental to produce quality teachers with high learning capabilitie, confidence and motivation.

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