



The Effectiveness of Thinking-Based Blended Learning in Developing Female Saudi EFL Teachers' Pedagogical Knowledge and Performance

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ABSTRACT

Blended learning, combining face-to-face and online learning, is a promising practice with potential to benefit diverse learners, including teachers themselves. The present study investigates the effectiveness of a thinking based blended learning pedagogy in a TEFL teacher training program. A quasi-experimental one-group pre-test/post-test design was adopted: a sample population of 21 in-service EFL teachers was trained in this model by the author, face to face, for 24 hours over six weeks, with an additional three to four hours of study online and one or two hours of portfolio tasks for each of five modules: Classroom Management, Presentation and Practice, Lesson Planning, Communication Skills, and Memorable Learning. The skills of teaching for thinking were simultaneously incorporated in the training sessions to train teachers on the use of specific instructional strategies that stimulate the students' thinking. A pedagogical knowledge pre-test/post-test and a classroom observation checklist assessing enhancement of learning were administered. The results show a significantly positive effect on both knowledge and performance, indicating that a well-structured blended learning-based program is an effective tool for teachers' professional development.

Keywords: blended learning, TEFL, teaching for thinking, teacher training, thinking skills

INTRODUCTION

The rapid development of information and communication technology (ICT) in recent years has opened up immense opportunities for the development of teaching and learning. ICT offers rich avenues to innovatively address educational issues and provide solutions to the increasing demand for learning resources for both teachers and students. For instance, ICT offers new opportunities for interaction among students and teachers. E-learning, the most influential application of ICT in education, has progressed considerably in recent years and holds promise for the development of effective, non-traditional patterns of teaching and learning. Previously explored options for e-learning range from the use of web applications in traditional classrooms to the implementation of completely online courses without any face-to-face interaction.

However, many limitations of online learning and related problems have been reported (Connolly, MacArthur, Standsfield, & McLellan, 2007; Dobbs, Waid, & del Carmen, 2009; Marra & Jonassen, 2001; Melody, Allen, & Jensen, 2012; Sikora & Carroll, 2002; Weimer, 2012). One significant barrier to convincing faculty to teach online courses, as indicated by Kirtman (2009), has been faculty concerns that the use of online teaching may have a negative impact on student learning. Moore (2007) claims that administrators have the challenge of channelling practices at their institutions away from typical classroom roles into those more appropriate for the exploitation of educational technology.

The blended learning approach has emerged out of this situation. Blended learning utilises a combination of face-to-face interaction (in a traditional classroom) and web-based learning to get the “the best of both worlds” (Dziuban, Hartman, & Moskal, 2004, p. 3; Morgan, 2002) and optimise both environments. Blended learning has been described as “[...] the thoughtful fusion of face-to-face and online learning experiences,” integrating these communication modalities to create “[...] a unique learning experience congruent with the context and intended educational purpose” (Garrison & Vaughan, 2008, p. 3). The concept has developed as a result of the increasing understanding of the strengths of each approach; blending them into one encourages better engagement in learning programs and allows for the adjustment of teaching approaches in order to maximize opportunities for learning that incorporate the use of content knowledge in meaningful interactive activities in person and online.

Blended learning has potential benefits for both teaching and learning. In the United States, the Department of Education's National Education Technology Plan (2010) has emphasised the importance both of employing blended learning and of developing an efficient approach to sustaining innovation. It has been reported that blended learning is more effective than either face-to-face or online learning alone (Nagel, 2009). In Canada, according to surveys, interviews, and research projects conducted at eight universities, blended learning practices have yielded positive results in terms of their effects on teaching and learning, learner flexibility, student satisfaction, and performance (Collaboration for Online Higher Education Research [COHERE], 2011).

Blended learning also presents an opportunity to enhance an institution's reputation (Vaughan, 2007). A meta-analysis conducted by Means, Toyama, Murphy, Bakia, and Jones (2009), involving more than 1,100 empirical studies of online learning – mostly among older learners – published from 1996 to 2008, showed that blended classes produce better student learning outcomes than do classes with face-to-face interaction alone. Similarly, according to Hartman (2010), blended learning has the potential to improve the process of teaching and learning, increase access to a wide variety of learning resources for students, and provide a confluence of digital literacies for learning and working. The findings of Orhan (2008) reveal that the majority of students surveyed (90%) enjoyed being in a blended learning environment, and that the environment improved students' attitudes to their geography course and developed their critical thinking skills as compared to the traditional learning model. A positive correlation between students' attitudes toward a geography course and their critical thinking disposition under blended learning has also been found (Korkmaz & Karakuş, 2009).

López-Pérez, Pérez-López, and Rodríguez-Ariza (2011), in a large-scale study of 1431 students in 17 groups, show that blended learning reduced dropout rates and improved exam marks. It has also been pointed out, by Banerjee (2011), that blended environments that provide multiple modalities for learning, substantial interactivity, and constant connection with teachers and peers, are preferred by increasing numbers of students. The increasing interest in and employment of this form of approach to learning will significantly enhance learning experiences for students (Albrecht, 2006; Marquis, 2004) and benefit the learning process (Bourne & Seaman, 2005).

Blended learning has shown potential in the professional development of teachers as well, positively influencing their attitudes and content knowledge and motivating many to transform their classroom practice to varying degrees (Owston, Sinclair, & Wideman, 2008; Owston, Lupshenyuk, & Wideman, 2008). Berger, Eylon, and Bagno (2008) show that

appropriate use of an online environment in a blended program can lead to continuous learning among physics teachers. Owston, Lupshenyuk, & Wideman, (2008) found that blended programs were effective in providing teachers with the opportunity to learn on the job and collaborate with other teachers. Vaughan (2007) reported that surveyed post-secondary teachers suggested that blended courses create more chances for teacher–student interaction, increase student involvement in the learning process with more opportunities for continuous improvement, and create a more flexible teaching and learning environment. Blended learning has also been shown to improve achievement among pre-service English language teachers (Badawi, 2009; El-Deghaidy, & Nouby, 2008). Finally, the effectiveness of this form of program in Initial Teacher Education, that is, education for trainee teachers preparing to teach in the lifelong learning sector, has recently been investigated by Bhote (2013) on behalf of the Institute for Learning in central London. The study concluded that the blended mode of training was as effective as traditional instruction in allowing learners to develop their professional knowledge and skills. In addition, the study found that this was a cost-effective means of delivering training to aspiring teachers.

In Saudi Arabia, higher education is moving increasingly to blended and fully online environments. Studies conducted by Alebaikan (2010) and Almalki (2011) conclude that blended learning has the potential to improve the quality and efficiency of Saudi universities, helping them offer successful learning experiences to Saudi students. In particular, a blended learning environment offers female Saudis the flexibility to engage in higher education while maintaining their own cultural values and traditions (Alebaikan, 2010).

Critical thinking is essential to cope with this rapidly changing world, for both students and teachers. Content learning and improvement of thinking skills can reinforce and contribute to each other in a highly integrated fashion (Prawat, 1991), and fostering proficiency in thinking skills is a basic goal of teacher education programs. For example, in the realm of language teaching, the Teaching English to Speakers of Other Languages (TESOL) and American Council on Teaching of Foreign Languages (ACTFL) programs are assessed for accreditation by the (US) National Council for Accreditation of Teacher Education (NCATE) on the basis of evidence that they strongly promote a variety of thinking skills. These include problem-solving and decision-making skills (NCATE, 2008).

Beyer (2008) believes that the research indicates that such teaching is worthwhile, showing the effectiveness of instruction in thinking skills and the benefits resulting from it. On this point, Ong (2006) stresses that “the essence of efforts to improve students’ thinking is the conceptualisation and implementation of a well-developed thinking skills program” (p. 303). Online discussion can provide a wider range of perceptions than in-class discussion and can promote thinking skills and in-depth information processing (Chen & Looi, 2007). Further, Lambe (2007) indicates that a carefully constructed blended program can effectively support key aspects of pre-service training, such as facilitating collaborative learning, developing knowledge, developing skills in critical reflection, and understanding the needs of students from diverse backgrounds. Finally, Wannapiroon (2009) has found that problem-based blended learning and teaching are effective in developing undergraduate students’ critical thinking skills.

BACKGROUND TO THE CURRENT INVESTIGATION

The improvement of teachers’ subject-matter knowledge and pedagogical skills are key objectives for teacher preparation programs and for colleges of education in general. Vaughan (2007) points out the importance of and need for continuing professional development for

teachers. Blended learning has come to the fore in all forms of teaching and learning as a result of the need to fully engage learners in the process of learning. Its practices can be used to support on-going teacher learning and help increase the independence of teaching and learning from time and space. Studies such as the one conducted by Owston, Sinclair and Wideman (2008) indicate that blended learning can be successfully used as a model for professional development. Its advantage in language learning lies in the fact that it is able to utilize both face-to-face and e-learning, allowing Computer Assisted Language Learning (CALL) to re-establish itself as an “[...] innovative component of general language teaching” (Neumeier, 2005, Abstract). However, a more recent study by Kocoglu, Ozek and Kesli (2011) casts doubt upon its benefits as part of an English language teacher training program, indicating no difference in content knowledge acquisition between individuals undergoing face-to-face classroom instruction and those undergoing blended learning. Although the increasing use of video communication, e-portfolios, and social networking tools such as blogs and wikis creates new blending potential, blended learning remains relatively new, and only a few studies have investigated the potential of blended learning in Saudi Arabia (Alebaikan, 2012).

The need for well-trained EFL teachers in Saudi Arabia is not always met by current pre- and in-service teacher training programs. Al-Hazmi (2003) finds in particular that EFL teacher training programs in Saudi Arabia are inadequate, and calls for a systematic approach to pre- and in-service education for EFL teachers. When surveyed by Zafer (2002), English-language teachers in Saudi Arabia concluded that the methodologies traditionally adopted in this field need to incorporate more communicative methods.

The challenges faced in delivering appropriate teacher training are various, and may include lack of time, support, or use of online resources to develop both content knowledge and teaching skills. In part due to these challenges, many EFL teachers lack training in stimulating students' thinking. The traditional means of providing professional knowledge to teachers is the lecture, which is not effective in engaging them in critical thinking (Garrison and Vaughan, 2008). Several studies have reported lack of knowledge or understanding among schoolteachers and university professors of how to successfully use and teach thinking skills, in various countries (Bataineh & Alazzi, 2009; Innabi & El Sheikh, 2007; Stapleton, 2011; Thurman, 2009). Active engagement and collaborative learning in the blended learning mode are more consistent in providing opportunities for students to develop higher-order thinking skills and outcomes (Palloff & Pratt, 2005).

Such insights and issues suggest a need for structured research on blended learning programs that promote certain thinking skills among EFL teachers in a non-English-speaking country like Saudi Arabia. Hence, this research is an attempt to investigate the significance of a blended program in developing in-service female Saudi English language teachers' pedagogical knowledge and skills, while simultaneously incorporating attention to the skills of teaching for thinking, which will allow teachers to use specific instructional strategies to make sure that the classroom is a place that invites and stimulates the students' thinking.

Statement of the problem

This study investigates the effectiveness of the integration of a thinking-based blended learning pedagogy into a TEFL program to develop EFL teachers' content knowledge and pedagogical performance.

Research questions

The present study attempts to answer the following questions:

- What are the characteristics of a TEFL teacher training program based on thinking-based blended learning that can help female Saudi EFL teachers develop their pedagogical knowledge and performance?
- How effective is this program in developing EFL teachers' pedagogical knowledge?
- How effective is this program in developing EFL teachers' pedagogical performance?

DESIGN AND PARTICIPANTS

Methodology

This study adopts a one-group pre-test/post-test design (Ary, Jacobs, Razavieh, & Sorensen, 1996). A sample population of 21 female Saudi in-service teachers was trained using blended learning. Face-to-face interactions in classroom amounted to 24 hours over six weeks. Online tasks for each module consisted of three or four hours of study and one or two hours of portfolio tasks. The study was approved by the institutional ethical board and all the participants gave written informed consent prior participating in the study.

Instrumentation

The TEFL teacher training program

To answer the first question, "What are the characteristics of a TEFL program based on thinking-based blended learning that can help female Saudi EFL teachers develop their pedagogical knowledge and performance?" a teacher training program was developed comprising various TEFL teaching methods, on the basis of an in-service course developed specifically for English language teachers by the British Council named *Steps to success* (2012; henceforth, STS). This program is mapped to the Continuing Professional Development (CPD) framework. It is a general course suitable for teachers working in the primary, secondary, and tertiary, and private-tutoring sectors.

Training was based on a blended learning model (i.e., one comprising both face-to-face interaction in an ordinary classroom and online learning).

Program objectives

The program is meant to provide the knowledge, experience, and skills necessary for EFL teachers to teach English as a foreign language effectively and to enhance students' thinking in the classroom. It aims to:

- Expand teachers' knowledge of the methods and strategies used in English language teaching.
- Focus on communicative, learner-centred teaching.
- Allow teachers to observe and try out methods and resources.
- Relate course ideas to teachers' individual contexts.
- Develop reflection and professional development skills. (British Council, 2012)

Program content

The training program is made up of the following components:

1. A minimum of 24 hours of training through face-to-face interactions in the classroom, composed of five modules available online: Classroom Management, Presentation and Practice, Lesson Planning, Communication Skills, and Memorable Learning. Each module was complete in itself, and participants could take them in any order.
2. Online tasks for each module, consisting of three or four hours of study and one or two hours of portfolio tasks.

3. Online material for each module, including videos, activities, and portfolio tasks with checklists for both participants and tutors, a downloadable summary of the module, and links for further reading.
4. Comprehensive tutors' notes with detailed guides for portfolio tasks.
5. A portfolio task checklist for both participants and tutors.
6. Assessment criteria and assessment templates.

Program delivery

In-service EFL teachers received training in the five modules through face-to-face interactions in the classroom, amounting to 24 hours over six weeks, or four hour per week. Prior to each session, they were required to do online readings on the class's topic, and following each session, they had to access online tasks and activities for each module. Each participant was provided with a username and password in order to access the website on the Moodle platform. Participants completed online work on their own and put together a portfolio, to be marked by a tutor provided by the British Council. Tutors did not have to be trained moderators, but they did have to have basic IT skills and Internet access as they had to download the portfolio tasks and email the participants directly. Assignment criteria were provided.

Training in the development of thinking skills

A comprehensive approach to the development of thinking skills covering both teaching *of* thinking, and teaching *for* thinking (see below) was integrated into the program. It aimed to develop the EFL teachers' awareness of the importance of incorporating thinking skills into the EFL classroom as a basic competency for improving students' thinking and learning. The author presented ideas for implementing critical and creative thinking techniques that were relevant and applicable to the EFL teaching context.

Teaching *of* thinking means that "cognitive skills, operations, and dispositions are taught directly" to students (Costa, 2001 p. 355); it was practiced in face-to-face sessions. For example, in collaborative groups, the trainees were guided in a thinking activity using graphic organizers and thinking maps; they were also instructed in how to ask questions that would enhance their students' critical thinking and how to implement a framework for lesson design that would integrate instruction in thinking skills into content instruction.

Teaching *for* thinking, which despite the contrast with teaching of thinking is provided in tandem with it, implies the teacher's use of a variety of instructional behaviours to "encourage students to use their native intelligence" (Costa, 2001 p. 354). Such behaviours would include raising thought-provoking questions and using cognitive language. For example, trainees were instructed in how to ask questions that could challenge students' intellect and how to structure the classroom for thinking. Teaching for thinking, which is rooted in teaching of thinking, was the basis of the checklist used for teacher assessment because teaching of and for thinking are interrelated, and teaching of thinking leads to teaching for thinking.

The pedagogical knowledge test

To answer the second research question, "How effective is this program in developing EFL teachers' pedagogical knowledge?" a pre- and post-achievement test was developed by the author to assess the participants' learning of the five modules covered in the program. It consisted of 50 multiple-choice items (with four choices each); each module was assessed by 10 items.

Test validity

To determine the test's validity, it was submitted to a number of specialists in English-teaching methodologies, accompanied by a copy of the summary of the five modules. Modifications were made in the light of their comments and recommendations.

Test reliability

To determine the reliability of the test, Pearson correlations were computed for each item. The test proved to be reliable. Results of this test are presented in Table 1.

Table 1. Reliability of the TEFL achievement test

No. of Items	Kuder-Richardson formula 20 (KR-20)	Split half
50	0.92	0.91

The classroom observation checklist

To answer the third research question, "How effective is this program in developing EFL teachers' pedagogical performance? A classroom observation checklist was developed by the author to evaluate teaching skills and behaviours in general and skills in teaching for thinking in particular. The observation checklist had three categories:

- Presentation, practice, and production of new material
- Classroom management
- Modelling and response behaviours

The author listed a number of related teaching skills, behaviours, and strategies, based on Alwehaibi (2012); a five-point Likert-type scale was adopted to assess these.

Validity of the checklist

The checklist was examined by five university professors, specialists in English-teaching methodology, to ensure its validity – that is, its appropriateness and congruence with the aims and objectives of the program. Some modifications were made in light of their comments and suggestions.

Reliability of the checklist

The reliability of the checklist was ensured using inter-coder agreement checks, namely Cooper's Formula (Ary et al., 1996). The author and a second rater – a university professor trained in this area – simultaneously observed the instructional skills and behaviours of 10 EFL teachers and assessed them using the checklist. Then, the agreement percentage between the two raters, which indicates reliability, was computed using Cooper's Formula. The checklist proved to be 83% reliable. Appendix (1) shows the classroom observation checklist.

DATA ANALYSIS AND RESULTS

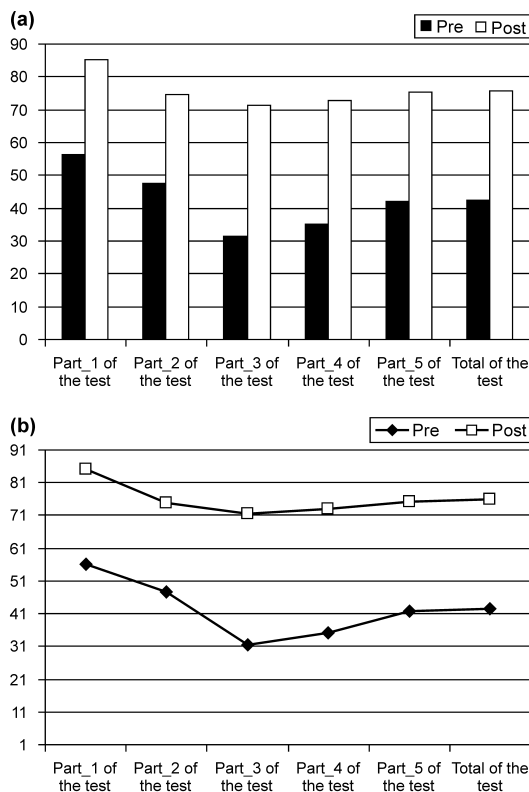
To answer the second question, "How effective is this (thinking-based blended learning) program in developing EFL teachers' pedagogical knowledge?" a pre- and post-test was administered to assess learning of the five modules (Classroom Management, Presentation and Practice, Lesson Planning, Communication Skills, and Memorable Learning) by all participants. There was a two-month time gap between the pre- and post-applications of the test. The results are presented in Table 2.

Table 2. Wilcoxon test for paired samples for the difference between pre- and post- TEFL achievement tests

Concept	Group	N	Sum of Ranks	Mean Rank	Z	Sig.
First part of the test	Negative ranks	0	0.00	0.00	3.96	0.000 (0.01)
	Positive ranks	20	10.50	210.00		
	Ties	1				
Second part of the test	Negative ranks	3	5.00	15.00	3.51	0.000 (0.01)
	Positive ranks	18	12.00	216.00		
	Ties	0				
Third part of the test	Negative ranks	0	0.00	0.00	3.95	0.000 (0.01)
	Positive ranks	20	10.50	210.00		
	Ties	1				
Fourth part of the test	Negative ranks	1	2.50	2.50	3.84	0.000 (0.01)
	Positive ranks	19	10.92	207.50		
	Ties	1				
Fifth part of the test	Negative ranks	0	0.00	0.00	3.64	0.000 (0.01)
	Positive ranks	17	9.00	153.00		
	Ties	4				
Total score	Negative ranks	0	0.00	0.00	4.02	0.000 (0.01)
	Positive ranks	21	11.00	231.00		
	Ties	0				

As shown in the table, t-values are significant at the 0.01 level for each part of the TEFL Achievement Test as well as for total test scores, indicating statistically significant differences between the pre- and post-measurements in the five areas assessed, in favour of the post-test. Figure 1 illustrates the differences between the pre- and post-applications of the TEFL Achievement Test.

Fig. 1



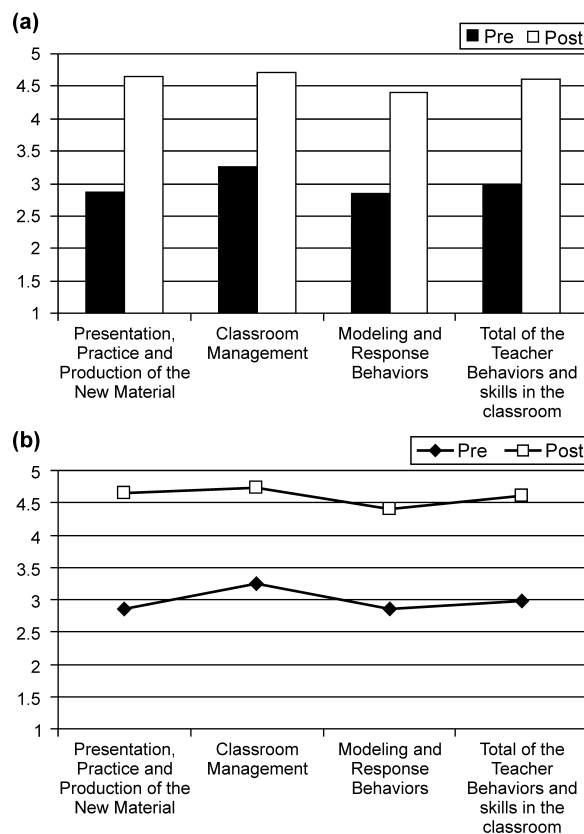
To answer the third question, “How effective is this (thinking-based blended learning) program in developing EFL teachers’ pedagogical performance?” the classroom observation checklist was administered in order to assess the participants’ pedagogical pre- and post-performance in three major categories: Presentation, Practice, and Production of the New Material; Classroom Management; and Modelling and Response Behaviours. The results are shown in Table 3.

Table 3. Wilcoxon test for paired samples for the difference between pre- and post-applications of the observation checklist

Factor	Group	N	Sum of Ranks	Mean Rank	Z	Sig.
Presentation, Practice, and Production of the New Material	Negative ranks	0	0.00	0.00	4.02	0.000 (0.01)
	Positive ranks	21	11.00	231.00		
	Ties	0				
Classroom Management	Negative ranks	0	0.00	0.00	4.02	0.000 (0.01)
	Positive ranks	21	11.00	231.00		
	Ties	0				
Modelling and Response Behaviours	Negative ranks	0	0.00	0.00	4.02	0.000 (0.01)
	Positive ranks	21	11.00	231.00		
	Ties	0				
Total Score	Negative ranks	0	0.00	0.00	4.02	0.000 (0.01)
	Positive ranks	21	11.00	231.00		
	Ties	0				

The table shows that t-values are significant at the 0.01 level for all factors as well as for total score. This result indicates the existence of statistically significant differences between pre- and post-measurements, in favour of the post-application. Figure 2 illustrates the differences between the pre- and post-applications of the checklist.

Fig. 2



DISCUSSION AND CONCLUSION

The t-test results showed that the suggested program as a whole had a significantly positive effect on EFL teachers' pedagogical knowledge and performance, as did each of the five modules individually. These results support various findings showing the positive impact of blended learning programs on teachers' professional development (Badawi, 2009; Berger et al., 2008; El-Deghaidy & Nouby, 2008; Owston, Lupshenyuk, & Wideman, 2008; Owston, Sinclair, & Wideman, 2008; Vaughan, 2007).

In general, the teachers' professional development was highly significant. These results support the principle that combining critical thinking skills in a blended learning context is effective, as shown in the studies of Lambe (2007) and Wannapiroon (2009). The findings thus imply that blended learning can be successfully integrated into EFL teacher training programs. Based on the findings of this study, it can be concluded that a well-structured blended learning program integrating instruction in various thinking skills and dispositions can be an effective instructional tool for teachers' professional development. The findings of this study have important implications for in-service teacher training programs, in that they describe a framework for effective, flexible instruction to develop EFL teachers' knowledge and performance. It can thus be recommended that teacher training programs incorporating these approaches should be encouraged and supported, due to their efficacy in promoting professional development. Adequate training in ICT for education should also be provided, so as to enable teachers to handle diverse means of communication and develop further professionally in a context of increasing use of ICT in education.

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APPENDIX

Classroom Observation Checklist for English Language Teachers

Teacher: Observer: Name of School:

.....Level: Class:

Please mark "X" in the appropriate column for each teacher classroom behavior/skill using a scale of 1 to 5 on the following items:

Teacher behaviors and skills in the classroom	5 Very Often	4 Often	3 Some- times	2 Seldom	1 Never
I. Presentation, Practice, and Production of New Material					
1. Uses appropriate warm-up activities.					
2. Arouses students' interest in the new lesson by linking it to their personal experiences and real life.					
3. Presents the new material in a meaningful context.					
4. Poses questions at different levels of Bloom's taxonomy to check understanding.					
5. Uses clear/real examples to facilitate logical thoughts.					
6. Uses outlining and mind maps to facilitate learning.					
7. Provides opportunities to practice the language in meaningful situations.					
8. Encourages students to produce sentences of their own using new language.					
9. Provides appropriate listening activities.					
10. Encourages students to speak the language through various types of interaction.					
11. Provides appropriate reading practice.					
12. Provides appropriate writing activities.					
13. Invites students to think hypothetically and creatively (e.g. posing "Why do you think so" or "What if" and "Suppose that" questions).					
14. Uses a variety of visual media (e.g., charts, chalkboard, maps, pictures, gestures) to develop cognitive processes.					
15. Uses appropriate correction techniques.					
16. Provides appropriate evaluation activities.					

II. Classroom Management					
17. Shows self-confidence and full control of her class.					
18. Speaks loudly, with a clear and expressive voice.					
19. Acts as a facilitator of learning.					
20. Moves around the room.					
21. Allows students mobility to practice the language.					
22. Creates a friendly atmosphere.					
23. Uses different class groupings for different activities.					
24. Uses varied elicitation techniques to encourage students to participate in classroom activities.					
25. Encourages more than one student to give points of view/solutions.					
26. Involves all students in classroom activities.					
27. Covers classroom procedures within the allotted time.					
III. Modeling and Response Behaviors					
28. Speaks the language accurately and fluently.					
29. Uses cognitive language (e.g., <i>compare, analyze, classify, predict, create</i>) that invites students to think.					
30. Makes maximum use of English.					
31. Allows wait time (at least 10 seconds) for students' answers before restating or redirecting the question.					
32. Requires students to expand on answers.					
33. Reinforces students who respond to questions.					
34. Encourages further responses from incorrect students with supportive comments.					
35. Seeks evidence for stated claims by asking students to clarify and justify their responses.					
36. Encourages students to reflect on their thought processes and work.					