Online Case-Based Problem-Solving Module for ESL Teacher Education

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Abstract

In Malaysia, efforts to increase the quality of students' learning and achievement, and teachers' quality of delivery and instruction have been ongoing as documented in the National Education Blueprints 2015-2025. The complex nature of the teaching profession requires problem-solving skills to be instilled in teachers to ensure they are able to face the demands of the teaching profession and increase the quality of their instruction. However, research has shown that higher education has not adequately prepared pre-service teachers with problem-solving skills, pedagogical content knowledge, ability to bridge theory and practice, and to be adequately prepared to teach. Hence, this study is carried out to develop and implement an Online Case-Based Problem-Solving (OCBPS) Module to enhance problem-solving skills and other vital skills that can increase the competency of Teaching English as a Second Language (TESL) pre-service teachers. Pre-service teachers observe an authentic ESL writing lesson and engage in problem-solution analysis relating to pedagogy and content of ESL writing. A Single-Group Pre-test-Post-test Design is adopted in which scores of pre-reflection essays written by the pre-service teachers before the implementation of the module, and the scores of post reflective essays written at the end of the module implementation are compared. The findings for usability indicate that the OCBPS module has the potential of developing vital skills in ESL pre-service teachers like problem-solving skills, pedagogical content knowledge, and the ability to bridge theory and practice.

Keywords: Case-Based Learning, Pedagogical Content Knowledge, Problem-Solving, Bridge Theory and Practice, Teacher Education, Pre-Service Teachers

Introduction

Producing high quality teachers through professional development programs, life-long learning initiatives, and teacher education courses are part of the initiatives highlighted in the Malaysian National Education Blueprint 2013-2025 and 2015-2025 (Ministry of Education (MOE), 2014; MOE 2015). The most important element of quality education is the quality of the teacher (Moore, 2014). Teacher education programs are expected to carry out the government's aspirations of producing high quality teachers who are competent in their job.

There have been constant measures to upgrade teachers' competencies and efforts have been taken towards achieving this aspiration (MOE, 2014; MOE 2015).

Teachers are the backbone of any education system. Their training and preparation need to focus on producing educators with contemporary skills that are useful in this era. They need to reach their students through interesting content, engaging activities and varied pedagogies for effective delivery of lessons (MOE, 2014; MOE 2015). They are responsible for their students' progress and performance whether in academics or co-curricular activities, and educate students to become knowledgeable and skillful, with the ability to transfer the knowledge and skills learnt to solving real life problems. Teachers have many roles to play; as instructional experts, managers and counsellors (Moore, 2007). They have to be empathetic and sensitive to students' psychological, emotional, social and academic well-being. As specified in The National Education Philosophy of Malaysia (MOE, 2016), teachers are responsible for producing individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. In addition, teachers are expected to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving high level of personal goals. The National Education Philosophy of Malaysia also attempts to produce citizens who are able to contribute to the harmony and betterment of the family, society, and the country (MOE, 2016).

Teacher education programs must look into ways to produce teachers who are well-qualified, competent and have the ability to work professionally to solve issues involving the multi-faceted dimensions of education. One central issue that should not be overlooked is teaching critical problem-solving skills within various subjects and disciplines. In this study, problem-solving is related to ESL writing instruction. Writing skills is chosen because it is one of the most important skills taught in the Malaysian School English Curriculum. However, it is a difficult skill to learn and master (Kwan & Yunus, 2014; Nunan, 1999; White & Arndt; 1991). Nunan (1999) states that producing coherent written discourse is challenging for many native speakers, and "for second language learners, the challenges are enormous" (p. 271). A study in Malaysia's TESL teacher education faculty found that Malaysian ESL pre-service teachers have not entirely mastered their writing skills what more teaching this skill to students. Writing is a skill that is difficult to teach and master, and teachers often face problems in teaching students on how to become skillful writers (Nguyen and Hudson, 2010). Many pre-service teachers are worried about teaching, and their students 'learning (Goh & Matthews, 2011; Greiberg & Driscoll, 2005).

In this study, problem-solving in the ESL writing instruction relates to pedagogical and content problems. Research shows that "variations in 'opportunities to learn' in teacher preparation are related to differences in student achievement: teachers from countries that are top performers in PISA and TIMSS tend to have more opportunities to learn content, pedagogical content and general pedagogy" (Guerriero, 2013, p. 3). It is found that amongst the features of expert teachers are extensive pedagogical content knowledge, and better problem-solving strategies (Guerriero, 2013). Making PCK explicit to participants in interventions could help in the development of their PCK (Evens, Elen & Depaepe, 2015). The training, study and practice of PCK should be done in domain specific contexts to enhance PCK of the subject and skills the teachers are teaching (Xu, 2015).

In this study, pre-service teachers observe an authentic ESL writing lesson and engage in problem-solution analysis relating to pedagogy and content of ESL writing. These aspects are focused on because of the importance of pedagogical content knowledge (PCK) amongst

teachers (Shulman, 1986; 1987). PCK makes a difference for instructional quality and student learning (Evens et al., 2015). PCK in teachers powerfully impacts students' progress and instructional quality (Baumert, Kunter, Blum, et al, 2010). Teachers' PCK also correlated with students' motivation and enjoyment to learn (Kunter et al, 2013). These show that attention should be given in the training and development of teachers' and future teachers' PCK to improve the quality of education (Evens et al., 2015).

Statement of the Problem

It is found that higher education has not prepared pre-service teachers adequately to bridge theory and practice and apply pedagogical content knowledge to solve real-world problems (Choi & Yong, 2011; Mandl, Gruber & Renkle, 1996). Pre-service teachers lack content knowledge and do not know how to use suitable teaching methods (Darling-Hammond, 2006). The actual situation shows that many find it hard to teach effectively often due to lack of experience or even not being entirely prepared for the job (Nahal, 2010).

In addition, it was found that Malaysian pre-service teachers did not apply theory and practice during practicum teaching, and struggled to apply pedagogical-content knowledge, whilst coping with workload not related to teaching, and practicum supervision (Ong, Ros, Azlian, Sharnti & Ho, 2004). They have problems teaching mixed-ability classes (Kabilan, 2013; Kabilan & Raja Ida, 2008). Pre-service teachers also expressed concern about how and what to teach, choosing the appropriate and correct methodology, and using current and creative strategies of teaching (Goh & Matthews, 2011). Norshiha and Norsiah's (2011) study found teacher education programs tend to be isolated from the issues that are prevalent in the classroom such as teaching the socially disadvantaged, new immigrants, and students with mixed abilities. These shows that there are pertinent issues that need to be addressed in the training of pre-service teachers.

Malaysian novice teachers, in their first year of teaching, having transitioned from teacher education to the teaching profession, are not adequately prepared for the challenges of teaching (Senom, Zakaria & Shah, 2013). A nationwide study conducted by the Ministry of Education and The Ministry of Higher Education (2006) on Malaysian ESL novice teachers' readiness for their teaching profession, found that one of the problems faced is the difficulty in applying theory to practice, among other problems like curriculum specification, resources, teaching preparation, classroom teaching and management. An in-depth investigation found that students' low English proficiency is a frequent problem faced during their first years of teaching (MOHE & MOE, 2006).

Prospective teachers might face a complex situation and requires them to address complicated issues involving a range of variables and parameters (Nahal, 2010). In reality, teacher education covers a broad range of topics, and pre-service teachers have to be able to apply all the course contents, theories, principles and approaches as students and future teachers (Shulman, 1987). Classroom problem solving often requires making pedagogical and content decisions (Guerriero, 2013; Stuart and Thurlow, 2000). Sharing of perspectives, observation of real classroom teaching and openness to reflection and decision making can help pre-service teachers to re-evaluate and change their beliefs about teaching and become agents of change in their schools (Stuart & Thurlow, 2000).

Hence, teacher education programs should prepare pre-service teachers to be effective problem-solvers to cater to the current demands and needs of teaching. Pre-service teachers need effective and relevant training in problem-solving and ample training in application of theory, content and pedagogy to teaching. One of the challenges that teacher

education needs to pay attention to is how to bridge the gap between training and the actual demands of the teaching profession (Lee, 2004). Many teacher education programs are moving towards reducing the theory-practice gap. Theory that relates to practice will help novice teachers develop intuitive skills in dealing with classroom-related issues (Nahal, 2010).

Literature Review

While many studies highlight the problems novice teachers face, many do not investigate how the teachers overcome challenges and solve the problems (Senom, Zakaria & Shah, 2013). Several studies have suggested that teacher knowledge is crucial, and it is important for student teachers to assimilate academic knowledge with knowledge derived from experiential and practical experiences in the classroom (Guerriero, 2013). In teacher education, pre-service teachers need to be trained to foresee future professional problems and how they can apply theoretical, pedagogical and practical strategies to solve the problems. In teacher education training, pre-service teachers need to be given adequate examples. It is important to provide examples especially when teaching conceptual and complex materials (He, Yuan and Yang, 2013). They should be exposed to sufficient examples and case-based approach has been strongly recommended (He, Yuan & Yang, 2013). This approach has also been found to be effective in bridging the gap between theory and practice (Koc, 2012).

Previous studies on case-based learning have used written real dilemma cases. Koc's (2012) study found written cases to be effective for connecting theory-practice divide, apply theories and content knowledge, and developing effective problem-solving strategies amongst early childhood pre-service teachers. Koc (2012) further suggested the use of video, multimedia and online cases in future research studies. This provides the benefit of accessibility of the participants and any interested party hoping to use cases as a pedagogical tool in teaching and learning.

In addition, video cases presented online can be used in teacher education to develop problem solving abilities. Wong and Hartley (2003) claim that video technologies serve as tools for pre-service teachers to view ill-structured problem scenarios explicitly and repeatedly to identify problems faced in the classroom with the potential of generating effective solutions to the problems identified. Kale and Whitehouse's (2012) study uses Social Studies video case taken from an online problem-based learning video case library. The participants are from various education majors like English, World Languages, Mathematics, general Science, Special Education, and early Childhood. However, the use of video cases in developing problem-solving abilities needs to be further explored as there is lack of empirical support to measure its effectiveness (Kale & Whitehouse, 2012).

Kocyigit and Zembat (2013) promote the use of authentic tasks that present real-life conditions into pre-service teacher education to helps pre-service teachers to encounter possible future problems and make recommendations. They made use of computer-based presentations and video recording technology of real-life classroom teaching to analyse problems and discuss solutions. While Kocyigit and Zembat (2013) used participants from the Special Education Methods course offered in Pre-school education undergraduate program, they suggested that future investigations should be conducted in other courses.

Case-based learning is gaining popularity for its epistemological foundation that fosters learners' higher cognitive processes, meaningful learning experiences, and effective problem-solving capabilities (Choi & Lee, 2009; Koc, 2012; Kocyigit & Zembat, 2013). The use of cases in teacher education has been found in courses such as Classroom Management in

Education Psychology, Early Childhood Education Programs, and Special Education Methods in Pre-school Education (Choi & Lee, 2009; Koc, 2012; Kocyigit & Zembat, 2013). However, there has not been any study done on using case-based learning in a writing methodology course in a TESL teacher education program.

The solution that this study proposes is the development of an Online Case-Based Problem-Solving (OCBPS) Module to address the issues of enhancing problem solving skills, bridging theory and practice, application of pedagogical and content knowledge, and for ESL pre-service teachers to be adequately prepared for their teaching job. This study addresses the gap by providing the opportunity for ESL pre-service teachers to be trained for problem-solving through the OCBPS module. It aims to fill the gap on using online cases in a writing methodology course to help enhance pre-service teachers' problem-solving abilities, develop the application of pedagogical content knowledge, develop the ability to bridge theory and practice and prepare them for writing instruction.

Methodology

Before the OCBPS module is implemented, 19 TESL pre-service teachers from the Faculty of Education of a public university write a pre-reflection essay on the problems ESL teachers encounter in ESL writing instruction in rural secondary schools. In the implementation of the module, the pre-service teachers observe an authentic ESL writing lesson in a rural context and engage in problem-solution analysis relating to pedagogy and content of ESL writing. They write a post reflection essay after the module is implemented. Two raters rated the pre- and post-reflective essays and a Paired-Samples T-Test for Inter-Rater Reliability was done From the analysis, it was found that there is no significant difference between the scores given by Rater 1 and Rater 2 with a value of $\alpha=0.062$, hence there is inter-rater reliability.

A Single-Group Pre-test-Post-test Design is adopted in which scores of pre-reflection essays written by the pre-service teachers before the implementation of the module, and the scores of post reflective essays written at the end of the module implementation are compared. The scores of pre- and post-reflections are compared to determine if there are significant differences in the scores. If the scores have significant difference, it can be concluded that the module is able to improve the pre-service teachers' reflective abilities in the following aspects:
1. Pedagogical Content Knowledge
2. Problem-Solving Skills
3. Bridge Theory and Practice

Findings

Pedagogical Content Knowledge (PCK). *The two raters evaluated the pre-service teachers'* *pre- and* post-reflective essays. The scores given for the reflective essays written before and after the module implementation can be compared to determine if the pre-service teachers' pedagogical content knowledge improved from their experience participating in the Online Case-Based Problem-Solving Module. The results are reported below:

Normality Test
Table 1
Kolmogorov-Smirnov and Shapiro-Wilk Test of Normality for PCK

	Tests of Normality					
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Diff	.200	19	.044	.927	19	**.153**

Normality Test	Shapiro-Wilk
Sig. Value	**0.153**

Table 1 above shows the result of testing normality of data using Shapiro-Wilk value. A non-significant result (Sig. value of more than 0.05) indicates normality. Based on the table above, the sig. value for Shapiro-Wilk is 0.153 and the value is greater than α=0.05. Thus, it shows that the data is normally distributed. Since the data is normal, to test for the significance in mean differences for pedagogical content knowledge, the most suitable statistical analysis is paired t-test.

Paired-Sample T-Test for PCK
Table 2
Paired-Samples T-Test for PCK

		Paired Samples Test							
		Paired Differences							
		Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pre - Post	-2.89474	3.67264	.84256	-4.6649	-1.1246	-3.436	18	**.003**

Test	p-value
Paired-Samples T Test	**0.003**

Based on the table above, the significant value is 0.003. A significant value is set at α= 0.05. If the value is less than 0.05, we can conclude that there is a significant difference between the two scores (pre and post scores). From the analysis, it was found that the significant value = 0.003 which is less than α=0.05, thus we can conclude that there is a significant difference in the scores for pre and post reflections showing improved pedagogical content knowledge.

Problem-Solving (PS). The two raters evaluated the pre-service teachers' pre- and post-reflective essays for problem-solving skills. The scores given for the reflective essays written before and after the module implementation can be compared to determine if the pre-service teachers' problem-solving skills improved from their experience participating in the Online Case-Based Problem-Solving Module. The results are reported below:

Normality Test
Table 3
Kolmogorov-Smirnov and Shapiro-Wilk Test of Normality for PS

	Tests of Normality					
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Diff	.119	19	.200	.965	19	**.672**

Normality Test	Shapiro-Wilk
Sig. Value	**0.672**

Table 3 above shows the result of testing normality of data using Shapiro-Wilk value. A non-significant result (Sig. value of more than 0.05) indicates normality. Based on the table above, the sig. value for Shapiro-Wilk is 0.672 and the value is greater than α=0.05. Thus, it shows that the data is normally distributed. Since the data is normal, to test for the significant in mean differences for problem-solving skills, the most suitable statistical analysis is paired t-test.

Paired-Sample T-Test for PS
Table 4
Paired-Samples T-Test for PS

		Paired Samples Test							
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pre - Post	-5.61842	3.72060	.85356	-7.41169	-3.8252	-6.582	18	**.000**

Test	p-value
Paired-Samples T Test	**0.000**

Based on the table above, the significant value is 0.000. A significant value is set at α= 0.05. If the value is less than 0.05, we can conclude that there is a significant difference between the two scores (pre and post scores). From the analysis, it was found that the

significant value = 0.000 is less than α=0.05, thus we can conclude that there is a significant difference in the scores for pre and post reflections indicating improved problem-solving skills.

Application of Theory-Practice (TP). The two raters evaluated the pre-service teachers' pre- and post-reflective essays for application of theory and practice. The scores given for the reflective essays written before and after the module implementation can be compared to determine if the pre-service teachers' application of theory and practice improved from their experience participating in the Online Case-Based Problem-Solving Module. The results are reported below:

Normality Test
Table 5
Kolmogorov-Smirnov and Shapiro-Wilk Test of Normality for TP

	Tests of Normality					
	Kolmogorov-Smirnov			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Diff	.110	19	.200*	.975	19	**.862**

Normality Test	Shapiro-Wilk
Sig. Value	**0.862**

Table above shows the result of testing normality of data using Shapiro-Wilk value. A non-significant result (Sig. value of more than 0.05) indicates normality. Based on the table above, the sig. value for Shapiro-Wilk is 0.862 and the value is greater than α=0.05. Thus, it shows that the data is normally distributed. Since the data is normal, to test for the significant in mean differences for application of theory and practice, the most suitable statistical analysis is paired t-test.

Paired-Sample T-Test for TP
Table 6
Paired-Samples T-Test for TP

		Paired Samples Test							
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre - Post	-4.35526	4.04258	.92743	-6.30373	-2.40680	-4.696	18	**.000**

Test	p-value
Paired-Samples T Test	**0.000**

Based on the table above, the significant value is 0.000. A significant value is set at α= 0.05. If the value is less than 0.05, we can conclude that there is a significant difference between the two scores (pre and post scores). From the analysis, it was found that the significant value = 0.000 is less than α=0.05, thus we can conclude that there is a significant difference in the scores for pre and post reflections indicating improved application of theory and practice in the reflection.

Overall Scores. The two raters evaluated the pre-service teachers' pre- and post-reflective essays and obtained the overall scores. The scores given for the reflective essays written before and after the module implementation can be compared to determine if the pre-service teachers' scores improved from their experience participating in the Online Case-Based Problem-Solving Module. The results are reported below:

Normality Test
Table 7
Kolmogorov-Smirnov and Shapiro-Wilk Test of Normality for Overall Scores

Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Diff	.449	19	.000	.343	19	**.000**

Normality Test	Shapiro-Wilk
Sig. Value	**0.000**

Table above shows the result of testing normality of data using Shapiro-Wilk value. A non-significant result (Sig. value of more than 0.05) indicates normality. Based on the table above, the sig. value for Shapiro-Wilk is 0.000 and the value is less than α=0.05. Thus, it shows that the data is not normally distributed. Since the data is not normal, to test for the significant in mean differences, the most suitable statistical analysis is Wilcoxon Signed Rank Test.

Wilcoxon Signed Ranked Test
Table 8
Wilcoxon Signed Rank Test for Overall Scores

Test Statistics

	Post - Pre
Z	-3.461

Asymp. Sig. (2-tailed)	.001

Test	p-value
Wilcoxon Signed Rank Test	**0.001**

Based on the table above, the significant value is 0.001. A significant value is set at α= 0.05. If the value is equal to or less than 0.05, we can conclude that the difference between two scores (pre and post-test) is statistically significant. From the analysis, it was found that the significant value = 0.000 is less than α=0.05, thus we can conclude that the two sets of scores are significantly different. The overall scores improved after the Online Case-Based Problem-Solving Module was implemented.

Summary of Pre-and Post-Reflective Essay Scores for All Components. The scores of pre- and post-reflections are compared to determine if there are significant differences in the scores and whether the OCBPS module is able to improve the pre-service teachers' abilities in Pedagogical Content Knowledge; Problem-Solving Skills; Bridge Theory and Practice; and Overall Score. The following are the summary of findings for all the components evaluated in the pre- and post-reflective essays.

Table 10
Summary of the Difference in the Mean Scores between Pre and Post Reflective Essays for All Components

Components	Test	p-value
Pedagogical Content Knowledge (PCK)	Paired-Samples T-Tests	0.003
Problem-Solving (PS)	Paired-Samples T-Tests	0.000
Theory-Practice (TP)	Paired-Samples T-Tests	0.000
Overall	Wilcoxon Signed Rank Test	0.001

The analysis was done using the Paired-Samples t-test for normal data (PCK, PS, and TP), and Wilcoxon Signed Rank Test for the overall data that is not normally distributed. The significant value is used to determine if there are any significant differences in the scored obtained for pre and post-reflective essays. The level of significance was set at α=0.05. The output produced shows that the p-value obtained for each of the three components; PCK = 0.003, PS and TP =0.000. The p-value obtained for each of the component is less than α=0.05. It is therefore proven that there are significant differences between the mean scores

produced for pre and post-test. The significant differences are apparent in terms of PCK, PS and TP. In addition, the overall scores between pre and post reflective essays show statistically significant difference (p-value 0.001 < α=0.05). From the results, it can be concluded that there are significant improvements in the scores obtained by the pre-service teachers in their post reflection essays at the end of the module implementation. This shows that the module is effective in improving the pre-service teachers' abilities to reflect on pedagogical content knowledge, problem-solving, application of theory and practice and the overall abilities in these aspects.

Discussion

The OCBPS module develops pedagogical content knowledge. The module emphasizes on the importance of pedagogical content knowledge and how these two are important for a holistic learning experience. The pre-service teachers said that they were able to apply PCK in the problem-solution task and they will apply PCK in their teaching. From the t-test analysis for PCK, it was found that there is a significant difference in the scores for pre and post reflections showing improved pedagogical content knowledge. The pre-service teachers agree that teachers should be equipped with pedagogical content knowledge for effective instruction. The case-based problem-solving module taught them that pedagogical and content knowledge in combination is important for teachers to apply in their instruction. This is parallel to results from several studies that found case-based learning develops engagement in multiple analysis of problems and justification of solutions (Choi & Lee, 2013; Pierce, 2002; Merseth, 1999; Harrington, 1995); reasoning clearly and logically (Pierce, 2002).

It was found that the strength of the module is it develops critical problem-solving skills. From the t-test analysis, it was found that there is a significant difference in the scores for pre and post reflections indicating improved problem-solving skills. The pre-service teachers' reflections also revealed that the OCBPS module develops problem-solving skills. According to Merseth (1996), using cases in teacher education is beneficial because of first, "the ability of cases to help develop problem solving and decision-making skills"; second, "the ability of cases to increase awareness of multiple perspectives and other educational settings"; third, "the ability of cases to enhance beliefs about personal authority and efficacy"; and fourth, "the ability of cases to form habits of reflection" (p. 731). Research has shown that online video cases can support problem solving skills (Choi, 2007; Choi & Johnson, 2007; Henson, Kennett & Kennedy, 2003; Pierce, 2002).

The module is also able to bridge theory and practice. From the t-test analysis, it was found that there is a significant difference in the scores for pre and post reflections indicating improved application of theory and practice in the reflection. The OCBPS module has helped the pre-service teachers to have a frame of reference of the theories and approaches they have learnt. Being prepared to use the theories and approaches can guide the pre-service teachers during practicum and as future teacher. This finding is similar to the finding by Koc (2012) that the use of case-based learning in the early childhood courses was effective in promoting theory-practice connections. Other researchers found that case-based learning develops application of theories to the learning process (Choi & Lee, 2013; Koc, 2012; Henson et al., 2003; Merseth, 1999). The use of case-based learning with videos has a promising potential of establishing the essential connection between theory and practice (Blomberg et al., 2013).Teacher knowledge is context-specific, non-stagnant, and evolving (Clark & Lampert, 1986), thus it should be learned in context rather than in complex abstraction (Ozkan, 2001). One way of learning in-context is through case observations rather than from

textbooks. Constructivism supports pre-service teachers' acquisition of teacher knowledge because of its principles of combining theory and praxis (Ozkan, 2001). The finding is supported by the principles of constructivism.

Conclusion

Online cases have been used to present real-life problems (Choi & Lee, 2009). In the current study, the video case is recorded in a real classroom in a public secondary school for secondary education Teaching English as Second Language (TESL) pre-service teachers. The researcher captures a case in a writing classroom for the ESL writing methodology course participants with the hope that they can apply the theories and approaches learnt in the course for their PCK problem-solving processes. The video case presented is generated from a localized professional setting and directly related to the participants' area of specialization for it to be domain specific. This current study is significant in that it develops situations that prospective teachers will likely encounter providing online resources that are authentic to the Malaysian context for teacher education programs especially the TESL program to use for instructional purposes.

The Online Case-Based Problem-Solving Module for ESL Writing Instruction has never been developed before. It is developed to address issues pertaining to teacher-education that have received prominent attention. It also addresses the lack of research on the case-based learning pedagogy in an ESL writing methodology course. The development of this module is to address the lack of problem-solving skills in Malaysian students and the need to enhance this skill as proposed in the Malaysian Education Blueprint (2015-2025). At a macro level, the OCBPS module is a significant contribution to stakeholders. At a micro level, it is significant to teacher educators, pre-service teachers, policy makers, teachers, researchers, and those interested in developing instructional online case-based modules for improving pedagogical and content problem-solving skills and in the process link theory and practice. This study shows the potential that case-based learning has in developing problem-solving skills, pedagogical content knowledge, bridge theory and practice, preparation for teaching, and in enhancing other skills that are essential in teacher education in producing teachers with 21st century skills. This study provides the implications that more studies of this nature is needed to provide more platforms for the training of vital skills, and knowledge growth in various domains of teacher education.

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